Objective:
- Illuminate changes emerging in business
- Understand what to do as leaders and managers
- Influence how you view your job as a leader or manager

FOCUS OF THIS PRESENTATION

This presentation is about the psychology and thinking between the lines of the Toyota Kata book

I would like to...
- Exchange some findings, hypotheses and ideas
- End with more questions than when we started
- Give us some things to think about
THE QUESTION UNDERLYING THIS PRESENTATION

How can a company stay adaptive and innovative?

WHAT IS A MANAGER’S JOB?

THE SITUATION & ITS IMPLICATION

Many marketplaces are getting more crowded and dynamic. Isolation from global competition is becoming rare.

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

The implication:

If we wish for our company to thrive...
- Then how it interacts with these conditions, both inside and outside the company, is important.
- Achieving continuous improvement throughout the organization is important.
WE ARE EQUIPPED TO DEAL WITH THESE CONDITIONS

The good news: Our human capability for learning allows us to improve, innovate, create and adapt.

The rest of the story: Only if you lead and manage your people in a way that taps, develops and utilizes that capability. The capability tends to be latent in organizations.

The Potential
Company utilizes people’s capability for learning, to deal effectively with uncertain and unpredictable conditions.

The Typical Reality
People in groups tend to seek security in predictability. Change doesn’t happen.

For example, the “learning organization” concept makes sense to many leaders, but has been tough to successfully operationalize.

THE TOYOTA KATA DEFINITION OF MANAGEMENT

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

We are here
Current condition

We want to be here next
Desired condition
Target condition
Challenge
This is about mobilizing ingenuity in an organization

**Ingenuity** = Creating a way of doing something that we want but cannot yet do.

The challenge can be anything:
- An assembly operator and team leader want to find a way to drive screws without cross-threading
- We want to operate an assembly cell with four instead of six operators (at the same output)
- We want to injection mold parts in lot sizes that are 50% smaller
- We want to develop an electric car that goes 250 miles on a single charge

- How do we tap our ingenuity in organizations?
- How do we mobilize and channel it?

How have we been approaching it?

Leaders and managers have tended to focus on outcomes and solutions

A lean solution at Toyota... ...is copied at a U.S. company

Focusing on outcomes is a kind of *implementation orientation*, which assumes the path to the desired condition is relatively clear. With that thinking, management’s task is:

- Establish targets
- Describe solutions and tools
- Provide incentives to get it done
- Get out of the way and periodically check results
BUT HOW WELL DOES FOCUSING ON OUTCOMES WORK?

The candle problem

Find a way to attach the candle to the wall so wax will not drip on the floor

Incentive: Group B is told they will receive a cash bonus if they solve the problem faster than the average of persons in Group A.

Experiments by psychologists Karl Duncker and Sam Glucksberg

THE SOLUTION AND RESULT

Find a way to attach the candle to the wall so wax will not drip on the floor

Result? The members of Group B (the group with the incentive) take three and a half minutes longer on average to solve the problem.
ROUND TWO

Find a way to attach the candle to the wall so wax will not drip on the floor

When the candle problem is presented this simpler way, the members of Group B (the group with the incentive) do complete the task faster than the average in Group A.

FOCUSING ON OUTCOMES WORKS WHEN THE PATH IS CLEAR

Behavioral scientists have shown repeatedly that extrinsic motivators work for tasks where the path is clear, but not for challenging problems that require creativity and adaptiveness (ingenuity) to solve.

Those kinds of challenges are now increasingly common
OUR PRESENT MANAGEMENT APPROACH MAY NOT BE WELL SUITED TO SUCH CHALLENGES

Many problems and challenges we face today lie beyond our current horizon, knowledge and ability. The path is unpredictable.

There are several as yet unknown ways to achieve a challenging goal. When we take a step forward we discover things, obstacles and ideas, that were not apparent when we were calculating and planning.

However, leaders and managers at many companies are still practicing routines like management by results (set targets, provide incentives, check results) and ROI decision making, which focus more on outcomes than on the process that generates outcomes.

EXAMPLE OF IMPLEMENTATION ORIENTATION

Action-Item Lists

Such lists and plans = deciding in advance how we will get there.

Yet the situation changes as we move forward!

So we are not experimenting and learning.

This is not an effective way of tapping our ingenuity.
DEVELOPING SOLUTIONS

We do not know in advance what all the steps will be that will get us to the next desired condition. Like landing an airplane from 30,000 feet altitude.

There are only three things we can and need to know with certainty:

1. **Where we are**
2. **Where we want to be**
3. **By what means** we should maneuver the unclear territory between here and there.

There is no singular magic moment; instead there are many smaller insights accumulated over time.”

“Big thoughts are fun to romanticize, but it’s many small insights coming together that bring big ideas into the world.”

**The Myths of Innovation**
Scott Berkun

“Management by Means”
WHERE DOES SUSTAINED COMPETITIVE ADVANTAGE COME FROM?

Targets and results are vital, of course, but when management focuses primarily on outcomes and solutions it does not make an organization adaptive and continuously improving. Why?

- Solutions that suit today's problems may not remain suitable for tomorrow's challenges.
- So it is not the solutions themselves that provide sustained competitive advantage.

It is the ability of the organization's members to understand conditions and develop fitting solutions, again and again.

WHERE DO AN ORGANIZATION’S SOLUTIONS COME FROM?

Source of solutions | Solutions and Outcomes

People’s MINDSET | People’s BEHAVIOR PATTERNS

Processes Products Services | BUSINESS OUTCOMES

The organizational culture
MINDSET FORMS THE BASIS OF ORGANIZATIONAL CULTURE

The Organizational Culture
The personality or character of the organization

Mindset
Subconscious way of thinking and feeling, learned via successes and failures, that determines how you interpret and respond to situations.

Behavior Patterns
Basic ways and routines through which work is conducted.

Mindset is habitual and occupies real estate in the brain. Changing the organizational culture will require changing mindset

LET’S LOOK AT TWO DIFFERENT MINDSETS
A FIXED MINDSET *

We derive a lot of our sense of security and confidence from predictability. We tend to seek certainty.

The way our brain functions, we naturally strive to operate in a "predictable zone", where things are as expected, rational, calculable, logical, familiar and certain.

In the predictable zone:
• We expect that things will go as planned
• We feel we have control and can predict

And many things should be as predictable as possible!
Like the beam holding up the roof, or serving the customer.

*Borrowed from Mindset by Carol Dweck, Mindset (Random House, 2006)

BUT TRYING TO MAKE EVERYTHING PREDICTABLE IS A DEAD END. WHY?

It means you are deciding, planning and acting based only on current perceptions
#1: WHAT IS AHEAD OF US CANNOT BE MADE PREDICTABLE

We can see only part way down the path to a goal

#2: THE SPECIAL CAPABILITIES OF OUR BRAIN GET ENGAGED WHEN WE LEARN NEW THINGS

Learning presupposes unpredictability; that we don’t know

fMRI brain scan of a person in a **Challenging Situation**

This brain is actively engaged in wiring circuits

fMRI brain scan of a person in a **Predictable Situation**

This brain is coasting on memory you already have (which uses less energy)

fMRI Scans of brain activity by Dr. Gerald Hüther
Presented at Production Systems 2009 Conference, Munich, May 2009
#3: WE ADVANCE TO NEW SOLUTIONS AND LEVELS OF PERFORMANCE THROUGH DISPROOF

When things are not as expected

The Scientific Method or Failure is Data

When a hypothesis is refuted this is in particular when we can gain new insight that helps us reach new performance levels.

WHAT KINDS OF BEHAVIORS DOES A FIXED MINDSET GENERATE?

With a fixed mindset, the response to uncertainty is to try to make things predictable; even artificially.

Fixed Mindset
Avoids uncertainty

- Try to have path defined before starting
- Financial metrics used to determine direction
- Hang on to a status quo as long as possible
- Change is occasional, with attempts at leaps to catch up
- Mistakes & problems = failure Finding them is considered detrimental
AN ADAPTIVE MINDSET

With this mindset you operate in two zones simultaneously:

- The Predictable Zone + a Learning Zone

In the learning zone:
- There is a dilemma: We are not sure how things will go
- There are unanticipated obstacles
- You acquire/increase your knowledge as you go

![Diagram showing the Predictable Zone, Learning Zone, and Danger Zone]

1. Probability of expected path to desired condition is high
2. Path to desired condition is unforeseeable

Like the candle problem

WHAT KINDS OF BEHAVIORS DOES AN ADAPTIVE MINDSET GENERATE?

With an adaptive mindset, the response to uncertainty is to acknowledge unpredictability and work through it

<table>
<thead>
<tr>
<th>Fixed Mindset</th>
<th>Adaptive Mindset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoids uncertainty</td>
<td>Accepts uncertainty</td>
</tr>
</tbody>
</table>

- Try to have path defined before starting
- Financial metrics used to determine direction
- Hang on to a status quo as long as possible
- Change is occasional, with attempts at leaps to catch up
- Mistakes & problems = failure

- Plan is made, but actual path is determined along the way
- Financial metrics used to determine where refinement is needed
- Working toward a long-term goal (thinking beyond the familiar, toward a vision)
- Change is frequent and normal, typically in small steps
- Mistakes & problems = normal Finding them is considered useful for learning (on a small scale!)
WHICH ORGANIZATION IS MORE LIKELY TO:

a) Execute successfully?
b) Adapt, innovate and survive long term?

The objective is not to avoid unpredictability or to try to make everything predictable.

That’s ultimately a losing strategy.

The idea is to have a means for dealing effectively with the unpredictability with which you are confronted; in order to grow more comfortable with the Learning Zone.

HOW DO YOU CHANGE OR DEVELOP MINDSET?
(AND THE ORGANIZATIONAL CULTURE)

Psychology and brain research are clear: **Mindset can be changed.**

Neuroscience shows that our thinking and skills are more transformable than we thought. The way neurons function equips us for learning new patterns and habits. The brain has plasticity.
MINDSET = NEURAL PATHWAYS OR CIRCUITS
It’s physiological

The human brain is estimated to contain 100 billion neurons. Neurons form circuits within the brain, which underlie perception and thought.

For communication between two neurons to take place, an electrical impulse travels down an axon to a synapse, or gap, where transmission occurs. The gap is what allows plasticity.

Both the strength of connection between neurons (ease of information transmission) and the number of connections increase with use. Whatever you focus on or practice weaves a habit or pattern in your thinking.

MINDSET = NEURAL PATHWAYS OR CIRCUITS

Mindset isn’t changed directly. Mindset is not developed by incentives, benchmarking other companies, episodic classroom training or workshops (declarative memory).

Brain research: Two main mechanisms are mirroring the behavior of others, and repeated physical practicing (procedural memory). Repeated physical experiences, with associated emotions, produce mindset.

“New experiences are required to change our mind” - Professor Gerald Hüther

You have to want to!

Deliberately PRACTICE the new BEHAVIOR every day

Spaced, repeated practicing of a new pattern

Over time this changes people’s MINDSET

New habits, or neural pathways, form & solidify

In the long term this builds the organization CULTURE

Note that the research findings do not say, change how you think and then apply a different behavior pattern. They say, change how you think by applying a different behavior pattern.
BUT THERE IS AN IRONY

How can we get more comfortable with the unpredictable learning zone?

(A) We favor existing neural pathways (the brain likes to run on automatic)
We naturally and reflexively prefer routine, familiar activity in the predictable zone. It uses long-standing neural circuits, which were developed via past experiences and require less energy to function.

(B) Meeting challenges means using other neural pathways
The measures required to deal with new situations, develop new solutions and reach new levels of performance are not predictable. Pursuing them activates other neural pathways which consume more energy. So we resist letting go of something familiar. ("Uncertainty aversion")

The learning zone involves discomfort. It’s as if the way our minds operate prevents us from improving, adapting and innovating!

A Solution:
COMFORT COMES WITH PRACTICE

We can utilize the fact that we tend to rely on well-worn mental circuits, i.e., that discomfort decreases with practice.

The trick is to develop well-worn mental circuits not for solutions, but for a means by which we deal with dynamic, uncertain conditions.

--- Make a habit out of a content-free way of dealing with uncertainty

This is like training in sports: To prepare for contests with unpredictable solutions, the focus of the training is not solutions, but how to play.

People can work iteratively, adjust and adapt... if they know what’s going on; if they have practiced and learned a way of doing that.

This concept is the basis of the book Toyota Kata
WHAT IS MANAGEMENT’S TASK?

If we cannot specify solutions, then what can we give the organization’s members? What should managers and leaders do to create an adaptive, innovative organization?

A leader doesn’t know what steps will get us to a challenging target condition, but s/he can specify by what means we should get there.

The manager’s task is to have the organization’s members practice and learn a behavior pattern -- a method -- that is effective for moving through the unclear territory of the learning zone.

Have the organization’s members practice a means for developing solutions...

... in order to develop this

Learning & improving MINDSET

Creative, adaptive, innovative BEHAVIOR PATTERNS

Products, Services, Techniques

BUSINESS OUTCOMES

THE ABILITY TO HAVE AN EFFECT ON OURSELVES IS HERE

For challenging objectives, this may be the manager’s only lever!

MINDSET

BEHAVIOR PATTERNS

Processes Products Services

BUSINESS OUTCOMES

Because these cannot be affected directly
INGREDIENTS FOR CHANGING MINDSET AND CULTURE*

*Model based on the work of Alfred Binet (1857-1911), who felt intelligence is malleable rather than fixed

PRACTICE
Learner repeatedly applies a pattern, following guidelines for deliberate practice

METHOD
The pattern or routine to be practiced

COACHING
Learner receives periodic guidance in practicing the pattern

Notice that in order to practice, you need to know what to practice

A new lesson for leaders:
BEHAVIORIST & HUMANIST APPROACHES WON'T WORK FOR CHANGING ORGANIZATIONAL CULTURE

We have been aware of the human potential in our organizations for decades, and have gone through many management concepts that sought to tap it. Generally these fall into two categories:

- Behaviorist  (carrot & stick incentives)
- Humanist     (autonomy & self-actualization)

Lessons from brain research are showing us that these approaches alone will not work for changing an organization’s culture. Why?

Our existing neural pathways, which constitute our current habits, or patterns, of thinking and problem solving, automatically continue to predominate unless we deliberately practice and learn a different pattern.

The attractive concept of managers “unleashing” people’s creativity by “inspiring” and “encouraging” them is probably incorrect.

In organizations it will take more active leadership, management and practice to develop and mobilize that capability.
A NEW CONSIDERATION FOR LEADERSHIP AND MANAGEMENT

The desired behavior pattern should be specified

To change mindset and culture through practice, an organization’s leaders should specify the pattern that is to be practiced.

That’s what Toyota does.

<table>
<thead>
<tr>
<th>Toyota’s Management System</th>
<th>Left open</th>
<th>Specified - guided and directed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our Management System</td>
<td>Given / Directed</td>
<td>Not specified - left to employee</td>
</tr>
</tbody>
</table>

In Japan such patterns to practice are called *kata*

Kata originally were movement sequences in the martial arts. Some common translations or definitions of the word kata are:

- A *way of doing something*
- A *pattern, form, routine or method*
- A *training drill*

A kata is a routine or pattern that is deliberately practiced to become second nature. This is done to learn a desired skill and mindset.

This is exactly what we are talking about in saying that management’s task is to have the organization members practice a specified method or behavior routine. By persistent and regular teaching at all levels in the organization, the routine becomes part of the embedded culture.

Upon close inspection Toyota’s management approach is characterized by a pattern that is taught to all organization members and repeated over and over in daily work.

I call that method the *improvement kata*

The *improvement kata* is a backbone practice of a lean organization
The improvement kata is a basic pattern for improving, based on a four-part model:

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

The improvement kata is a way of achieving things that you don’t know how you are going to achieve.

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

The Improvement Kata is content free.

It has to be, since we don’t know what’s coming.
LEARNING A SKILL VIA PRACTICE

The Dreyfus Model of Skill Acquisition

<table>
<thead>
<tr>
<th>Stage</th>
<th>Characteristics</th>
<th>Standard of Work</th>
<th>Autonomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novice</td>
<td>Adherence to rules or plans</td>
<td>unlikely to be satisfactory</td>
<td>Needs close supervision or instruction</td>
</tr>
<tr>
<td></td>
<td>Little situational perception</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No discretionary judgement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced</td>
<td>Action based on attributes or aspects</td>
<td>straightforward tasks likely</td>
<td>Able to achieve some steps using own</td>
</tr>
<tr>
<td>Beginner</td>
<td>Situational perception still limited</td>
<td>to be completed to an acceptable standard</td>
<td>supervision needed for overall task</td>
</tr>
<tr>
<td>Competent</td>
<td>Copes with crowdedness</td>
<td>fit for purpose, though</td>
<td>Able to achieve most tasks using own</td>
</tr>
<tr>
<td></td>
<td>Sees actions partially in terms of LT goals</td>
<td>may lack refinement</td>
<td>judgement</td>
</tr>
<tr>
<td></td>
<td>Has standardized and routinized procedures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proficient</td>
<td>Sees what is most important in a situation</td>
<td>fully acceptable standard</td>
<td>Able to take full responsibility for own</td>
</tr>
<tr>
<td></td>
<td>Perceives deviations from the normal pattern</td>
<td>achieved routinely</td>
<td>work, and coach others</td>
</tr>
<tr>
<td></td>
<td>Maxims vary according to situation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expert</td>
<td>No longer relies on rules / guidelines / maxims</td>
<td>excellence achieved with</td>
<td>Able to take responsibility for going beyond existing standards and creating own interpretations</td>
</tr>
<tr>
<td></td>
<td>Grasp of situations &amp; decision making intuitive</td>
<td>relative ease</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vision of what is possible</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


DEVELOPING ORGANIZATION CAPABILITY AND COMPETITIVE ADVANTAGE

The more people in your organization who get to higher skill levels with the improvement kata:

- The more challenges your organization can take on
- The bigger the challenges it can take on
- The more knowledge it can build
- The faster it can move ahead

Illustration by Dr. Lutz Engel

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TOYOTA KATA
In conclusion:

HOW ARE YOU THINKING ABOUT INNOVATION, CREATIVITY AND ADAPTIVENESS?

<table>
<thead>
<tr>
<th>Old Way</th>
<th>Innovation</th>
<th>Creativity</th>
<th>Adaptiveness</th>
</tr>
</thead>
</table>
| New solutions & levels of performance that come from:  
  - Periodic leaps  
  - Some individuals  
  *Emphasis on the end product* | An inherent trait or characteristic of some individuals | Reaction to changes in surrounding conditions  
  Waiting for change |

What is management’s task in this case?

In this way of thinking, innovation, creativity and adaptiveness are only periodic and done by only a few people. They are not part of daily management and...

Not the manager’s job.

A DIFFERENT WAY OF THINKING

<table>
<thead>
<tr>
<th>Old Way</th>
<th>Innovation</th>
<th>Creativity</th>
<th>Adaptiveness</th>
</tr>
</thead>
</table>
| New solutions & levels of performance that come from:  
  - Periodic leaps  
  - Some individuals  
  *Emphasis on the end product* | An inherent trait or characteristic of some individuals | Reaction to changes in surrounding conditions  
  Waiting for change |

What is management’s task in this case?

Just by changing three definitions, it is the manager’s job. Every day.
THE DOOR IS OPEN

To a new way of managing

Our thinking and skills are more transformable than we thought. This opens the door to a style of management different from traditional command & control.

In the traditional way of managing we tend to look for people with certain skills built in and then give them outcome targets. In the alternate management style you develop the desired work habits through practice after a person is hired.

Combine findings about neuroplasticity + realization that improvement, adaptation and positive results tend to arise from accumulation of small steps across the organization, and suddenly it starts making great sense for everyone in an organization to learn an improvement kata and participate.

Achieving significant new outcomes involves many successive target conditions and lots of PDCA. We like to talk about our outcomes, our inventions, but the day-to-day enterprise of all the steps that get us there -- a little here, a little there -- is where we humans actually spend the majority of our time; it’s where we live.

So this is not about a respect for people in order to be nice. It's a kind of respect for people -- for developing and using everyone’s capabilities -- that may be necessary in order for us to collectively achieve what we need to achieve!

To get people across an organization to systematically work on improvement every day requires teaching the skills behind the solution. And for that to happen, their leaders and managers will also need to practice and learn those skills.

A DIFFERENT MANAGEMENT TASK

In this management approach, the job of leaders and managers is not to get the results, but to create the underlying system and develop people, so that results can be achieved.

<table>
<thead>
<tr>
<th>Traditional Management</th>
<th>New-Style Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on solutions</td>
<td>Focus on the way solutions are developed</td>
</tr>
<tr>
<td>• Establish targets</td>
<td>• Establish targets</td>
</tr>
<tr>
<td>• Describe solutions</td>
<td>• Develop, via practice with coaching, the capability in people to develop new solutions...</td>
</tr>
<tr>
<td>• Provide incentives</td>
<td>...by having people practice a common way of working, like the improvement kata</td>
</tr>
<tr>
<td>• Periodically check results</td>
<td></td>
</tr>
</tbody>
</table>

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TOYOTA KATA 47
ALL MANAGERS ARE TEACHERS, AND THEIR ACTIONS DETERMINE COMPANY CAPABILITY

Whether consciously or not, with their everyday words and actions all managers are teaching their people a mindset and approach.

So leaders and managers should be mindful. It makes sense to ask, “What patterns of behavior and thought do we want to be teaching in our organization?”

MORE INFORMATION

- Visit the Toyota Kata Homepage
- Read Toyota Kata + The Talent Code, and get a copy of the Improvement Kata Shop-Floor Handbook