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THE IMPORTANCE OF TOYOTA KATA IN ORGANIZATIONAL DEVELOPMENT AND SUSTAINABLE IMPROVEMENT

Review Article

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Abstract

Almost all organizations aim to enhance and develop their organizational culture and sustain continuous improvement as an essential factor in organizational growth. However, many organizations have tried to embed continuous improvement and innovation in their cultures and emulate certain practices proven successful in specific industries and organizations, without even doubting that such routines might not match their organizational culture and their operations for many reasons. Therefore, the effect of such efforts was hard to sustain as they failed to preserve the flow of continuous improvement through the culture and mindset of its people. Hence, organizations were disappointed and didn't even get close to their aspired improvement because they were merely applying improvement tools without creating the underlying necessary culture to be ready to effectively utilize such tools; tools were imposed systematically and without causing any change on the deepest cultural, psychological, and mindset level of employees. Unfortunately, organizations eventually blame the approach itself and try to find another method. This article aims to investigate the methodology and practice of Toyota Kata and its effect on the continuous development of organizations.

INTRODUCTION

Toyota thrived in the post-war period after WWII, and they made it their task to grow and improve consistently to become one of the best at what they do. Toyota leader Kiichiro Toyoda remarked in the 1940s that Toyota must catch up with America in the automobile industry in order to survive (Ohno, 1988, p. 3). And after huge quality performance gaps in America's Big Three, top management has come to recognize that management behaviour is the root cause of quality problems.

In the 1980s and 1990s, Americans introduced many tools (TQM, Lean Manufacturing, and Six Sigma) to improve quality and performance while reducing production costs. These tools defined the actions and methods to solve current problems but lacked awareness into "How" people solved these problems; and the "How" is the key in Toyota's continuous improvement approach. After such tools have been consolidated in the industries, a survey done by Industry Week in 2007 on the output of US plants using Lean for continuous improvement, showed that only 2% of plants with a Lean program achieved their intended goals and only 24% of whom participated in the survey yielded meaningful outcomes (Denning, 2011; Liker & Rother, 2011). This highlights a major gap in the implementation of the aforementioned tools and practices for the sake of continuous improvement, and this gap can be filled by practicing and mastering the art of Toyota Kata.

Toyota Kata targets the "basic underlying assumptions" amongst the three levels of culture that Schein (2010) identified. At this level, the assumptions are principles that become instilled in the mind and part of the organization's guide for completing tasks. The "basic underlying assumptions" level is untouched by merely applying the previously mentioned tools that the Americans introduced, especially when organizations copy what worked for other organizations in similar or different industries. Then these organizations hope that they will yield similar positive results, which is not always the case; not because the tools are inefficient or they did not apply them correctly, but since the mindset and habits required to harvest the best out of such tools are not established nor nourished.

Kata's overall objective is to develop an intelligent and self-efficient way of operating that can contribute to the constant growth of the organisation, if applied appropriately, or even transform an organization's culture (Rother, 2014). Practicing Kata consistently and deliberately, on a daily basis, makes it a habit, which in turn will produce new skills and abilities that will increase trust and confidence in one's work abilities to cause a positive change in any process (Park Avenue Solutions, n.d.). There are two Katas which will be addressed – Coaching Kata (CK) and Improvement Kata (IK). Since the field of psychology has shown that behavioural patterns are changeable, learnable, and reproducible with the proper preparation and application, CK and IK work well together to develop habits and behavioural patterns. There is a power in every habit.

A habit allows the brain to save energy and perform common, recurring tasks easily and efficiently without having to think about it; and a very important keystone to allow the habit to persist, is the "willpower", which is strengthened when one does a certain action or activity intentionally, knowing the final outcome to be beneficial, important, and rewarding (Duhigg, 2012).

Kata, rather than concentrating on tools, focuses on the process of learning by iterative steps of continual rather than continuous plan-do-check-act (PDCA), which is similar to the scientific method of formulating theories and then testing them with data gathered by direct observation. The difference between continual and continuous is that continual is progressive, but has breaks between cycles, whereas continuous is never-ending (Rother, 2010). Thus, this continual learning forms the habit which will improve the continuous improvement culture in the organization.

This article aims to address the importance, elements, and approach of the Toyota Kata concept in organizational development and sustainable improvement through forming routines and habits that can scientifically enhance people's mindset and influence or even change the organizational culture for the best version of its evolving self, and most importantly to support and maintain this version to reap continual results.

THE ORIGIN OF TOYOTA KATA

As part of understanding what Toyota Kata is, the Toyota Production System (TPS), Lean Management (LM), and Continuous Improvement (CI) must be addressed.

Aiming to minimize waste between activities, lines and processes, the founder (and second president) of Toyota Motor Corporation, Kiichiro Toyoda, studied many methodologies and techniques which resulted in the creation of the Just-in-Time (JIT) methodology (Toyota Motor Corporation, n.d.). Afterwards, Taiichi Ohno, a Toyota Senior Engineer, was inspired by the mass flow development of the Model T Ford by Henry Ford - represented by the moving assembly line. Therefore, he revisited the initial thinking of Ford and developed the Toyota Production System (TPS) on the basis of Jidoka – can be roughly

translated as "human-touch automation"- which can be described as stopping the machinery immediately when a problem occurs to avoid conceiving faulty products; and the Just-in-Time principle, which means to produce "what is needed, when it is needed, and in the amount needed" (Toyota Motor Corporation, n.d.). The TPS was the reason that got Toyota into the top leagues in the first place and has grown into a world-renowned manufacturing method; yet there has been a fundamental misunderstanding of TPS among companies and businesses. They saw it as a simple tool kit to be implemented in a formulaic way to achieve pre-specified results, and managers have tried to integrate its practices and values on top of their current management thinking and practice. But the fact is that TPS is a theory that can be better described as a set of general principles that can set any business on a productive learning and development path; and without instilling the fundamental logic of Toyota and tailoring it to the specific organization's needs, it will not yield the desired and anticipated results. (Lander & Liker, 2007).

Lean Management (LM), as a term, was first used in the book "The Machine That Changed the World" by Womack and Jones (2007), as TPS became synonymous with Lean Production in the West. The overall aim of Lean Management is the elimination of waste in all value-added activities as perceived by the customer, in order to increase sales of the end product/service and decrease costs. As Lean Management became internationally prominent and demanded, many companies started implementing it, yet without yielding the desired results, because they were using the LM as a short-term project toolset -similar to how they perceived TPS- to reach a certain goal, but when this project ended, LM ended with it. Therefore, the LM philosophy was being misused, because by training and promoting teammates on the basis of mastery in tools, leaders will unintendedly train practitioners for obsolescence rather than strategic thinking and cooperation. Therefore, this was and is a dangerous instance, as tools are not 100% transferrable between contextual situations (Rother, 2010).

According to the 4P pyramid model (Problem-solving, People, Process and Philosophy) advocated by the Toyota Way, which Liker (2004) adopted, most companies are dabbling at one level, the Process Level, while two very important levels are being neglected: People and Problem-solving. This emphasizes the importance of soft factors that aid in process improvement at the shop floor-level, like communication and collaboration between employees and their supervisors, and between supervisors and senior management. Therefore, without a long-term philosophy, lean initiatives at single process level will end up jeopardizing the organization's capacity to learn and innovate.

Continuous Improvement (CI) has had many definitions depending on the industry or field of work it was perceived (Harvey, 2019). Ohno (1988) and the Toyota Management recognized that the continuous improvement of the production system must incorporate other principles of psychology and sociology, specifically the organizational behaviour, organizational growth, and neuroscience, which explain the close relationship between organizational cultures, attitudes, mindsets, and continuous improvement of the system (Rother, 2010; Womack, 2019). Furthermore, the word Kaizen is derived from the Japanese meaning of continuous improvement. The terms Kai (observe, analyse, and change) and Zen (good, improve, do better) are combined to form this term, which means "good change" or "improvement." Kaizen has come to mean "continuous improvement" because of its relationship with lean methodology and principles. Kaizen is at the heart of lean production and the Toyota Way. According to the 4P model, Toyota places "People" at the heart of its development. Companies that tried to emulate Toyota's TPS principles and Kaizen, have failed to understand the essence of it all. They have grasped the visible things, yet couldn't grasp the invisible, which are routines, behaviour, and mindset of the people of Toyota (Rother, 2010; Shah & Ward, 2007). The foundation of all, according to Rother (2010) as well as Liker and Meier (2007), is people, and how they may develop a culture of continuous improvement through routines and critical and scientific thinking, acting every day on problem solving and value aggregation. Compared to the previous described approach to LM that some companies use, Toyota follows a different approach, whereby employees on the shop floor level are entrusted with the task of process improvement. Their goal is: a consistent and target-oriented development of new standards in the process of value creation. This strongly emphasizes a mixture of soft factors, like leadership skills for empowering the employees, and hard factors, like methods to analyse the processes. This is part of the Toyota Business Practices (TBP), which is a method used for continuous improvement (CI) at the shop floor level, inspired by the PDCA (Plan-Do-Check-Act) cycle developed by Deming and Shewhart (Liker & Franz, 2011).

Building on the TBS and the four key assumptions of learning by Liker and Meier (2007) – which are: 1- over a lengthy period of time, people learn in incremental steps; 2- knowledge should be transmitted and shared by a coach; 3- the procedure should be carried out as a learning-on-the-job situation through practice; 4- the continual PDCA cycles should be integrated into the vision and be

standardized – Rother developed the concept of Toyota Kata, whose general aim is to develop a self-efficient and content-neutral way of thinking and functioning that can lead to a steady development of the organization, and enhance or even change the culture of an organization when implemented in the right way (Rother, 2014). The Toyota Kata philosophy and its key elements and approach were explored before Rother; in his book "The Toyota Way", Liker (2004) concentrated on the 14 principles that drive the techniques and instruments of the Toyota Production System and Toyota management in general. The concept of Kata is derived mostly from the basic, repetitive, and regular forms of martial arts in ancient Japan, which can also be described as a standardized routine consisting of patterns, which through consistent and deliberate practice will form daily habits that in turn will be the main cause of cultural and organizational development (Park Avenue Solutions, n.d.). Kata follows the Japanese Shu Ha Ri which represent the three states of competent mastery: Mimic, Detach, and Reinvent; or as called in Kata: Follow, Fluency, and Detach. The Follow means to practice the Starter Kata. Fluency means to later adapt one's own steps tailored to the situation at hand. Detach is to act intuitively and form an individual approach according to context, which can only be done once the person become a Black Belt Kata performer. Rother and Aulinger (2017) provide several derivations from this notion. Rother (2010, p. 32) identified Toyota Kata as the execution of invisible daily behaviors by team leaders and team members, associating these repetitive acts with a "way to align or synchronize two things with each other". Toyota Kata comprises two Katas - Improvement Kata and its complementary Coaching Kata. Both operate continuously together to form habits and behavioral patterns, because research in psychology has shown that behavior patterns can be changed, learned, and reproduced with the right amount of practice and application, as every time we repeat an action or recite a though process, corresponding neural pathways are strengthened (Rother, 2010).

IMPROVEMENT KATA

Rother (2010, p. 34) explains Improvement Kata as: the repeated routine for which Toyota has improved, adapted, and evolved. This Improvement Kata adjusts precisely to the announced attributes above and provides a highly efficient model of how people may work together in a group, which is, how to manage an organization.

The Improvement Kata is the routine for a target-oriented improvement. It resembles a new scientific way of thinking and behaving, to reach challenging targets beyond one's current abilities and increase one's self-motivation, self-confidence and capability to adapt with uncertainty and change.

The Improvement Kata consists of four basic steps (figure 1):

1- Determining the Vision or strategic orientation on a Long-Term inspiring Target/Challenge.
2- Grasping the current condition of the situation.
3- Establishing the next Target Condition.
4- Conducting experiments toward the Target Condition through the PDCA cycle (Rother, 2010).

These 4 steps of the Improvement Kata are the guide to acting and thinking that the organization must aim to establish. However, despite being logical they are a zoomed-out picture and pattern and too general to implement as is. Therefore, there are much more detailed steps in what is called the 'Starter Kata'. These steps are either followed by filling out a template, going through a checklist, or answering some guiding questions (figure 2). This repeated practice of the Starter Kata is prime to establishing new habits and eventually a new progressive and sustainable mindset (Legentil J., Legentil M., & Schwarz, 2018).

Therefore, in Improvement Kata, improvers understand the path, vision, aim, or need before understanding the current situation/condition, determining the next target condition, according to a certain scientific approach, and then pursuing experiments through the continual step-by-step recurrent Plan-Do-Check-Act cycle (PDCA) (Rother, 2010). At first, the Challenge/Long-Term Direction must be linked to the clients' needs, and thus prioritized along the way, giving purpose to all efforts given, because a clear direction allows the improvers to focus and be motivated to work on the target related obstacles even if they can't see the solution yet. According to 'The John Whitmore Model', a good final goal should correlate with 14 requirements as shown in Table 1 below.

The best way to understand the direction is by using 'The Storyboard' (see on Appendix A) which provides a format to understand, define, visualize, and communicate the topic of focus and how it contributes to the long-term direction and goal. This Storyboard should always be updated. Regarding the Current Condition, getting the concrete facts personally is imperative so that no premature assumptions or conclusions are deduced based merely on past experiences, because changing circumstances often make past experiences invalid. So, the Current Condition must be handled via the "Go and See" approach which helps get a fresh fact-based understanding and analysis of the Current Condition which is then shared by all members of the organization to prevent rework and allow everybody to learn. The best way to grasp and understand the Current Condition is through a 5-step 'Process Analysis Checklist' (see on Appendix A). The first step is to graphically displays the process outcome

performance via a Run Chart (see on Appendix A). The second step is to address the customer's focus and demand by understanding what the customer really wants and at what rate, so that the workload is balanced after calculating the takt time, and the customer is better served. The third step is to study the operating patterns of the process to stabilize it, because variation is the top rival of quality which leads to extra costs and time; this can be depicted over a Tally Sheet and an Exit Cycle Graph and (see on Appendix A) which shows the elapsed time between two units of the same category. The fourth step is Check Process Capability to align the capacity with demand and prevent inventory build-up; this balance is depicted in the 'Balancing Workload' figure (see on Appendix A) which show the before and after phases of balancing the workload. The fifth step is about employing the correct amount of people to secure a fair distribution of work throughout the cycle (Legentil, 2018). The Next Target Condition to be established must be tangible, clear for everyone in the organization, sliced into smaller pieces, and whenever possible, linked to the process with quantified data to verify the improvement (Ehni & Kersten, 2015; Rother, 2010; Rother & Aulinger, 2017). These quantifiers are the Outcome Metric and the Process Metric. The Outcome Metric is a work result that specifies how a process or system has performed over a past period of time. The Process Metric occurs at about the same time as the condition it represents and can be monitored in real time to determine how a process is currently working (Rother, 2017). According to the Starter Kata, the Next Target Condition can be best established using a template called 'The Next Target Condition Form' (see on Appendix A) which provides continuous feedback on progress, and consists of many activities, such as the Target Condition Form, Obstacle Parking Lot, Metric Tree. Mr. Toshio Horikiri, the chairman of Toyota Engineering Company Ltd., claims that neither "easy" target circumstances, which we can understand how to achieve instantly and straightforwardly, nor "impossible" target circumstances provide us with any motivation or fulfillment. Yet, when a target condition lies between these extremes, an adrenaline-like feeling of breakthrough and achievement is generated when such a target condition is achieved which boosts motivation and the ability to take on new challenges, which is one of the main goals of continuous improvement (Rother, 2010). Subsequently, before experimenting toward the Target Condition, our brain's action bias drives us to prefer action to analysis especially when challenged with uncertainty (Bar-Eli, Tenenbaum, & Geister, 2006). So, rather than performing systematic experiments towards a target, we resort to quick countermeasures using the trial-and-error approach. To resolve that, the PDCA cycle is used. Therefore, a hypothesis is formulated first; then experiments are performed within the process through the unclear "gray" territory encompassing the problems or obstacles; then the result and the hypothesis are compared; and finally, if the hypothesis can be confirmed, the experiment is standardized and implemented into the process. According to the Starter Kata, 'The Experimenting Record Form' (see on Appendix A) will guide that improver to run and control such experiments in a scientific way based on facts through understanding the obstacle and planning and experiment. Essentially, the improver then must do the experiment with complete objectivity and conduct a personal reflection on the results and their learning, arriving at the experiment with an open mind and with no previous notions about the circumstance. This aforementioned reflection is reviewed in a structured manner at a meeting facilitated by a mentor: The Coaching Kata.

COACHING KATA

The Coaching Kata is the art of asking questions. It aims to teach the Improvement Kata within the organization using the bottom-up involving style. It serves in providing the needed skillset for the Improvers applying the Improvement Kata, guiding them with questions by a Coach through the continuous improvement process, and serving as a control and tracking system for operations. The Coach can be a third-party experienced Coach, or someone within the organization who has undertaken extensive training and experience in Coaching Kata, either from an external certified coach, or through what is called a Rotation-Practice Learning Group developed within the organization itself, where each person in turn takes the role of Learner, Coach, and second Coach; and later, an Improver can become a Coach. To be fit and develop as a sustainable Coach, continual learning is a must. The Coach supports Improvers in correctly prioritizing their tasks and thoughts through his/her experience and coaching expertise. The Coaching Kata consists of five main questions supporting Improvement Kata that are universally applicable to process improvements (Rother, 2010). The Coaching Kata contains four main steps:

1- Getting the mindset right: To reach a target in a sustainable way, the underlying process and mindset of people should be improved, which is the best investment an organization can make.

2- Defining the roles: After choosing the Improver and the Coach, the Improver should focus on "what" needs to be done, and the Coach should focus on "how" it needs to be done, i.e., the approach.

3- Setting up the Coaching Cycle: This cycle is the meeting between the Improver and the Coach to discuss results and learnings, and plan further. It should ideally be done on a daily basis to ensure that improvement towards the target is happening daily. Priority beats Motivation (Legentil, 2018).
4- Starting with the Five Questions of the Coaching Kata: By asking such open questions, the Coach can focus on the method, stay open to solutions, and eventually develop the Improver's ability.
Following on the figure 3, a Coach can develop an Improver's ability by four basic steps which are usually discernable in sports or other professions. In the Kata Coaching Cycle, the first step which is 'Giving Task' is basically the Open Question. Second, 'Observing' is waiting for the Improver's reaction and answer. Third, 'Evaluate' is evaluating the Improver's answer by listening closely. Fourth, 'React' is to respond with the relevant deepening questions if needed.
Rother (2017), in his Toyota Kata Practice Guide, followed up on his 2010 research with Starter Kata, which is a set of detailed practical methods for aligning organizations towards scientific thinking allowing them to better apply the Improvement Kata. Starter Kata explains that as the Coach enhances the skill of mastering the questioning process, he/she can dig deeper into the situation at hand by asking additional deepening questions that help the Improver better understand the situation to clarify answers for him/herself and to recognize missing elements in the scientific thought process at each stage (Rother, 2017). These questions are utilized after the main questions are asked, as seen in the figure of 'The Five Phases of the Coaching Cycle' below, and only if one of the answers to the main questions provided by the Improver is not precise enough. The five main questions are considered as the entry gates to each phase (Figure 4).
The five phases are:
Phase 1: Agree on a precise Next Target Condition.
Phase 2: Gather accurate and exact facts about the Current Condition.
Phase 3: Profoundly understand the Obstacle and its root cause.
Phase 4: Approach the Next Step by conducting an experiment to test the hypothesis, and eventually learn.
Phase 5: Set a close Due Date to validate the situation and act accordingly.
To manage the deepening questions well, the Coach needs to possess a strong reference to compare the Improvers behavior to the desired one. This reference is the Improvement Kata Cycle as shown in the figure 5.
Before entering any next phase, the Coach should ensure that the Improver has totally grasped and understood the current phase and is ready to move on, and this is done by carefully listening to the Improver's explanation and description of the situation. The answer should match the current phase and be precise enough; no ambiguity is tolerated. It is important that the Coach ask the deepening questions relevant to the Improver's answer and current phase.
To eliminate the anxiety associated with change and motivate workers to be the driver of it, top organization managers and leaders, who will most likely be the Coaches of their employees, must cultivate a culture of no-blame focused on transparency, empathy for employees, initiative, and risk taking (Kallage, 2006; Rother, 2010). They must encourage innovation and the ability to learn from mistakes. Furthermore, the management team must create a supportive and engaged environment that focuses on cooperation and coaching, allowing managers to guide decision-making in the organization to the lowest level possible (Rubrich, 2004). Guidance is very important since leaders must only guide learners to take decisions and not make them on their behalf, and this is an incredibly important aspect of Rother's Coaching Kata. As Coaches foster continuous improvement habits and teach employees how to effectively practice the Improvement Kata, these Improvers themselves can then become Coaches to other Learners/Improvers. This routine suggests that the Improver share with the coach all the actions performed, and lessons learned during the search for the Target Condition, in a way that the understanding of the Improver about the improvement routine becomes holistic. Since everyone in Toyota has a Coach, the relationship between Coach and Improver follows the principle of 'Yokoten' (Osono, Shimizu, & Takeuchi, 2008). Yokoten is a notion that refers to the "horizontal deployment of learning." It is the technique of learning from one opportunity and then replicating the effects of that one improvement in one area across the entire organization. Departments need to share both their successes and failures. Therefore, Yokoten is about knowledge and solution sharing.
As previously mentioned, there are five main questions that the Coach must ask the Improver/Learner during the Coaching Kata Cycle. So, the Coach asks the questions, directing the Improver to apply the Improvement Kata during his/her learning process. Yet the first Coach also has a Coach, the second one, who directs the first one's Coaching Kata Cycle. Often as first, this Second Coach is external, but each organization should intend to have its own Second Coaches over time, which happens along with experience and developing one's soft skills, communication skills, and change management skills (Legentil, 2018). The five questions are applied during the PDCA phase of the Improvement Kata and are depicted in figure 6.

Legentil (2018), based on thousands of observations of Coaching Cycles, suggested some modifications to this new card as compared to the original in the Toyota Kata Practice Guide. The two modifications are:

1- Adding "What exactly is the problem (regarding this obstacle)?" to the third question. And this is to make sure that the Improver understood the obstacle's effect on the process, and its root cause which shall be addressed before moving on to the countermeasure.

2- Removing the backside of the card by shifting the questions "What did you learn from taking the last step?" to the front and only side of the card. This question ensures openness in the approach, and a chance for the Improver to think systematically and scientifically and link the answer to the previous step and the expected outcome.

The mentor/coach then uses constructive criticism within a no-blame culture to reflect on the learning process during Coaching Kata sessions, for empowering and encouraging the Improver.

STUDY CASES WHERE TOYOTA KATA PROVED EFFECTIVE

Ehni and Kersten (2015), in their article, addressed the importance of a decentralized and goal-oriented improvement process considering behavioral aspects in Lean Management, for a best implementation approach. So, they applied the Toyota Kata. The article was based on a case study they performed through empirical research on three companies which have decent knowledge in the context of their study and problem statement. Two companies, who have gained first experience with the concept of the Toyota Kata, were selected based on the suggestion of a consulting company collaborating with Mike Rother.

After completing the study according to their research methodology, they claimed that both companies, as well as the consultancy, applied at first a continuous improvement method which is very similar to the approach by Rother (2010). The authors also focused on how to transform a company's vision into personal objectives through cascading the vision into target conditions using a structured procedure called Hoshin Kanri (Löfving, Melander, Andersson, Elgh, & Thulin, 2014). Then, after correctly adjusting their methods and properly implementing the Improvement and Coaching Katas, both companies realized the monetary evaluation by a cost-benefit calculation, which resulted in benefits outweighing the costs. Although the monetary evaluation's primary goal is to demonstrate the approach's short-term benefits, it is frequently a precondition for implementation because organizations are constantly judged on their short-term performance. Concerning non-monetary evaluation, which focuses on the penetration of the program through the organization and its long-term development, was just applied in one company which the authors found suitable and valid. And according to their evaluation, the company showed non-monetary benefits by its enhanced coaching, measures, and target conditions establishment. Consequently, the conducted study has shown that the observed companies have adjusted their continuous improvement routine according to the Toyota Kata approach, and hence improved their ability to set precise target conditions aligning with the bigger picture and vision of the company and effected lean behavioral and mindset changes in its employees and management. Finally, as Reverol (2012) stated: "trying to implement continuous improvement in an organization without having a clear and defined vision is like driving your car without knowing your destination: you are only wasting gas".

Another case where Toyota Kata implementation proved successful was in the master thesis of Legentil (2017), where he conducted multiple case studies on two companies that have implemented Toyota Kata, and accordingly distinguished several emerging elements - artifacts, values and beliefs, and underlying assumptions - of organizational culture that can support continuous improvement in the long-term. His research supported the hypothesis of Rother (2010) that kata could strongly influence and transform the culture of an organization into one of habitual continuous improvement. Legentil's study proved that by purposely practicing the correct kata routines, new habits have evolved and changed the way of thinking of the members of the organization. Furthermore, Legentil used the questionnaire based on the *Competing Value Framework* of Cameron and Quinn (2011). The results of which confirmed that after the deliberate and proper deployment of kata, the organizations encourage more cooperation and teamwork. The result also showed that human capital is more important than it was before, and employee development through experimentation is paramount for the two studies companies. These findings reveal that all employees, managers, and executives believe that employee participation and involvement in continuous improvement is a top priority. Both organizations appeared to prioritize human capital and organizational learning more than individual employee productivity, as expressed by market culture in the *Competing Value Framework* of Cameron and Quinn (2011). It was vital to note, however, that the two companies wanted and still want to enhance their market share and profitability, and that these goals can be met, according to the two companies, through good collaboration, focus on teamwork, and a strong human capital.

CONCLUSIONS

One of the key factors to sustainable continuous improvement and success in an organization is considering and influencing the behavioural and habitual aspects of managers and employees, which can be enhanced by applying the Toyota Kata. In essence, Rother (2014) explains that the Improvement Kata and the Coaching Kata "create organizational muscle memory for continuous improvement" and guide businesses on the road to a learning organization through deliberate practice of these Katas, to make scientific thinking a skill that can be learned and used by anyone in the organization, because knowing isn't the same as doing, and benchmarking is not enough to make change happen (Rother, 2010, 2019). The process to mastering the Improvement Kata and Coaching Kata isn't easy, nor is it hard. It demands commitment and patience, and each of the Coach and the Improver should focus on their part to become the best versions of themselves before being promoted to what they can become next. Later, the Toyota Kata is spread further within an organization or team through assessment. First, assessing the 'artifacts' via 'go and see' that help influence the values and beliefs in the organization. Second, assessing the 'values and beliefs' that can help and organization identify the level of utilisation of Toyota Kata and the degree of cultural change, which eventually can help to further strengthen the continuous improvement culture which is done via a checklist and Spider Chart (see on Appendix A).

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LIST OF FIGURES

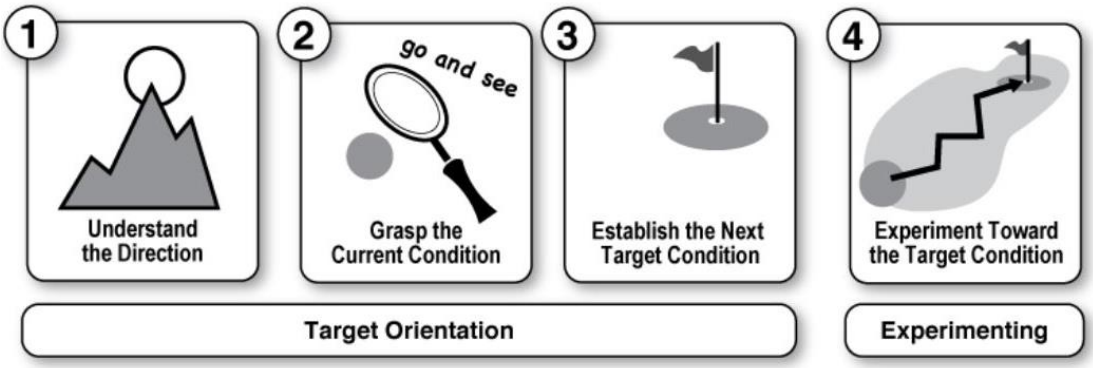

Figure 1
Understand, Grasp, Establish, Experiment
Source: Legentil, 2018; Adapted from Toyota Kata Practice Guide, McGraw-Hill, 2018.

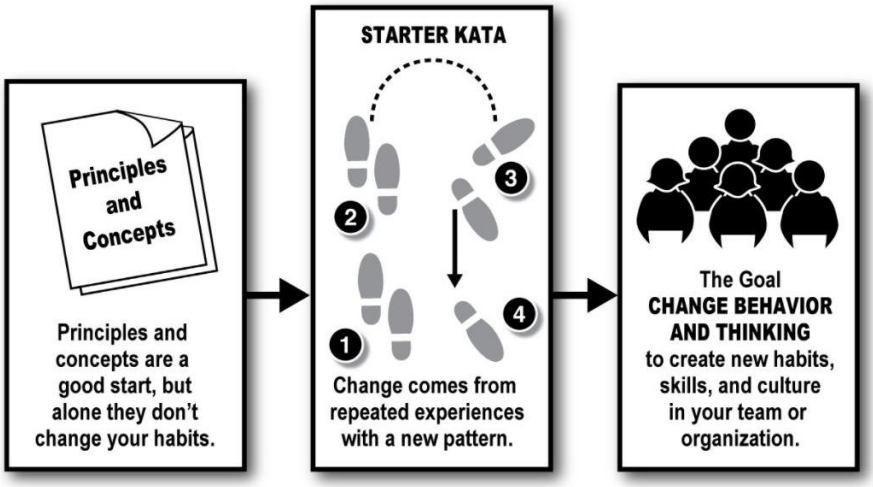

Figure 2
Benefits of practicing Starter Kata
Source: Legentil, 2018; Adapted from Toyota Kata Practice Guide, McGraw-Hill, 2018.

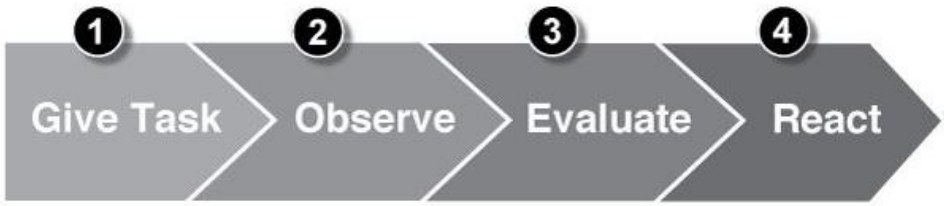

Figure 3
Developing Ability
Source: Legentil, 2018.

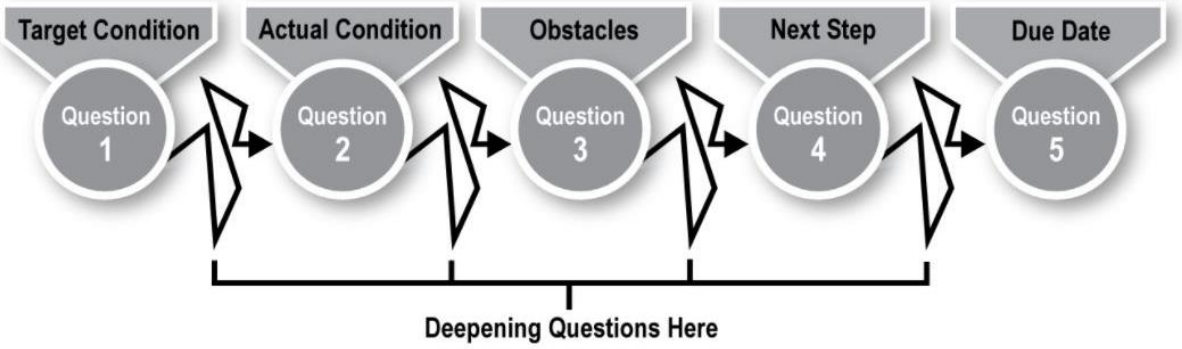

Figure 4
The Five Phases of the Coaching Cycle
Source: Legentil, 2018; Adapted from Toyota Kata Practice Guide, McGraw-Hill, 2018.

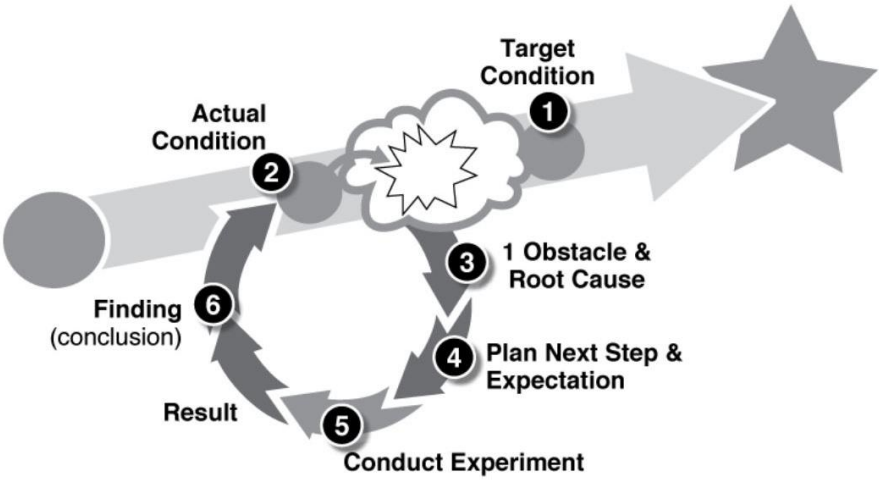

Figure 5
The Improvement Kata Cycle
Source: Legentil, 2018; Adapted from Toyota Kata Practice Guide, McGraw-Hill, 2018.

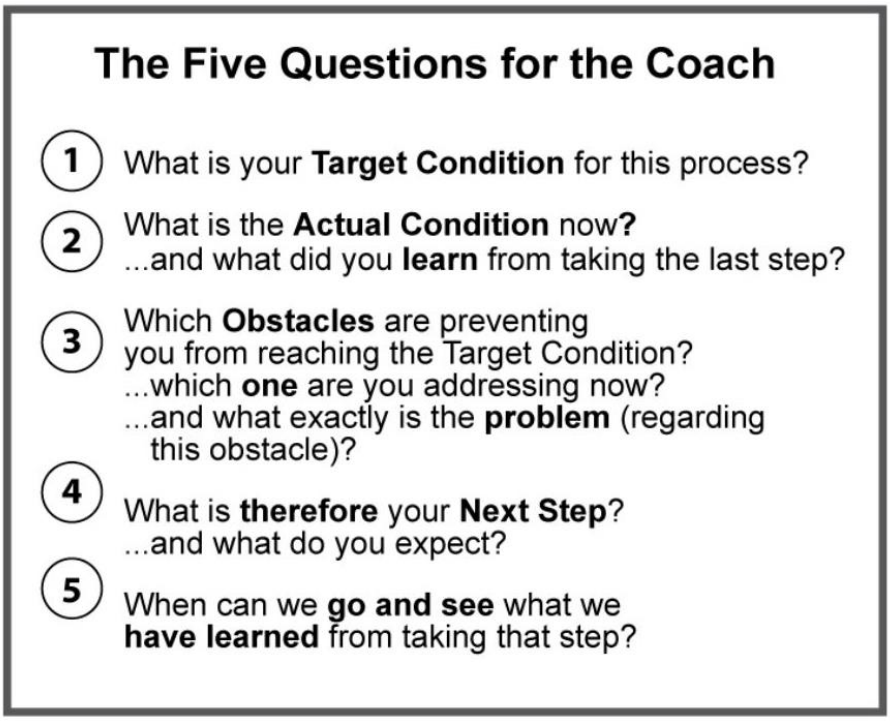

Figure 6
The Five Question Card
Source: Legentil, 2018; Adapted from Toyota Kata Practice Guide, McGraw-Hill, 2018.

LIST OF TABLES

Table 1
The John Whitmore Model

	Specific		**The Right Goal**		Challenging
	Measurable		Positively Stated		Legal
	Attainable		Understood		Environmentally Sound
	Realistic		Relevant		Agreed
	Time-Phased		Ethical		Recorded

Source: The Decision Book-Fifty models for strategic thinking, by Mikael Krogerus and Roman Tschappeler, 2017.

APPENDIX A

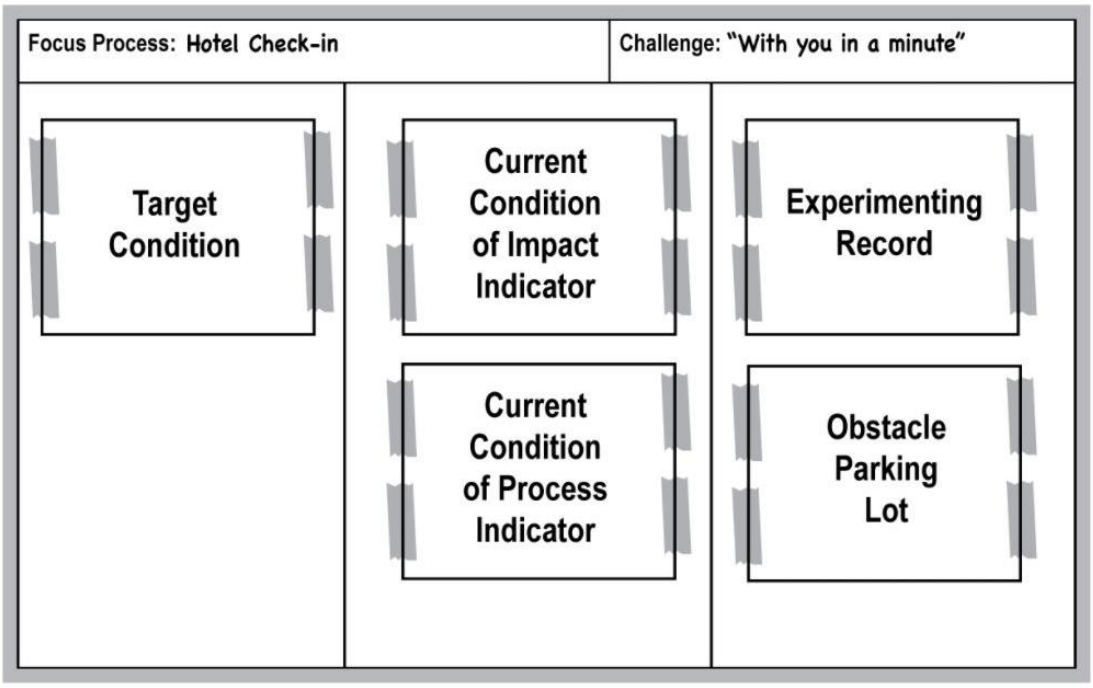

Figure 7
The Storyboard
Source: Legentil, 2018; Adapted from Toyota Kata Practice Guide, McGraw-Hill, 2018.

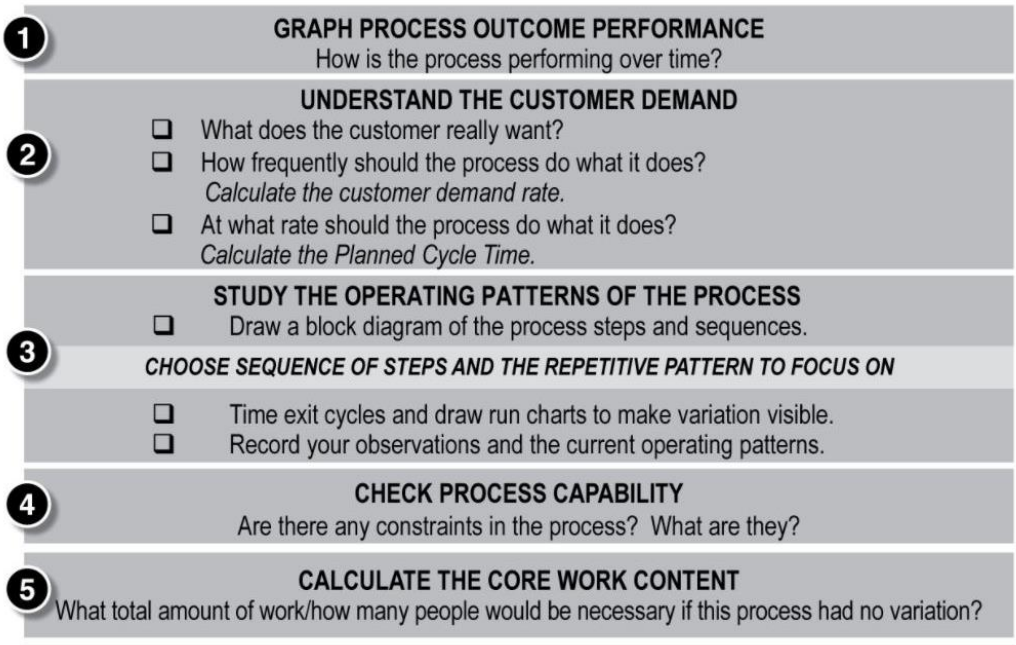

Figure 8
Process Analysis Checklist
Source: Legentil, 2018; Adapted from Toyota Kata Practice Guide, McGraw-Hill, 2018.

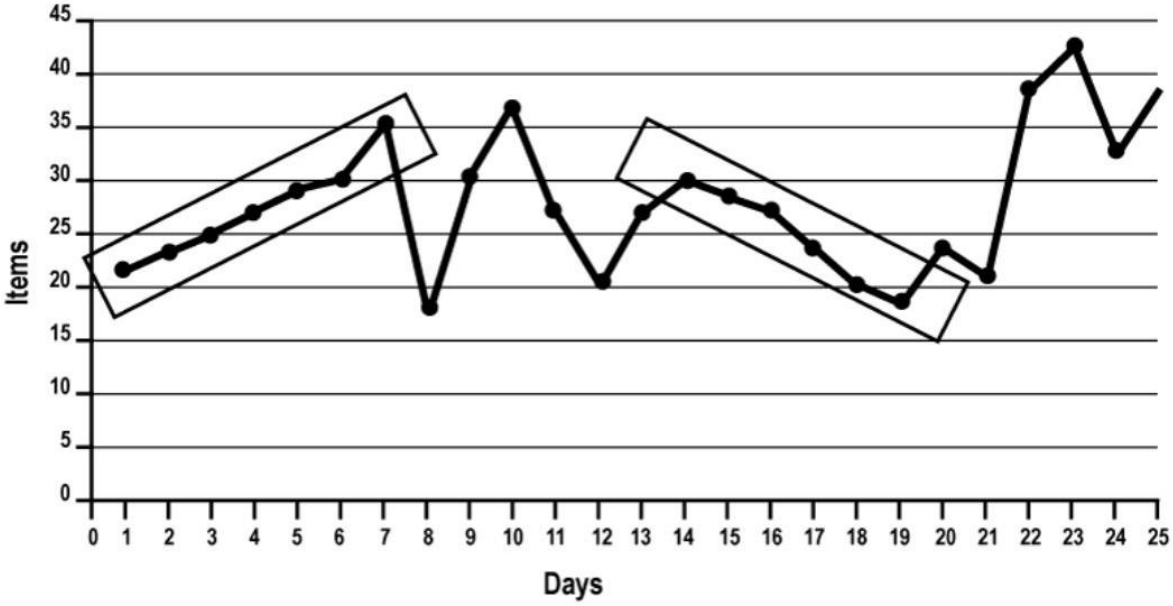

Figure 9
Run Chart example
Source: Legentil, 2018.

Unit	Time of exit or completion	Time in between two units
1	50	50
2	140	90
3	160	20
4	260	100
5	300	40
n	...	...

Figure 10
Tally Sheet
Source: Legentil, 2018.

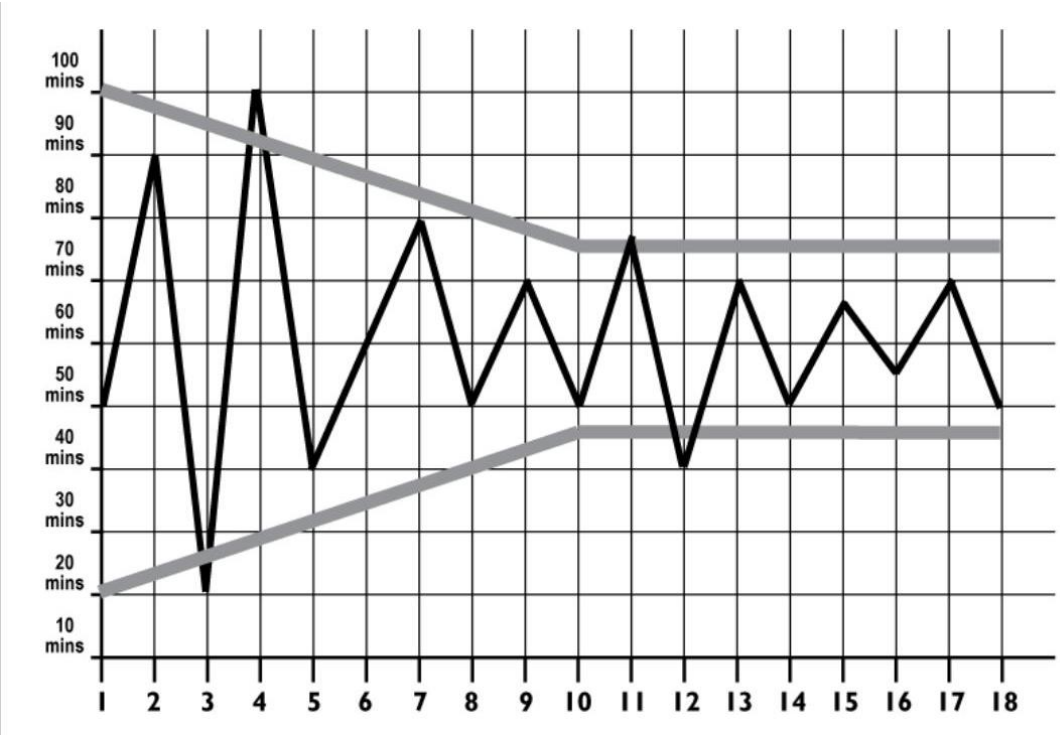

Figure 11
Exit Cycle Time Graph
Source: Legentil, 2018.

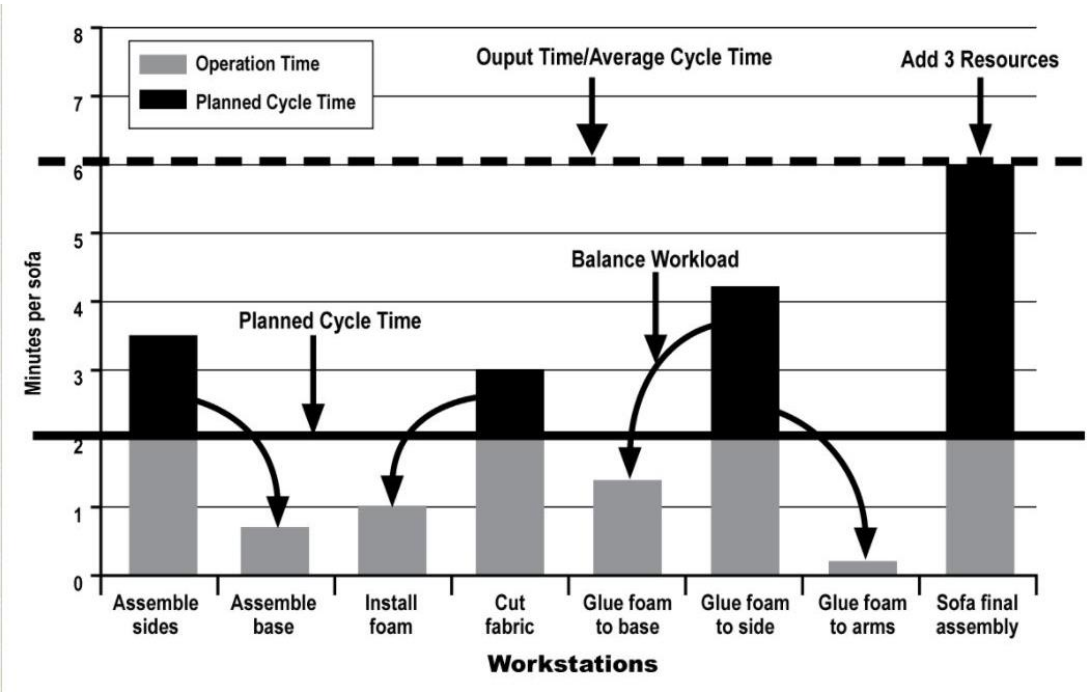

Figure 12
Balancing Workload
Source: Legentil, 2018.

Next Target Condition

Process:	Due Date: 2
Improver:	Coach:
Challenge: 1	

Initial Condition	Target Condition
Impact Indicator: 3	Impact Indicator: 7
Process Indicator:	Process Indicator: 6
Initial Process Parameters/Initial Process Pattern	*Preconditions/Target Process Parameters/Target Process Pattern*
4	5

Figure 13
Next Target Condition Form
Source: Legentil, 2018.

Experimenting Record *(Each row = one experiment)*

Obstacle: (unwanted effect) 1

Your next step	What do you expect (numerical data)	Data			What happened? (numerical data)	What we learned
2	3	4	Coaching Cycle	Conduct Experiment	6	7
8						
			5			

Figure 14
Experimenting Record Form
Source: Legentil, 2018; Adapted from Toyota Kata Practice Guide, McGraw-Hill, 2018.

Figure 6.11 - Presence of Values and Beliefs Checklist

Values and Beliefs	Score (1-5)	Starter Kata
Learning is more important than the success of a given experiment. **(A)**		Experimenting Record Form
Experimentation is encouraged and defended by managers and organizational leaders. **(B)**		Coaching Kata
The workplace is a place of learning where employees are developed. **(C)**		Coaching Kata Experimenting Record Form
Leaders and managers are teachers and coaches. **(D)**		Coaching Kata
Continuous improvement is an integral part of the daily work of each employee, not a parallel activity. **(E)**		Experimenting Record Form
Respect for people and their views. **(F)**		Coaching Kata Experimenting Record Form

(Adapted from Legentil, 2017)

Figure 15
Presence of Values & Beliefs Checklist
Source: Legentil, 2018; Adapted from Legentil, 2017.

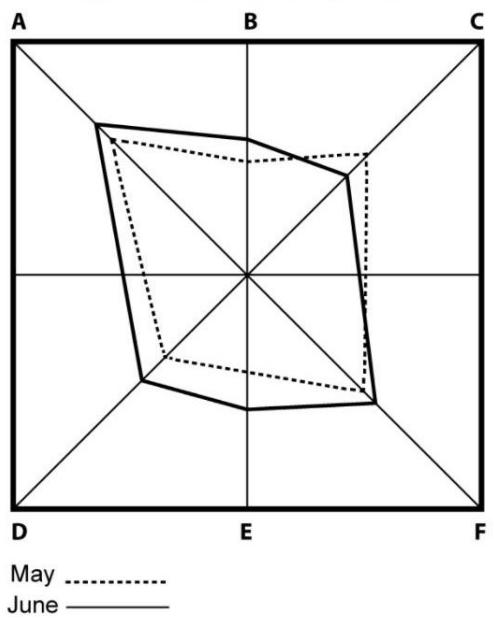

Figure 16
Values & Beliefs Spider Chart
Source: Legentil, 2018; Adapted from Legentil, 2017.