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Using Toyota's A3 Thinking for Analyzing MBA Business Cases

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The most time consuming and difficult way to understand complex ideas is to have to decipher a lengthy report filled with technical descriptions, business jargon, and tables of data. More efficient is the visual approach – ‘a picture is worth a thousand words.’ (Liker, 2004, p. 244)

Introduction

While recent events demonstrate that Toyota is not immune to the difficulties in maintaining quality in the face of rapid growth, Toyota has been a benchmark company for lean organizational processes for at least two decades (Womack, Jones, & Roos, 1991). Toyota uses A3 Thinking and the tools that support it to achieve lean operations and numerous firms in the U.S. and around the world are attempting to emulate Toyota's use of this methodology. A3 reports were highlighted in a recent Sloan Management Review article (Shook, 2009).

We have used *The Toyota Way* by Jeffrey Liker as a required reading in an MBA core course to introduce these practices. In order to actualize some of the concepts that the students were reading and discussing, we incorporated A3 Thinking and A3 Reports into the case analysis dimension of our class. These thinking techniques provided students with an important skill set to carry away from class.

In addition to actualizing these concepts, several other advantages were experienced. Both students and faculty have found that A3 thinking added value to case analysis, class discussion, and student presentations because it pushed student thinking and the focus of analysis into key issues and root causes which might be overlooked in a more intuitive problem-solving approach. In addition, the A3 process added transparency to the students' analysis and discouraged them from obfuscating to cover a lack of or weakness in cogent thinking. Further, A3 thinking provided a mechanism to help student groups structure their collaboration. Finally, emphasis on the conciseness and graphics comprising leaner communication helped students improve the ‘stickiness’ (Heath & Heath, 2007) of their communications.

The next section describes A3 Thinking at Toyota in more detail. Following that, we describe how we implemented A3 Thinking in case analysis. Finally, we conclude with evidence of effectiveness from students and faculty.

A3 Thinking

Toyota's processes strongly emphasize efforts at continuous improvement and problem-solving. Core to their continuous improvement approach is A3 Thinking which evolved from Deming's Plan-Do-Check-Act cycle. This process begins with grasping or clarifying the current situation. The next step is to identify the root cause of the problem. Since the immediately obvious cause of the problem is frequently not the root cause, A3 Thinking stresses the need to uncover the root cause using the 5 Whys tool which repeatedly asks “Why is this problem occurring?” until the root cause is determined. Once the cause of the problem is understood, countermeasures are developed and implemented. After implementation, the process is checked to make sure that the expected improvement has been realized. Finally, the improvement is standardized into the process. Toyota's A3 Thinking has been extensively described and discussed by Sobek and Smalley (2008), Liker (2004), and Liker and Meier (2006). In addition, Sobek and Smalley (2008) present A3 thinking as a general purpose tool for problem-solving and provide templates and ‘how-to’ descriptions for the reader.

The A3 Report is the tool used to document this thinking process. Toyota uses several types of A3 Reports including problem-solving, project status, and proposals. The A3 Report is intended to be flexible and adaptable to the problem at hand. “In all cases, the tools are effective only to the extent they engender a style of thinking that is rigorous and thorough, a style of communication that focuses on hard data and vital information, and a style of problem-solving that is collaborative and objective” (Sobek and Smalley, 2008, p. XV). There are conventions across all types of A3 reports. Specifically, the reports are

on a single sheet of A3 size paper (equivalent to one 11" x 17" or two 8 ½" x 11" sheets), follow a general structure, and rely heavily on figures and graphics to tell the 'story'.

Implementing A3 Thinking into MBA Case Analysis

We implemented A3 Thinking and Reports into required case analysis assignments in our team-taught course, Managing People and Processes, one of five integrated core courses in an intensive, one-year MBA program. Students work primarily in teams to analyze cases that focus on management problem identification. These cases naturally fit into the A3 problem-solving framework. In order to familiarize the students with effective organizational processes, they are assigned *The Toyota Way* (Liker, 2004) and written and discussion deliverables related to the readings. Later, they encounter cases on other companies' processes, and begin to use Toyota's processes as a benchmark.

For their first case, student teams were asked to prepare an A3 Report of their analysis. Assigned support materials included *The Toyota Fieldbook* Chapter 18, "Telling the Story using an A3 Report" (Liker & Meier, 2006), and summary material about A3 reporting available on Dr. Sobek's website (Sobek, 2009). Students were not provided with a predefined structure for their A3 Report. The lack of specific direction on the first A3 was intentional. This required students to understand and develop their own A3 Report structure. The quality of these initial A3 Reports varied considerably and important structural components were missing in some reports. Both faculty members then met with a group consisting of one representative from each MBA team to continue the learning process and develop a common A3 Report structure to serve as a framework for all teams throughout the remainder of the class. This encouraged team ownership of the class A3 Report structure. The A3 Report components that the class developed are the problem-solving structure described by Sobek & Smalley (2008) with the addition of the case key issue, an important component of our case analysis framework:

- Case Key Issue or Theme
- Background and current state
- Root cause analysis – utilizing Toyota's 5 Whys technique
- Desired state or target condition
- Alternatives for action and preferred alternative
- Action plan and timeline
- Plan for follow-up and evaluation with measures of success.

This structure was still flexible across teams and across cases. Faculty encouraged the students to make the tool work for them, not to impose a structure that was unnatural for each different problem. This structure was sufficient to ensure that the teams considered all steps in A3 Thinking for case analysis and it provided guidance for this type of critical thinking.

Each MBA team wrote twelve case analysis A3 Reports and developed a class presentation for each. In addition, students analyzed two cases individually using the format.

Evidence of Effectiveness

A survey of students was conducted with 85 percent (22 of 26) of the class responding. The survey began with pre-defined questions designed to capture general student reaction to A3 Reports as a mechanism for case analysis, in contrast to the traditional case reports required in other classes. Nineteen of 22 students (86%) indicated that they were either satisfied or very satisfied with A3 Reports as a communication tool for case analysis, compared to 11 (50%) who were satisfied or very satisfied with traditional case reports. When asked to compare the analysis and preparation time required to complete a case using A3 Reports versus traditional reports, 10 students felt that use of A3 Reports sped up the process, while an equal number felt the time required was about the same and only 2 students felt that A3 Reports slowed down the process. All of the students indicated the A3 Reports should continue to be used

in the MBA program, although most (16 of 22) would like to see some modification in how A3 Reports are presented and used.

Open-ended questions asked students to: 1) identify elements of A3 Thinking they expected to use in the future; 2) indicate why they thought A3 Reports should be used in the MBA program; 3) contrast use of A3 Reports with traditional case reports. Across all 3 questions, students most frequently (25 to 50 percent of responses) mentioned the conciseness imposed by A3 Reporting, indicating that it forced one to be “succinct” and to present only “salient points” and that it is “easy on the eye of the manager who must read it.” Over a third of the students also mentioned that they expect to use the 5 Whys technique in their future careers. About a quarter of the students expected to use the visual presentation style emphasized in A3 Reports and an equal number cited the focus on future steps and action plans as elements of A3 Reports they would use in their future careers. In assessing how A3 Reports differ from traditional case reports, several students indicated that A3s encouraged more group collaboration whereas it was easier to delegate responsibilities when using the traditional reports. Critical comments tended to emphasize the need for more and earlier discussion about how to prepare A3 Reports and expectations about their structure, and to indicate that A3 Reports should not be used to the exclusion of more traditional and detailed reporting methods.

From a faculty perspective, the use of A3 Reports produced a number of desirable effects in addition to those identified by the students and the fact that it was an implementation of concepts. The format led to more consistent focus on key issues of the cases and root causes of problems were less likely to be overlooked in the analyses. The concise structure of the A3 Report increased the likelihood that salient points would be included, and at the same time discouraged the “fluff and flowery verbosity” that we have often seen students use to cover weaknesses in analysis. The use of A3s in oral presentations led to livelier class discussions with more consistent focus on key issues of the cases. The well-defined, concise and consistent framework developed for preparing the A3 Reports also simplified the grading process. We developed and used a standard grading template (see attachment B) and its consistent use helped to communicate expectations to the student groups.

We have been very satisfied with using A3 Reports for case analysis. It requires that students apply important Toyota Way concepts. Further, as more businesses are adopting lean techniques in their operations to remain competitive, experience using A3 Reports adds an important skill to an MBA’s toolkit.

References

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Attachment A

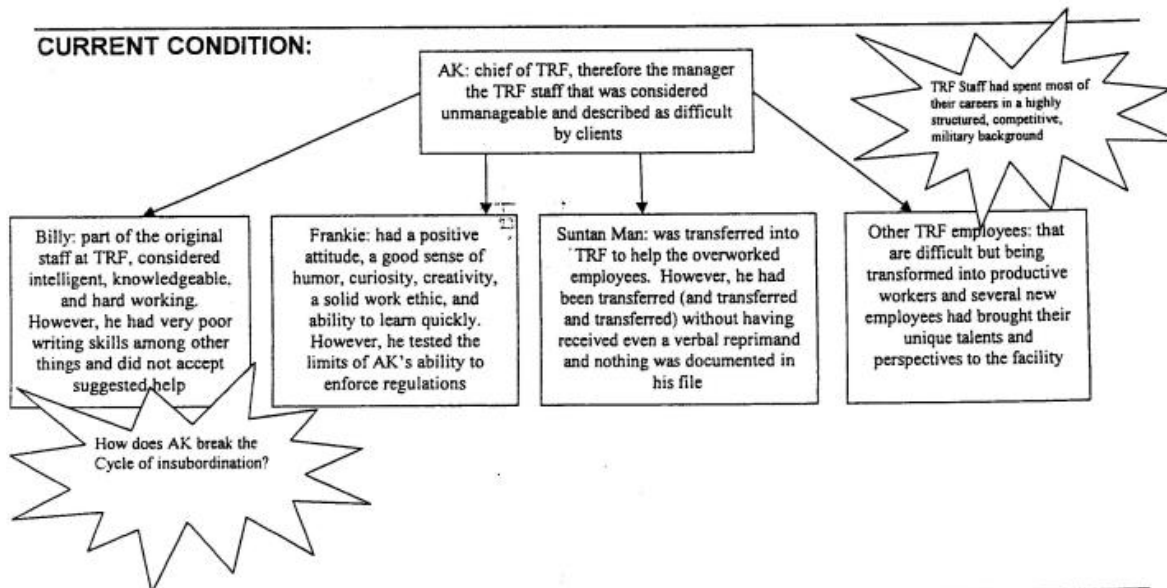
MGT 600
Re-Branding the Leper Colony

THEME: AK needs to develop a plan in order to deal with the well-entrenched culture of poor performance and insubordination to transform Testing Range Facility (TRF) into a world renown facility. This needs to be done without continuing the habit of passing poorly performing or problem employees to other locations.

BACKGROUND:

- The Proving Ground (PG) employs over 100 federal government employees and 400 contract employees, including engineers, scientists, computer specialists, technicians, and support staff.
- AK was put in charge of the leper colony aka TRF due to a request from her newly promoted boss.
- The TRF was a unit of the Department of Defense (DOD) Proving Ground. It had very few inhabitants, vast expanses of open space, and little electronic interface.
- TRF is one of a dozen testing facilities at the PG and had clients from the commercial sector, as well as from all branches of the military.
- The main problem at TRF was the staff, for decades the worst of the worst employees had been transferred to the remote facility, where management could essentially ignore them until they quit or retired.
- TRF was the laughing stock of the organization and national experts that had once-impressive equipment that had been ruined by incompetence and neglect.
- The staff at TRF did not care about their working environment, they were belligerent and insubordinate, and did not follow safe work practices.

CURRENT CONDITION:



ROOT CAUSE ANALYSIS:

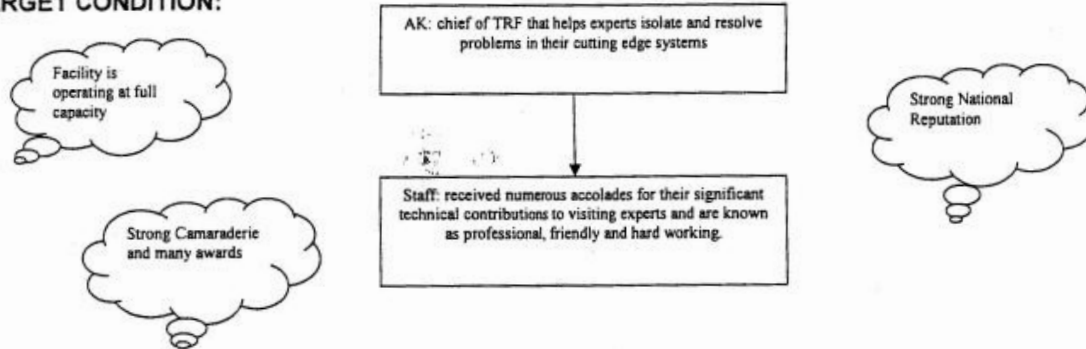
1. Why is AK worried about managing the TRF facility?
 - a. Because it is known as leper colony. Furthermore, it is known for its difficult employees.
2. Why are the employees at TRF known for being difficult?
 - a. They did not care about their working environment, they were belligerent and insubordinate, and did not follow safe work practices. In addition, clients said that it was difficult to work with the TRF range staff.
3. Why did clients say that it was difficult to work with the TRF range staff?
 - a. They claimed that they had to "de-bug" the range before they could start de-bugging their products. In addition, they had to manage the range employees as well as their projects.
4. Why is it a problem that the clients had to manage the range employees as well as their projects?
 - a. Because clients will not bring return business to TRF if their workload increases at the range. In addition, the national reputation of the organization will suffer.

5. Why is the organization's national reputation important?

- a. Because a facility with a renowned reputation for its unique technical infrastructure and its talented, professional employees will allow the facility to operate at full capacity and attract exceptional clients.

Root Cause: the organization must transform the TRF into a facility that is capable of humming with activity, where experts from around the country would come to obtain help testing and improving their cutting-edge electronic equipment.

TARGET CONDITION:



IMPLEMENTATION PLAN:

Action	Responsibility	Timeline
Document the problems with disruptive employees, specifically suntan man, and the specific situations in which they disobeyed the employee guidelines	AK	1 day
Provide all disruptive employees with a verbal reprimand and assure them that a third reprimand will result in termination	AK	2 days
Hold a meeting with all employees in order to explain the organization's expectations of TRF in the future. In addition, explain what behavior hinders the ability of the facility to reach that potential. Gather feedback from willing employees on their professional goals as well as their goals for TRF	AK	1 day
Explain to any disruptive employees, specifically suntan man, that if they are not able to perform the responsibilities of their job description they will be provided will adequate training. If they refuse the training they will be suspended for one week and then terminated.	AK	2 days
Introduce a sponsorship program in which successful employees are assigned to disruptive employees as monitors. They will have the opportunity to shadow each other and discuss the benefits of their daily activities with each other. The disruptive employee will be asked to meet with AK following the sponsorship experience to discuss what they learned or found un-useful	AK and Successful employees	2 weeks
COST: Training, AK's time, successful employee's time, disruptive employee's time, possible loss of employees, and reactions to discipline.		

FOLLOW-UP:

Plan	Actual
<ul style="list-style-type: none"> • Conduct employee surveys • Have an external audit of the facilities efficiently conducted • Perform 360 reviews 	

Attachment B
BA 652 A3 Report Grading Rubric

1. Key Issue / Theme statement _____
2. Background / Root cause analysis _____
3. Action/Implementation Plan _____
4. Follow-up and Standards _____
5. Proofreading, Grammar, etc. _____
6. Style, Layout, etc. _____

Overall Score _____

A-3 Report Grading Criteria

1. Is the key issue or theme statement succinct, action oriented, and stated positively? Does the key issue logically follow from the identified root cause(s)? Does the action plan directly address the key issue?
2. Is the background of the case well summarized with focus on key elements? Is/are root cause(s) clearly identified? Is a process of identifying symptoms and driving toward root causes (using 5 whys analysis) clearly displayed.
3. The implementation plan should identify the major processes that must be completed in order to achieve the state indicated by the key issue statement. Each element of the implementation plan should identify a responsible party, and a timeframe for its completion. Specifications of timing should make it clear which activities must be completed sequentially and which may operate concurrently.
4. Have appropriate follow-up steps to ensure the solution is fully implemented and that appropriate extensions are considered been identified. Have appropriate, measurable standards for the assessment of the success of the proposed activities been defined.
5. Is the report free of grammatical errors and inconsistencies in wording, etcetera?
6. Is there an appropriate and logical flow to the document? Does it present a consistent style that maintains interest? Are tabular and graphical elements used effectively?