



A3

PROBLEM SOLVING

Applying Lean Thinking

Jamie Flinchbaugh

A3 Problem Solving: Applying Lean Thinking

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What is A3?

Only Thinking Drives Sustainable Change

A3 is an improvement process that applies lean thinking to problem solving. It is simply a way to present a report in a simple and structured way. Some call it A3 thinking but to be clear, there is no such thing as A3 thinking—**there is only lean thinking**. A3 reports are a waste-free way for report writing and communication. The important point is that the basic building blocks of an A3 report provide a nice little template for lean thinking. Thus, this tool can be helpful to anyone who wants to learn and apply lean thinking to problem solving, project management and a host of other improvement processes.

“By standardizing and making visible the process of identifying problems and formulating solutions, individuals and companies can execute to their ideal state.”

Origins of A3 Thinking Methodology

A3 is the international standard name for the paper size 11”x17”. The concept was coined by Toyota to describe the process of getting report-writing down to one page. To Toyota, this was just a format for structuring a report so that it could be clearly and consistently communicated on one page of paper, reducing the waste of report writing and report reading. Because Toyota was always applying lean thinking, and A3 reports made that thinking visible, people began to see it as a way to help others to think lean. Today, the concept, widely adopted outside of Toyota, goes beyond report

writing. A3 is a combination of the one-page report and the thinking process applied to problem solving. The A3 name stuck.

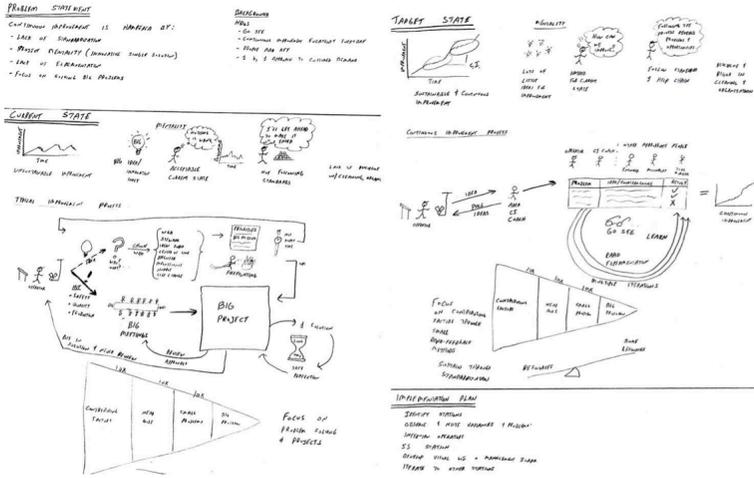


Figure 1. A3 Problem Solving Applying Lean Thinking

Definition of Lean Thinking

The lean methodology - the practice of focusing on the processes that create the value while eliminating those that create waste - has been mostly about tools for many years. As broad knowledge of lean begins to mature, more people realize that being lean is also about applying lean thinking, principles, and behaviors - the core drivers behind A3 - at an individual, team, and organizational level to create a lean thinking culture.

“Creating visible thinking is what is unique about the A3 process.”

When extending the lean process to thinking, what does waste-free reporting and problem solving look like?

To begin the process of thinking leaner, take a multi-page report and condense it to A3 - the international standard for a paper

size approximately the same as 11"x17" paper. as you move from the problem to the solution, depict through writing, pictures and diagram, the assumptions and the processes that you applied to get from point A to point B. A3 shows more of how you thought as you moved from the problem to the recommendation, rather than just the data.

As a result of revealing the thought process, two things happen. First, when your thinking process is transparent, you can reach agreement faster. Many arguments and disagreements about recommended actions are actually disagreements about assumptions made about either the current reality and target condition. If we can't make our assumptions visible, then they can't be discussed. Second, making the thinking visible enables coaching. You can't coach outcomes. If someone just showed you that they've failed to achieve the outcome, you don't know why unless you can see their thought process.

Lean success at companies today is not hindered by a lack of tools, nor the capability of the tools they have. What is really behind companies that succeed at sustained lean implementation is the level of thinking driven by lean principles and rules. Thinking is powerful in changing an organization. Thinking drives behaviors. Behaviors drive action. Action drives results. No tool can fix poor thinking.

To illustrate this point, consider the kanban card, a major tool in many lean transformation efforts since the 1980s. The concept is pretty simple. A downstream process uses parts from an upstream process. As each part is used, a kanban card is removed and sent back to the upstream process. When a predetermined number of cards accumulates at that upstream process, production replenishes the stock used by the downstream process. Now let's test the thinking. Does the upstream process operator look at the downstream process as his customer? If the customer-supplier relationship is not clear to both parties, then there is no compelling reason to fill

that kanban. There is much greater reason to stay busy producing whatever is easier. Is the kanban card a suggestion, a request or just a piece of paper?

If the kanban card is a suggestion, you get one behavior. If it is a specific request, you get a very different behavior. So a fundamental principle behind kanban is the objective of explicitly linking a customer to a supplier through a formal request. Without that objective clearly understood, all you have is a piece of paper. Why is it so important to follow that request exactly, even accepting downtime because the operator doesn't have a request? The conventional answer is that producing without that request is overproduction that increases inventory and generates waste.

True lean thinking sees beyond the waste to an even greater reason. By not producing, you have exposed a problem that can be engaged as an opportunity to make the process even stronger. So a fundamental principle is that kanban is not an inventory and material flow management system. It is a tool for systematically exposing problems in your process as they occur. A change in thinking produces very different behaviors, and ultimately very different results. One look at the kanban card in light of lean thinking helps those using it understand how and why it works, because they see it and understand it as a request, not a card. It is a method to connect a customer to a supplier. But most companies implementing kanban systems are not successful at getting the users to understand how and why the tool works. The most common excuse—it is too hard for our people to understand—stands in stark contrast to the simple concept.

You can read about the tools and techniques of lean in any book. You can delegate the application and implementation to just about anyone. But you cannot succeed without internalizing the principles of lean throughout all of management, and using that thinking to guide the implementation, daily decision making, problem solving, managing and coaching.

When to Use A3

A3 is applied in a wide range of applications. But it's really for people who have some open-endedness in their problem-solving options. If the problem-solving options are narrow and controlled, then opening up and exploring the thought process and assumptions within the problem is not necessarily productive. A3 can be used for daily small problems such as "why did the equipment fail?" by technicians or supervisors. It can also be used on strategic problems by executives such as "why did our market share drop?"

These questions represent the thought process behind the reactions from managers more often than the words actually spoken. Does that thought process help you improve? Does it help them? Instead of focusing on the "who" of the problem, let's focus on the "why" of the problem.

One organization has turned the A3 into a 'Counseling' A3. Its purpose is to address the problem behind an employee error. Instead of blaming the individual, they help the individual think through the error and figure out how to fix it. Counseling A3 goes from blame to process improvement and learning.

When applying A3, organizational or personal issues often become good starting points as other problem-solving tools are less effective at addressing such problems. Consider working with a partner or team rather than individually. With a team you need to facilitate often and, if you are just learning, then having to facilitate does not allow for a lot of learning. And individually you get no feedback. It's easier to learn while talking it out and, unless you're good at talking to yourself, having a partner is a great help.

If you use another problem solving method — fishbone diagrams, TRIZ, Six Sigma DMAIC, 5 whys, Kepner Tregoe, 8D, and so forth

— it can still fit within the underlying thought process of A3 and the report writing aspect of A3. The key in this fit is clearly and succinctly communicating whatever means you used to get to the root cause through the current reality section of the A3.

When to Use A3

| Do When: | Don't When: |
|--|---|
| <input type="checkbox"/> Collaboration in thinking is required | <input type="checkbox"/> You already know the solution |
| <input type="checkbox"/> You need to make your or someone else's thinking more visible | <input type="checkbox"/> You think you know the solution and just need to test it |
| <input type="checkbox"/> You have a knowledge gap | <input type="checkbox"/> To force fit your work into a report for credit |

What A3 is Not

- A research project. Organizations spend lots of time generating and rewriting reports while not being clear about what value is being delivered.
- One-size fits all. There is no one standard A3 format and no magic formula. Toyota has many.
- A debate about the form. One company spent six months dialoguing, debating and iterating what their form should be.

“The most common mistake is treating the A3 as a form, instead of a process.”

The form has no magic in it. When we focus on the template, we solve problems the same way we always have, and then try to fill out the form after the fact. Not only does this not improve our problem-solving capabilities, but it actually creates waste.

“The second mistake is using the process linearly, going from A to B.”

Do it in pencil, both literally and figuratively. Be willing to redo your work. As you go forward in your process you should be learning, which means you should be going back to modify based on your learnings. In my coaching, I find that half of the time we need to rework the original problem statement.

“And third, this is not an independent project.”

It is often much better as a collaborative process than a solo one. Engage people, get input, develop high agreement, and move forward as a team. Ultimately, the process and solution should be integrated at an organizational level.

A3 Thinking and People Development

Getting the Right Thinking and Action

To optimize problem solving and organizational effectiveness, the goal is to develop people to intuitively use A3 thinking. Once an A3 mindset and culture is established, enabling greater collaboration and coaching, the more effective A3 problem-solving approach can be readily applied throughout the organization.

This ebook focuses on how to develop people and the enabling environment for A3 thinking. To develop A3 thinkers, A3 principles, values and behaviors must be integrated into problem-solving and organizational processes.

“Fundamentally, faulty problem solving does not arise because the tools are bad; it is because the behaviors and thought processes being used are bad. Many of these tools, for example, will help you get to the root cause of a problem, but if you don’t value taking the time to truly get to the root cause, then the tool won’t do you any good.”

- Current Problem Solving/Thinking
- Common Thinking
- Standardizing and Simplifying Problem Solving

Current Problem Solving/Thinking

“If you do not get to act, what is the purpose of being here?”

You learn for the purpose of action. How do we use A3 thinking to coach employees to get the right thinking and action?

Most of us learn to solve problems very early. It's one of the first skills you learn, but you learn it through trial and error. It becomes tacit knowledge. And often the problem with tacit knowledge is that we cannot hold it up and examine it. It becomes difficult to improve and you often don't even realize you are applying that knowledge so you don't recognize the need to improve it.

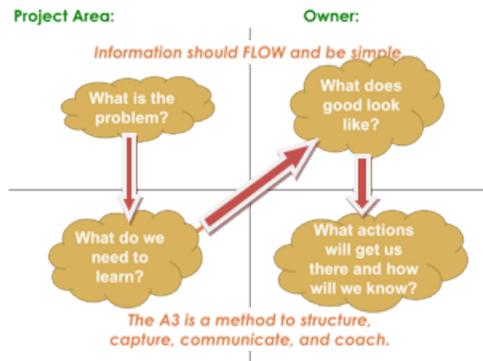


Figure 2. Information Flow

Admitting you need to re-learn problem solving is like admitting you have to re-learn brushing your teeth; it's that fundamental. For this reason, knowledge of problem-solving thinking that underlies all of these methods is generally less mature than the tools themselves.

Common Thinking

To achieve sustainable change, decisions need to be made around common principles. If you get the common principle right, you can send your organization off because you know how they are going to think and behave around that problem. A3 is a process through which a team can rally around a common way of thinking and

talking.

An enabling culture and true employee engagement help to foster common thinking. If you want your organization to be consistent, it is never a good idea to not tell your entire organization to start improving stuff. It would result in chaos. Staff would move in hundreds of different directions. Individuals make vastly different decisions under the same circumstances.

Standardizing and Simplifying Problem Solving

There are many benefits to standardizing and simplifying the process of capturing your thinking. What questions were asked in the last presentation you attended? Typically, 50 percent of questions address understanding the process and finding the information used to explain the problem and solution. I once sat through a 27-page PowerPoint presentation that presented a history of the department and just 10 minutes on current continuous improvement initiatives. In the end, the fault rested with – me, the leader. We didn't have a standard way to represent the project.

“All essential, need-to-know information can be distilled and disseminated on one A3.”

What if we all used the same method to think through a problem from the problem definition to the solution? The four quadrants of A3 problem solving provide a standardized problem solving process to promote common thinking :

- Problem Statement
- Current Reality
- Target Condition
- Action

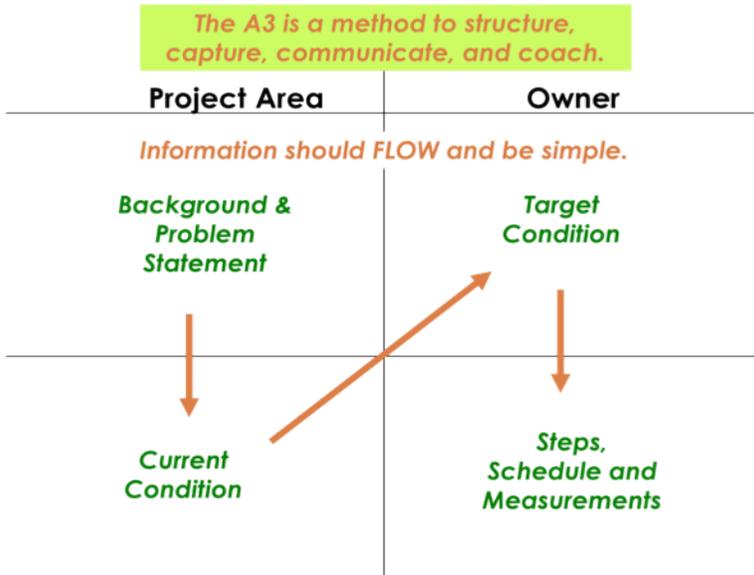


Figure 3. The Four Quadrants of A3 Problem Solving

If you standardize your thinking process, you always know what you will see. What happens when you lack a standardized way of presenting a report?

This Concludes the Sample Copy

Thank you for your interest in this content. We hope that you found it useful and that you apply it in your daily work. If you want to read more chapters, please purchase the full version. Thank you.

Please come back and ask questions. Share with us how you have used what you learned.

We wish you the best in your continued learning and lean application.

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About the Author



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Jamie Flinchbaugh is co-founder and partner of the [Lean Learning Center](http://www.leanlearningcenter.com/)¹.

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