

# Have It Your Way: The Five Types of A3 Reports

By Katherine Radeka

### Project Goal: The "Kickstart" Ocean Floor Biological Survey robot will increase the safety, accuracy and efficiency of ocean floor biological surveys by performing repetitive combined tasks.

**Development Budget**

Category	Actual	Target	Actual (%)
Engineering Labor	450	500	90%
Material	100	100	100%
Travel	50	50	100%
Equipment	100	100	100%
Other	50	50	100%
<b>Total Budget</b>	<b>750</b>	<b>800</b>	<b>94%</b>

### Kickstart Financial Dashboard

Katherine Radeka, ph: 650-700-5863 email: kadeka@whittierconsulting.com

Category	Actual	Target	Actual (%)
Robotics	1,000	1,000	100%
Assembly Fixtures	34	27	126%
Stamping Dies	500	500	100%
Supplier Capital Investment	5,000	5,400	93%

### Product Cost by Subsystem

Subsystem	Target	Actual	Actual (%)
Robotics	1,000	1,000	100%
Assembly Fixtures	34	27	126%
Stamping Dies	500	500	100%
Supplier Capital Investment	5,400	5,000	93%

### Headcount by Month

### Product Cost by Month

### How to Build a Trade-Off Curve

**Key Takeaways**

- Trade-off curves capture product design data into reusable knowledge.
- Data for trade-off curves can come from mathematical analysis, product design data, simulation and physical experiments.
- Trade-off curves must be understandable, believable and actionable to be reused.

**Why Trade-Off Curves Speed Up Lean Product Development**

We can discuss what is being developed to ensure that our design decisions take advantage of the low cost of the materials. We can discuss what is being developed to ensure that our design decisions take advantage of the low cost of the materials. We can discuss what is being developed to ensure that our design decisions take advantage of the low cost of the materials.

### How to Build a Trade-Off Curve

1. Develop a good problem statement.
2. Develop a visual model of the area of interest.
3. Identify the causal factors for your desired results.

### How to Move a Trade-Off Curve from Information to Knowledge

We must use our trade-off curves to capture knowledge by making them understandable, believable and actionable. First, we must use our trade-off curves to capture knowledge by making them understandable, believable and actionable. First, we must use our trade-off curves to capture knowledge by making them understandable, believable and actionable.

### Root Cause Analysis

### Trade-Off Curves

The R-ICK uses effective techniques for the use of trade-off curves.

### General Summary

Category	Target	Actual	Actual (%)
Robotics	1,000	1,000	100%
Assembly Fixtures	34	27	126%
Stamping Dies	500	500	100%
Supplier Capital Investment	5,400	5,000	93%

### Kickstart Project Status Report

Category	Actual	Target	Actual (%)
Robotics	1,000	1,000	100%
Assembly Fixtures	34	27	126%
Stamping Dies	500	500	100%
Supplier Capital Investment	5,000	5,400	93%

### Allowable Bending Moment

### Pipe Diameter (mm)

### Project Metrics

Metric	Target	Actual	Actual (%)
Robotics	1,000	1,000	100%
Assembly Fixtures	34	27	126%
Stamping Dies	500	500	100%
Supplier Capital Investment	5,400	5,000	93%



# Have It Your Way

## The Five Types of A3 Reports

### Key Takeaways



- An A3 report is a highly effective communication tool.
- There are five types of A3 reports: Knowledge Capture, Problem-Solving, Proposal, Documentation Replacement and Status Report, in order from most flexible to most standardized in layout, sections and formatting.
- The purpose of the A3 determines the type of A3 that you need to write.

### A3 Reports: What and Why

A3 reports are increasingly mentioned with the lean literature, and we see more and more of them in conference presentations. The first question people usually ask is, "What is an A3?" An A3 is a communication tool. It just happens to be an especially effective communication tool for supporting the systematic problem-solving and selectively standardized work that we encourage in a lean environment. Over time, A3 reports replace PowerPoint® slides, lengthy text documents and email chains as the primary means for communicating knowledge and ideas within a lean organization.

The A3 refers to the paper size - 11" x 17" in the US and 297mm x 420mm everywhere else. It turns out that this paper size is especially conducive to developing reports that are concise yet rich in content. The next smaller size - A4 or letter size - is simply too small. Any larger paper size is unwieldy. Any report that is multiple pages or two pages front-and-back hides some of the information all the time.

I can hold an A3 at typical reading distance and see everything on it. If I'm focused in on one section, the rest remains in my peripheral vision. There's no place for anything to hide. At the same time, there is ample room for visual models, including sketches, photographs, charts and graphs. In fact, the size almost forces the author to use visual models - because there simply isn't room to put too many things into words.

### The Five Types of A3 Reports

The original research into Toyota's processes classified their A3 reports into three types: the problem-solving A3, the proposal A3 and the status reporting A3. In my own practice, I have found that there are five different kinds that lean organizations primarily use. I've listed them from most free-form to most standardized in format.

#### The Knowledge Capture A3

The Knowledge Capture A3, sometimes called a Knowledge Brief or K-Brief is a two page report about some area of knowledge that the author wishes to share. You are reading an example of one right now: this is the Knowledge Brief of the Week for 7/30/10.

Knowledge Briefs require the most flexible format. I have seen excellent examples of Knowledge Briefs written about test procedures, market forecasting methods, platform architecture models and many others. To make a good Knowledge Brief, the author needs the flexibility to use the space on the page in whatever way will best suit the subject matter. The organization may want to develop a lightweight template for a Knowledge Brief, just to give the author a place to start. The best way to learn how to write a Knowledge Brief is to simply make the attempt and get feedback on the draft, then refine it. It gets easier with experience.

#### The Problem-Solving A3

The problem-solving A3 is the one most frequently featured in the lean literature. It is an A3 report that documents a person's efforts to solve a specific problem. Good problem-solving A3s tell a story about the problem, the analysis and the recommendations. This A3 type explicitly supports rapid learning cycles such as LAMDA or PDCA. It helps to have a template for this type of A3, but as with the Knowledge Brief, the author of the report needs the flexibility to add, subtract, resize and rearrange sections to meet the needs of the problem at hand.

**Theme: How does battery life affect robot performance for timed missions?**

**Trade-Off Curve**

**Root Cause Analysis**

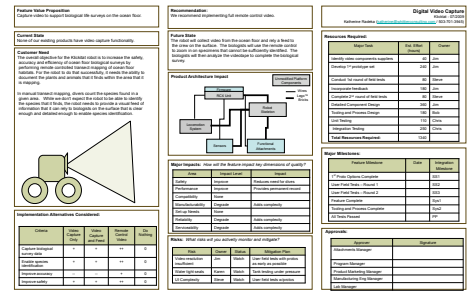
**Countermeasures**

**References**

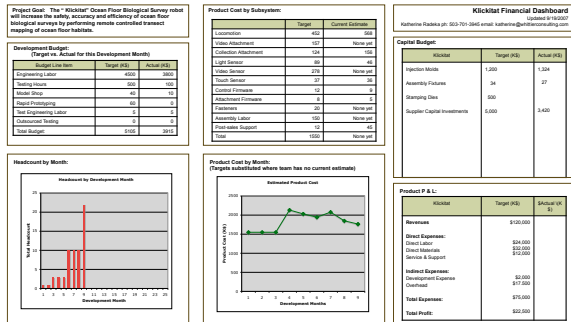
## The Proposal A3

Proposal A3s resemble problem-solving A3s in the sense that they tell a story, and many proposal A3s began as problem-solving A3s. But they differ in that the purpose of a proposal A3 is to get a specific decision to implement a specific recommendation. The focus shifts from analyzing the problem to executing the solution. The proposal contains information about risks, resources required and an implementation plan. That leaves less room on the A3 for the problem analysis.

Two Knowledge Briefs or Problem-solving A3s may have little in common except the paper size. Proposal A3s follow a more standard format, because this format helps educate the decision-makers about what to expect to see, which helps them evaluate the proposals more effectively. They get used to seeing the same information in the same place. But Proposal A3s still retain some flexibility to rearrange things a little to make the best use of the space. Some groups develop proposal A3 templates for specific purposes: feature requests, engineering change requests, capital budget requests, even product program proposals have all been converted to the A3 format in lean organizations.



## The Documentation Replacement A3



The Documentation Replacement A3 is what you get when you replace a standard report with an A3. The purpose of the Documentation Replacement A3 is to communicate precisely what the readers of the report need to know, with nothing extra. Like the Knowledge Capture A3, these reports primarily facilitate knowledge transfer, but the knowledge to be transferred is specific:

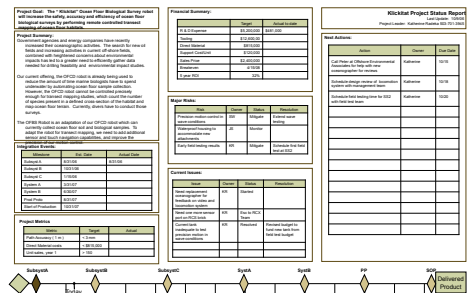
As with a standard report, the A3 has specific sections that must be completed, and little flexibility to rearrange or exclude things. Ideally, the people consuming the information are the ones to design the format for the report, along with the report writer. These reports are easier for the readers to use across multiple projects if everyone uses the same format.

Examples of documentation replacement A3s include product and technology roadmaps, product portfolios, product program charters, technical specifications (usually a series of A3s grouped by topic), market forecasts, business case analysis, team resource allocations, validation plans, localization plans, customer visit reports, etc.

You can find these A3s at the Lean Product Development Resource Center.

## The Status Report A3

Unlike the other A3 forms, the Status Report A3 benefits from as much standardization as possible. People reviewing multiple status reports from many different people and/or teams benefit from having the same information in exactly the same place. These reports are designed to be very quick to update: minimal narrative text and embedded objects to link budget spreadsheets or performance charts directly to the status report - no retyping. Like the documentation replacement A3, this one works best if the status report consumers co-design the report format with the person doing the reporting.



## What Type of A3 Do You Need?

Sometimes, the difference between the different types of A3s seems a little subtle. Here are some guidelines to help you decide which type of A3 report you need to write:

- ❑ Do you want to replace a standard document with an A3? Then you need to ask yourself what the purpose of the document is intended to be. If the document drives decision-making, then it may be a proposal. If it solves a problem, then it may be a problem-solving A3. If it's purely informational, then it's probably a documentation replacement A3.
- ❑ Do you want to capture some reusable technical knowledge? How well do you understand the knowledge that you wish to capture? If you are the expert, and you just want to make it easier to transfer what you know, then you need a knowledge capture A3. If you need to consolidate data across many projects and don't know what your end result will be, then you probably have a problem-solving A3.
- ❑ Do you want to share project information? Is this project information going to be frequently updated? Will many other projects need to share the same kind of information with the same people? Then you might want to develop a format for a status report A3. If it's one time only, it could be a documentation replacement A3 or even a knowledge capture A3. If the project information will drive a decision, it's best as a proposal.

## Discussion Questions

- What types of A3s do you already have in your organization?
- What templates are available to people to support them in writing A3s?
- How comfortable is your organization with templates that can be adapted vs. used only in a standardized way?
- What opportunities do you have to replace documentation with A3s?

## Next Actions

- Develop basic templates for a Knowledge Brief, problem-solving A3 and proposal A3 - the Lean Product Development Resource Center has some examples you can leverage.
- Use one to write an A3 this week.

**Did you like this Knowledge Brief? Find more like it at the Lean Development Resource Center:**

**[leantechnologydevelopment.com](http://leantechnologydevelopment.com)**

A3s from the Resource Center used in this report:

- Battery Life (problem-solving A3)
- Digital Video Capture (proposal A3)
- Klickitat Financial Dashboard (documentation replacement A3)
- Klickitat Project Status Report (status report A3)

Templates available at the Resource Center:

- Basic Report (Essentials Only)
- Experimental Results Report
- Problem Solving Report
- Project Status Report
- Proposed New Feature



**whittier**  
consulting group, inc