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### Background

- **Why is this important?**
- **Why should the reader care about this situation and be motivated to participate in improving?**

#### Assessment Questions
1. Is there a clear theme for the problem report that reflects the contents?
2. Is the topic relevant to the organization’s objectives?
3. Is there any other reason for working on this topic (e.g. learning purposes)?

### Current condition

- **How do things work today?**
- **What is the problem?**
- **Baseline Metrics?**

#### Assessment Questions
1. Is the current condition clear and logically depicted in a visual manner?
2. How could the current condition be made clearer for the audience?
3. Is the current condition depiction framing a problem or a situation to be resolved?
4. What is the actual problem in the current condition?
5. Are the facts of the situation clear, or are there just observations and opinions?
6. Is the problem quantified in some manner or is it too qualitative?

### Goal / Target Condition

- **What outcomes are expected for what reasons?**
- **What changes in metrics can be plausibly expected?**

#### Assessment Questions
1. Is there a clear goal or target?
2. What, specifically, is to be accomplished?
3. How will this goal be measured or evaluated?
4. What will improve, by how much, and when?

### Root Cause Analysis

- **What is the root cause(s) of the problem?**
- **Use a simple problem analysis tool (e.g. 5 why’s, fishbone diagram, cause/effect diagram) to show cause-and-effect relationships.**

#### Assessment Questions
1. Is the analysis comprehensive at a broad level?
2. Is the analysis detailed enough and did it probe deeply enough on the right issues?
3. Is there evidence of proper five-whys thinking about the true cause?
4. Has cause and effect been demonstrated or linked in some manner?
5. Are all the relevant factors considered (human, machine, material, method, environment, measurement, and so on)?
6. Do all those who will need to collaborate in implementing the countermeasures agree on the cause/effect reasoning?

### Countermeasures (experiments)

- **Proposed countermeasure(s) to address each candidate root cause (this should be a series of quick experiment to validate causal model analysis)**
- **Predicted result for each countermeasure**

#### Assessment Questions
1. Are there clear countermeasure steps identified?
2. Do the countermeasures link to the root cause of the problem?
3. Are the countermeasures focused on the right areas?
4. Who is responsible for doing what, by when (is “5 Why - 1 How” clear?)
5. Will these action items prevent recurrence of the problem?
6. Is the implementation order clear and reasonable?
7. How will the effects of the countermeasures be verified?

### Confirmation (results)

- **Actual result of each countermeasure (experiment)**
- **How does the system actually behave with the countermeasures that are being proposed for implementation in place?**

#### Assessment Questions
1. How will you measure the effectiveness of the countermeasures?
2. Does the check item align with the previous goal statement?
3. Has actual performance moved in line with the goal statement?
4. If performance has not improved, then why? What was missed?

### Follow up (actions)

- **What have we learned that does or does not improve the situation?**
- **In the light of the learning, what should be done?**
- **How should the way we work or our standards be adjusted to reflect what we learned?**
- **What do we need to learn next?**

#### Assessment Questions
1. What is necessary to prevent recurrence of the problem?
2. What remains to be accomplished?
3. What other parts of the organization need to be informed of this result?
4. How will this be standardized and communicated?
Background

Games out of date, 2 years time to market
- Missed market windows ➔ revenue declining
- Demotivated teams ➔ key developers about to quit
- Overhead costs ➔ Time to develop games steadily increasing due to declining technical quality
- Pressure to Work FASTER!

Current condition (value stream map)

3 months value add = 12% process cycle efficiency

Goal / Target Condition

- 8x faster cycle time
- 5x fewer escaped defects
- 20% improvement in revenue

Root Cause Analysis (cause-effect diagram)

A3: Slow game development

Countermeasures (experiments)

1. Cross-functional teams - Graphics design through deployment
   - Predict 2x faster delivery
   ➔ End dependencies - now spend 75% of time waiting/negotiating
2. Abandon all but most promising 3 games in each queue. Do ONE game at a time per cross-functional team.
   - 4x faster delivery from reduced task switching
   - Eliminating queues will cut 1.3 years from schedule
3. Engage developers in playing games and selecting ideas
   - 30% more profit to par with best competitor
   ➔ improved filtering on which games to develop
   ➔ more fun games, more popular

Confirmation (results)

1. Cross-functional teams
   ➔ Half as much time waiting
2. One game at a time
   ➔ Queues eliminated, time to complete game is 3-4 months (6-8x faster)
   ➔ Technical Debt is decreasing - escaped defects down by 2x so far.
3. Engage developers in playing games and selecting ideas
   ➔ One team taking to to play is producing more innovative games.
   ➔ Impact on profit is to be determined.

Follow up (actions)

1. Consider more cross training of team members to reduce waiting for expertise.
2. Reduce difficulty of integration and deployment steps
3. Improve processes for generating and selecting game ideas
   - a. Recruit talent if identifiable/available
   - b. Improve skills/process of best people already in company
   - c. Broaden both participation in selection and game playing experience of everyone in the company
4. Continue improvement of reused game components/engines to improve development throughput and reduce defects.

A3 Problem Solving Template v1.2 (April 2015) by Henrik Kniberg and Tom Poppendieck
License: Creative Commons Attribute 4.0 International
Original link: http://www.crisp.se/lean/a3-template
FAQ

What is this?

It’s a template for A3 problem solving. Well, the first page is. The second page is a check list for the types of questions you should be asking when using it. The third page is a real-life example from a software product development context. The fourth page is this here FAQ.

A3? What the heck is A3?

“A3 thinking” is a problem solving approach. It is pretty central to Toyota and other companies with a Lean mindset. Especially useful for systemic problems, the kind of nasty, thorny problems that just keep coming back despite your best efforts to solve them.

How does it work?

A3 problem solving is about understanding the problem first, before jumping to solutions. For systemic problems, the obvious solution is often the wrong one, because it just addresses the symptoms rather than the underlying problem.

Use the template to guide yourself through a series of questions to make sure you understand the problem properly before thinking about the solution. The left column is all about the problem, and how you would recognized when you’ve solved it. The right column is all about the solution (or more specifically, experiments that you think might solve the problem).

The A3 also serves as a high-level journal, or log, of your problem solving initiative.

But why is it called A3? isn’t that a paper size?

Yeah, it’s named after the A3 paper size (297x420mm). The idea is that you should constrain yourself to that space, because it forces you to express yourself briefly and visually. And that increases the likelihood that people will read and maintain the doc.

So A3 problem solving isn’t really about the paper. It’s about the problem solving approach. But the A3 doc is there as a guide to keep you focused on the right questions, and keep the content short and sweet.

Do I have to follow it strictly?

No, feel free to tweak the headings and questions as needed. Just keep in mind that the left half of the page should normally be devoted to understanding the problem, and the right side devoted to solving & following up. That way you get a good balance between analyzing and acting.

Should I print it or use it electronically?

Take your pick. Sometimes a physical paper is best. Sometimes a shared google doc is best. Sometimes it’s best to start on paper and then transcribe to the google doc. Sometimes it’s best to start in the google doc and then print on paper. Experiment and find what works best for you!

What is the “owner” and “mentors”

The owner is the person (or team) who is primarily driving the problem-solving effort, and making sure the ball doesn’t get dropped. The mentor is a person well-versed in A3 thinking, who is helping the owner learn this technique by guiding him/her through the process.

Is this a one-off document, or a living document?

A problem solving A3 is a living document. Go back and update it as you gain better understanding of the problem, and document your experiments.

Give it a shot! These types of lightweight tools can be surprisingly effective when applied appropriately.