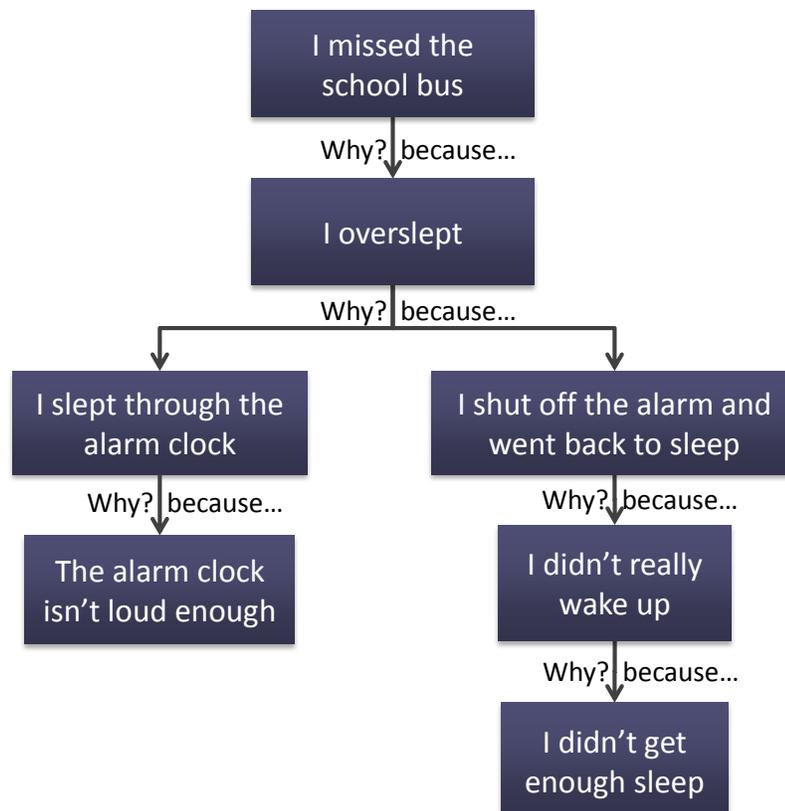


5 Whys Cause and Effect Analysis

Find an Effective Solution Quickly

by Kathy Iberle



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Key Points

- 5 Whys is a simple technique for exploring the causes of problems.
- 5 Whys saves time by ensuring that your solution will effectively fix the problem at hand.
- 5 Whys forces unstated problems out into the open where more brainpower can be applied.

What is a 5 Whys Analysis?

When you're faced with a significant problem, you'll be much more likely to solve the problem completely on the first attempt if you spend the time to identify the causes of the problem before deciding on a solution. Jumping directly to solutions often results in the problem coming back again and again in different forms.

This paper presents a simple, yet powerful way to identify causes. This variation of the classic 5 Whys cause-effect analysis method first identifies the "*problem to be solved*". It then looks for *root causes* of that problem, by repeatedly asking "Why?" and drawing a visual map of the causes. Finally, it evaluates the probable effectiveness of potential solutions by comparing them to the causes, using the visual map.

When Should I Use a 5 Whys Analysis?

Use a 5 Whys analysis when:

- It isn't clear how to solve a problem or improve a process.
- You want to ensure that the proposed solution *will* fix the problem.
- It isn't clear which of several proposed solutions would be the most effective.
- It isn't clear if the proposed solution will be cost-effective.

Getting Started

The first step in a 5 Whys analysis is identifying the "problem to be solved". This may sound silly, but retrospectives, brainstorming, strategic planning, and the like often generate a lot of proposals for changes without clearly stating the underlying problems. Without a clear statement of the problem to be solved, it's difficult to know whether a particular solution will solve that problem at a reasonable cost.

A problem statement involves an indication of either excessive cost or inability to do something desirable. These phrases often show up: "We can't ...", "It takes a lot of time to ...", "It costs too much to ..." Watch out for statements such as "There's too much of <something>" or "<something> is too large". These are observations, not problem statements. Find the problem by asking, "What problem is being caused by having so much of <something>?"

Similarly, statements phrased as "Do this" or "We should ..." are solutions, not problems. To find the "problem to be solved", ask yourself (or the team) "What problem would be solved if we did this?".

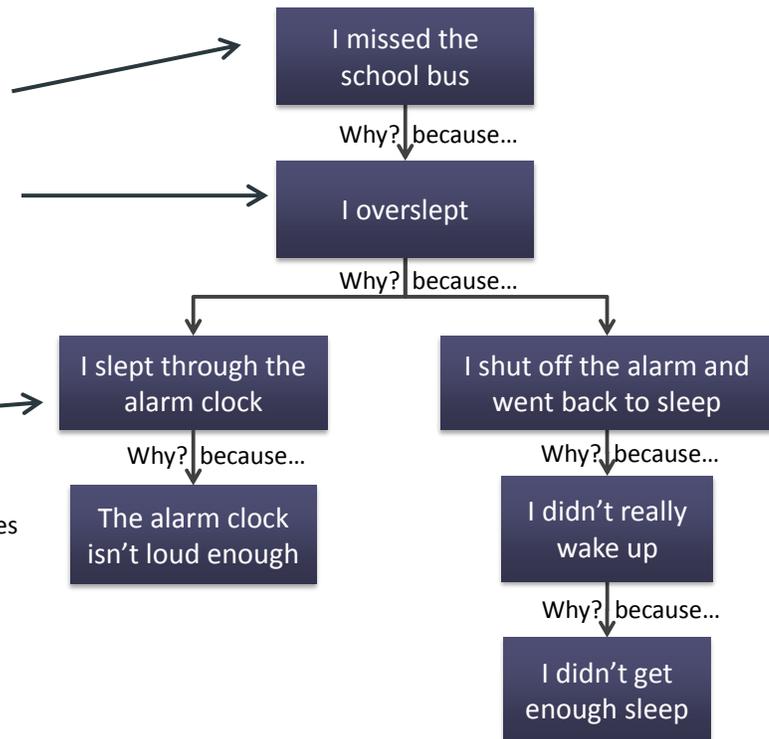
You may have to repeat this several times to get a good problem statement.

Doing a 5 Whys Analysis

Our example is a common problem among parents of teenagers – missing the school bus.

The basic steps in 5 Whys Analysis are:

- 1) State the problem which needs to be solved.
- 2) Ask “Why did this problem happen?” or “Why do we have this issue?”. Write the “Why” in the box at the next level.
- 3) If there is more than one reason, draw more than one box.
- 4) Keep asking “why” until the “because” gives you enough insight to solve the original problem. That may require more (or less) than five “whys”.



How do you know when you have enough insight? This usually happens when you’ve identified two or three root causes and can see several solutions. In this example, a louder alarm clock or moving the alarm clock away from the bed to force the sleeper to stand up might both work. Sometimes there’s an “aha!” moment, such as realizing that lack of sleep might be an underlying cause. Often an underlying cause is causing more problems in addition to the one you’re trying to solve, so solving the underlying cause has more payback.

Tips and Tricks

It’s much easier to do a 5 Whys analysis on a white board or on paper than on a computer. If you must use a computer, use an application where the boxes can easily be moved around.

If there is more than one “problem to be solved”, start a separate 5 Whys sheet for each problem. You’ll get better solutions by analyzing the causes independently. If the same cause shows up for more than one problem, fixing that cause will help reduce more than one problem.

Conclusion

5 Whys with branching is a quick and effective way to identify possible solutions to a problem, force an unstated problem out into the open, or get an approximate idea of the effectiveness of proposed solutions. If you get stuck, consider using more sophisticated methods such as causal analysis or a full Ishikawa/fishbone method.

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About the Author



Kathy Iberle has been working with agile software development and Lean development teams for many years. Kathy recently retired from Hewlett-Packard after a multi-faceted career as a developer, quality engineer, and process improvement expert in a variety of product lines. She is now the owner and principal consultant of the Iberle Consulting Group. Kathy has published regularly since 1997, served as co-chair of the Program Committee of the Pacific Northwest Software Quality Conference (PNSQC) in 2009, and participated in the invitation-only Software Test Managers Roundtable for five years.

Kathy has an M.S. in Computer Science from the University of Washington, and an excessive collection of degrees in Chemistry from the University of Washington and the University of Michigan.



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