

Bite-Sized Training™ Problem Solving



Problem Solving Bite-Sized Training

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1. Introduction

Problems usually make themselves well known. Solutions, on the other hand, can be much harder to find.

This is because problems often have more than one cause, and some of these causes – and sometimes the most important ones – may not be obvious. This can make it a challenge to identify the best way to deal with an issue.

When you experience a complex problem, it can be tempting to choose the first solution that comes to mind, or the one that's easiest to implement. However, when you do this, you're unlikely to address the underlying causes of the problem. If you don't use a systematic approach to understanding the issue fully, you may just end up with a temporary fix. This means that a problem festers, and becomes a bigger issue later on.

This **Bite-Sized Training™** session gives you the tools you need to avoid these issues, and solve your problem thoroughly and completely, first time around.

2. The Importance of the Big Picture

Many problems have more than one contributing factor. For instance, issues such as high staff turnover, poor sales, or low team morale can have a number of different causes.

When you identify several contributing factors, it's likely that you'll discover a number of potential causes and solutions. Depending on the extent of your problem, it can be hard to keep all this information organized.

This is why it's useful to present problems using diagrams or visual representations. When you analyze your problem visually, you can look at the contributing factors in an structured way, and you get a clear view of the big picture. You can also consider all of the possible causes of a problem, rather than focusing on just one or two of the most obvious ones.

In this Bite-Sized Training session, we'll look at Cause and Effect Analysis, a tool that you can use to explore the causes and effects of a problem.

3. Cause and Effect Analysis

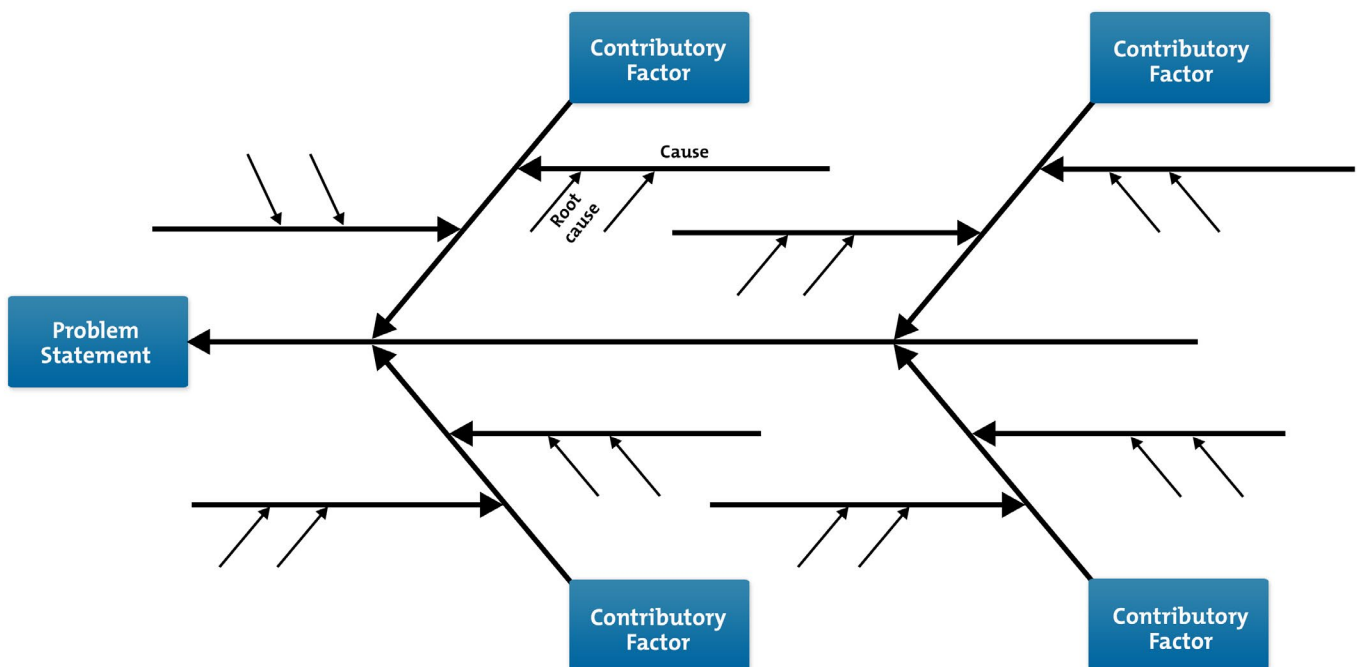
Cause and Effect Analysis is a tool that you can use to trace the many potential root causes of a problem. Dr Kaoru Ishikawa, an engineer and professor in Japan, developed this technique in the 1960s.

The diagrams you create with this method are often called Fishbone Diagrams, because they look like the skeleton of a fish.

When you use Cause and Effect Analysis, you're able to:

- Define the problem more clearly.
- Identify the main contributing factors.
- Pinpoint causes within each of these factors.
- Drill down to isolate the root causes.
- Analyze the problem in detail.
- Identify possible solutions.

Figure 1 – A Cause and Effect Diagram



As you can see, you can use a Cause and Effect Diagram to capture many different inputs. This prompts you to consider all possible causes of the problem, rather than just the most obvious ones.

Read the case study below, and we'll work through a Cause and Effect Analysis to look at this example problem in detail.

Case Study

S&P Office Furniture has negative cash flow, and its management team is looking at how it can address the problem.

The company has been in business for 18 years. It's always been profitable, and its managers believe that its success is down to having many of the same team members in place over this time. Two senior salespeople retired in September, but the replacements are now doing a great job.

Every year, the management team determines next year's budget on a month-to-month basis, based on the previous year. This approach has been effective in the past, but this year the company is way below target for December, which is causing cash flow difficulties.

The company also had to spend over \$8,000 recruiting their two new salespeople, which has made the situation worse. They spent more than they had budgeted, because it was harder to find people with office furniture experience than they had anticipated. Also, there were no team members available to cover for the retired staff, so they had to get the new recruits up and running as quickly as possible.

This over-expenditure also put a dent in the advertising budget, which affected December sales. In November and December the previous year, the company invested in a major advertising campaign, but there was no money in the budget to do the same this year. In fact, last year's December sales were higher than any other month that year. The success of this campaign was particularly welcome, because it helped to offset the natural decline in sales due to the holiday season. (Companies tend not to invest in office furniture until the start of the year, when they have a brand new budget, and the preoccupations of the holidays make new office furniture a low priority.)

S&P needs to make sure that this type of significant budget shortfall does not happen again.

1. Create Your Cause and Effect Diagram

To start your diagram, you write your problem in a box on the left-hand side of the page, and draw a horizontal line ("spine") going into it. This sets up the "Cause" line and the "Effect" box.

Action:

What is the problem in the S&P case study? It's poor cash flow. So, write this in the problem box.



Your Problem:



Tip 1:

When you use Cause and Effect Analysis, take some time to define the problem accurately. Make sure that you're looking at the real problem, and not just a symptom.

Tip 2:

If you're working in a team, it's a good idea to gather a group of people from different professional backgrounds to solve your problem. Your objective is to uncover as many causes as possible. Therefore, the wider the experience you can draw on, the greater the number of alternatives you will be able to identify.

2. Identify the Main Contributory Factors

Next, look at the main factors that contribute to the problem. For example, these could be systems, equipment, materials, external forces, or people involved. You will use these to investigate the causes of the problem in more detail.

Try to draw out as many of these as possible. As a starting point, you can use models such as the [McKinsey 7S Framework](#) (which offers you "Strategy," "Structure," "Systems," "Shared values," "Skills," "Style," and "Staff" as factors that you can consider), or the [4 Ps of Marketing](#) (which offers "Product," "Place," "Price," and "Promotion" as possible factors).

[Brainstorm](#) any other factors that may affect the situation.

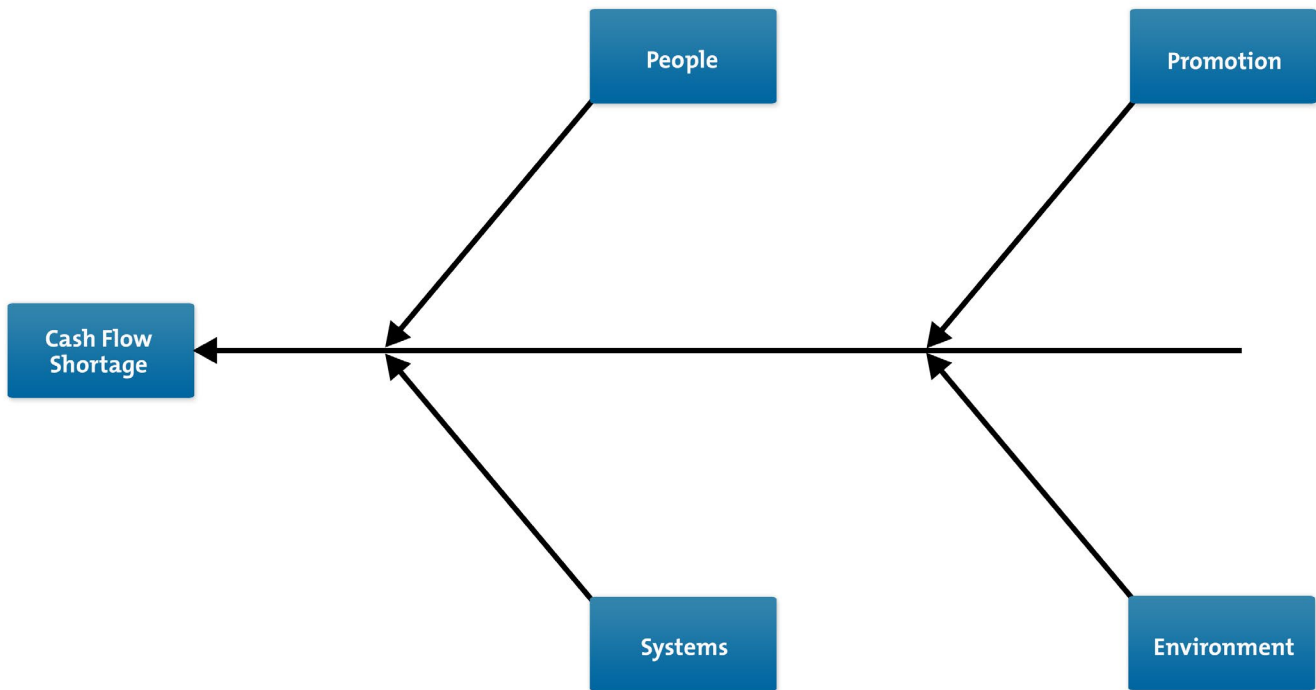
We will use four main contributory factors for our case study:

- **People** – do people have the necessary experience and knowledge to do the job?
- **Systems** – are there adequate processes, defined procedures, and clear instructions?
- **Promotion** – how will you get your message across to your customers? When is the best time to promote?
- **Environment** – are there seasonal issues? What are the economic issues?

To plot the contributing factors on your diagram, you place them in boxes, and then draw diagonal lines from each of them to the "spine." This represents the cause-effect relationship, as shown on the next page.

Tip:

Remember, you are looking for high-level categories here. You will break each of these down into possible causes in the next step.



3. Identify Actual Causes

Once you've listed the high-level factors, you're now ready to identify possible causes of the problem.

To do this, look at each factor, and brainstorm possible related causes that could be contributing to the problem.

If there are causes that fit more than one factor, record them under each appropriate heading.

You then draw a line off each high-level factor line of the diagram, and label each one.

Tip:

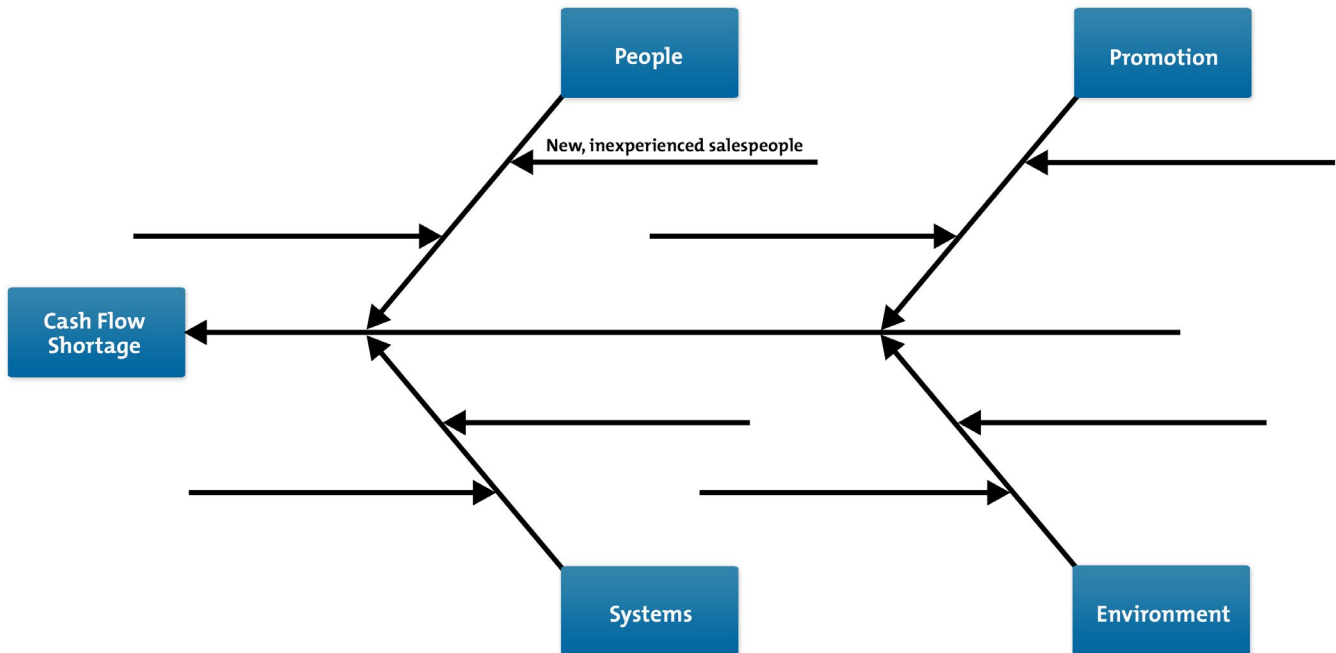
Brainstorm ideas for each factor in turn, so that you don't get sidetracked, and so you exhaust all of the possible causes.

Action:

Take 5 or 10 minutes to fill in as many causes as you can on the next page, based on the information given in the case study.

We've filled one possible cause in to get you started.





4. Drill Down Further

As you identify more and more possible causes, it's important to focus on revealing the **root causes**.

Where a cause is large or complex, it may be best to break it down into sub-causes. You can show these as lines coming from each cause line.

One of the best ways to identify sub-causes is to use the [5 Whys](#) approach. With this method, you start with the high level cause and ask yourself "Why?" five times in a row, progressively digging deeper and deeper into the problem. By the end of this process, you're likely to have identified the root cause.

Action:

Take 10 minutes to identify some sub-causes for each of the causes you've identified. Use the 5 Whys technique, as well as some further brainstorming, to do this.

We've included an example of the 5 Whys approach to help you get started.



5 Whys for "People" Factor

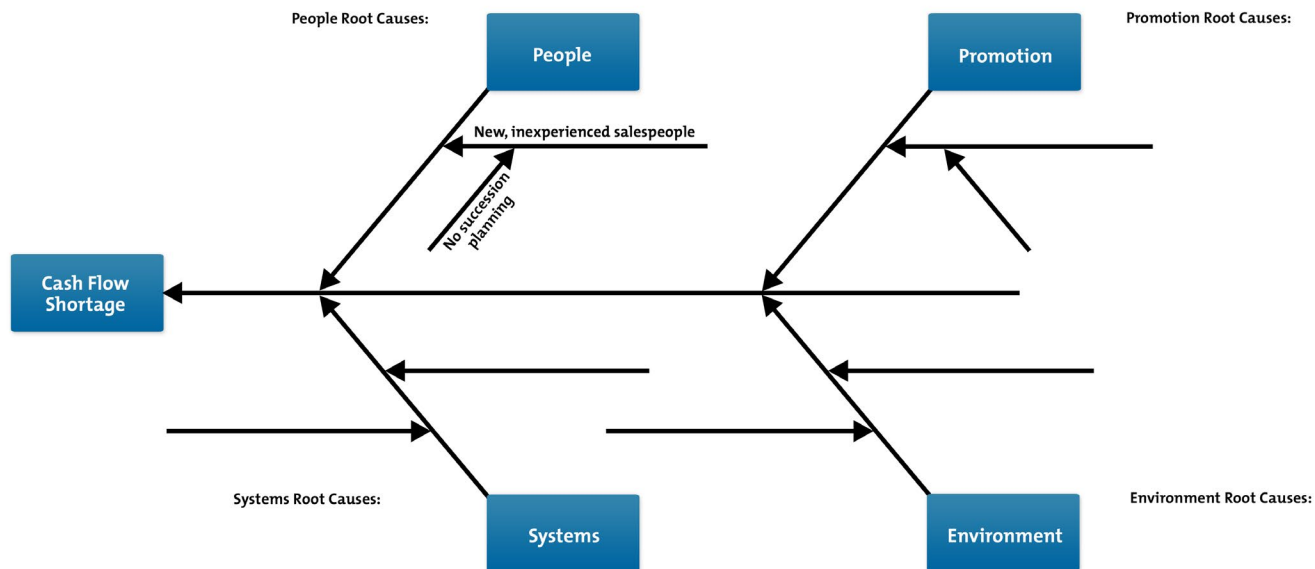
1. **Why was there not enough cash coming in?** Because the sales team was bringing in fewer sales.
2. **Why was it bringing in fewer sales?** Because the salespeople were new and inexperienced.
3. **Why were the new salespeople inexperienced?** Because the people who knew the best ways to sell the products had retired.

4. **Why had the new salespeople not learned from the retiring ones?**

Because recruitment took longer than expected, so the previous salespeople didn't overlap with the new hires.

5. **Why had there been no overlap?** Because there was no succession planning.

The lack of succession planning was one of the root causes of why "people" issues contributed to the lack of positive cash flow. We've added this to the diagram below.



5. Analyze the Diagram

In this step, you look at the possible root causes that you've identified, and decide which ones need further investigation.

Things to look for include:

- One branch that is more detailed or congested than others. When this happens, it's likely that you'll need to look at this area very closely, and explore it in more detail.
- A main category that has far fewer causes than others. This can indicate that you have not fully investigated this branch.
- Lots of categories that have only one or two sub-branches. These may need to be combined.
- Causes that are repeated under many different categories. These are often root causes, and, typically, you'll need to deal with these first.

Tip:

If a branch becomes too complex, simply "break it off" and continue it on another page.

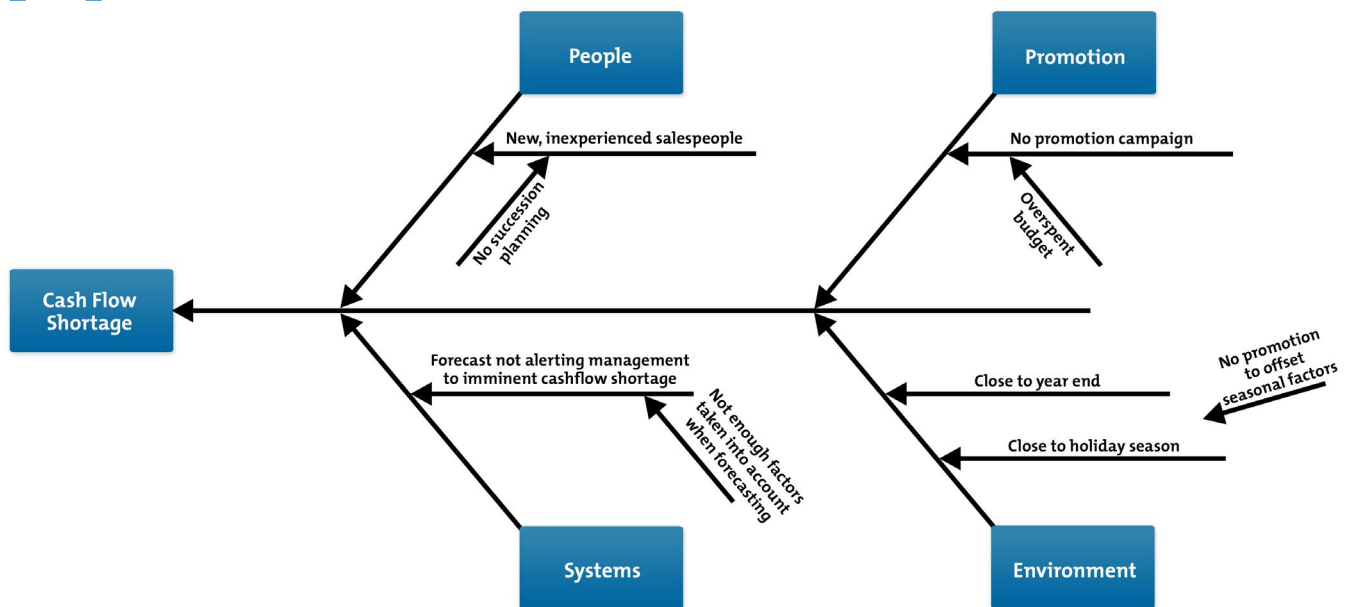
6. Identify Solutions

By this stage you should have a diagram showing all of the possible causes of the problem.

Depending on the complexity and importance of the problem, you can now investigate the most likely causes further. For example, this could involve setting up investigations, or carrying out surveys. These should be designed to test which of the possible causes is actually contributing to the problem. From there, you can come up with a solution.

4. A Completed Cause and Effect Analysis

Here's our completed Cause and Effect Analysis for the S&P Office Furniture example. (Don't worry if yours looks different!)



5. Key Learning Points

Finding solutions to problems is a complex process. If you don't use an effective technique to get a better understanding of your issue, it can be easy to become confused by all of the interrelated factors.

Cause and Effect Analysis is a simple and useful tool that you can use to identify the possible causes of problems. With it, you:

- Define the problem clearly.
- Identify and investigate the main contributory factors of the problem.
- Pinpoint causes related to each factor.
- Drill down to the root causes of a problem.
- Analyze the causes that you've identified, so that you can determine your next actions.

At the end of the process, you'll have a very good understanding of the problem, and you'll be able to start working towards a solution.