

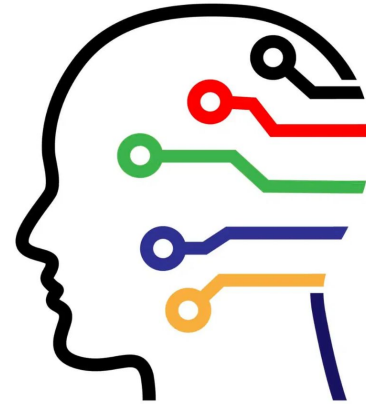
The background is a light gray grid with various numbers (0-9) scattered across it. Overlaid on this are numerous dark gray, flowing, wavy lines that create a sense of motion and data flow. A dark gray horizontal bar is positioned in the lower-left quadrant, containing the text 'Data Science Program' in white. The bar has a small orange square at its left end.

Data Science Program

Course: DataScience

Data Science and Design Thinking

Instructor : Ved Prakash
Linkedin : <https://www.linkedin.com/in/thevedprakash/>



TOP MENTOR

Agenda

- Problem Statements
- Design Thinking
- Framework for Design Thinking
- Case Study
- Questions

The background is a light gray grid with various numbers (0-9) scattered across it. Overlaid on this are numerous dark gray, flowing, wavy lines that create a sense of movement and complexity. A solid dark gray horizontal bar is positioned in the lower-left area, containing the text 'Problem Statements' in white.

Problem Statements

Problem Statements

Businesses are usually created on the basis of solving problems that exist amongst **consumers**.

A problem statement defines the problem faced by a business and also identifies what the solution would look like.



What is Problem Statements

WHAT IS A PROBLEM STATEMENT?

Use this to understand why it's important to make a problem statement in the beginning of the creative problem solving process

Do you know what problem you want to solve? Try asking the 5 Ws: Who? Where? What? Why? When?

1. A problem statement is one sentence that sums up what you want to change.

2. It helps you find more useful solutions by providing a clear and inspiring aim.

3. You make a problem statement before you start thinking of solutions.

A PROBLEM STATEMENT IS A GUIDING STAR FOR YOUR CREATIVE THINKING.



Purpose of Problem Statements

A clearly defined and well-understood problem is crucial to finding and implementing effective business solutions. In this case, the problem statement is usually a stand-alone document.

- One of its purposes is to identify and explain the problem in a concise but detailed way to give the reader a comprehensive view of what's going on.
- The purpose of the problem statement is to clarify what the expected outcomes are.
- It serves as a guide and a checklist to ensure that all objectives of the business are being met.
- The problem statement will serve as the basis for the introductory section, directing the reader's attention to the issues that your proposed business plan will address.

Example of Problem Statements

Mention one problem that you have come across in your work area, or heard from some of your peers, for which a structured problem-solving approach would have been useful?



Unknown a month ago

I am a product manager at an e-commerce company. A large amount of our allocated budget is spent on reaching the right target audience. This effort can be reduced if some analysis is done on marketing channel and consumer behaviour.



Unknown a month ago

I am a hiring manager in a consulting firm. Every year we get a huge number of applications through our portal. There are many applicants that do not fit the criteria but time is spent on reviewing their application. The firm should use the past data to structure the job role and requirements so that only the suitable candidates apply.



Unknown a month ago

I work as a sales manager at a B2B air conditioning firm. Every year we need to set quarterly targets and end up using past sales and some business intuition to do so. I feel that there must be some more data-driven and 'scientific' way to approach this.



Aman Singh 17 days ago

When I was doing my MBA then there was I heard the same type of framework for solving the business problem, but right now I am not able to recollect it. Sorry for that.



Sakshi Kumar 16 days ago

Ensuring efficient cash management to bring down the interest paid by government on CMBs, T-Bills and overdraft.



Harshad Daphane 15 days ago

I am working in telecom industry the most popular concern is churn but technical one is Bandwidth crunch as users are increasing continuously but not the infra accordingly, also user growth is not same for all area, so if we do some analysis, this will help distribute proper bandwidth so that customer get satisfied, hence problem of churn may get resolve upto certain extend.



Jaishri Iyengar 14 days ago

I don't recollect any such problem, but we implement structure approach to our previous case studies



Marcelo Silva 14 days ago

I am working in the tire industry, I used to apply the 5whys framework to solve problems.



MANISH KANDPAL 13 days ago

Being into enterprise consulting, for me it is nearly with all the engagements that I need a structured problem solving approach. Be it supply chain optimization or creating a sustainable business model.

Example of Problem Statements

EXAMPLES OF GOOD PROBLEM STATEMENTS:

**GENERATIVE PROBLEM
STATEMENT FROM IDEO**

How might we get products to people without generating plastic waste?

**TARGETED PROBLEM
STATEMENT FROM MINDIPLY**

How might we increase sales with social media by 10% in three months?

How might we help employees in our company use design thinking techniques?

Elements of a Good Problem Statements

There are four key elements you should include when writing a problem statement:

1. **Ideal situation:** The first thing your problem statement should describe is what the ideal situation would be if there wasn't a problem you needed to address.
2. **Reality:** The next section of your problem statement should describe what the current reality is for your company or organization.
3. **Consequences:** This section of your problem statement should identify what the consequences of the problem are.
4. **Proposal:** The proposal section of a problem statement may contain several possible solutions to the problem, but it is important to remember that it does not need to identify a specific solution.

How To Write A Problem Statement

1. **Describe the ideal situation you aim to achieve.** To begin, you'll want to provide some context that will make it easier to understand the problem.
2. **Pick the biggest problem to solve.** There's a good chance that your product/service solves multiple problems. While defining your problem statement, however, it's time to lead with just one of them – the biggest problem you solve.

Steps To Write an Effective Problem Statement

1. **Consider the audience's needs in your problem.** Like all problem statement examples, review reports and talk to staff members to ensure that you truly understand the scope of the problem.
2. **Provide facts about the problem that your business is solving.** Most problem statement examples out there are supported by surveys or statistics. Depending on the problem, your problem statement might include references to data sources.
3. **Explain the benefits of your proposed solution.** Now is a very good time to demonstrate why this solution will work, again focusing on efficiency and the financial impact of your solution. Address what expenses the solution will decrease, how this solution will free up revenue streams and what intangible benefits, such as increased customer satisfaction, your solution will bring.

The background is a complex, abstract composition. It features a grid of numbers (0-9) in various sizes and orientations, some appearing to float or be part of a larger pattern. Overlaid on this are numerous thin, dark, curved lines that sweep across the frame, creating a sense of motion and depth. The overall color palette is monochromatic, with shades of gray and white, accented by a small orange square on the left side of the text box.

Design Thinking

5 W's & 1H Framework



5 W's & 1H Framework

The 5W's & 1H approach is an iterative interrogative technique used to explore the cause-and-effect relationships underlying a particular problem and fits perfectly when we need to elaborate project planning.

You just need to write down the answers to the following five questions to get a clear picture of the problem:

- **WHO** is affected by the problem?
- **WHAT** is the problem?
- **WHERE** is it occurring?
- **WHEN** did it arise?
- **WHY** did it arise?
- **HOW** are the people involved affected by the problem?



5 W's & 1H Framework

Five W's (who, what, where, when, why) and the one H (how) is great to comprehend the details, analyze inferences, and get to the fundamental facts to solve issues related with the project.

Question are :

1. **Why:** Why did that happen?
2. **What :** What is necessary?
3. **Who :** Who is involved in the project?
4. **Where :** Where did it take place?
5. **When :** When did it take place?
6. **How :** How it will be done?

5 W's and H Framework : Example

Scenario:

The problem is associated with an IT consulting firm, which delivers IT solutions to its clients.

The process of client engagement is given below:

- The client approaches the sales team of the company to discuss the problem that the client is facing. (This could also be the other way around.)
- The sales team may approach the clients as well.) The sales team and the technical experts of the company understand the problem of the client and propose a solution based on the discussions with the internal teams (the testing team and the delivery team).
- The client agrees to the proposed solution and enters into an agreement with the company, which lists the deliverables promised by the company, the timeline of the project, the payment amount, etc.
- The delivery team works on the solution and finally delivers it to the client.
- After the client verifies the solution, it pays the agreed amount to the company

5 W's and H Framework : Example

Scenario:

- Now, the problem is that the clients are not willing to make the total payment that was promised in the agreement. This has been termed 'revenue returns', as a share of revenue is not received by the company. There can be multiple reasons for it, but before you start the process of interviewing, you need to have clarity about the problem.
- The next part below discusses the 5W framework in the context of this problem.



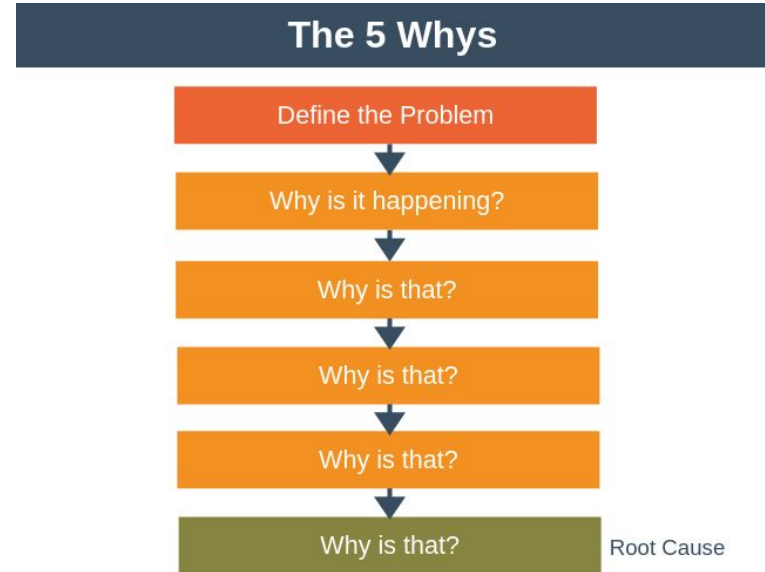
5 Why's Framework

Five whys (or 5 whys) is an iterative interrogative technique used to explore the cause-and-effect relationships underlying a particular problem.

The primary goal of the technique is to determine the root cause of a defect or problem by repeating the question "Why?". Each answer forms the basis of the next question. The "five" in the name derives from an anecdotal observation on the number of iterations needed to resolve the problem.

Not all problems have a single root cause. If one wishes to uncover multiple root causes, the method must be repeated asking a different sequence of questions each time.

The method provides no hard and fast rules about what lines of questions to explore, or how long to continue the search for additional root causes. Thus, even when the method is closely followed, the outcome still depends upon the knowledge and persistence of the people involved.



5 Why's Framework

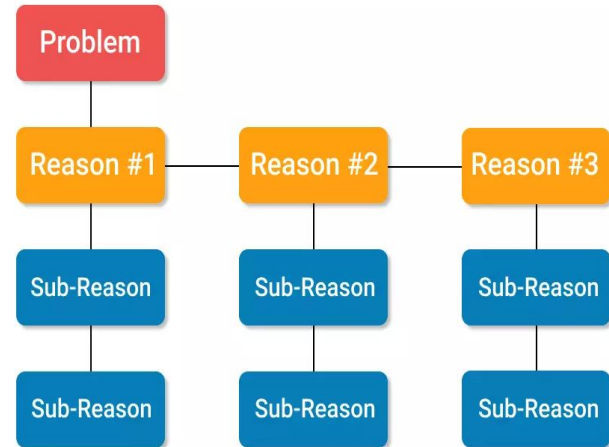
Ask Why

Empower one person to facilitate the whole process. This team leader will ask the questions and try to keep the team focused. The answers should be based on facts and real data, rather than on emotional opinions.

The facilitator should ask “Why” as many times as needed until the team can identify the root cause of the initial problem.

Advice 1. Don't ask too many Whys. If you keep going, you may end up receiving tons of unreasonable suggestions and complaints, which is not the purpose. Focus on finding the root cause.

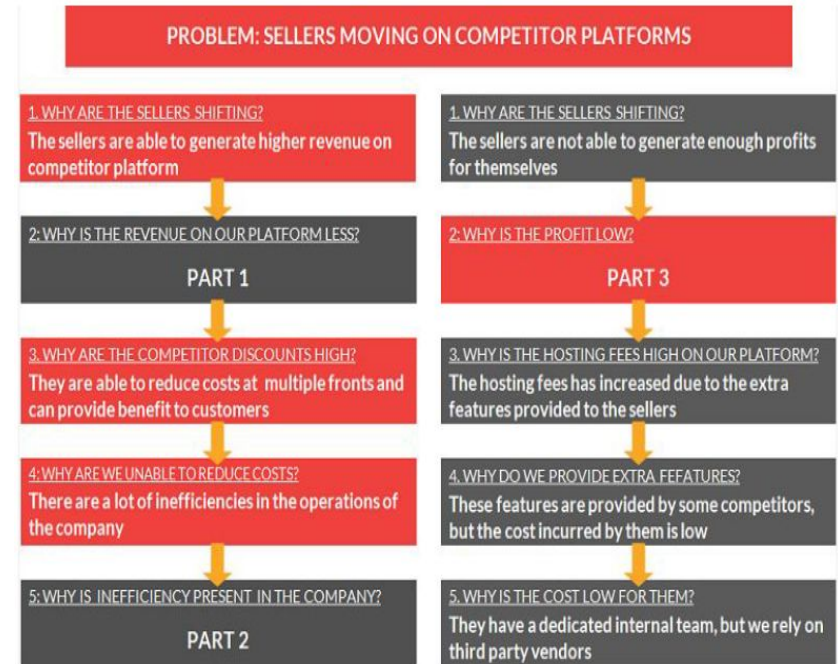
Advice 2. Sometimes there could be more than one root cause. In these cases, the 5 Whys analysis will look more like a matrix with different branches. This may even help you detect and eliminate organizational issues that have permanent negative effects on the overall performance.



5 Why's Framework : Demonstration

Scenario:

- Imagine you are working as a development manager for a leading e-commerce company like Amazon or Flipkart. The company is facing a problem: the vendors who were selling their items through your platform are moving to your competitor's platform. You are asked to look into the problem and try to solve it.
- You use the 5 WHYs framework to identify possible root causes of the problem. Refer to the flow of the problem shown below, understand the WHYs asked based on the answers found out during the interrogation process and try to think what could the answer be in the parts 1, 2 and 3 of the images.



Popular Framework

- **5 W's and 1H Framework**
- **5 WHY's Framework**
- **SPIN Selling Framework**
- **Issue Tree Framework**
- **7P's Framework**

SPIN Selling Framework

SPIN Selling

S	<i>Situation</i>	Gather information.
P	<i>Problem</i>	Identify pains and problems they experience.
I	<i>Implication</i>	Underscore why those pains need to be solved.
N	<i>Need Payoff</i>	Lead them to conclude as such on their own.



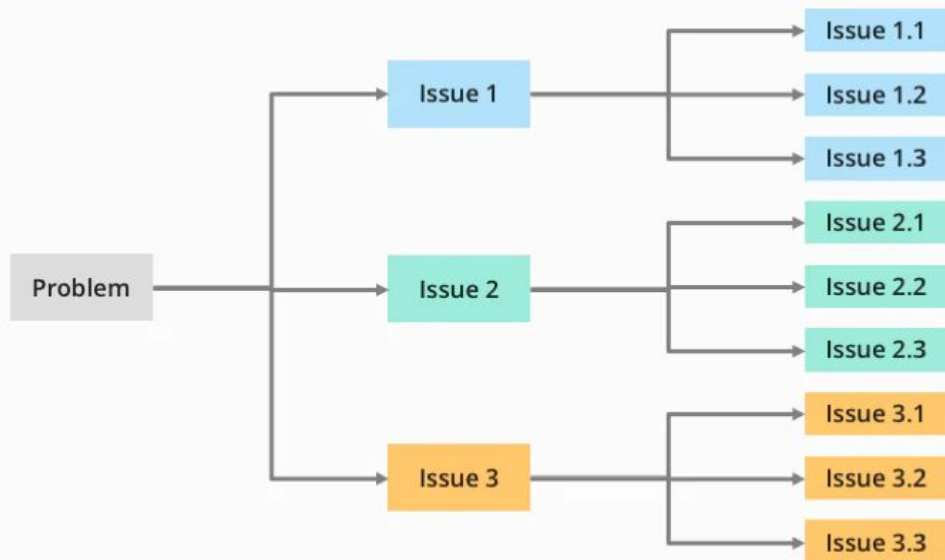
Issue Tree Framework

1

Issue tree template



IGotAnOffer



**FROM
COMPLEX**

----->

**TO
SIMPLE**

7P's Framework





Questions



Thank You