

How to Define a Problem in an Innovation Project?



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Innovation is the key to solving real-world problems and driving progress in various fields. Every great innovation begins with a well-defined problem. But how do we define a problem effectively? This article will guide you through the essential steps to identify, analyze, and frame a problem accurately in an innovation project.

Understanding the Importance of Problem Definition

Before finding solutions, it is crucial to understand what problem needs to be solved. A poorly defined problem can lead to confusion, wasted resources, and ineffective solutions. A well-defined problem helps innovators focus their efforts and increases the chances of success. It acts as a roadmap that guides the entire innovation process. There is an adage, "a problem well-defined is a problem half-solved."

Steps to Define a Problem in an Innovation Project

1. Identify the Core Issue

The first step is identifying the core issue. This requires observing the situation carefully and asking questions like:

- What is the challenge?
- Who is affected by this issue?
- Why is this a problem?
- What impact does it have on people or society?

For example, if students in a school are struggling with online learning, the core issue might be a lack of proper digital resources or internet access.

2. Research and Gather Data

A well-defined problem is based on facts and evidence rather than assumptions. Conduct thorough research by

- Collecting relevant data through surveys, interviews, and case studies.
- Observing existing solutions and their shortcomings.
- Analyzing trends and patterns related to the issue.

For instance, if an innovation project aims to improve waste management, research should include data on waste production, disposal methods, and environmental impact.

3. Narrow Down the Problem Statement

Once the core issue is identified, refine it into a clear and specific problem statement. A good problem statement should:

- Be specific and focused.
- Clearly define the affected group or stakeholders.
- Avoid suggesting solutions at this stage.

For example, instead of saying, "We need a better recycling system," a more refined problem statement would be, "Many households in urban areas lack easy access to recycling facilities, leading to increased waste pollution."

4. Frame the Problem Statement

A well-structured problem statement should cover answers to What, Where, Who, When, and possibly Why and How it is occurring.

Example: "Farmers in drought-prone regions struggle with low crop yields due to inadequate irrigation methods, leading to food shortages and economic instability."

GYS SAMASYA KHOJ Contest

A National Problem Identification Competition for High School Students

Samasya Khoj is a national contest to nurture the habit of observation and problem definition. The contest is just on the problem description, not solving it. Intent is that repeated practice of identifying and narrating problems accelerates the opportunity for useful innovation.

GYS Samasya Khoj 2025 Contest

The objective is to identify real life contemporary problems in India that impact an individual's living standard, improve a business outcome, increase agricultural productivity, or better the resource saving potential. Here are a few examples...

- Students in high schools are not drinking enough water and often become dehydrated.
- Passengers on Railway Platforms are often unable to see the green signal at the front of the train, board a moving train, and meet with accidents.
- The chalk piece dust that emanates while erasing blackboards in classrooms causes allergy and health issues to teachers.
- Elders slip and rolldown speedily when they fall on stairs.

A problem may have an impact on an individual, tens of people, or even hundreds and more. A problem may be in a rural context, urban area, or universal. A problem may be local to a person or family, of the village, town, district, state, or even at national level. A problem may be happening at home, in the farm, at an office or workplace, in a factory, in a public place, or universal. A problem may have occurred once, happening occasionally, or frequently. A problem may pose a risk to the lives of people or animals. And, a problem may cause loss of a few Rupees, thousands, or lakhs and more.

All the problems submitted here would be published on GETA Young Scientist Program website for appreciation as well as public use.

Theme: Real-life Problems relevant to Student Innovation

Submissions: www.youngscientistindia.org

Last Date for Submission: 20-May-2025

Prizes

First Prize: Rs. 3,000, Certificate, Medal

Second Prize: Rs. 2,000, Certificate, Medal

10 Consolation Prizes: Rs. 500, Certificates

Competition Terms & Conditions

- Students from Class 6 to Class 12.
- Students from Government, Aided, Corporate and Private Schools in India can participate.
- One student can submit multiple entries.
- Entries submitted should be Student's own, and should not copy from someone else or from the Internet.
- Language for submission is English.
- There is NO ENTRY FEE to participate.
- Prize distribution would be virtual. Cash Vouchers and Digital Certificates would be distributed via email. Print Certificates would be sent via Post/Courier.

Visit website for more details.

Evaluation Criteria (100 Points)

20 points = Problem Title

30 points = Problem Description

10 points = Affected Audience

20 points = Quality of Submission

20 points = Relevance to Student Innovation.