

# Problem Statement

current →

desired →

# Problem statement

- Problem statement is the description of **an issue** to be addressed or conditions to be improved. identifies the gap between the **current state and desired state** of a process or product.
- **It** is a formal report to **define** an organization's **challenges or issues**.
- It is a thoughtfully drafted description of a problem that is to be solved. It includes a stepwise approach that would change the present state and attain the desired state.
- An introduction that introduces the problem to be discussed and describe the proposed solution.

→ dumped →

# Defining Problem statements

- Problem statement is a statement of a **current issue** or problem that requires timely action to improve the situation.
- This statement concisely explains the barrier the current problem places between a functional process and/or product and the current (problematic) state of affairs.
- To make this easier, it's recommended that you ask **who, what, when, where and why to create** the structure for your problem statement.
- This will also make it easier to **create and read**, and makes the problem at hand more comprehensible and therefore solvable.
- The problem statement, in addition to defining a pressing issue, is a lead-in to a proposal of a timely, effective solution.

# Defining Problem statements

## Why is a problem statement important?

- A problem statement is a communication tool. —
- Problem statements are **important to businesses**, individuals and other entities to develop projects focused on improvement.
- Whether the problem is pertaining to badly-needed road work or the logistics for an island construction project; **a clear, concise problem statement is typically used by a project's team** to help define and understand the problem and develop possible solutions.
- These statements also provide important information that is crucial in decision-making in relation to these projects or processes.

# Defining Problem statements

**Problem statements have multiple purposes →**

- The problem statement has other purposes, too. One 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.
- This includes **identifying who the problem impacts**, **what** the impacts are, **where** the problem occurs and **why** and **when** it needs to be fixed.
- Another purpose of the problem statement is to clarify what the **expected outcomes are**. Establishing what the desired situation would look like helps provide an overarching idea about the project.
- The proposed solution and scope and goals of the solution are made clear through this statement.

# Defining Problem statements

verification  
validation

## Problem statements help guide projects

- The problem statement provides a guide for **navigating the project** once it begins.
- It is continually referenced throughout the duration of the project to help the team remain focused and on track.
- Near the completion of the project, this statement is again referred to in order to verify the solution has been implemented as stated and that it does indeed solve the initial problem.
- This can help in making sure that proper steps are being taken to prevent the same problem from happening again in the future.
- Bear in mind that the problem statement **does not attempt to define the solution**, nor does it outline the methods of arriving at the solution.
- The problem statement is a statement that initiates the process by recognizing the problem.

# Defining Problem statements

## How to write a problem statement

A problem statement is a tool used to **gain support and approval of the project** from management and stakeholders. As such, it must be accurate and clearly written.

There are a few key elements to keep in mind when crafting a problem statement that can have a positive impact on the outcome of the project.

- Describe how things *should* work. —
- Explain the problem and state why it matters. —
- Explain your problem's financial costs. — *time*
- Back up your claims. —
- Propose a solution.
- Explain the benefits of your proposed solution(s).
- Conclude by summarizing the problem and solution.

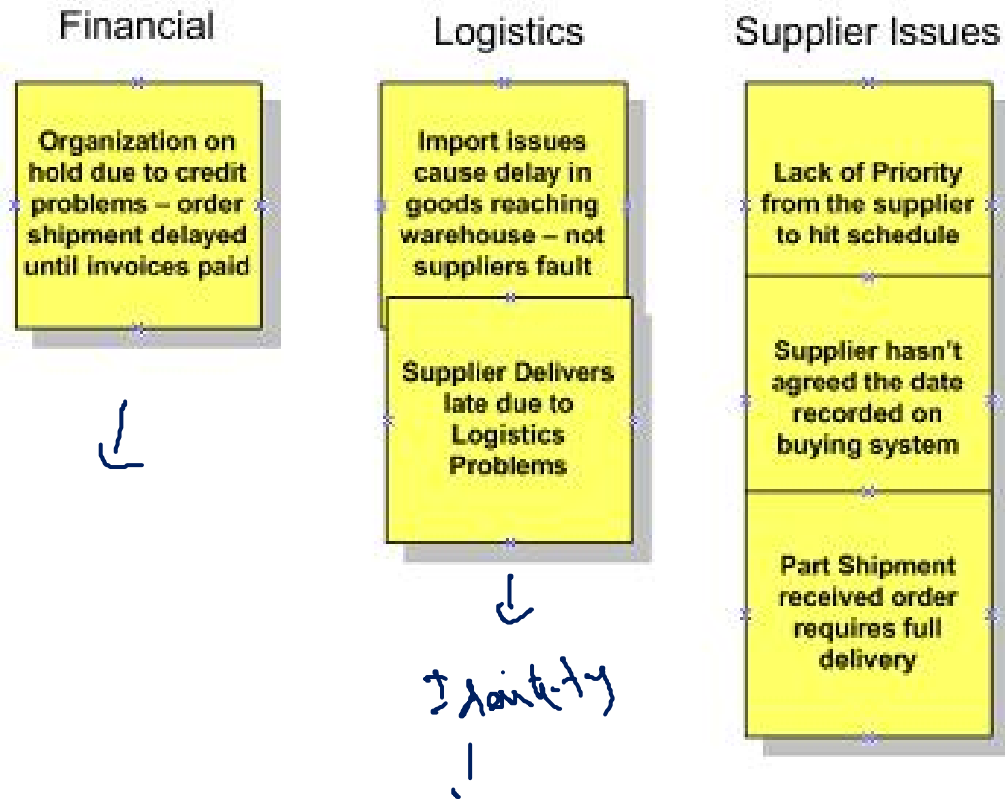
*critical  
why  
solution-impact  
method.*

# Benefits of Problem statement

- The problem statement provides a guide for **navigating the project** once it begins.
- It is continually referenced throughout the duration of the project to help the **team remain focused** and on track.
- Near the completion of the project, this statement is again referred to in order to **verify the solution has been implemented** as stated and that it does indeed solve the initial problem.
- The proposed solution and scope and goals of the solution are made clear through this statement.
- The problem statement is a statement that initiates the process by recognizing the problem. It is a **tool to gain support** and approval of the project from management and stakeholders.



## Other methods-Affinity Diagram

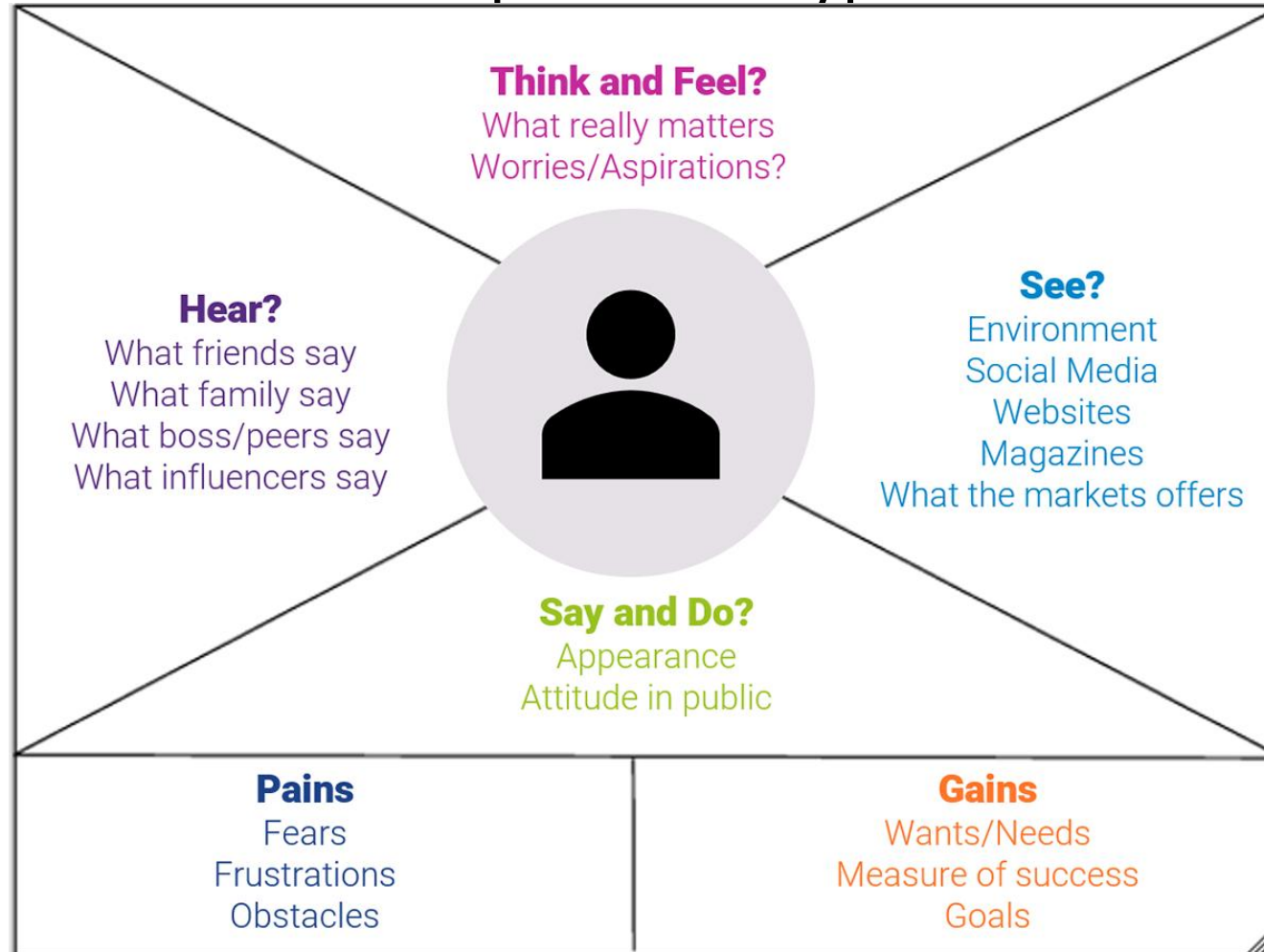


The **Affinity Diagram** is a method which can help you gather large amounts of data and organise them into groups or themes



# Other methods-Empathy Mapping

- An **empathy map** is a collaborative visualization used to articulate what we know about a particular type of user.



# Problem statement-IoT *→ approach.*

**“Develop an IoT enabled Android application to give realtime parking space available on the campus.”** The application would ensure optimum use of resources, it would help save time and also be far more efficient than the traditional way of finding the parking slots on the streets. At the same time, it would also reduce unnecessary chaos and traffic on the campus

**How should the application work?** Whenever a person wants to find a parking space on the campus, he has to login to the application using his user id and password, a request message will then be sent to the server. The server will send back a response with the available parking details, real-time mapped directions and real-time parking space to allocate parking according to the size of the vehicle. The application would be smart enough to identify whether the car is heading towards the same parking space or not. If not, the application would re-route the same car to another nearest available parking space.

**Challenges:** The above mentioned will be applicable to those vehicles that have logged in to the system and used the navigating system. But we also need to consider those vehicles which have not logged in and are manually finding parking space and heading towards the same parking slot. Can you solve this problem? Develop a smart efficient application system to solve the problem related to real-time parking space.

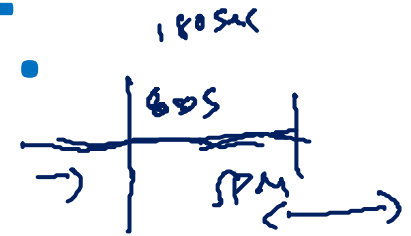
# Problems that can be solved by IoT.

- **Security Management:** IoT sim cards can be applied to various devices that can be connected to sensors such as clothing with biometric sensors, facial recognition, footprint sensors, and more to increase the security of homes, offices, and buildings.
- doors can be unlocked through facial recognition, lights can be activated with motion or footprint sensors, the camera is activated and a live feed is triggered on your smartphone, or the police can automatically be notified if an intruder breaks a lock in your home.

# Problems that can be solved by IoT.

- **Health Emergencies:** A heart monitor that's connected to the nurse's station, for instance, will automatically trigger an alarm when the patient goes into tachycardia, bradycardia, and other cardiac emergencies.
- An out-patient's health status can be monitored by doctors and health professionals remotely. Indeed, IoT can help save lives by connecting people with health professionals in real time.

# Problems that can be solved by IoT.



- **Road Traffic Management**
- Connected devices powered by IoT sim cards such as traffic lights, smartphones, cars, GPS devices, and cameras can be used to monitor traffic patterns, inform drivers of traffic situations, and help governments determine appropriate solutions to traffic problems.
- **Energy Conservation:**
- IoT has made homes smarter, so its application in energy conservation is more accessible. Smart appliances can inform homeowners of real-time consumption so that they can monitor their energy usage.

# Problems that can be solved by IoT.

- **Agricultural Problems**

- IoT can help farmers and agricultural workers predict these occurrences, so they can properly plan and strategize. a [temperature sensor](#) can automatically tell the sprinklers to turn on when the reading is high.
- IoT has now gone beyond the [smart home](#), and is being applied everywhere you go. In the years to come, expect more devices to become connected with each other through IoT sim cards.
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