

Welcome!

Global Startup 

Sri Lanka 2015

Defining your problem



Week 1 Day 2
June 23, 2015



Agenda

Defining the problem

Solution neutral problem statement

Creative problem solving

(Barriers to creative thinking)

Contextualize the Problem

State the problem :

1. What is wrong?
2. Who is affected by this problem?
3. When and where does this problem occur?
4. Why is it a problem?
5. What is the goal of solving this problem?

Example

What: In Bangalore, a person may spend several hours of her day shopping for groceries on the weekend.

Who: A working professional who does the entire grocery shopping only on the weekend.

When: The problem is limited to weekends.

Where: If the shopping is done in a city shopping mall (not local grocery store)

Why: The average work days are long therefore, weekends are important for relaxation and other more important activities like fixing the house, reading, spending time with family and so on.

What is the goal of solving this problem: The working professional gets several extra hours on the weekend that can significantly improve her productivity on Saturday and Sunday.

Contextualize the Problem

Example :

A working professional in Bangalore spends several hours of her day in commuting and standing in long checkout queue in shopping malls for buying groceries on a weekend.

If I can reduce the time spend in *getting* groceries, it will significantly improve their productivity over the weekend.

Quantify the Problem Context

1. Bangalore's urban population is estimated 8.7 million in 2011.
2. 20 urban districts in Bangalore.
3. There are 15 supermarket brands totalling 1500 supermarkets in 2015. The average number of supermarkets in an urban district is $1500/20 = 75$.

Quantify the Problem Context

Avg population of each district - 435,000.

Let's say 60% (assumption!) of average population is a working professional - 261,000 people per district.

The average number of supermarkets in an urban district is $1500/20 = 75$.

Avg shopping population per hypermarket = 3480.

If an average supermarket can serve max 100 customers per hour - total capacity peak hours (10 am to 1 pm) Average waiting time per day of weekend = $1740/100 = 17.4$ hours

Supermarkets are overloaded by a factor of ~3

Let's say on average 20% of the people shop during peak hours 348 customer per peak hour

Avg waiting delay per customer = 3.48 hours

If the average distance of hypermarkets from residential area is 5 km - time to travel is $10 \text{ km} / 20 \text{ km per hour} = 0.5$ hours.

Total time spent on weekend shopping is 3.98 hours

Quantify the Problem Context

A working professional in Bangalore spends an average of 4 hours of her day in commuting and standing in long checkout queue in shopping malls for buying groceries on a weekend.

If I can reduce the time spend in *getting* groceries to **x min**, it will improve their productivity over the weekend by **4 extra hours**.

Solution Neutral Problem Statement

A working professional in Bangalore spends an average of 4 hours of her day in commuting and standing in long checkout queue in shopping malls for buying groceries on a weekend.

If I can reduce the time spend in **getting** groceries to 10 min, it will improve their productivity over the weekend by 4 extra hours..

Solution Concepts

How can you solve the problem of ensuring that the customer gets groceries in desired time?

Generate ideas:

1. Ordering through a website?
2. Ordering groceries by calling to the hypermarket and getting it delivered?
3. Local peddlers?

Quantify Solution Concepts

Compare the ideas quantitatively (*from the point of view of the customer*) :

1. E-commerce website

Cost of items sold?

Cost of delivery?

Delivery time?

2. Ordering groceries by calling the supermarket

Cost of items sold?

Cost of delivery?

Delivery time?

3. Local peddlers

Cost of items sold?

Cost of delivery?

Delivery time?

Creative Problem Solving

- Re-phrase a problem as a contradiction
 - Can you define two **conflicting sides** of the problem?
- Can you think of a way to solve the contradiction **without compromising** any of the opposing side?
- Example - Prize-linked savings account

(Next Steps)

Structured Problem Solving

Step 1: Define a problem

- Generate a problem statement

Step 2: Current Situation

- Problem background and history

- Data and results

Step 3: Analysis

- List current leading methods

- Creative thinking/Innovation on existing methods

Step 4: Propose Solutions

For Tomorrow...

- Enroll to Piazza
- Quantified Problem Statement
- Goal Statement
- 5-7 Solution Concepts
- Bring your laptops!

Next class: Tomorrow **4:00-7:00 pm**