Project Title: Smart waste Management for Metropolitan cities **Project Design Phase-I** **Team ID:** PNT2022TMID47513

Define CS, fit into CC

1. CUSTOMER SEGMENT(S)

Who is your customer?
i.e. working parents of 0-5 y.o. kids

CS

1.Make clean India

2.Keep the city clean

3.Fleet management platform

4.Automatic sensor based operation with zero manual invention.

5.The protection of the environment & the health of population.

6. CUSTOMER CONSTRAINTS

What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices.

CC

1.Recycling might be inexpensive.

2. More energy consumption and pollution.

3.Insufficient data collection.

5. AVAILABLE SOLUTIONS

Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking

AS

Based on IOT (Internet of Things) technology, smart waste management aims to optimize resource allocation, reduce running costs, and increases the sustainability of waste services.

Explore AS, differentiate

Focus on J&P, tap into BE, understand

2. JOBS-TO-BE-DONE / PROBLEMS

Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides.

1.User friendly

2.Avoid overflow bins & maintenance

3.Perform regular audits on waste management & disposal

4.Reduce number of bins & replace smart bins

6.Cost efficient

7.Proper Segregating & Minimizing Waste.

8.Developing country is the social & economic infrastructure of country itself.

9. PROBLEM ROOT CAUSE

RC

What is the real reason that this problem exists? What is the back story behind the need to do this job?
i.e. customers have to do it because of the change in regulations.

The greatest problem regarding waste management in developing countries begins at the very starting point of the process. Due to lack of proper systems for disposal and collections, wastes & garbage's end up in the roads and surrounding. According to a report from Google research, the amount of waste generation in 2010 was around 20,000 tons per day, and it is estimated that by 2025 the amount will be no less than around 47000 tons per day.with the existing methods of collecting and disposal it is near impossible to manage such amount of waste in the future as around 30% of waste end up on the roads and public places due to ineffective disposing & collecting methods.

7. BEHAVIOUR

BE

What does your customer do to address the problem and get the job done?

i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)

1.Ai-based smart waste bin, designed for public places, enabling them to Monitor and Manage

Focus on J&P, tap into BE, understand

3. TRIGGERS

TR

What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.

1. AI recycling robots & solar-power trash compactor
2. Smart waste bins
3. Digitally improvement cities
4. Motivate & influence people to follow proper waste disposal

10. YOUR SOLUTION

SL

If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality.

If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.. Previously there were numerous initiatives on waste management and educating people to dispose waste properly, and as they failed to achieve significant results, we have figured out the scopes that could be develop. To solve this

8. CHANNELS of BEHAVIOUR

CH

8.1 ONLINE
What kind of actions do customers take online? Extract online channels from #7

8.2 OFFLINE
What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.

ONLINE: A customer can also notify the receivers where the smart bins about to fill.

4. EMOTIONS: BEFORE / AFTER EM How do customers feel when they face a problem or a job and afterwards? i.e. lost, insecure > confident, in control - use it in your communication strategy & design. **BEFORE** : With the existing methods of collecting and disposal it is near impossible to manage such amount of waste in the future as around 30% of waste end up on the roads and public places due to ineffective disposing and collecting methods. Not only that, there is even no systematic methodology for the collected garbage for treating and recycling thus most of them end up in land filling and river water making environment unhealthy . **AFTER**: Reduce the number of bins required & DE-cluttering and improving the street scene 4 after	problem, we have designed a process that ensures proper disposal and efficient waste collection. The procedures we designed involves creative initiative that will inspire people to dump in designated area or bins, and innovative method by using Decreasing Time algorithm or DTA for monitoring garbage generation and collection of the garbage's.	**OFFLINE:** A customer would not fill their waste in unwanted place. Place their waste in right bins.