Project Design Phase
Problem – Solution Fit

Date	25 June 2025
Team ID	LTVIP2025TMID36697
Project Name	Smart Sorting: Transfer Learning for Identifying Rotten Fruits and Vegetables
Maximum Marks	2 Marks

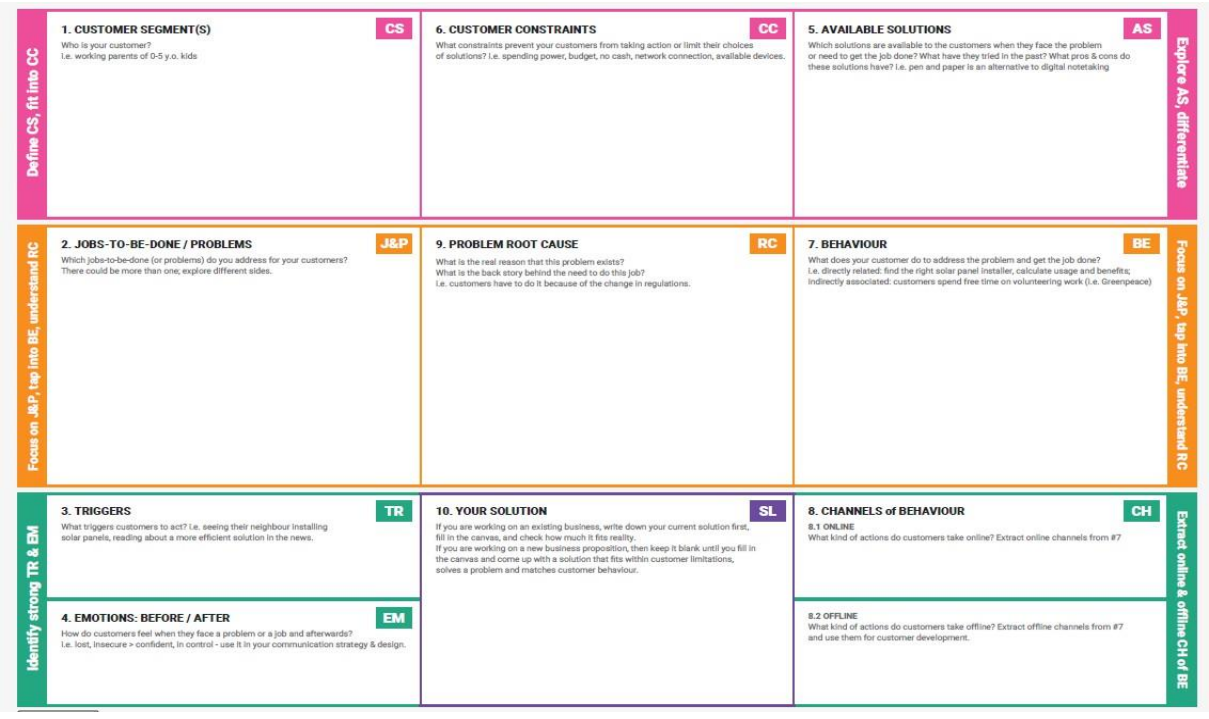
Problem – Solution Fit :

The Problem-Solution Fit simply means that you have found a problem with your customer and that the solution you have realized for it actually solves the customer's problem. It helps entrepreneurs, marketers and corporate innovators identify behavioral patterns and recognize what would work and why

Purpose:

- ❑ Solve complex problems in a way that fits the state of your customers.
- ❑ Succeed faster and increase your solution adoption by tapping into existing mediums and channels of behavior.
- ❑ Sharpen your communication and marketing strategy with the right triggers and messaging.
- ❑ Increase touch-points with your company by finding the right problem-behavior fit and building trust by solving frequent annoyances, or urgent or costly problems.
- ❑ Understand the existing situation in order to improve it for your target group.

Template:



1. CUSTOMER SEGMENT(S) (CS)

- Grocery store managers
- Food wholesalers and distributors
- Supermarket chains
- Agro-processing unit operators
- E-commerce produce sellers

2. JOBS-TO-BE-DONE / PROBLEMS (J&P)

- Identify and remove rotten fruits/vegetables before they reach customers
- Automate the sorting process to reduce dependency on manual labour
- Minimize spoilage losses due to overlooked rot
- Ensure consistent quality control at scale

3. TRIGGERS (TR)

- Customer complaints or returns due to spoiled produce
- Revenue loss due to undetected rot spreading to fresh stock
- Seasonal labour shortages or high inspection costs
- Competitor adoption of smart automation solutions

4. EMOTIONS: BEFORE / AFTER (EM)

Before:

- Frustrated with inconsistent quality
- Worried about revenue loss and customer dissatisfaction
- Overwhelmed by labour dependency

After:

- Confident in quality control
- Relieved with reduced spoilage and higher profits
- In control with real-time AI-based inspection

5. AVAILABLE SOLUTIONS (AS)

- Manual sorting by staff
- Color sensors or moisture detectors
- Traditional machine vision systems (rule-based)
- Random sample quality checks

6. CUSTOMER CONSTRAINTS (CC)

- Budget limitations for expensive hardware systems
- Limited AI or tech knowledge for setup
- Lack of consistent internet/power in rural areas
- Resistance to operational change from staff

7. BEHAVIOUR (BE)

- Current: Visually inspect produce during packaging
- Some: Use manual rejection based on smell/feel
- Others: Outsource inspection to trained labourers
- Indirect: Delay sorting until visible spoilage appears

8. CHANNELS OF BEHAVIOUR (CH)

8.1 ONLINE

- Use YouTube for training sorting staff
- Participate in forums (e.g., agri-tech LinkedIn groups)
- Search for AI-based quality control tools

8.2 OFFLINE

- Hire local labourers for manual sorting
- Attend agri-tech expos and vendor demonstrations
- Consult supply chain tech advisors

9. PROBLEM ROOT CAUSE (RC)

- Manual inspection is inconsistent and unscalable
- No affordable, easy-to-use smart inspection tools exist
- Lack of awareness of the potential of AI/transfer learning in produce quality detection

10. YOUR SOLUTION (SL)

- An AI-powered sorting tool that uses transfer learning to detect rotten produce via images
- Can be deployed on mobile or camera-based conveyor systems
- Affordable, adaptable to various types of produce, and user-friendly
- Offers real-time insights, reducing spoilage and inspection time