

Project Design Phase

Problem – Solution Fit Template

Date	June 2025
Team ID	LTVIP2025TMID33624
Project Name	Smart Sor6ng: Transfer Learning For Iden6fying RoEen Fruits And Vegetables
Maximum Marks	2 Marks

Problem – Solution Fit Template:

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:

Define CS, fit into CC	1. CUSTOMER SEGMENT(S) <small>Who is your customer? I.e. working parents of 0-5 y.o. kids</small>	CS	6. CUSTOMER CONSTRAINTS <small>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.</small>	CC	5. AVAILABLE SOLUTIONS <small>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</small>	AS	Explore AS, differentiate
Focus on J&P, tap into BE, understand RC	2. JOBS-TO-BE-DONE / PROBLEMS <small>Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one, explore different sides.</small>	J&P	9. PROBLEM ROOT CAUSE <small>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.</small>	RC	7. BEHAVIOUR <small>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)</small>	BE	Focus on J&P, tap into BE, understand RC
Identify strong TR & EM	3. TRIGGERS <small>What triggers customers to act? I.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.</small>	TR	10. YOUR SOLUTION <small>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.</small>	SL	8. CHANNELS of BEHAVIOUR <small>8.1 ONLINE What kind of actions do customers take online? Extract online channels from #7</small>	CH	Extract online & offline CH of BE
	4. EMOTIONS: BEFORE / AFTER <small>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.</small>	EM			8.2 OFFLINE <small>What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.</small>		

1. CUSTOMER SEGMENT(S) (CS)

- Home users (cooking parents, students, elderly)
- Grocery store managers and vendors
- Restaurant and kitchen staff
- Health-conscious buyers

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

- Need to identify if fruits and vegetables are rotten or fresh
- Avoid wasting edible food
- Prevent consumption of spoiled items that may cause health issues
- Maintain inventory quality in stores or kitchens

3. TRIGGERS (TR)

- Fruit or vegetable looks fine but tastes bad
- Unpleasant smell after storage
- Family members fall sick after eating spoiled food
- Losing money due to wasted food or returned groceries

4. EMOTIONS: BEFORE / AFTER (EM)

- **Before:** Confused, unsure, worried, wasteful
- **After:** Confident, reassured, safe, cost-effective

5. AVAILABLE SOLUTIONS (AS)

- Manual inspection (look, smell, touch)
- Expiry date tracking apps
- Store-provided quality labels
- None are accurate or scalable

Pros: Free or simple methods

Cons: Highly subjective, error-prone, time-consuming

6. CUSTOMER CONSTRAINTS (CC)

- Lack of technical knowledge
- No access to lab testing or smart tools
- Budget limits for households or small stores
- No easy-to-use or affordable tech available

7. BEHAVIOUR (BE)

- Smell and squeeze fruits manually
- Google ways to detect spoilage
- Throw food if unsure
- Shop more frequently to avoid stockpiling

8. CHANNELS OF BEHAVIOUR (CH)

8.1 ONLINE:

- Google search, YouTube tutorials
- Mobile apps for food tracking
- Reviews on grocery apps

8.2 OFFLINE:

- Ask family/friends for advice
- Rely on visual/sensory checks
- Shop locally and inspect produce personally

9. PROBLEM ROOT CAUSE (RC)

- Visual signs are not always accurate
- People lack tools to detect spoilage internally
- No common system to detect rottenness early
- Unawareness of storage methods and conditions

10. YOUR SOLUTION (SL)

- A web-based tool (Smart Sorting) that uses **Transfer Learning (VGG16)**
- Allows users to upload an image of fruits/vegetables
- Classifies them as **Fresh** or **Rotten**
- Provides **storage tips** and helps reduce food waste
- Easy-to-use UI with image upload and results in seconds

References:

1. <https://www.ideahackers.network/problem-solution-fit-canvas/>
2. <https://medium.com/@epicantus/problem-solution-fit-canvas-aa3dd59cb4fe>