

**Project Design Phase**  
**Problem – Solution Fit Template**

Date	15 February 2025
Team ID	LTVIP2025TMID32756
Project Name	Pollen’s Profiling:Automated Classification Of Pollen Grains
Maximum Marks	2 Marks

**Problem – Solution Fit Template:**

The Problem–Solution Fit means identifying a real and relevant problem faced by your target users and ensuring your proposed solution effectively addresses that problem. This template helps in mapping out user needs, constraints, existing alternatives, and defining how your solution creates meaningful improvements.

**Purpose:**

✓Solve complex problems in pollen identification by automating classification using AI and image processing.

✓Reduce time and human error by replacing manual microscopic methods with accurate automated systems.

✓Increase adoption of digital tools in palynology and environmental research by integrating accessible and efficient solutions.

✓Enhance communication and research collaboration by providing standardized and shareable pollen data.

✓Support large-scale ecological and agricultural studies with faster, more reliable pollen data analysis.

✓Understand the current manual workflow to improve accuracy, consistency, and scalability in pollen grain classification.

**Template:**

**Customer (Red Zone)**

Customer Segments – Botanists, palynologists, agri-researchers

Customer Constraints – Time-consuming, expert-dependent, manual

Available Solutions – Microscopic analysis, outdated tools

**Problem Space (Orange Zone)**

Jobs to Be Done – Classify pollen faster and accurately

Problem Root Cause – Manual processes and inconsistency

Behavior – Long hours on microscopy, error-prone

### Solution Space (Green Zone)

Triggers – Need for automation, big data in ecology

Your Solution – AI-based image classifier for pollen

Change in Behavior – More productivity and accuracy

Emotions Before/After – Frustrated → Confident

Usage – Used in research labs, web-based app

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

### References:

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