

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

Date	28 June 2025
Team ID	LTVIP2025TMID60547
Project Name	Sustainable Smart City Assistant Using IBM Granite LLM
Maximum Marks	2 Marks

**Problem – Solution Fit Template:**

**Problem:**

City administrators face challenges in monitoring urban sustainability, analyzing lengthy policy documents, detecting anomalies in resource usage, and forecasting KPIs due to fragmented data systems and lack of intelligent tools.

Citizens also struggle to report issues, access environmental information, and receive timely responses through existing channels.

**Solution:**

The **Sustainable Smart City Assistant** is an AI-powered platform designed to streamline urban governance and citizen interaction. It integrates:

- IBM Watsonx Granite LLM for chat, summarization, eco-tips, and automated reports
- FastAPI and Streamlit for interactive dashboards and backend processing
- Pinecone vector search for policy document retrieval
- Machine learning for KPI forecasting and anomaly detection
- A citizen feedback module for real-time issue reporting and category tagging

This holistic solution bridges the gap between data, decision-makers, and the public — improving urban management, sustainability, and engagement.

**Purpose:**

- To solve real-world smart city governance challenges using AI and data-driven methods.
- To accelerate decision-making for city officials with automated summaries, forecasting, and anomaly detection.
- To empower citizens with a responsive feedback system and AI-generated eco tips.
- To simplify complex policy communication through semantic search and summarization.
- To promote sustainable living and active civic participation using an AI-powered assistant.
- To reduce manual workload and improve the accuracy of resource planning and environmental monitoring.

## Template:

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

## References:

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