Visualization of CO2 consumption

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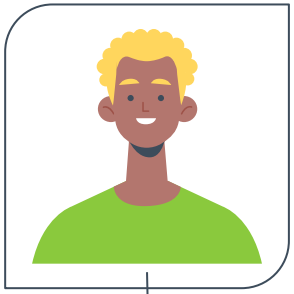
The problem overview

Lack of Awareness and Engagement in Reducing CO2 Consumption.

Key challenges:

- **Limited Visibility**
- **Ineffective Feedback Mechanism**
- **Lack of Engagement and Motivation**
- **Limited Transparency**

Focus personas



John

A busy parent who wants to create a sustainable lifestyle for their family. They aim to instill eco-friendly habits in their children and involve the whole family in reducing their carbon footprint. John seeks a user-friendly visualization tool that simplifies energy data and offers family-oriented suggestions for sustainable practices.

Aleena

A budget-conscious individual who wants to save money while also being mindful of her carbon footprint. She would like clear insights on her energy consumption patterns and how small changes can lead to significant cost savings and CO2 reduction.

The project overview

Goal

Develop a CO2 consumption visualization platform that promotes transparency, awareness, and engagement in reducing carbon emissions. The platform will empower individuals and communities to make informed decisions about their energy consumption and take proactive steps towards sustainability.

Technology

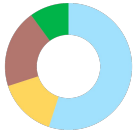
Flutter

Requirement baseline

1. Data Collection and Integration with smart meters and municipal databases or APIs
2. Real time visualisation and personalised recommendations
3. Community benchmarking
4. Rewards
5. User Management Authorisation

Features

Main features



01
Individual dashboard

02
Community Average

03
Reward System

04
Challenges & Alerts and Fault Detection

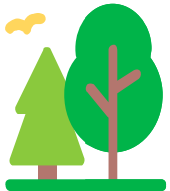
01 Individual Dashboard

Visualize individual energy consumption data

Smart meter integration to track CO2 emissions from household machines

Display daily, weekly, monthly, and annual consumption patterns

Comparison with community average

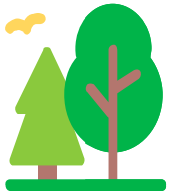


02 Community Average

Municipality data integration for calculating average CO2 consumption

Compare individual consumption with community average

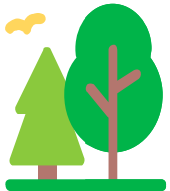
Highlight the impact of individual efforts on community-wide sustainability



03 Reward System

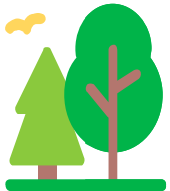
Streaks: "X days of using less than the community average"

Rewards tailored to each municipality's preferences (e.g., discounts, local benefits) - can be done



04

Community Challenges & Fault Detection (to be done)



Set collective goals for CO2 reduction (e.g., energy reduction percentage)

Track and display progress of each community in real-time

Detect anomalies in machine consumption

Alert users when machines consume more than normal

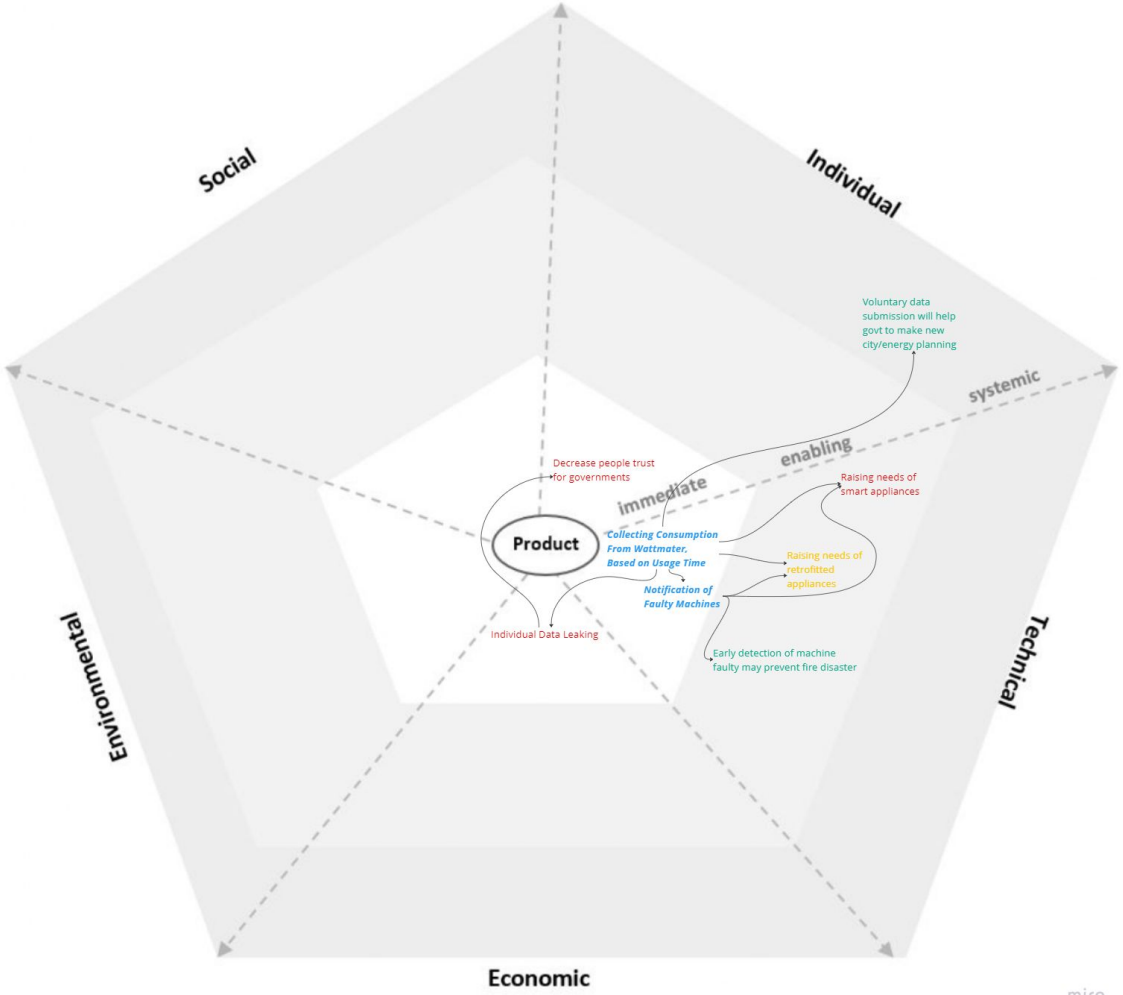
Encourage maintenance or switching to energy-efficient modes

Prototype

https://github.com/prism97/CO2-Tracker

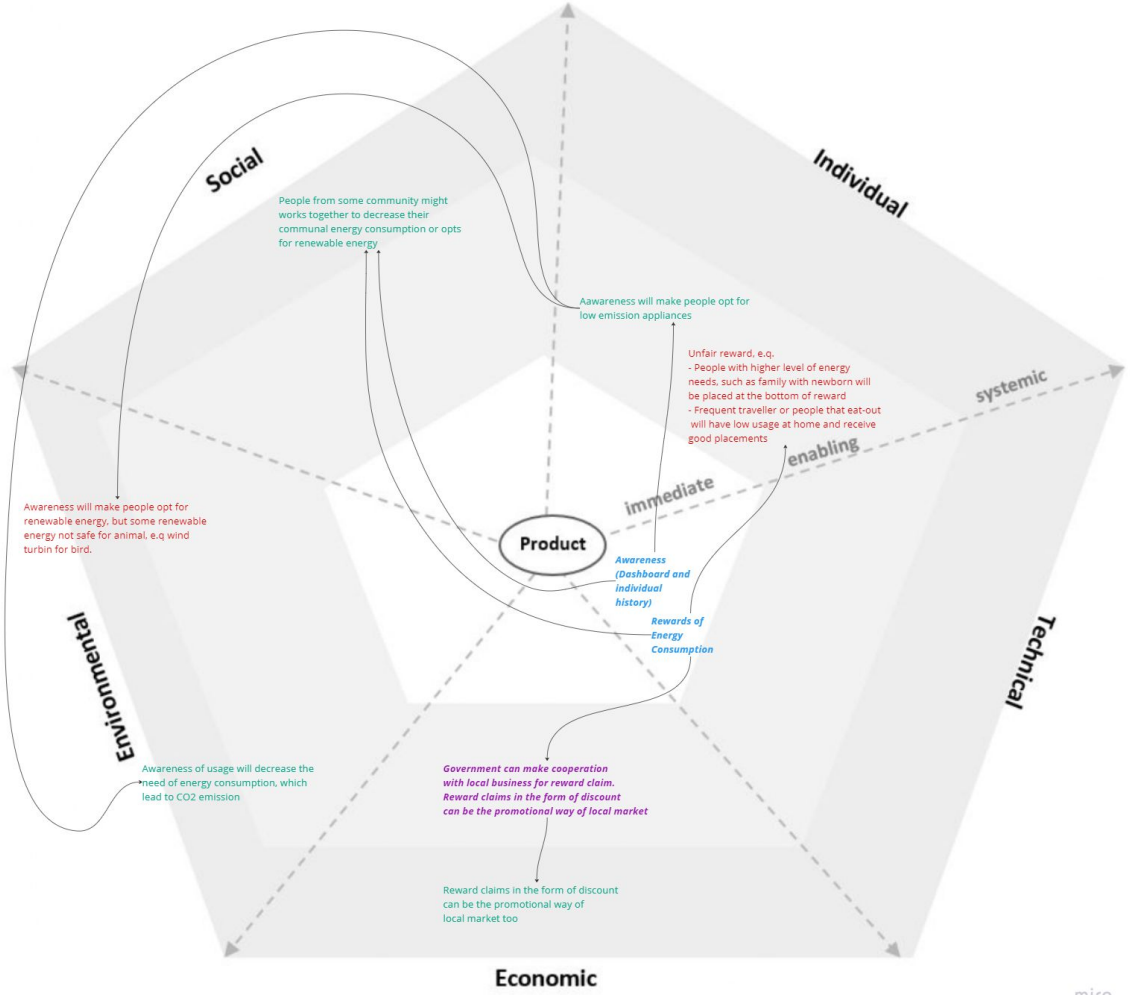
SusAF

SusAF


Social
Individual
Environmental
Technical
Economic
systemic
enabling
immediate
Voluntary data submission will help govt to make new city/energy planning
Decrease people trust for governments
Raising needs of smart appliances
Product
Collecting Consumption From Wattmater. Based on Usage Time
Raising needs of retrofitted appliances
Notification of Faulty Machines
Individual Data Leaking
Early detection of machine faulty may prevent fire disaster

miro

SusAF


Social
Individual
People from some community might works together to decrease their communal energy consumption or opts for renewable energy
Aawareness will make people opt for low emission appliances
Unfair reward, e.q.
- People with higher level of energy needs, such as family with newborn will be placed at the bottom of reward
- Frequent traveller or people that eat-out will have low usage at home and receive good placements
systemic
enabling
immediate
Awareness will make people opt for renewable energy, but some renewable energy not safe for animal, e.q wind turbin for bird.
Product
Awareness (Dashboard and individual history)
Rewards of Energy Consumption
Environmental
Technical
Awareness of usage will decrease the need of energy consumption, which lead to CO2 emission
Government can make cooperation with local business for reward claim. Reward claims in the form of discount can be the promotional way of local market
Reward claims in the form of discount can be the promotional way of local market too
Economic
miro

Threat and Opportunities

Threat		Actions	
1	Individual Data Leaking	→	1. Enhance Data Protection 2. Only Voluntary Data will be disclosed to government
2	Raising Needs of Smart Appliances	→	Try to Retrofitted before Buy New Appliances (Out of POC Scope)
3	People will buy new appliances when there are notification of energy leakage in devices	→	Encourage consideration of **repairs** before purchasing new appliances
4	People may opts for unsustainable renewable energy	→	**Give awareness** of the most sustainable options and when the best time to consume energy
5	Unfair reward, e.q. - People with higher level of energy needs, such as family with newborn will be placed at the bottom of reward	→	Government may give adjustment of such cases. Therefore, they can be put in different curves

Threat and Opportunities

Opportunities		Actions	
1	Promoting Local Market	→	Discount for local shop for the people with good streaks
2	Raising community connection with working together to reach lower emission	→	1. Dashboard that showing community consumption (Only for voluntary data) 2. **Communal events** for reducing CO2 emission (Out of scope for this POC)
3	**Raising Awareness** of People for how the best ways to decrease CO2 emission in sustainable ways	→	Making articles for promoting sustainable energy consumption (Out of scope for this POC)

Business

Customer Segments

Energy Consumers

Key Partners

Government / Electricity provider

Local Business

Media

Citizens

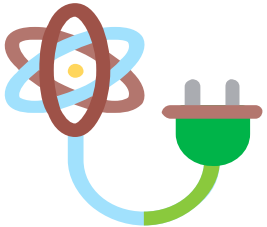
Key Resources

Data Sources: Access to accurate and comprehensive consumption data

Technology infrastructure

Wattmeter

Smart Appliances



Smart Grid

Customer relationship :

- On demand support
- Long-time support
- Easy to Use
- Engagement
- Monetary benefits

Promotion:

- Content Marketing
- Social Media Campaigns
- Partnership and Collaboration
- etc.

Cost structure :

- Advertising
- Rewards
- General operational expenses
- Research and developments

Revenue streams :

- Subscription model: basic features for free and Premium model for additional
- Data Partnership
- The saving of energy and cost to produce it.

Thanks!

be Sus AF :)