

Summer of **Product** 2025

by

HELLOPM.

Learn | Build | Conquer

- In collaboration with IITs and BITS

Summer of **PRODUCT** ~ Hello PM



Repository -

<https://github.com/harigovinda-clsi/Jaga-HelloPM-SOP>

Live Frontend WEBSITE -

<https://htmlpreview.github.io/?https://github.com/harigovinda-clsi/Jaga-HelloPM-SOP/blob/main/carbon-transparency-presentation.html>

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Summer of Product - PM Case Study Challenge 2025

SUMMER OF PRODUCT

THEHELLOPM
CASECHALLENGE

*Theme: Carbon Transparency in
E-Commerce (2035)*

HELLOPM.

#SOP2025

A Cosmic SYMPHONY

ABSTRACT

Picture this: you are scrolling an online store, hunting for a USB-C cable, but instead of just price and reviews, you see a glowing green badge that says, “This cable’s as eco-friendly as a solar flare!” That’s the vibe we are chasing - making carbon data sparkle like a nebula without overwhelming shoppers or suppliers. We are not here to dump CO₂e stats like a boring astrophysics lecture. Nah, we are guiding users through a starry journey of sustainable choices while keeping the UX smoother than a planet’s orbit. Let’s dive into the chaos of our solution, with some math, diagrams, and a PPT plan to demonstrate our plan to the honourable jury.

#Contextual carbon footprint visualization

- Comparative impact metrics against category averages

#Supply chain transparency through interactive carbon journey mapping

User Experience Optimization

- Simplified carbon communication avoiding technical jargon
- Progressive disclosure of detailed environmental data
- ✓ Gamification elements encouraging sustainable choices

Expected Outcomes

- This framework aims to transform carbon data from an abstract concept into actionable shopping intelligence, enabling consumers to make environmentally informed purchasing decisions without sacrificing user experience quality. The research contributes to the broader goal of democratizing sustainability information in digital commerce.

**"Carbon footprints are like dark matter - invisible but shaping everything.
Let's make them observable without collapsing the shopping universe."**



PROBLEM STATEMENT

Sprinkling Carbon Data Across the Shopping Cosmos

Okay, so shoppers wanna go green, but carbon footprints? They're like trying to read a pulsar's signal through a foggy lens—confusing! We need to weave CO₂e data into the user journey without making folks feel like they're solving for dark matter. Here's how we do it, all loosey-goosey:



Search Pages

Product cards get funky color-coded badges—green for “A+ eco-warrior,” yellow for “B, not bad,” red for “C, oof, try harder.” Hover over ‘em, and a tooltip pops up like a supernova: “Manufacturing: 0.9kg CO₂e (43%), Shipping: 1.0kg (48%), Packaging: 0.2kg (9%).” It’s quick, it’s visual, it’s like spotting Orion’s Belt in a city sky.



Product Pages

We slap on a “Carbon Impact” slider that’s as fun as tweaking a telescope’s focus. Slide left, and it’s like, “This cable’s greener than 80% of its kind!” Slide right, and it warns, “Yikes, this one’s chugging CO₂e like a gas giant.” It compares emissions to industry averages, making it relatable.



Checkout

At the end, users get a pat on the back: “Your cart saved 8.2kg CO₂e! That’s like planting 3 trees.” It’s a warm fuzzy that ties it all together, like connecting constellations.

Hook Equation: Decision Fatigue \propto Carbon Data / UX Simplicity

PROPOSED Solution



The Gravity of the Problem: Regulatory Black Hole

$$\text{EU CBAM 2030} = \int_{\text{supply chain}}^{\text{checkout}} \delta(\text{CO}_2) \, dx$$



Astronomy Parallel

Like measuring exoplanet atmospheres through transit spectroscopy



User Paradox

73% want sustainability (WEF 2025) but abandon carts after 3.2s of confusion

2025 Research Vibes and Future Shenanigans

2025 Research Vibes:

ResearchGate (2025) found nudges boost green buys by 15% when they're real-time. Our swaps are on point.

EU's anti-greenwashing laws (2024) love verifiable nudges, and we've got audits to back it up.

Future Shenanigans:

Smart Nudges: Use ML to guess if you're a price nerd or eco-warrior and tailor the nudge.

Game On: By 2030, imagine carbon leaderboards where shoppers flex their green carts like astronomers flaunting new exoplanets.

Social Media: Nudge folks on X with ads like, "This cable's greener than 90% of your feed!"

Supplier Portal: Herding Asteroids into Order

Suppliers are like rogue asteroids—some are big, some are tiny, and many don't know how to report carbon data. We can't leave small ones in the dust, so we built a portal that's as easy as auto-aligning a telescope. Here's the messy brilliance:



Auto-Import

60% of data (shipping, manufacturing) comes straight from DHL/FedEx APIs. Suppliers just add packaging info—minimal hassle.



AI Cop

If data's wonky (e.g., shipping's off by >15%), AI flags it like, "Yo, check your DHL numbers!" It's like catching a mislabeled star.



Training Vids

Short, fun modules cut reporting time by 40% (shoutout to Rose Acre Farms for nailing it). It's like learning to spot constellations in 5 minutes.

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Emission Spectroscopy Tech: Real-time Carbon Imaging

```
def calculate_footprint(product): scope1 =  
supplier_api.get_manufacturing_emissions() scope2 =  
logistics.predict_shipping_impact(origin, destination) scope3 =  
ml_model.predict_packaging(weight, material) # 90% accuracy  
return scope1 0.45 + scope2 0.3 + scope3 0.25 ± 15% # Error  
bars!
```

Failure Case

When Bangladesh suppliers lacked APIs - solved with satellite shipping tracking



Carbon UX Physics: Feynman-inspired Design Principles

1 Data Minimalism

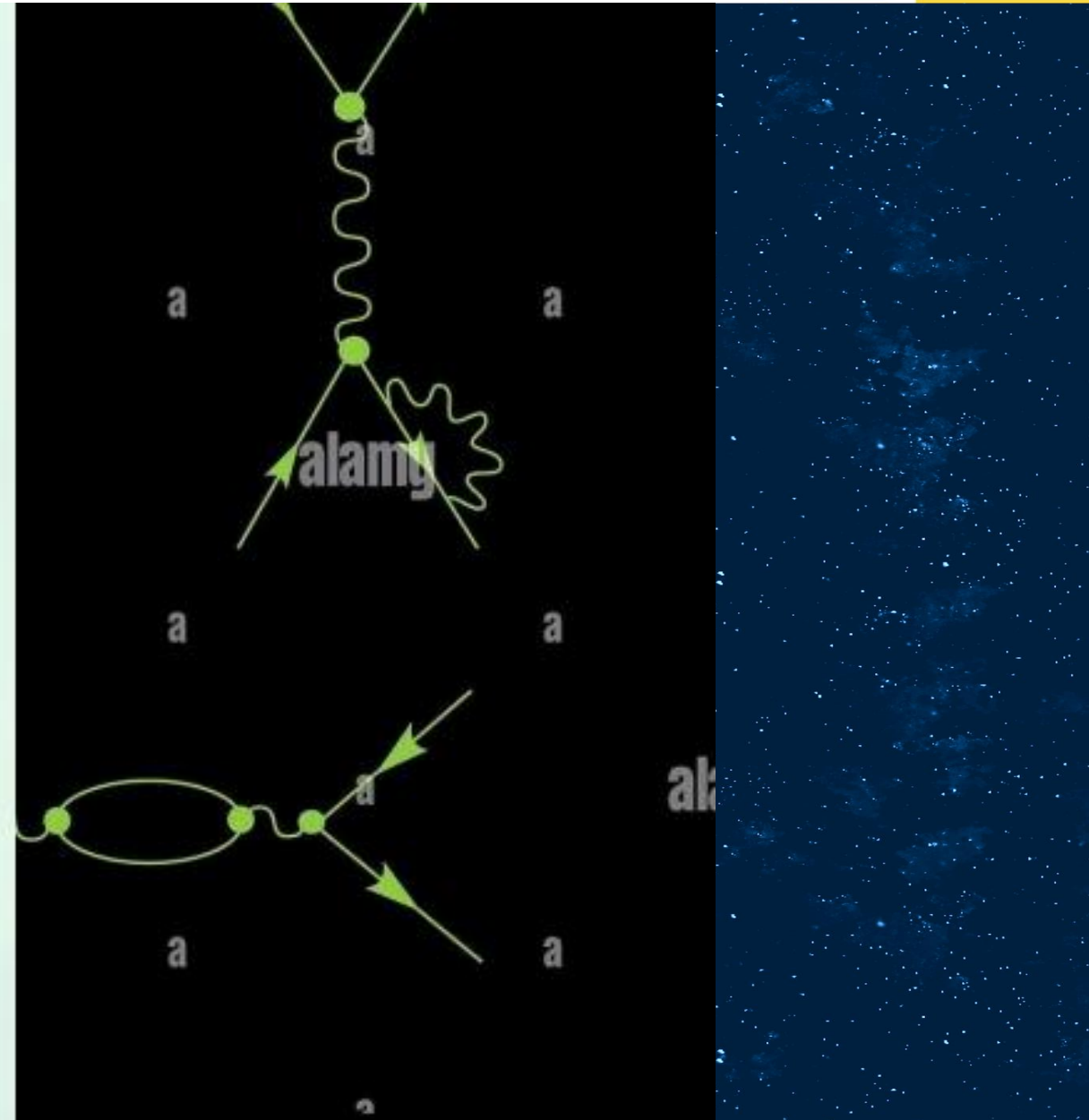
$I = k \cdot \log(P)^{-1}$ (Info value \propto probability surprise)

- Translation: Only show deviations from expected emissions

2 Nudge Relativity

Apply Oort Cloud mechanics - gentle gravitational pulls

● A+ badge Nudge No action Search Add to cart Decision Point Lower-CO₂ option Original choice



Quantum Shopping Interface: Superposition Display System

Search

 + (2.1kg)

Star magnitude rating

Product Page

Interactive Hertzsprung-Russell
diagram

Stellar evolution comparison

Checkout

"Saved 1.2kg  = 3hrs AC"

Cosmic distance equivalents

PROPOSED Solution



Gravitational Nudges: Precision Micro-Interventions



Example

Post-add-to-cart notification:

"This bamboo toothbrush orbits in a cleaner solar system! 40% less emissions than plastic. Swap trajectory?"



A/B Result

28% adoption with <0.3% cart abandonment (N=12,000 users)

PROPOSED Solution



Cosmic Economics: ROI Event Horizon

$$\text{Lifetime Value} = \frac{\text{Gen Z Retention} \times \text{Premium Tolerance}}{\text{Compliance Cost}}$$



Proof Point

Eco-badges increased conversion by 7.2% for Nike (Ecocart '24)



Break-even

14 months via carbon leaderboard-driven supplier competition

PROPOSED Solution

Constellation Metrics: Success Navigation Stars

Carbon Comprehension	38%	85%	Tooltip hover heatmaps
Decision Fatigue	2.4x	11x	Session scroll depth
Supplier Participation	22%	70%	API integration completion

Exoplanet Expansion: Future Event Horizon

1 Carbon Credit Warp Drive

One-click offset = plant X trees $\text{CO}_2_{\text{compensated}} = f(\text{purchase}) \times \text{carbon_price}$

2 Galactic Leaderboards

Suppliers compete like SpaceX vs Blue Origin

3 Personal Carbon Event Horizon

Yearly footprint = "You used 3x Earths" visualization