Systems Thinking Hackathon 2025
Team Report

Team Details

Team Name: Raiders

Team Members:

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Problem Domain: E-Commerce

Specific Problem Statement: Informal Economy vs Platform Economy (Why do small and local sellers struggle to thrive on large e-commerce platforms in India, despite the promise of digital inclusion and reach?)

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1. Introduction to the Problem

1. Brief Background of the Selected Problem:

Despite the rapid expansion of e-commerce in India, small and local sellers are struggling to integrate into the digital marketplace. While platforms like Amazon and Flipkart promise wide reach and economic inclusion, they tend to favor large, well-established sellers. Small vendors face high commission charges, limited digital literacy, and poor visibility due to algorithmic bias. Additionally, complex logistics and return policies create operational challenges that further marginalize these sellers, keeping them on the fringes of the digital economy.

2. Why is it an Important/Systemic Issue in the Indian Context:

India's economy is heavily dependent on its informal sector, with millions relying on small-scale trade for their livelihoods. The current platform-centric e-commerce model exacerbates inequality by structurally excluding these sellers. This deepens the digital divide, hinders inclusive economic growth, and undermines local businesses and innovations that are vital to India's socio-economic fabric.

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2. Process Followed

1. Research Lead
Conducted structured research on the real-world problem, identifying surface events, patterns, and underlying structures. Supported variable selection for the CLD.

2. System Analyst
Developed the Causal Loop Diagram using Vensim. Mapped key variables, causal links, and feedback loops. Identified leverage points and system archetypes.

3. Insights Writer
Analyzed system behavior using the Event → Pattern → Structure framework. Provided narrative insights, mapped interventions, and proposed structural redesigns.

4.Output Designer

Created the final output (Video/Web). Designed visual storytelling for CLD and insights, ensuring clarity and engagement.
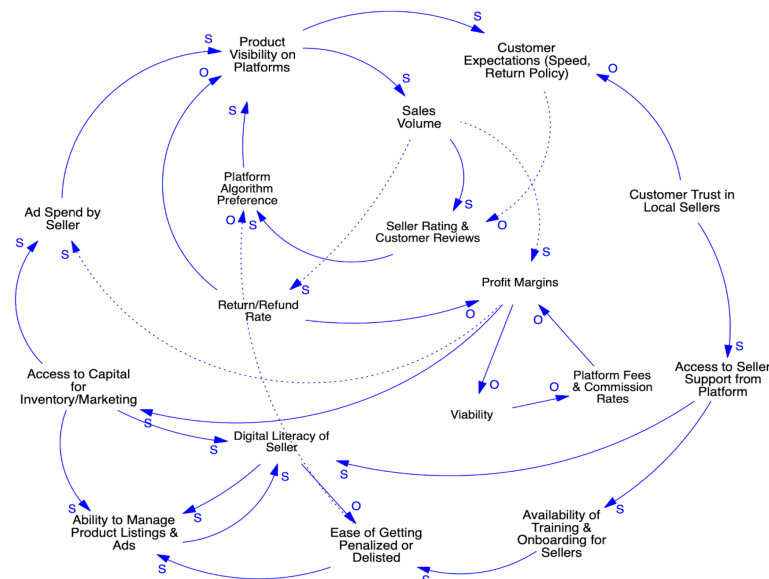
5.Report Manager

Compiled and formatted the report. Coordinated submission materials (Vensim model, CLD image, output URL/video) and ensured deadlines were met.

We worked in parallel and iteratively, integrating mentor feedback at key stages for refinement.

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3. Causal Loop Diagram (CLD)

Variable	Definitions
Product Visibility on Platforms	How easily customers find a seller's products.
Sales Volume	Total number of units sold.
Customer Expectations	Customer demands on delivery speed and return policy.
Customer Trust in Local Sellers	Confidence in buying from domestic sellers.
Access to Seller Support	Help provided by the platform to sellers
Platform Fees & Commission Rates	Charges taken by the platform from each sale
Profit Margins	Earnings after deducting costs.
Viability	Long-term sustainability of the seller.
Seller Rating & Customer Reviews	Feedback scores from buyers
Return/Refund Rate	Percentage of products returned or refunded.
Platform Algorithm Preference	How much the platform promotes a seller.
Ad Spend by Seller	Money spent on platform advertising
Access to Capital	Funds available for inventory and marketing.
Digital Literacy of Seller	Ability to use digital tools effectively.
Ability to Manage Listings & Ads	Skill in handling product info and ads.
Ease of Getting Penalized or Delisted	Likelihood of being removed due to platform violations
Availability of Training & Onboarding	Access to learning resources from the platform.

Causal Loop Diagram labels:

Product Visibility on Platforms · Customer Expectations (Speed, Return Policy) · Sales Volume · Platform Algorithm Preference · Customer Trust in Local Sellers · Ad Spend by Seller · Seller Rating & Customer Reviews · Profit Margins · Return/Refund Rate · Access to Seller Support from Platform · Platform Fees & Commission Rates · Viability · Access to Capital for Inventory/Marketing · Digital Literacy of Seller · Ability to Manage Product Listings & Ads · Ease of Getting Penalized or Delisted · Availability of Training & Onboarding for Sellers

4. Leverage Points Analysis

Leverage Point	Thinking in Systems (by Donella Meadows) Category	Why Important	Expected Impact
Access to Technology and Infrastructure	Resources (#1)	Small sellers do not have the tech and infrastructure to compete.	Tech support makes selling allow sellers to digitalize and expand.
Platform Algorithms and Visibility	Rules of the System (#3)	Small sellers are invisible because of discriminatory algorithms.	Changing algorithms boosts seller visibility and sales.
Transaction Costs and Commission Structures	System Rules (#3)	High fees decrease profitability for small sellers.	Lowering fees increases seller margins and invites participation.
Digital Skills and Competency Development	Information Flows (#6)	Sellers are not digitally skilled to optimize platform capacity.	Training enhances operational performance and sales.
Cultural Mindset Shift (Paradigm Shift)	Paradigms (#12)	Resistance to e-commerce adoption constrains expansion.	Shifting mindsets gives rise to greater platform adoption and success.
Building Trust and Customer Relationship Management	Feedback Loops (#8)	Customer distrust hinders customer loyalty and return sales.	Improved systems of feedback develop trust, fostering repeat business.
Market Segmentation and Niche Targeting	Self-Organization (#7)	Small sellers find it difficult to target niche markets.	Supporting niche marketing helps small sellers grow and differentiate.
Access to Financing and Credit	Resources (#1)	Limited capital hinders growth and scalability.	Access to credit facilitates investment in business growth and competitiveness.

5. System Archetypes

System Archetype	Description	Impact
1. Limits to Growth	Growth is limited for small sellers owing to limitations such as high fees and technology gaps.	Sellers hit a growth wall and can't scale past a certain point because the system is limiting their expansion.
2. Shifting the Burden	Sellers depend on temporary measures such as ads and visibility increases rather than dealing with underlying issues (e.g., insufficient skills or technology).	Temporary measures lead to a cycle of reliance, not allowing sellers to address the underlying issues that will trigger long-term expansion.
3. Tragedy of the Commons	The e-commerce sites favour larger sellers, giving the smaller ones less choice.	The platform is flooded with big sellers, and small sellers lose their competitive advantage, diluting the platform's diversity.
4. Escalation	Small and big sellers intensify their marketing, offering more discounts to compete.	Small vendors are unable to keep pace, suffering financial hardship and even exiting the platform due to unsustainable competition.
5. Fixes that Fail	Band-aid solutions, such as fee cuts, are ineffective in dealing with underlying issues such as inadequate training and resources.	The system ultimately defaults back to its initial state, frustrating sellers and unable to transcend the actual issues.
6. Accidental Adversaries	Policies on the platform inadvertently benefit bigger sellers at the expense of smaller sellers.	Small sellers lose exposure and chances, reducing the platform's diversity and inclusiveness, damaging the entire ecosystem.

6. Event → Pattern → Structure Analysis

Layer	Description	Existing Interventions	Analysis	Proposed Structural-Level Redesigns
Event	**Surface issues**: Small and local sellers struggle on large e-commerce platforms due to low sales, high exit rates, poor visibility, and over-reliance on intermediaries.	Platforms offer promotions, fee discounts, and training webinars for small sellers.	Temporary interventions focus on surface-level issues (events), such as sales promotions or training, but fail to address the deeper causes. Sellers often face a cycle of joining the platform, struggling, and eventually exiting.	**Localized Market Segmentation**: Allow hyperlocal buyer-seller matching to increase relevance and reduce delivery friction.
Pattern	**Recurring trends**: Small seller churn, increasing dominance of large brands, platform dependency, and unbalanced support between sellers. Small sellers start strong but falter due to visibility and cost challenges.	Government schemes like *ONDC* and *Digital MSME* programs aim to boost digital adoption among sellers.	Despite initiatives like *ONDC*, most interventions are short-term and do not disrupt the overarching patterns of platform dynamics. Large sellers continue to dominate, and smaller sellers are left at a disadvantage.	**Inclusive Algorithm Design**: Create platform algorithms that prioritize local or new sellers, ensuring visibility parity alongside larger sellers.
Structure	**Systemic structure**: Platforms favour large sellers through algorithms, high commission fees, and market dominance. Limited support structures for small sellers in terms of tech, capital, logistics, and training.	Few interventions address structural issues; mostly policy-driven initiatives at the surface level.	Structural issues remain unaddressed, such as algorithms that favour large sellers and commission structures that don't scale to smaller sellers. The lack of holistic support means small sellers struggle to grow and compete effectively.	**Tiered Commission Models**: Implement commission structures that scale with seller size, making it more affordable for smaller sellers to thrive.

Additional Insights

1. Winner-Takes-All Dynamic:-

Finding: The big sellers rule platforms because of algorithms, visibility, and economies of scale,the small sellers have no chance.
Question: How do platforms ensure fairness in algorithms that balance visibility for large sellers and small sellers?

2. Excessive Transaction Fees

Finding: Margins of small sellers are being squeezed by high platform commission and ad spend, and growth is hard to sustain.
Question: Would tiered commission models or cost savings by seller size be enough to allow small businesses to survive without detracting from platform
Profitability?

3. Digital Adoption Gap Finding:

The majority of small sellers are digitally apprehensive due to resource and training problems, hindering them from selling online.
Question: How can platforms and government initiatives facilitate the adoption of digital by rural and underserved area small sellers in an easier and more
a convenient way?

4. Dependence on Platforms

Finding: The small retailers rely only on e-commerce websites for selling, which undermines their autonomy and control in managing the brand.
Question: Would small traders most probably gain from a more diversified digital approach?