

Conducting on-chain ratings for sellers and buyers in e-commerce

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1. Background and Problem Recognition

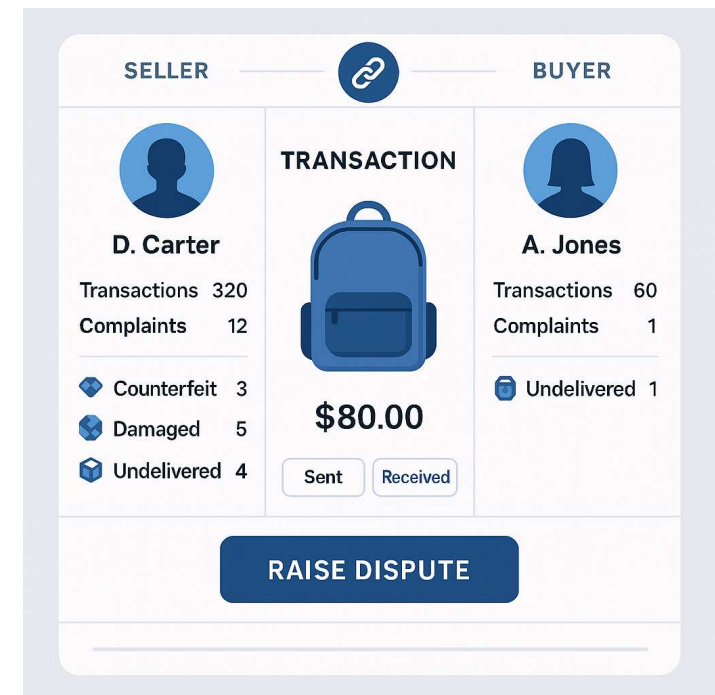
- The cross-border e-commerce market is projected to reach approximately **\$5 trillion by 2025** (a year-on-year growth of +12%) and is expected to surpass **\$7 trillion by 2030**.
- However, losses from counterfeit goods and fraud amount to nearly **\$500 billion annually**, with particularly high incidences in the **fashion, cosmetics, and electronics sectors**.
- While the impact on buyers is severe, sellers also suffer from **chargeback fraud** and **abuse of refund policies**, resulting in significant financial damage. This **mutual lack of trust** between buyers and sellers has become a major barrier to further market expansion.

2. Structure of Existing Problems

- **Seller-side Issues**
- **Chargeback Fraud (Friendly Fraud):** Cases where buyers receive the product but falsely claim that it “did not arrive” and demand a refund.
- **Refund Policy Abuse:** Includes unjustified returns after use, product swapping, or fraudulent returns.
- **Buyer-side Issues**
- Receiving counterfeit or poor-quality goods.
- Products never arriving, with no refund provided.
- Increasing damage caused by malicious e-commerce sites, often promoted through **SNS advertisements**.

3. Basic Policy of Service Design

- **Design Favoring Sellers, While Eliminating Malicious Operators**
- Service fee: 3% of sales collected from sellers.
- Transparency of transaction history and evaluations (negative reviews + transaction count) on-chain.
- No positive evaluations are introduced, preventing manipulation and fake reviews.
- **Mechanisms for Buyer Protection**
- A **“Inspection Complete” button** finalizes the payment only after the buyer confirms product arrival.
- A **“Dispute” button** allows buyers to submit claims of counterfeit or non-delivery, with supporting evidence.
- No immediate refund is provided; instead, if a seller is proven fraudulent through the accumulation of negative evaluations, the buyer is rewarded with a **contribution fee**.
- Buyers’ dispute history is also viewable by sellers.



4. Incentive Design

- **Initial Proposal**

- No direct refunds to buyers; priority is placed on preventing future damages.
- Contributing buyers are rewarded with a “**Crown**” **badge** and monetary rewards.

- **Considered Alternatives**

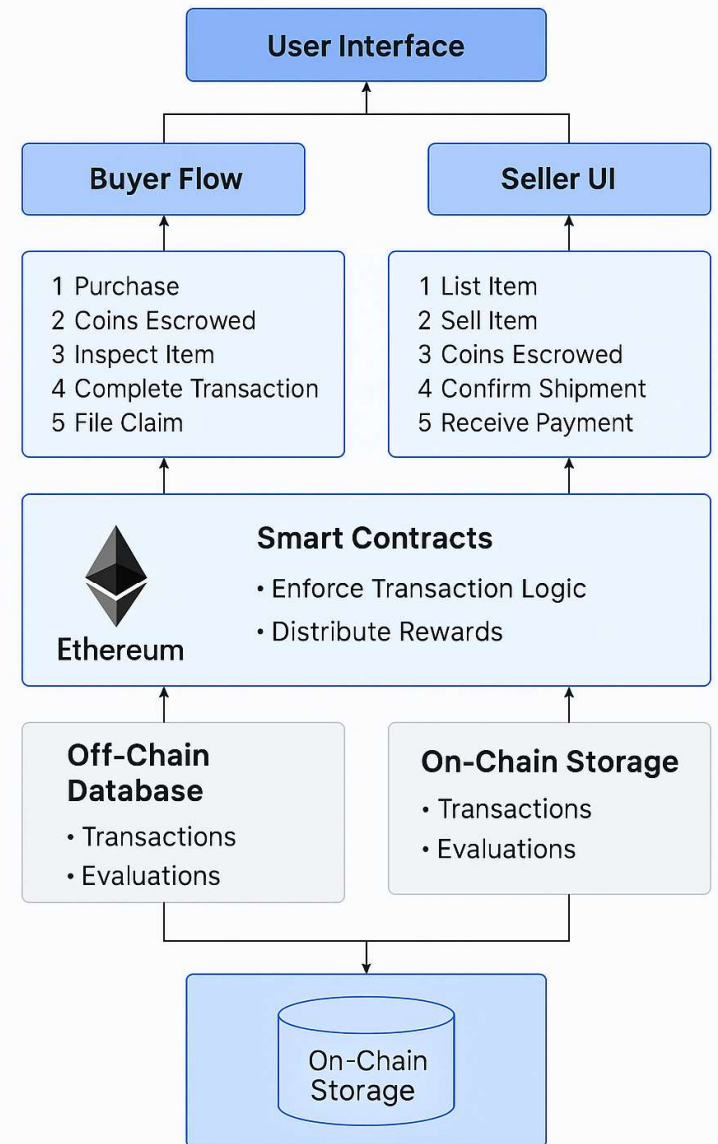
- A two-tier reward system (partial compensation + contribution reward) was examined.
- However, it was rejected due to concerns that partial compensation could incentivize fraudulent claims.

- **Final Decision**

- In the initial phase, the focus is on transparency through **negative evaluations + transaction counts + negative evaluation tags**.
- **AI-based scoring** will be introduced in **Phase 2** as an enhancement.

5. Operational & Expansion Roadmap

- **Phase 1 (Initial Version)**
- **Evaluation System:** Negative review count, transaction count, and negative review tags.
- **On-chain history browsing** functionality.
- **Payment hold & inspection approval flow** for final settlement.
- **Phase 2 (Post Data Accumulation)**
- **Introduction of AI scoring** for trust and fraud detection.
- **High-accuracy fraud detection models** leveraging historical patterns.
- **Expanded evaluation UI** to visualize both sellers and buyers.



6. Strengths of This Design

- **Seller protection as the foundation**, while elevating overall market trust through the visualization of fraudulent behavior.
- **Tamper-proof transaction records** enabled by on-chain storage.
- **Balancing short-term and long-term impacts**: reduces immediate refund costs while achieving mid-to-long-term fraud reduction and market revitalization.

X. Zircuit specific

- In cases of invalid transactions, I believe Zircuit's Sequencer-Level Security (SLS) mechanism is particularly well-suited.