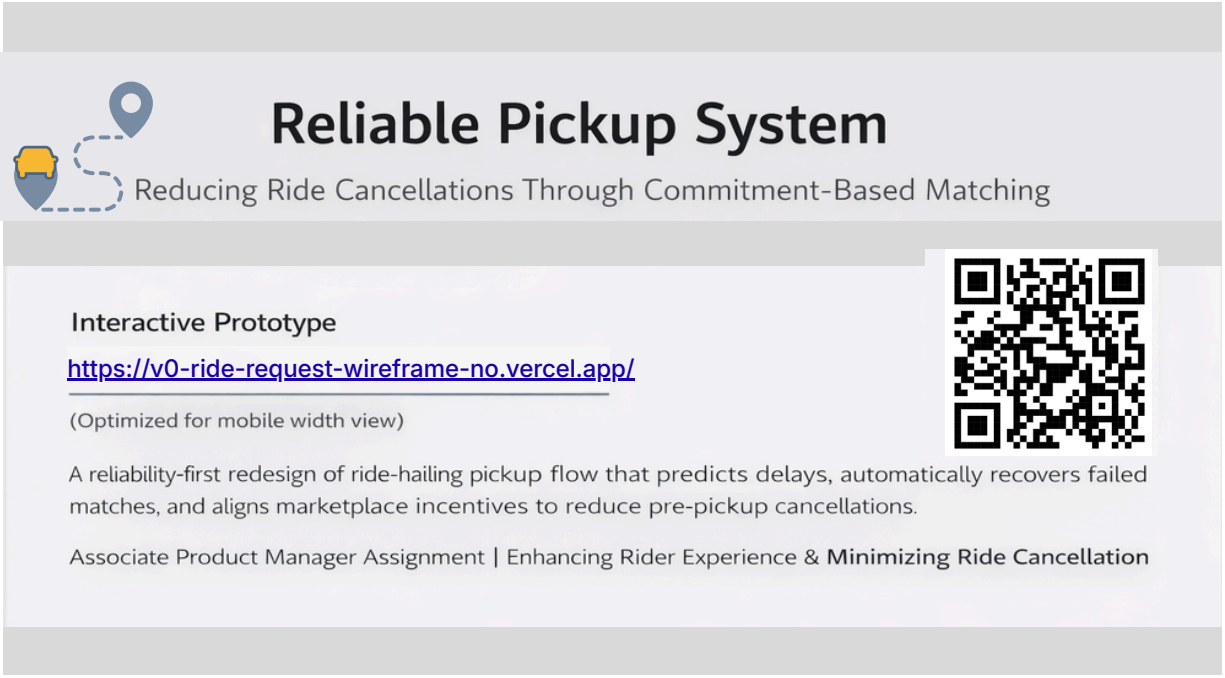


1. EXECUTIVE SUMMARY

On-demand mobility platforms face significant pre-pickup cancellations not due to low demand, but due to uncertainty around driver arrival. This uncertainty weakens user trust, distorts demand signals, and lowers overall marketplace efficiency.

The **Reliable Pickup System (RPS)** converts ride matching into a reliable commitment by combining reliability prediction, arrival guarantees, and automatic recovery. This increases rider confidence, discourages multi-app hedging, and strengthens long-term marketplace value.

2. PROBLEM DEFINITION

Cancellations stem from a break down in the implicit contract between the rider and the platform. Key Factors s include:

- **Trust Breakdown**: Drivers appearing stationary on the map or moving in the opposite direction leads riders to assume a "silent rejection."
- **Time Uncertainty**: Fluctuating ETAs (e.g., 4 mins becoming 12 mins) trigger anxiety and rescheduling.
- **Remote Pickup Rejection**: Drivers accept, then cancel once they see the long, low-value pickup.
- **Multi-App Hedging**: Riders book multiple apps and keep only the fastest arrival.

This behavior creates a "Ghost Demand" loop, inflated demand leads to surge pricing, which further frustrates users and reduces driver conversion, harming overall marketplace health.

Stakeholder Analysis:

Key Stakeholder Concerns

Stakeholder	Root Cause	Research Evidence	Source
Driver	Undesirable destination	~74% cancellations	CX Quest analysis of Uber
Driver	Earnings mismatch	Driver dissatisfaction	Next Leap marketplace case
Rider	Waiting uncertainty	ETA variability strongly affects	Travel Time Estimation
Rider	Trust breakdown	Service failure increases	Travel Time Estimation
System	Supply imbalance	Higher demand density increases	MDPI Applied Sciences ride-matching
System	Poor matching	Matching quality prediction	arXiv ride-matching

N.B. Multiple academic and industry studies show ride cancellations are driven by reliability uncertainty and incentive mismatch, not due to demand shortage.

3. CORE INSIGHT

The psychological threshold for cancellation is reached when **Perceived Certainty < User Trust Threshold.**

Most platforms focus exclusively on reducing ETA. However, a rider is more likely to wait 10 minutes for a 100% certain ride than 5 minutes for a ride with a 50% chance of cancellation.

Reliability Formula: Pickup Reliability = Completed Rides / Total Booked Rides

4. GOALS & METRICS

Key Metrics Formulas

North Star Metric

$$\text{Pickup Reliability Rate} = \frac{\text{Completed Rides}}{\text{Booked Rides}}$$

Primary Metrics

$$\text{Cancellation Rate} = \frac{\text{Cancelled before pickup}}{\text{Booked Rides}}$$

$$\text{ETA Deviation} = |\text{Actual Arrival} - \text{Estimated Arrival}|$$

$$\text{Avg ETA Deviation} = \frac{\sum |A_i - E_i|}{n}$$

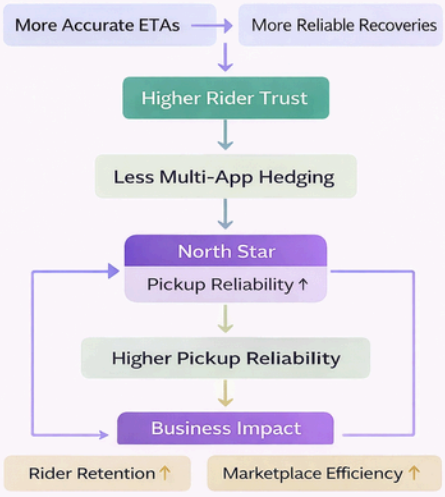
$$\text{Auto-Recovery Success} = \frac{\text{Failed matches}}{\text{Reses > aved by ressignment}}$$

Secondary Metrics

$$\text{Rider Retention (D30)} = \frac{\text{Users active after 30 days}}{\text{Users acquired}}$$

$$\text{Multi-App Hedging} = \frac{\text{Repeat bookings within 5 min}}{\text{Total bookings}}$$

Metrics Flow Diagram



5. SOLUTION: RELIABLE PICKUP SYSTEM

A. Reliability Confidence Score

Problem: Users fly blind after matching.

UX: A visual indicator (e.g., "**98% High Reliability**") shown next to the driver's profile, calculated based on the driver's historical completion rate for that specific route and time.

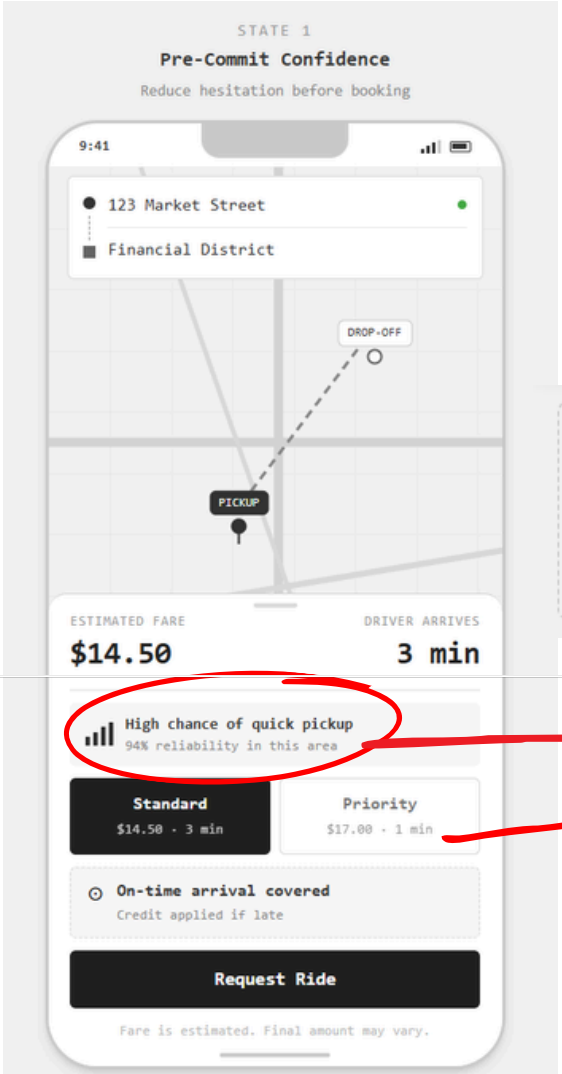
Market Impact: Sets realistic expectations and reduces the urge to multi-app.

B. Urgency Mode

Problem: Critical trips (e.g., airport) require higher certainty than casual trips.

UX: A premium toggle that matches the rider exclusively with "**Platinum Reliability**" drivers and offers a doubled guarantee payout.

Market Impact: Segments the market based on "**value of time**" and increases ARPU.



GOAL

-> 94% reliability = social proof
-> On-time guarantee = risk removal
-> Standard vs Priority = user control

Sets expectation before booking

Rider chooses certainty level
(Connects to Urgency Mode concept)

C. Guaranteed Pickup Timer

Problem: Riders currently bear the entire cost of uncertainty. When arrival estimates fail, users respond by cancelling or booking backup rides, reducing marketplace efficiency.

User Experience: After a driver is assigned, the app displays a Committed Arrival Timer. If the arrival exceeds a defined tolerance window, the platform automatically applies a compensation benefit (ride credit).

The compensation is determined by a responsibility engine that considers driver behavior, traffic conditions, and prediction error.

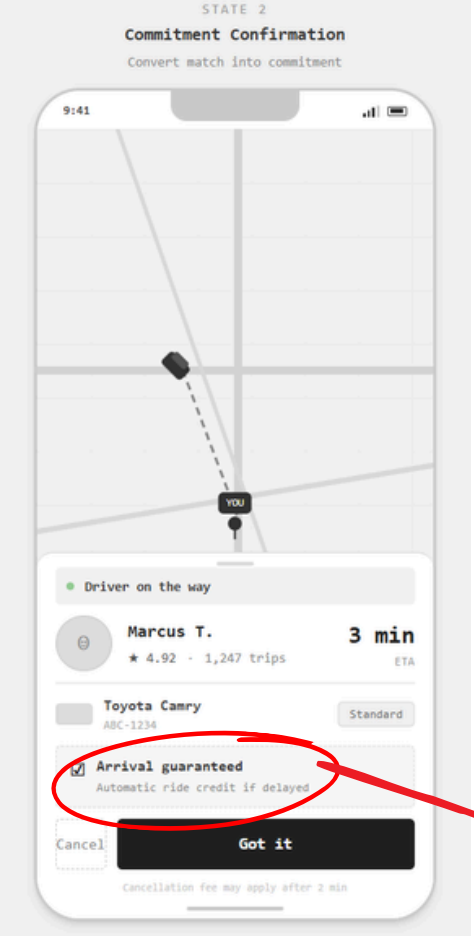
Marketplace Logic

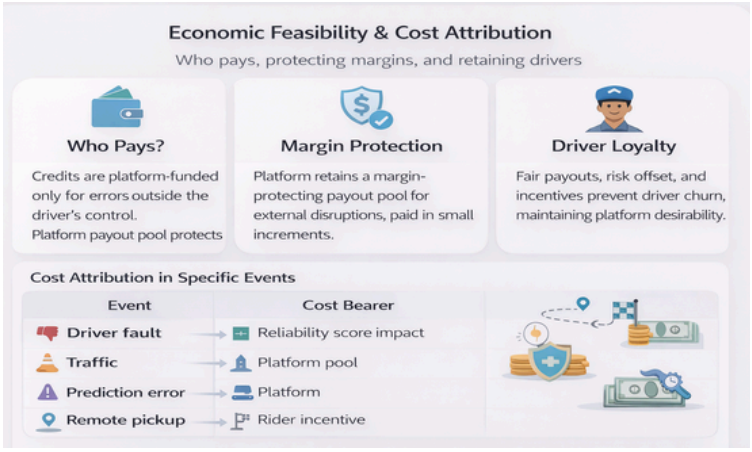
The system attributes delay responsibility before assigning compensation:

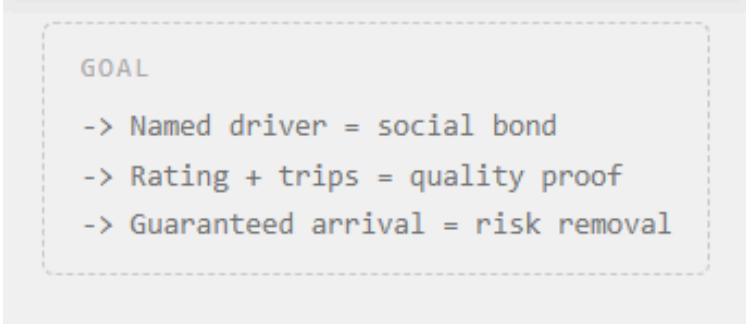
- Driver-caused delays → driver reliability score impact
- Environmental delays → platform shared coverage
- Prediction errors → platform accountability

Market Impact

- Rather than penalizing drivers or subsidizing all delays, the feature reallocates uncertainty risk fairly across participants.
- This reduces defensive cancellations, discourages multi-app booking, and increases trust while maintaining driver retention and sustainable unit economics.







Eliminates need for backup booking

GOAL

-> Real-time progress bar
-> Route hint = transparency
-> Call / Message = control
-> Edit pickup = flexibility

Visible progress reduces anxiety

GOAL

-> Proactive warning = honesty
-> Two clear options = control
-> ETA update = transparency
-> No surprise wait

Environment delay predict early, not driver related issue

Expectation adjusted transparently

Trust maintained despite delay

D. Automatic Replacement Driver

Problem: Driver-initiated cancellations force riders to restart the search, often at a higher price.

UX: If a driver cancels, the system automatically assigns the next best driver without the rider needing to re-interact. The initial price and "Guaranteed Timer" are honored.

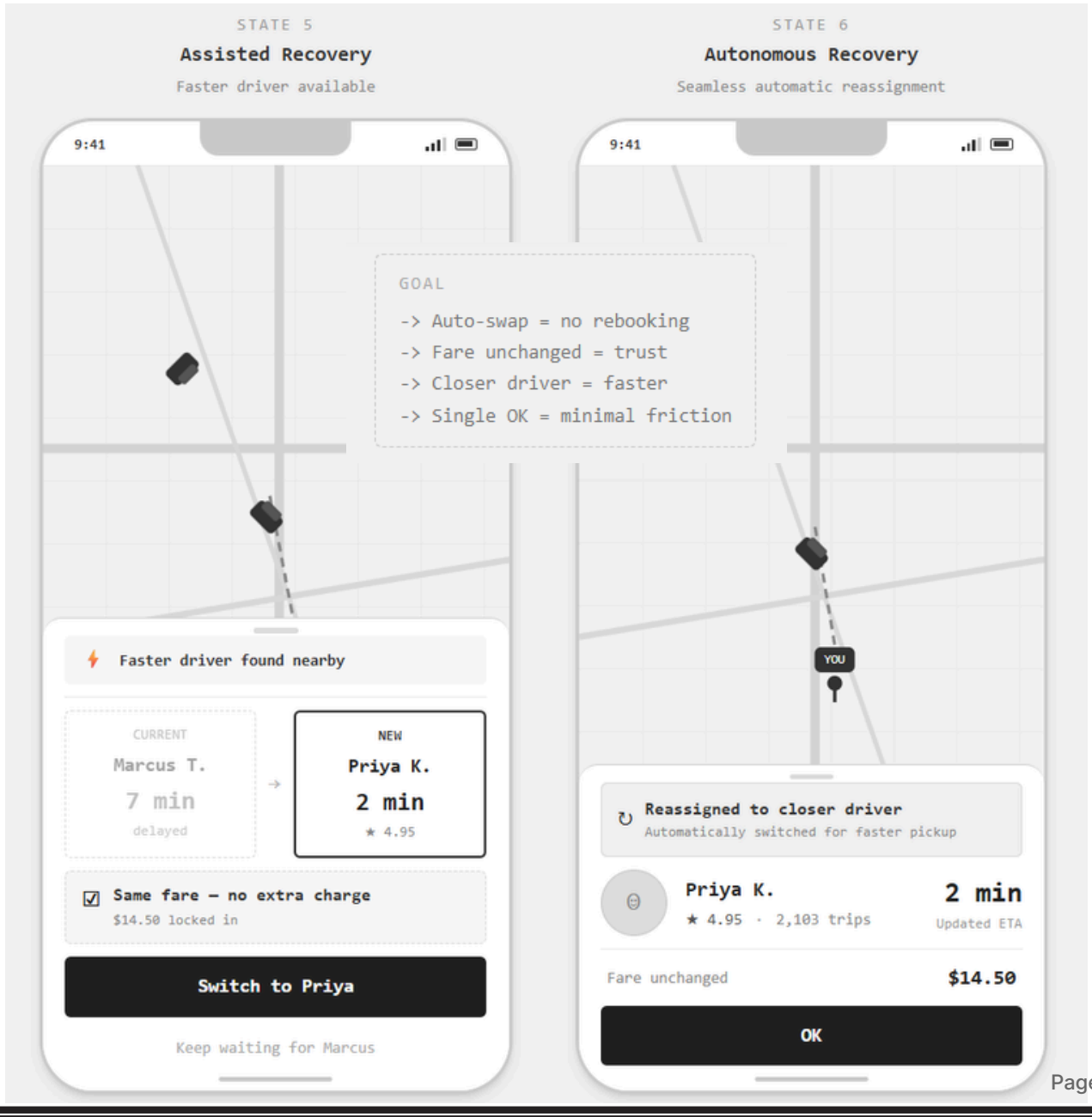
Market Impact: Maintains the "**state of commitment**" and prevents user churn to competitors.

E. Driver Intent Tracking

Problem: "**Stationary**" drivers cause rider panic.

UX: Backend logic detects lack of movement or wrong-way travel. The app sends an automated nudge to the driver. If no correction occurs in 60s, a "**Replacement Driver**" is triggered preemptively.

Market Impact: Proactively manages failure before the rider notices, maintaining perceived reliability.

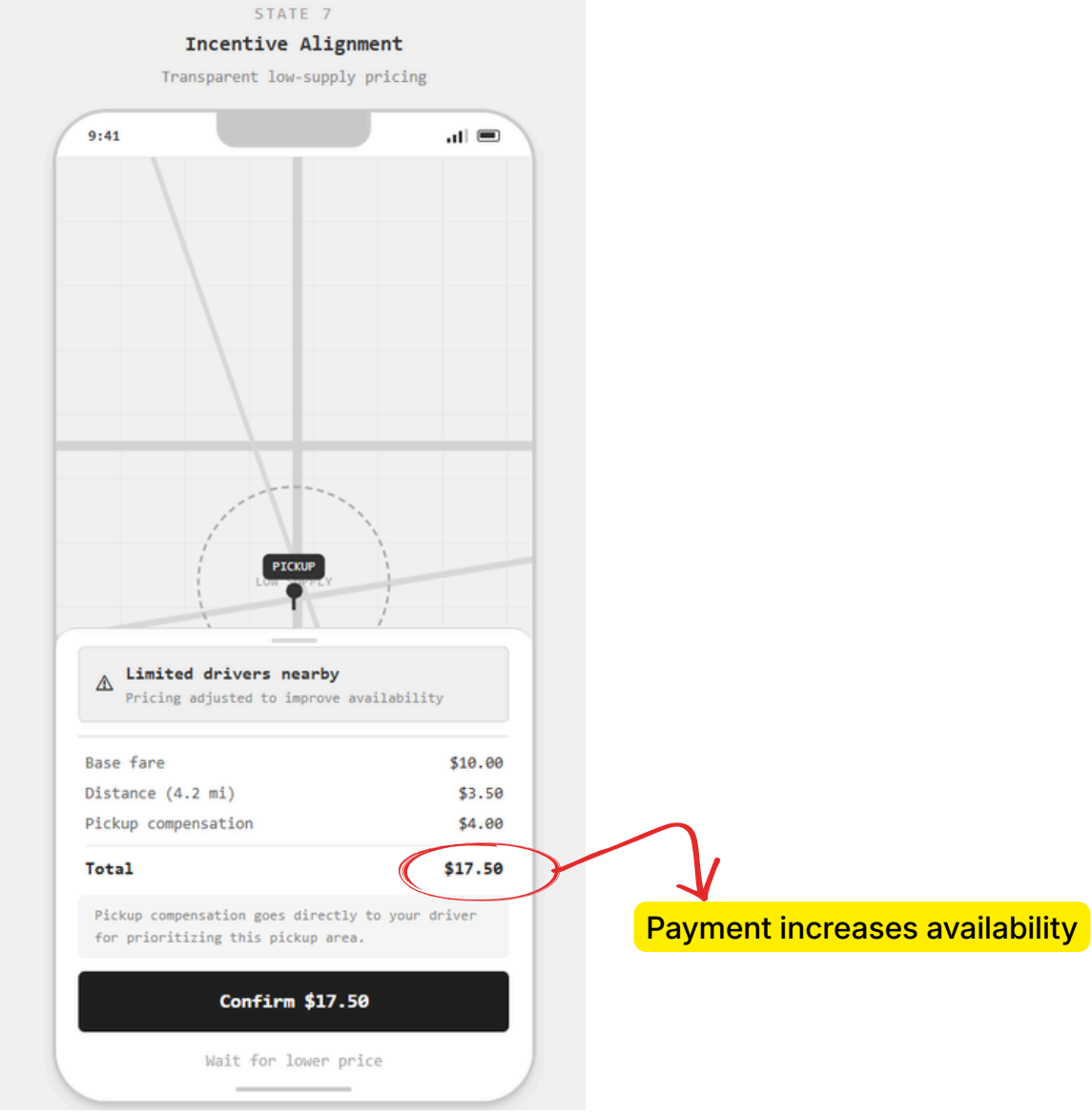


F. Remote Area Compensation Pricing

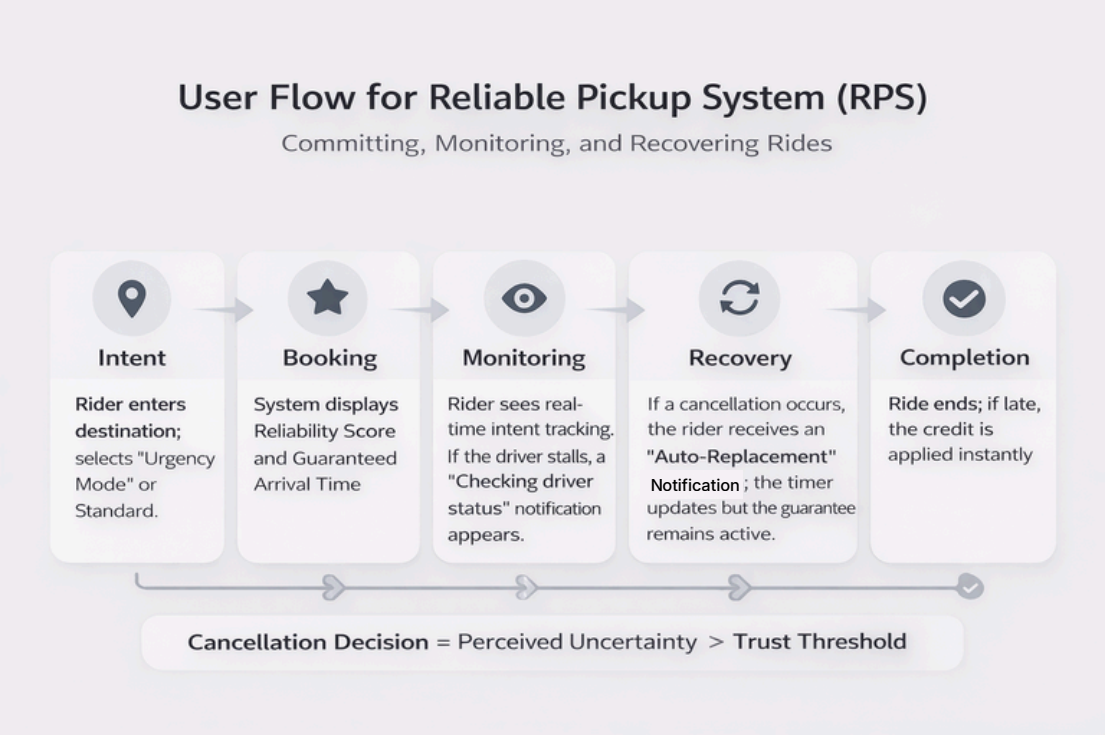
Problem: Drivers frequently reject rides involving long pickup distances or low-value drop-off areas due to poor return economics.

- **UX: When either the pickup distance exceeds a threshold or the drop-off zone has low return demand, a transparent "Trip Incentive" is added to the fare.**
- **100% of this component goes to the driver to compensate travel time, fuel, and repositioning effort.**

Market Impact: Aligns driver incentives with underserved routes, improving acceptance rates and expanding reliable geographic coverage.



6. USER FLOW



7. DRIVER FLOW

8. EXPERIMENT PLAN

Pilot: Launch in one Tier-1 market with elevated cancellation rates (e.g., Bengaluru or London).

Experiment Design: 50/50 (A/B test) - **Control group** uses the standard booking flow; **Treatment group** experiences RPS features.

Success Criteria: **≥15% reduction** in rider-initiated cancellations and **≥10% increase** in weekly ride frequency for the treatment cohort.

9. RISKS & TRADEOFFS

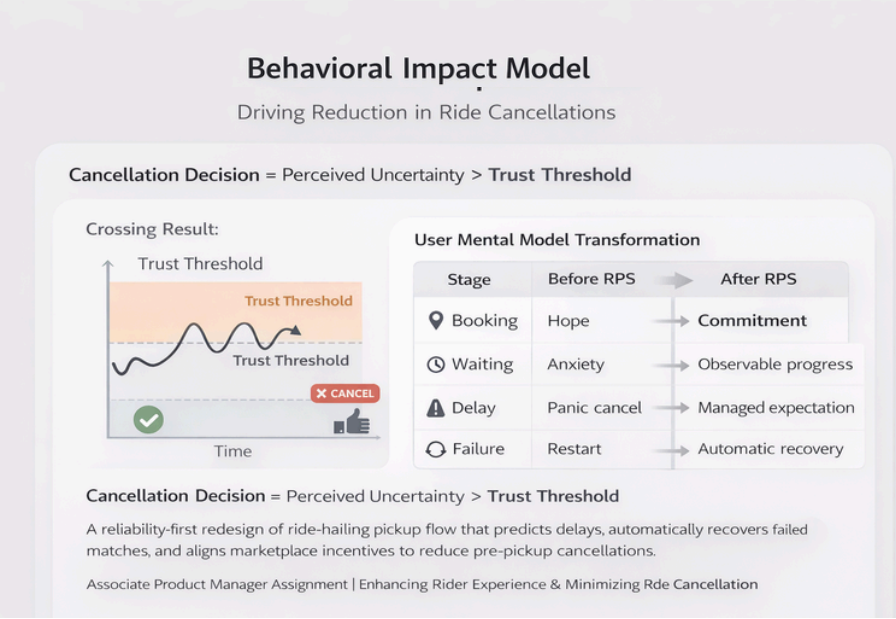
Risk	Impact	Mitigation
Driver gaming	Fake delays to earn credits	Detect abnormal repeat pairings
Margin erosion	Credits exceed revenue	Premium reliability pricing
Supply pressure	Driver frustration	Reward reliability, not punish

10. EXPECTED IMPACT

Solving pickup uncertainty creates a flywheel effect:

- Higher reliability → increased rider trust
- Higher trust → reduced multi-app booking
- Reduced hedging → stable driver demand
- Stable demand → improved driver earnings & retention

Outcome: 5–8% uplift in platform GMV driven by higher booking-to-completion conversion.



11. CONCLUSION

The future of ride-handling is not won by the fastest ETA, but by the highest certainty. The Reliable Pickup System recognizes that a rider's biggest pain point is the "**fear of being stranded**" By productizing commitment, we transform the service from a variable utility into an infrastructure-grade necessity, cementing our platform as the default choice for high-stakes transportation.

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