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Pet Food and Supplies

WE ARE TEAM 40!









Retention Efficiency Under Operational Constraints

An AI Allocation Engine for Tailwaggers

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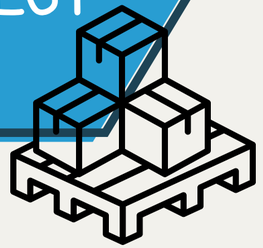
Round 1 Recap (Operational Fix)

PROJECTED CHURN:
28.8% → 17.3%

REDUCE LATE SHIPMENT (31% - 8%)



OPTIMIZE FC-EAST & FC-WEST



IMPROVE ROUTING AND ALLOCATION



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The Constraints

No fulfillment restructuring.

No routing changes

No logistics investment.

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Problem Severity

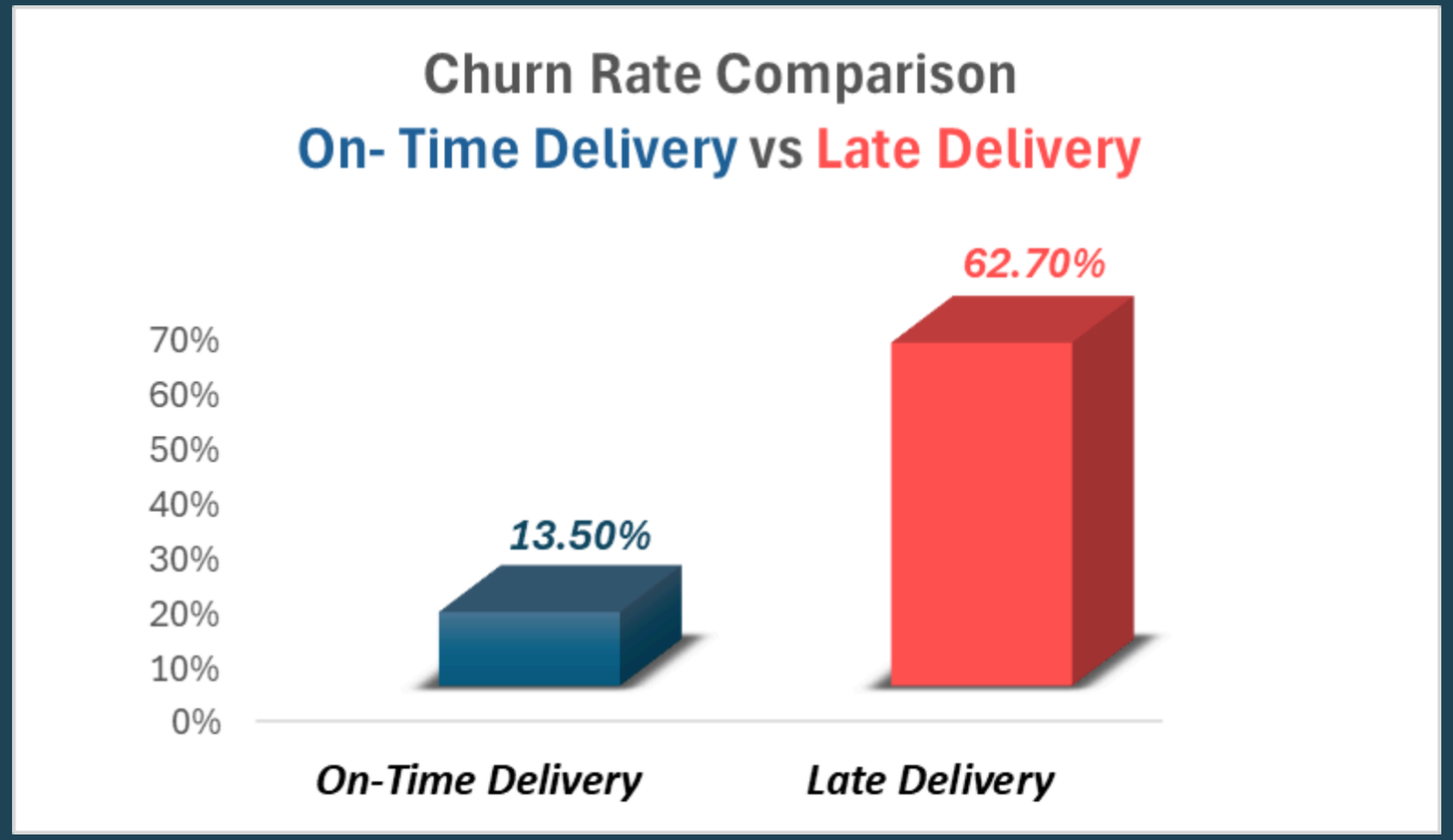
Operational Reality:

Churn Rate Gap: 49.2%

Churn Rate Comparison:

On-time Delivery: **13.5% Churn**

Late Delivery: **62.7% Churn** (High Risk)



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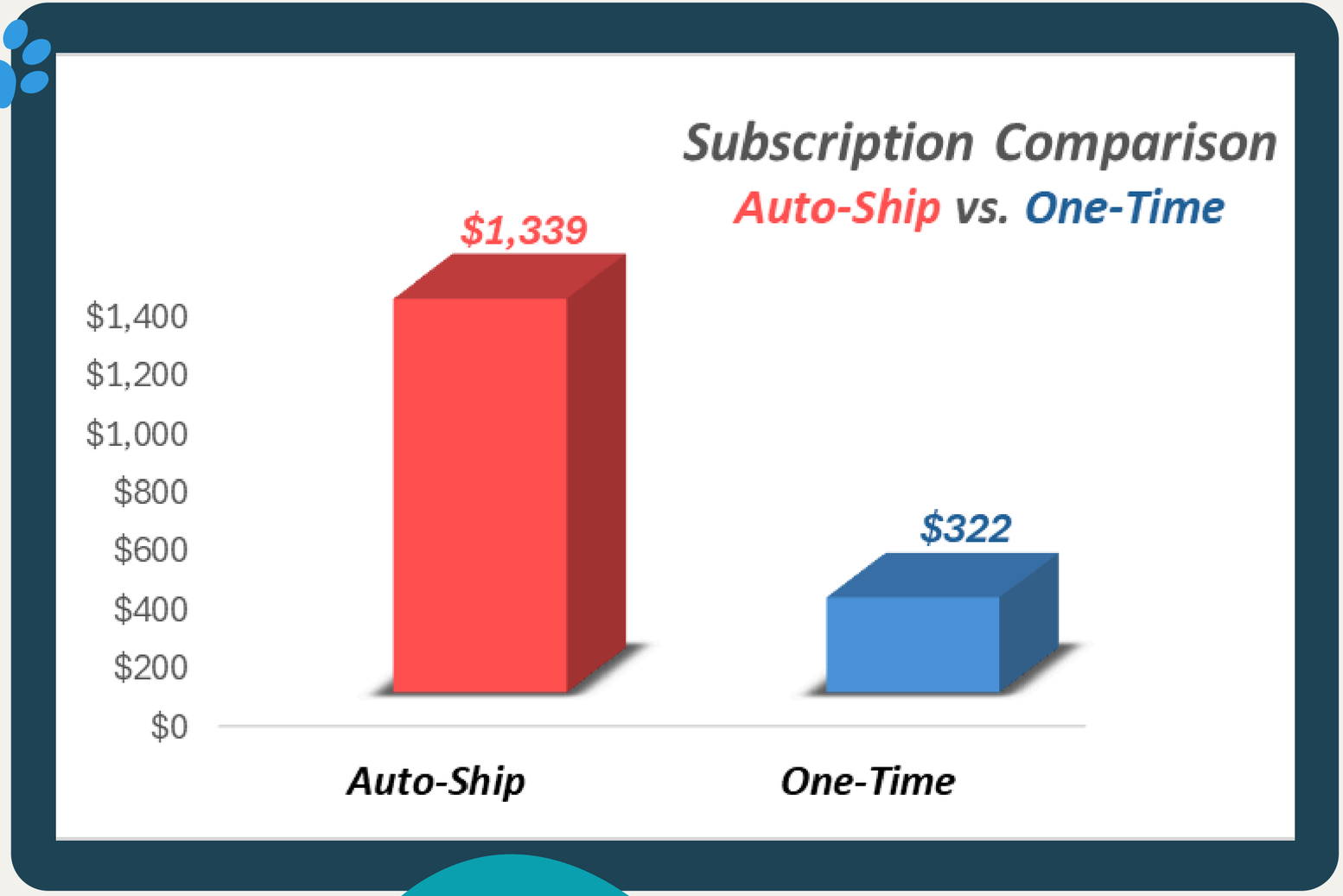
Problem Severity

Financial Reality:
Autoship LTV: $1,339
(Premium Segment)
One-time LTV: $323



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Problem Severity

Z-Test Calculator for 2 Population Proportions

Enter the sample sizes and number of successes for both groups.

Group 1	Group 2
Sample Size (n_1)	Sample Size (n_2)
3068	6932
Number of Successes (x_1)	Number of Successes (x_2)
1924	936

Report This Result

Citation Style:

APA (Parenthetical) | APA (Narrative) | Chicago | Plain English

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(Z = 50.22, p < .001)
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Statistical Footer:

Two-proportion Z-test:
p-value < 0.00001 | Z-score: 50.2.
Verdict: Statistical significance confirmed at >99.9% confidence.

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Build an AI-Driven Retention Allocation Engine

Focus	Operational Fix	AI-Driven Retention
Goal	Reduce delay rate (31% → 8%)	Reduce churn sensitivity to delays
Action	Infrastructure upgrades & Shipping changes	AI risk prediction & personalized intervention
Budget	High Logistic CAPEX	ROI-based retention spend optimization
Outcome	12-months lag for result	Immediate deployment via data intelligence



Predict individual churn probability

Prioritize high-LTV customers

Deploy recovery only when ROI-positive

Allocate retention capital where lifetime value exceeds intervention cost

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AI Risk Intelligence Engine (BigQuery ML)

SECTION 3

Variable	Business Meaning
Late shipment	Operational disruption
Complaint	Emotional reaction
Out-of-stock	Service failure
Satisfaction score	Behavioral decline
Subscription type	LTV sensitivity
Order value	Economic exposure

SECTION 1 — The Analytical Problem
Late shipment ≠ automatic churn.
Data shows:

- 62.7% churn among late shipments
- Meaning 37.3% stay

We must distinguish:
Who is truly at risk vs who will tolerate delay?
This justifies AI.

SECTION 2 — Model Architecture (Clean Diagram)
Customer Data
→ BigQuery ML
→ Logistic Regression
→ Churn Probability (0–1)
Keep this visual simple.

SECTION 4 — Model Output Example
Customer A
Late + Complaint + Autoship
Risk = 0.82
Customer B
Late only
Risk = 0.35
AI differentiates risk levels instead of assuming all delays are equal.

SECTION 5 — Model Validity
AUC ≈ 0.80
Interpretability: Logistic regression
Transparent coefficients
No black box risk

AI converts static disruption into actionable risk intelligence.

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IF:

- Risk > 0.70
- LTV > $500
- Late Shipment = Yes

THEN:
Trigger targeted recovery incentive
Recovery Tools:

- Loyalty points
- Tier boost
- Small credit
- Subscription perk

Clarification:

- AI determines WHO
- Incentive defines WHAT

AI-Based Decision Rule

We intervene selectively, not universally.

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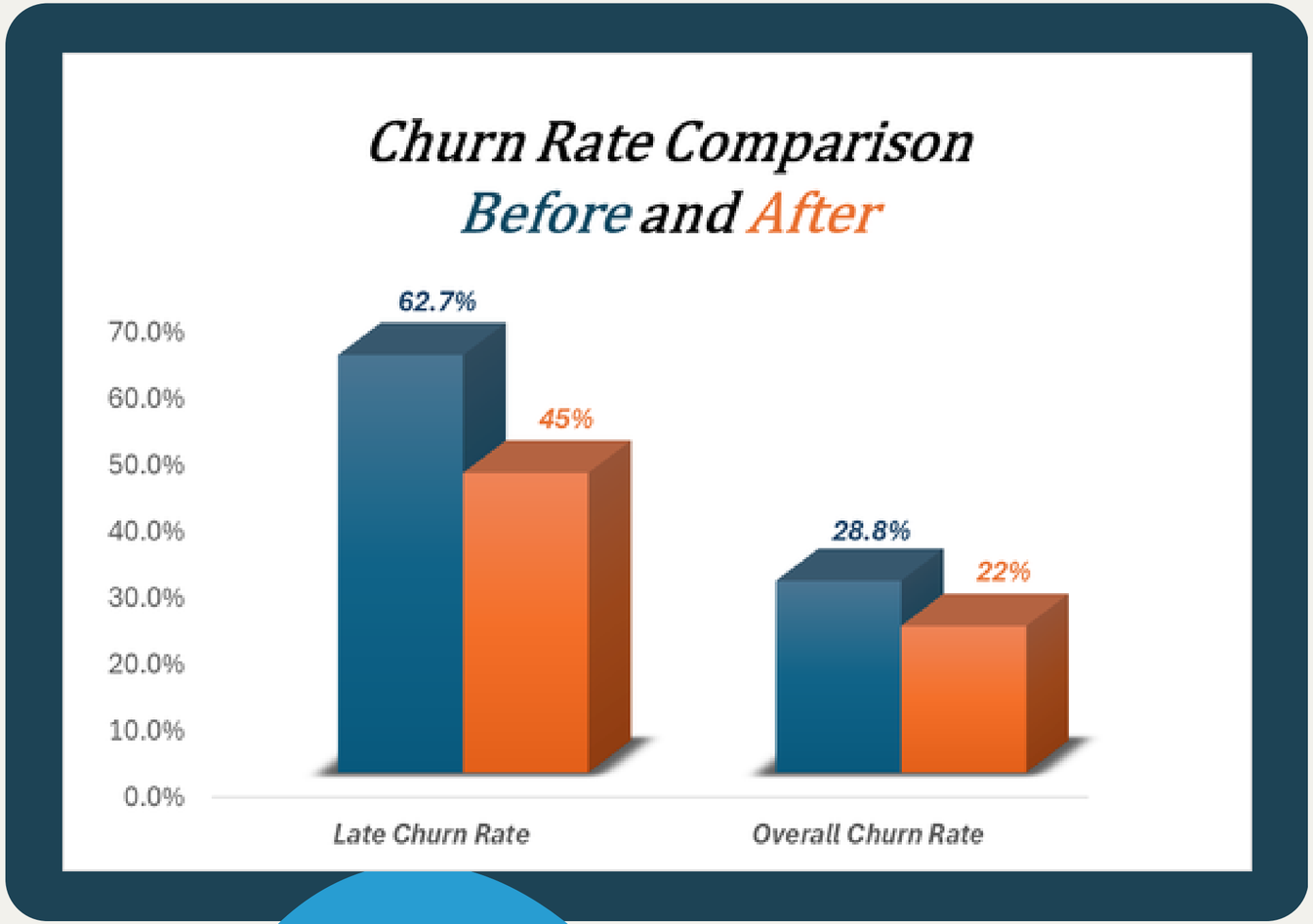
Quantified Impact & Feasibility

Financial Logic:
Saved Customers × $1,339 (Autoship LTV)
Incentive Cost (capped at $20–30 per case)

Implementation Plan:
Month 1–2: Train model in BigQuery ML Validate threshold
Month 3: Pilot 10% high-risk segment
Month 4: Scale full deployment

KPIs:
Late-segment churn rate
Incentive ROI
Autoship retention rate



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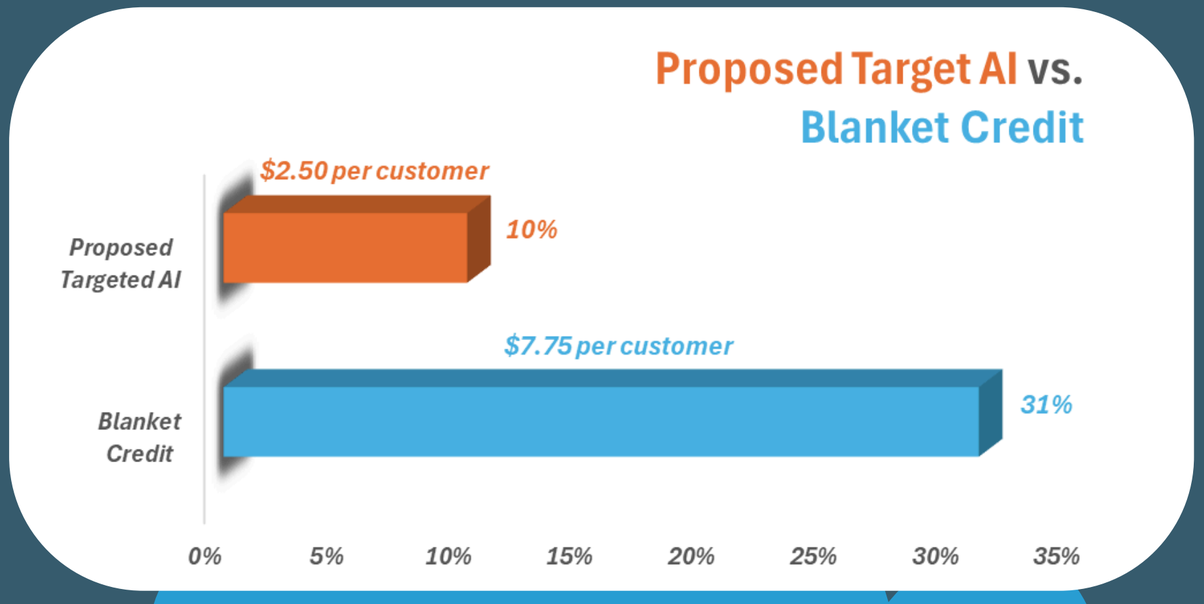
Financial Guardrails: Can We Afford Targeted Incentives?



Break-even save rate:
$25 ÷ $1,339 ≈ 1.9%

Autoship LTV	$1,339
Incentive	$25

Only 2 out of 100 saved customers covers program cost.



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When operations are constrained. Strategy must adapt.

"Tailwaggers doesn't need to compete by spending more. It needs to decide smarter."



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Thank You