

Smarterouter Scoping Project Plan

Last Updated: 2026-02-18 Status: In Progress

Overview

Field	Details
Project Name	Smarterouter Scoping Project
Start Date	2026-02-18
Target Completion	TBD
Owner	TBD
Status	Planning

Goals & Success Criteria

Purpose

Integrate Athia AI/ML into Deuna's payments service to optimize payment acceptance rates via AI/ML-driven decision-making directly within the payment processing flow. Enables experimentation for processor selection (routing), message configuration, and smart retries — all within Deuna's tech stack.

Success Criteria

- Measurable approval lift
- Stability during PSP outages
- Latency target: p95 < 200ms

In Scope (P0)

- Processor/Message selector
- Smart Retry logic
- Feedback Loop implementation

Out of Scope

- 3DS optimization (Phase 2)
 - User-facing messaging (Phase 3)
 - Installment optimization
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Stakeholders

Name	Role	Involvement
Pablo	CTO (Deuna)	Executive sponsor, coordinating Claude/LLM access via Farhan
Israel	Data POC (Deuna)	Main point of contact for data/Snowflake
Farhan	Claude/LLM Access POC (Deuna)	Provisioning Claude access and budget
Mark Walick	PM Lead (Aidaptive)	Project management
Rakesh	Engineer (Aidaptive)	Engineering
Naoki	Engineer (Aidaptive)	Engineering

Milestones & Timeline

Milestone	Duration	Status	Notes
Phase 0: Assess level of effort/complexity	2 days	In Progress	\$6K budget, started 2026-02-18
Phase 1: Model running in production for 2 processors with basic feature store	2 weeks	Pending	Core delivery
Phase 2: Add monitoring + integrate with experimentation	Week 3	Pending	Immediately after Phase 1
Phase 3: Drift detection, CI/CD, experiment ramp-up, additional model techniques	TBD	Pending	

Key Use Cases (P0)

ID	Use Case	Description
P-01	Outage detection & failover	Fail over/back via persistent timeout codes; random sampling of down PSP to detect recovery
P-02	Overall transaction routing optimizer	Optimize Deuna's existing static rules based on historical outcomes

ID	Use Case	Description
P-03	Per-transaction optimal route selection	Rank top 3 routes based on prior outcomes for fast retry
P-04	Message manipulation	Toggle CIT/MIT, AVS, MCC variables in authorization requests; top 3 recommendations
P-05	Retry optimization	Subs/MIT focused; enterprise darktime reduction; delayed retry based on reputation

Work Breakdown / Task Tracking

Backlog

- Confirm Claude access and LLM budget provisioned (Pablo → Farhan)
- Confirm Snowflake read access provisioned — Rakesh verified (2026-02-18, info from Israel)
- Naoki to test Snowflake access once online — coordinate with Rakesh
- Provision Deuna corp accounts for Rakesh and Naoki
 - Snowflake instance access for both accounts
 - Code (repo) access for both accounts
 - Claude Code credits for both accounts
- Complete Phase 0: assess level of effort/complexity (2 days, \$6K)
- Build training platform (currently prototype-only — see Technical Gaps)
- Deliver P-01 through P-05 use cases

In Progress

- (nothing yet)

Done

- (nothing yet)
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Schema Understanding & Data Notes

Extracted 2026-02-18 from PAYMENT_ML Snowflake database. Full schema reference: SCHEMA.md

Overall Assessment

The schema is very well structured for the P0 use cases. The data is organized into clean source views in the SOURCES schema, and a massive denormalized flat table (ABTESTING.ALL_VIEWS_FLAT) that joins everything together — ideal for quick EDA and feature engineering without complex joins.

Key Tables for P0 Use Cases

VW_ATHENA_PAYMENT_ATTEMPT — most important table for routing & retry - Tracks every individual attempt with sequence order, processor used, error code/category, hard/soft decline type, retry indicator, and approved status - **DYNAMIC_ROUTING_DETAIL** (VARIANT/JSON) column likely contains rich routing decision metadata — needs exploration - **PAYMENT_ATTEMPT_SEQUENCE_ORDER** + **PAYMENT_LAST_ATTEMPT_INDICATOR** make it easy to reconstruct the full retry chain per payment - Directly supports **P-03** (per-transaction route selection) and **P-05** (retry optimization)

VW_SMART_ROUTING_ATTEMPTS — current routing engine event log - Captures per-attempt routing decisions: algorithm type, processor selected, process time, result status, skip reason - **PROPERTIES_RESULT_PROCESS_TIME** is a direct latency signal for the p95 < 200ms target - **PROPERTIES_RESULT_SKIPPED_REASON** tells us why processors were bypassed — key for **P-01** (outage detection) - **PROPERTIES_ALGORITHM_TYPE** reveals what routing strategies are already in use

VW_ROUTING_MERCHANT_RULE + **related views** — existing rules engine - Deuna already has a rules-based routing system with conditions, members, options, and priority ordering - This is the foundation for **P-02** (optimize existing static rules) — we don't start from scratch - **SHADOW_MODE** in **VW_ROUTING_MERCHANT_RULE_MEMBER** suggests there's already infrastructure for testing new processors without live traffic

Feature Richness for ML Models

The data has strong signal across multiple dimensions:

Feature Group	Key Columns	Usefulness
Retry history	NUM_ATTEMPTS_ORDER, PREVIOUS_ORDER_ERROR_CODE, PREVIOUS_ORDER_PROCESSOR, AVG_SEC_BETWEEN_PAYMENT_ATTEMPTS	Direct retry optimization signals
Error signals	ERROR_CODE, ERROR_CATEGORY, HARD_SOFT, EVENT_ERROR_STANDARD_ERROR_CODE	Distinguish hard vs soft declines; normalized error codes in events
Card signals	CARD_BIN, CARD_BRAND, BANK, CARD_COUNTRY	Processor affinity by card type
User behavior	TARGET_USER_FRAUD_RATE_COHORT, TARGET_USER_TENURE_IN_DAYS, TARGET_USER_FREQUENCY_VALUE, TOTAL_MINUTES_BROWSING, TOTAL_NUM_SESSIONS	User risk and engagement signals
RFM	TARGET_USER_FREQUENCY_VALUE, TARGET_USER_RECENCY_VALUE, TARGET_USER_MONETARY_VALUE	Customer value for routing priority

Feature Group	Key Columns	Usefulness
Geo	LATITUDE, LONGITUDE, ORDER_COUNTRY_CODE, WEATHER_MAIN	Geography-based processor routing
Device	TARGET_USER_BROWSER, TARGET_USER_OS, TARGET_USER_DEVICE	Device fingerprinting
Message config	MCI_MSI_TYPE, ORDER_MCI_MSI_TYPE, PAYMENT_ATTEMPT_METHOD_TYPE	CIT/MIT toggle tracking for P-04
3DS	CHALLENGE_3DS_INDICATOR, CHALLENGE_3DS_STATUS	Available now; scoped to Phase 2

Starting Point Recommendation

- Use `ABTESTING.ALL_VIEWS_FLAT` for initial EDA — everything is already joined
- Switch to individual `SOURCES` views for model training to avoid data leakage and redundancy
- Explore `DYNAMIC_ROUTING_DETAIL VARIANT` column in `VW_ATHENA_PAYMENT_ATTEMPT` early — may contain routing features not exposed elsewhere

Notable Data Quality Observations

- **Typo in source data:** `PATMENT_TIME` in `VW_ATHENA_PAYMENT` (should be `PAYMENT_TIME`) — minor but worth noting for pipelines
- **Airline-specific data:** `VW_ORDER_AIRLINE_DETAIL_ALL` and `VW_ORDER_AIRLINE_INFORMATION_DETAIL_ALL` suggest Volaris is a key merchant with rich flight/passenger metadata
- `SOURCES` schema has no raw tables — only views, meaning underlying raw tables are managed upstream by Deuna’s data team (Israel’s domain)

Technical Gaps (from SOW)

Testing/Experimentation Platform — Production Ready

- A/B testing infrastructure, multi-variant experiments, automated winner selection
- Model registry with versioning, real-time inference (FastAPI sidecar)
- Missing: canary deployments

Training Platform — Prototype Only (needs significant work)

- No automated retraining, no orchestration, no CI/CD
- No data validation, no monitoring, no drift detection
- No feature store, no lineage tracking, no rollback capability
- No hyperparameter tuning, no algorithm comparison

Decisions Log

Date	Decision	Rationale	Made By
2026-02-18	Latency target updated from p95 < 50ms to p95 < 200ms	Revised from original SOW spec	Rakesh (discussed with Pablo)

Open Questions

#	Question	Owner	Status
1	TBD	TBD	Open

Risks & Issues

ID	Description	Likelihood	Impact	Mitigation	Status
R1	TBD	Low/Med/High	Low/Med/High	TBD	Open

Notes & Meeting Log

2026-02-18

- Project plan file created. Details to be filled in.
- Israel is the main POC for data and related topics.
- Pablo is the CTO.
- All data is in Snowflake database; we will get read access to all tables. Snowflake URL: `VLTXPW-RMONTES.snowflakecomputing.com`
- Need Claude access and budget for LLM. Farhan is the main POC; Pablo will be talking to Farhan to get this access.
- Mark Walick is the PM lead for this project.

Project Plan Exports

Date	File	Notes
2026-02-18	project-plan-2026-02-18.pdf	Initial export

Date	File	Notes
2026-02-18	schema-2026-02-18.pdf	Initial Snowflake schema snapshot

Documents & SOW Snapshots

Document	Date	Version	File
SOW: Athia Embedded into Acceptance - Phase 1	2026-02-16	v1	PDF

References & Links

- [CLAUDE.md](#) (project conventions)
- [Data Dictionary](#)
- [Athia Data Model](#)
- [Snowflake Login \(VLTAXPW-RMONTES.snowflakecomputing.com\)](#)