

Milestone-Based Roadmap Timeline (Feature Gates)

This roadmap defines execution phases as **feature-gated milestones**. Progression to the next phase requires explicit technical acceptance criteria to be met.

Phase 0 — Core Ingestion Foundation (COMPLETED)

Objective

Establish a reliable data ingestion and normalization backbone.

Delivered Capabilities

- Google Maps ingestion agent
- Business normalization and schema standardization
- Idempotent deduplication logic
- Segmentation + geo-radius query support
- Stable pipeline orchestration

Exit Criteria (Gate)

- Maps ingestion stable with multiple queries
 - Idempotent export verified
 - Normalized business schema contract locked
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Phase 1 — Validation + Routing Layer (COMPLETED)

Objective

Classify leads by website presence and route them deterministically.

Delivered Capabilities

- WebsitePresenceValidatorAgent
- LeadRouterAgent with route logic
- Routing categories: TARGET / EXCLUDED / RETRY
- Deterministic ordering and stats output

Exit Criteria (Gate)

- Website validation rules enforced

- Routing logic fully tested
 - Output contracts verified
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Phase 2 — Contract Normalization + Fan-Out Export (COMPLETED)

Objective

Harden pipeline contracts and enable multi-sheet export fan-out.

Delivered Capabilities

- Pipeline contract normalization
- Dedup ownership lock
- Fan-out export architecture
- Atomic preflight/write/backup flow
- Per-sheet idempotency

Exit Criteria (Gate)

- Export fan-out tested
 - Atomic export guarantees verified
 - Contract tests passing
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Phase 3 — Retry Pipeline Architecture (COMPLETED)

Objective

Enable safe reprocessing of failed website validations.

Delivered Capabilities

- RetryInputLoaderAgent
- Retry counter logic
- ENV-configurable retry limits
- Dual-mode pipeline (normal / retry)
- CLI execution modes

Exit Criteria (Gate)

- Retry-only pipeline operational
 - Max retry enforcement tested
 - Retry stats validated
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Phase 4 — Lead Qualification & Enrichment (NEXT)

Objective

Enhance lead quality before outreach and landing generation.

Planned Capabilities

- Business category scoring
- Contact completeness scoring
- Business size estimation heuristics
- Location confidence scoring

Exit Criteria (Gate)

- Lead scoring thresholds defined
 - Enrichment pipeline integrated
 - Scored leads exported
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Phase 5 — Landing Page Automation System

Objective

Automatically generate conversion-focused landing pages for TARGET leads.

Planned Capabilities

- Template-based landing generator
- Dynamic content injection
- SEO meta generation
- Business branding customization

Exit Criteria (Gate)

- Static site generation working
 - One-click deploy ready
 - Preview pipeline operational
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Phase 6 — Outreach Automation Layer

Objective

Automate outreach to generated leads.

Planned Capabilities

- Email campaign generator
- WhatsApp outreach integration
- CRM export adapters
- Reply tracking hooks

Exit Criteria (Gate)

- Outreach templates validated
 - Campaign automation working
 - Engagement metrics captured
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Phase 7 — Monetization & Scaling Infrastructure

Objective

Prepare platform for commercial scale.

Planned Capabilities

- Multi-user account isolation
- Usage quota enforcement
- Billing integration
- Performance monitoring

Exit Criteria (Gate)

- Multi-tenant support
 - Billing flows validated
 - Observability dashboards online
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Execution Philosophy

- No phase advances without automated test coverage
 - Contract stability is enforced before feature expansion
 - Infrastructure reliability precedes automation features
 - Revenue features only built after data quality stabilization
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Status Summary

Phase 0-3: COMPLETE Phase 4: READY TO START Phase 5-7: PLANNED

Roadmap ↔ Architecture Phase Alignment (Cross-Reference)

Milestone ID	Roadmap Feature Gate	Architecture Spec Phase Reference	Description
M1	Core Ingestion Pipeline Stable	Phase 2.1 — Data Acquisition Layer	Maps ingestion, normalization, dedup foundation
M2	Website Validation + Routing	Phase 2.2 — Validation & Qualification Layer	WebsitePresenceValidator, LeadRouterAgent integration
M3	Fan-Out Export + Atomic Writes	Phase 2.3 — Export & Persistence Layer	Multi-sheet fan-out, idempotent export, backups
M4	Retry Pipeline Activation	Phase 2.4 — Recovery & Retry Subsystem	RetryInputLoaderAgent, retry mode pipeline
M5	Outreach Data Readiness	Phase 3.1 — CRM/ Outbound Integration Layer	Clean lead export contract for downstream outreach
M6	Landing Page Generator MVP	Phase 3.2 — Automated Web Asset Generation	AI landing page creation for no-website leads
M7	Conversion Tracking Loop	Phase 4.1 — Feedback & Optimization Loop	Post-deployment analytics + closed-loop learning
M8	Full Automation Mode	Phase 4.2 — Autonomous Orchestration Layer	Scheduler, monitoring, self-healing runs

Alignment Notes

- **Phase 2.x** milestones are mandatory stability gates before any monetization-facing features.
- **Phase 3.x** introduces revenue-generating capabilities (landing pages + outbound workflows).
- **Phase 4.x** is optimization and scale — not required for MVP monetization.

This table is the authoritative mapping between roadmap execution order and architecture specification sections.