🧭 GEO/AI Search Monitoring Platform Development Plan

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Development Plan (Full Lifecycle)

Duration: ~9–12 months total (with a 3–month MVP milestone)

Methodology: Agile — 3-week sprints per phase

Core Stack: AWS Serverless (Lambda, DynamoDB, S3, EventBridge, API Gateway), OpenSearch, Neo4j, Redis Stack, React/Next.js, Tailwind, Playwright, OpenAI Responses API

🏗️ PHASE 1 — Foundation & MVP (Months 1–3)

Goal: Build an end-to-end functional MVP that captures AI search results, normalizes them, and visualizes brand visibility.

🔷 1. Core Infrastructure & DevOps Setup

Objective: Establish the base environment and CI/CD pipelines.

Tasks:

- Configure AWS environment (IAM roles, S3, DynamoDB, Lambda, API Gateway, CloudFront).
- Set up GitHub Actions for build, test, and deploy.
- Implement observability (CloudWatch logs, metrics, alerts).

  Deliverable: Working backend skeleton with test deploys.

  Benefit: Team can deploy safely and monitor runtime costs from day one.

🔷 2. Prompt & Topic Manager (Discovery Layer)

Objective: Allow users to define what the system should monitor.

Business Flow:

1. Users create Topics (e.g., *Plant Extracts*).
2. Add Prompts (natural-language questions customers ask AI tools).
3. Choose Engines (ChatGPT, Perplexity, Gemini).
4. Set cadence & budget.

Technical Tasks:

- DynamoDB tables: `topics`, `prompts`, `plans`.
- EventBridge → Step Functions → SQS to schedule jobs.
- API endpoints `/plans`, `/topics`, `/prompts`.

Frontend Tasks:

- React UI for creating and organizing prompts/topics.

Deliverable: UI + backend flow that generates scheduled monitoring jobs.

Benefit: Marketers define their GEO focus without engineering help.

🔷 3. Engine Connectors & Collector System

Objective: Collect real AI search answers automatically.

Business Flow:

- The system "asks" AI engines questions from each plan.
- Captures answers, citations, and screenshots.

Technical Tasks:

- Build collector microservice using **Playwright on Fargate**.
- Handle retries, proxy rotation, captcha avoidance.
- Store HTML/JSON/PNG to S3 `/raw/{engine}/{date}`.
- Record job status in `jobs` table.

Deliverable: Daily automated collection pipeline for 2 engines (ChatGPT + Perplexity).

Benefit: Automated, verifiable data on brand visibility.

🔷 4. Parser & Normalizer

Objective: Clean and standardize raw data.

Tasks:

- Lambda triggered by S3 new file events.
- Extract: answer text, citations, source links, metadata.
- Normalize format → store in `answers` and `citations` tables.

  Deliverable: Unified, comparable answer records.

  Benefit: Enables accurate analysis across AI engines.

🔷 5. Dashboard MVP (Monitor & Understand Layer)

Objective: Give users visual proof of visibility.

Tasks:

- Build **React dashboard** showing:
  - Answer Share (% of prompts citing the brand).
  - Citation Share (% of links pointing to brand domain).
  - Screenshots + full answers.
- Backend: OpenSearch index for fast querying.

  Deliverable: Fully functional visibility dashboard (1st version).

  Benefit: First “aha moment” — users see how AI talks about their brand.

🔷 6. GEO Audit Crawler (Technical Readiness Checker)

Objective: Help users understand how their website supports AI visibility.

Tasks:

- Playwright crawler for sitemap traversal (respect robots.txt).
- Check presence of FAQ, schema, title tags, canonical links.
- Output `audits` table (url, issue_code, severity, fix_recipe).
- Basic UI for issue list.

  Deliverable: Audit report with prioritized issues.

  Benefit: Clear actions to improve AI search readiness.

🔷 7. Alerts & Weekly Digest

Objective: Keep users informed about changes.

Tasks:

- Lambda monitors Answer Share changes daily.
- Send weekly summary email via SES.
- Slack webhook for major visibility drops.

  Deliverable: Digest reports + alert triggers.

  Benefit: Builds habit — users stay engaged automatically.

✅ MVP Complete — Month 3

Users can:

- Define prompts → Collect AI answers → See dashboards → Get audits & alerts.

  KPIs:

- 2 engines integrated
- <5 min data delay per run
- <1.5s dashboard load time
- <1% collector error rate

🚀 PHASE 2 — Optimization & Insight Engine (Months 4–6)

Goal: Add analysis, competitor mapping, and actionability.

🔷 8. Brand & Competitor Resolver

Objective: Map mentions/citations to correct brand identities.

Tasks:

- Create `brands` + `brand_aliases` tables.
- Fuzzy text matching for brand names and domains.
- Domain parser to assign “first-party” vs “competitor.”
- Visual competitor comparison view in dashboard.

  Benefit: Quantifies “who’s winning” in each AI engine.

🔷 9. Scoring & Trend Engine

Objective: Turn raw answers into business metrics.

Tasks:

- Nightly Lambda aggregates `Answer Share`, `Citation Share`, `Prominence`, and `Sentiment`.
- Store historical snapshots (`scores` table).
- Build trend charts and MoM deltas.

  Benefit: Marketing sees measurable progress, not just screenshots.

🔷 10. Insights & Action Center

Objective: Turn insights into prioritized tasks.

Tasks:

- Recommend actions: “Add FAQ schema,” “Write comparison page,” “Update product page metadata.”
- Integrate LLM (OpenAI Responses API) for content outline generation.
- Integrate Jira/Notion API for task creation.

  Benefit: Converts data into business results (optimized content).

🔷 11. API & Export Layer

Objective: Allow BI integration.

Tasks:

- Read endpoints `/scores`, `/citations`, `/audits`.
- API Gateway + Cognito authentication.
- Signed URLs for evidence screenshots.

  Benefit: Enterprise customers can sync GEO data into their systems.

🔷 12. Dashboard v2 (Comparisons & Drilldowns)

Objective: Add deep-dive analytics.

Tasks:

- Competitor share graphs.
- Engine comparison tabs.
- Filter by locale/topic/timeframe.
- Evidence viewer (click-through answers).

  Benefit: Converts the tool into a daily operational dashboard.

✅ Phase 2 Outcome

Users can:

- Track performance by engine/region/competitor.
- Receive actionable recommendations.
- Export data to analytics.

  KPIs:

- Competitor coverage 90%+
- Action adoption rate tracked
- Weekly engagement >70%

🔬 PHASE 3 — Intelligence & Experimentation (Months 7–9)

Goal: Add predictive and testing capabilities (LLM Emulator & Experiments).

🔷 13. LLM Emulator / Test Harness

Objective: Let users test new content before publishing.

Tasks:

- Deterministic LLM prompt pipeline (temperature=0).
- Judge model ranks which variant is more authoritative.
- Store test results in `emulation_runs`.

  Benefit: Predicts which content version will perform better in AI search.

🔷 14. Experiment Lab

Objective: Validate changes in live data.

Tasks:

- Allow users to define pre/post or A/B tests.
- Analyze real-world visibility lift.
- Visual experiment summary dashboard.

  Benefit: Proof of ROI for GEO changes — "We added schema, share increased 15%."

🔷 15. Knowledge Graph (Neo4j Layer)

Objective: Visualize relationships between brands, domains, and topics.

Tasks:

- Build graph of Brand ↔ Domain ↔ Topic ↔ Citation.
- Support queries like "Which domains dominate AI mentions for 'Herbal Ingredients'?"

  Benefit: Reveals partnership or outreach opportunities.

✅ Phase 3 Outcome

Users can:

- Test content before publishing.
- Measure after-change results.
- Understand topic relationships visually.

  KPIs:

- Test accuracy >80% correlation with live data
- Experiment lift validated in <4 weeks

💼 PHASE 4 — Enterprise & Automation (Months 10–12)

Goal: Add scale, governance, and enterprise features.

🔷 16. Alerts & Automations v2

Objective: Make insights actionable automatically.

Tasks:

- Slack bots that push “new loss prompt” alerts.
- Auto-create tickets when a visibility drop >10%.

  Benefit: Faster reaction and closed feedback loops.

🔷 17. Billing, Tenancy, & Usage

Objective: Support multi-tenant SaaS deployment.

Tasks:

- Cognito for user auth and roles.
- Stripe metered billing by prompt runs and seats.
- Usage dashboard for admins.

Benefit: Monetization and transparent resource control.

🔷 18. Compliance & Observability

Objective: Enterprise-grade reliability.

Tasks:

- KMS encryption for all S3/DynamoDB data.
- S3 lifecycle retention (90/180/365 days).
- SOC2-style audit logging for enterprise clients.

  Benefit: Meets data governance and security standards.

✅ Phase 4 Outcome

Users can:

- Operate globally across multiple teams.
- Automate monitoring and alerts.
- Manage cost, billing, and compliance.

⚙️ Technical Stack Summary

Layer	Technology	Purpose
Frontend	React + Next.js + Tailwind	User dashboards & controls
Backend API	FastAPI (or AWS Lambda + API Gateway)	REST endpoints & auth
Workflow Orchestration	Step Functions + EventBridge + SQS	Collector scheduling
Data Storage	DynamoDB + S3 + OpenSearch	Raw + structured data
Graph DB	Neo4j Aura	Brand/topic relationships
Analytics	OpenSearch Dashboards + Athena	Trend visualization

Layer	Technology	Purpose
LLM Integration	OpenAI Responses API	Content outline, sentiment, emulator
Automation	SES + Slack Webhooks + Jira API	Alerts & action sync
CI/CD	GitHub Actions + AWS CDK	Infra deployment
Security	Cognito + KMS + CloudWatch	Access control & monitoring

📈 Roadmap Summary

Quarter	Phase	Major Deliverables
Q1	Phase 1	MVP — collectors, dashboard, GEO audit, alerts
Q2	Phase 2	Competitor tracking, scoring, insights/action center
Q3	Phase 3	LLM emulator, experiment lab, graph view
Q4	Phase 4	Billing, automation, compliance

🧩 KPIs & Success Metrics

Metric	Target	Why It Matters
Daily run success rate	> 95%	Reliable data collection
Dashboard load time	< 2s	Smooth UX
User retention after 3 months	> 70%	Engagement proof
Content change → visibility lift	+15% avg	Business impact
Prompt coverage	90%	GEO readiness
Revenue growth	10% MoM post-launch	SaaS traction

🧠 Strategic Takeaway

This platform makes AI search measurable and actionable.

Instead of wondering *"How does ChatGPT describe my brand?"* — your customers, marketers, and executives get:

- **Evidence** (screenshots & citations)
- **Diagnosis** (why it’s happening)
- **Action plan** (how to fix it)
- **Proof** (visibility lift after change)

It’s **SEO reimagined for the AI era** — blending marketing insight, technical audit, and AI-driven optimization in one continuous loop:

Monitor → Diagnose → Act → Verify.
