



GEO/AI Search Monitoring Platform Comprehensive Development Plan

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GEO / AI Search Monitoring Platform

(How AI search engines describe, cite, and reference your brand — and how to improve it)



Stage 1—Platform Foundations & MVP (Months 1–3)

Business Goal

Build an operational loop from **Prompt** → **Collector** → **Dashboard** → **Audit** → **Alert** so users can see what AI engines say about them.

1. System & Cloud Setup

Business:

Ensure a secure, scalable foundation — reliability, cost control, and quick deployment.

Technical Implementation:

Area	Tools / Design	Description
Infrastructure	AWS CDK / Terraform	Define S3 (buckets for raw + processed), DynamoDB (metadata), OpenSearch (analytics), API Gateway + Lambda (API), Cognito (Auth).

Area	Tools / Design	Description
CI/CD	GitHub Actions + CodePipeline	Auto-build, lint, test, deploy.
Observability	CloudWatch, X-Ray	Metrics: run-success%, cost/run, latency, parse errors.
Security	KMS encryption + IAM roles	Tenant isolation, fine-grained access, least-privilege policy.

2. Prompt & Topic Manager

Business:

Marketing teams define "which questions AI tools should ask."

They organize prompts into topics, regions, engines, and competitors.

User flow:

- 1 Create topic ("Herbal Ingredients")
- 2 Add prompt ("Best Ashwagandha suppliers?")
- 3 Pick engines + regions
- 4 Set cadence + budget

Technical:

- Tables: `topics`, `prompts`, `plans`.
- EventBridge cron → Step Functions → SQS to create query jobs.
- API endpoints: `/plans`, `/prompts`.
- Front-end: React UI + Form validation.

Deliverable:

Operational scheduling dashboard.

Value:

Structured GEO coverage and predictable cost control.

3. Engine Collectors

Business:

Automated “digital analyst” that checks ChatGPT, Perplexity, Gemini daily to capture real responses.

Technical:

- **Runtime:** ECS Fargate + Playwright (headless Chromium).
- **Data Flow:** Query → Capture answer JSON + HTML + screenshot → S3.
- **Schema:**

```
{"job_id": "...", "engine": "chatgpt", "prompt_id": "...", "answer_html": "...", "links": [...], "screenshot": "s3://..."}  
}
```

- **Controls:** Proxy rotation via BrightData; rate-limiter; retries; DLQ.
- **Cost:** ~\$0.05 /run average.

Business value:

Reliable, auditable record of what AI actually shows customers.

4. Parser & Normalizer

Business:

Turns raw AI answers into comparable datasets across engines.

Technical:

- **Trigger:** Lambda on S3 object upload.
- **Steps:** extract answer text → parse citations → canonicalize URLs → detect brand aliases.
- **Store:** `answers` and `citations` tables in DynamoDB.
- **Index:** OpenSearch for querying.

Value:

Cross-engine visibility in one unified format.

5. Dashboard MVP

Business:

Marketing and execs view KPIs:

- **Answer Share, Citation Share, Prominence, Sentiment.**

Technical:

- Front-end: React + Next.js + ECharts.
- API: OpenSearch aggregations.
- Evidence viewer: lightbox with answer text + screenshot.

Value:

Immediate insight — “how visible is my brand in AI search?”

6. GEO Audit Crawler

Business:

Audits site content for AI-readiness (structured data, FAQ, meta).

Technical:

- **Crawler:** Playwright + Asyncio; respects robots.txt.
- **Checks:** schema.org types, canonical tags, load speed.
- **Results:** `audits` table (url, issue_code, severity, fix_recipe).
- **UI:** Issue list + export to CSV/Jira.

Value:

Gives SEO teams concrete, ranked fixes.

7. Alerts & Weekly Digest

Business:

Keep stakeholders informed automatically.

Technical:

- Lambda compares daily Answer Share deltas.
- SES emails / Slack messages with evidence links.

- Digest generator runs Sunday 6 AM UTC.

Value:

Proactive monitoring → quick reaction to visibility drops.

 **End of Phase 1 Deliverable:**

A functioning product where users define prompts, collect AI results, view dashboards, audit their site, and receive alerts.

Stage 2 — Insights & Optimization Layer (Months 4-6)

Business Goal

From raw data → insight → action.

Give users competitor comparisons and prioritized recommendations.

8. Brand & Competitor Resolver

Business:

Match every link/mention to the right brand.

Technical:

- `brands` , `brand_aliases` tables.
- Fuzzy matcher (Python FuzzyWuzzy / RapidFuzz).
- Neo4j graph: Brand ↔ Domain ↔ Topic.

Value:

Clarity on who dominates each topic.

9. Scoring & Trends Service

Business:

Daily analytics & trend visualization.

Technical:

- Nightly Lambda aggregator.
- `scores` table (brand, engine, topic, answer_share, delta).
- OpenSearch dashboards for MoM analysis.

Value:

Quantifiable GEO performance over time.

10. Insights & Action Center

Business:

Turns analytics into tasks:

"Add FAQ schema to Product X page – expected +18 % Answer Share."

Technical:

- Heuristic model ($\text{loss} \times \text{competitor_strength} \times \text{authority_gap}$).
- OpenAI Responses API → content outline.
- Integrations: Jira / Notion / Contentful.

Value:

Bridges analytics → execution; accelerates content updates.

11. API & Integrations

Business:

Allow enterprises to integrate GEO metrics into existing BI.

Technical:

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

Value:

Data portability = stickier enterprise customers.

12. Dashboard v2

Business:

Interactive drill-downs and multi-engine comparison.

Technical:

- React filters + OpenSearch queries.
- Comparison widgets: brand vs competitor.
- Time-series trends.

Value:

Advanced analytics for power users.

End of Phase 2:

Users get competitive intelligence and actionable recommendations with measurable trend analysis.



Stage 3 — Intelligence & Testing (Months 7–9)

Business Goal

Help teams **predict** outcomes before they invest effort, then **prove** results afterward.

13. LLM Emulator

Business:

Test content variants before publishing — “Which version will ChatGPT cite?”

Technical:

- Deterministic LLM runs (temperature 0, seeded).
- Judge model ranks variant authority.
- Results stored in `emulation_runs`.

Value:

Forecast results → save weeks of trial and error.

14. Experiment Lab

Business:

Run controlled A/B or before-after experiments.

Technical:

- Define variant groups & time windows.
- Bayesian uplift calculation.
- Result visualization dashboard.

Value:

Scientific proof of ROI from each GEO change.

15. Knowledge Graph Explorer

Business:

Visual map of which brands dominate which topics.

Technical:

- Neo4j Aura + GraphQL API.
- Nodes: Brand, Domain, Topic, Citation.
- Edges: "CITED_IN", "COMPETES_WITH".

Value:

Identifies gaps and partnership opportunities.

 **End of Phase 3:**

Predictive insights + proof-of-impact capabilities.



Stage 4 — Enterprise Scale & Governance (Months 10–12)

Business Goal

Make the platform production-grade, multi-tenant, compliant, and monetized.

16. Automation & Smart Alerts

Business:

Automatic actions from changes.

Example: "Drop > 10 % → auto-create Jira ticket."

Technical:

- EventBridge rules + Lambda triggers.
- Slack bots + Jira API integration.

Value:

Human-in-the-loop automation saves reaction time.

17. Billing & Tenant Management

Business:

Enable SaaS subscription tiers.

Technical:

- Stripe metered billing (per runs / seats).
- Cognito multi-tenant RBAC.
- Usage tracking in `usage_counters`.

Value:

Revenue generation + customer self-service.

18. Compliance & Observability

Business:

Enterprise-ready data governance.

Technical:

- S3 lifecycle retention rules (90/180/365 days).
- KMS encryption, audit logs table.

- SLA monitors (data fresh by 09:00 daily).

Value:

Trust, security, and enterprise readiness.

 **End of Phase 4:**

SaaS-ready, secure, and automated platform with revenue and compliance controls.

Layer-by-Layer Summary

Layer	Business Purpose	Key Technical Modules	Outcome
Discover & Plan	Define monitored topics & prompts	Topic/Prompt Manager + Scheduler	Strategic focus & cost control
Monitor & Understand	Gather AI answers & citations	Collectors + Parser + Dashboard	Visibility & proof
Diagnose	Identify gaps & site issues	GEO Audit Crawler	Root-cause analysis
Act	Recommend and create fixes	Insights Engine + LLM Content Generator	Actionable improvements
Test	Predict and measure lift	LLM Emulator + Experiment Lab	Risk-free validation
Communicate	Share and alert	Alerts + Dashboard Exports + Slack Digest	Team alignment
Scale & Govern	Secure and monetize	Billing + Cognito + Compliance	SaaS scalability

Business Impact Metrics

KPI	Target	Business Meaning
Avg Answer Share Lift	+15 % within 90 days	Proven impact of content fixes
Prompt Coverage	90 %	GEO visibility completeness
Collector Success Rate	98 %	Data reliability

KPI	Target	Business Meaning
Action Adoption	70 % within 1 month	Execution efficiency
Weekly Active Users	> 75 %	Product engagement
Uptime SLA	99.9 %	Enterprise trust



Continuous Business Loop

Define → Monitor → Diagnose → Act → Test → Communicate → Verify
→ Scale

Each loop increases brand visibility in AI search, validates ROI, and strengthens the company's GEO position.



Strategic Vision

- **For Marketers:** know exactly how AI engines describe your brand.
- **For SEO:** targeted fixes + proof of lift.
- **For Executives:** ROI visibility and competitive defense.
- **For the Company:** first-mover advantage in Generative Engine Optimization.