

Technical Feasibility Report

Project: AI-Powered Competitive Insights Dashboard

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1. Executive Summary

This report confirms that the proposed AI-Powered Competitive Insights Dashboard is **highly feasible** from a technical standpoint.

Our analysis of the publicly available Google Maps review data shows that it is sufficiently rich and structured to power the desired features. We have identified a clear architectural path forward using a modern, multi-agent AI system that can deliver the actionable insights you require, from high-level trend monitoring down to specific, operational suggestions.

2. Data Readiness Assessment

Our assessment focused on a representative sample of reviews from 10 of your city-centre locations.

- **Data Availability & Structure:** The review data accessible via SerpAPI is excellent. It consistently provides the necessary fields, including review text, star rating, and a reliable timestamp, which is crucial for trend analysis.
- **Data Quality & Richness:** The quality of the review text is more than adequate for this project. The data contains a healthy mix of short, sentiment-rich comments and highly detailed, "Golden Nugget" reviews that provide deep, actionable context.
- **Statistical Viability:** While the review volume is not suited for large-scale predictive modeling, it is **perfectly sufficient** for the project's goals of trend monitoring and qualitative insight extraction. The system will be able to reliably detect shifts in sentiment and surface critical, individual reviews that point to operational issues or successes.

Conclusion: The available data is a strong foundation for this project.

3. Proposed Technical Architecture: A Crew of AI Agents

We propose building the system using a modular, multi-agent architecture. This approach is scalable, efficient, and represents the cutting edge of AI system design. The "crew" consists of four specialist agents:

1. **The Analyst Agent (Review Processing):** This agent uses an advanced Large Language Model (LLM) to read each review and enrich it with metadata: sentiment score, key business themes (e.g., Taste, Service), and flags for "Golden Nuggets" or "Red Flag" alerts.
2. **The Synthesizer Agent (Strategic Analyst):** This agent looks at the entire collection of analyzed data to find patterns, calculate KPIs, generate leaderboards, and produce the plain-English, actionable suggestions for the Strategic Insights Module.
3. **The Communicator Agent (Conversational Interface):** This agent powers the experimental chatbot, understanding user questions and coordinating with the other agents to provide intelligent answers.

This architecture ensures a clear separation of concerns and allows us to build a robust and intelligent system.

4. Key Challenge & Strategic Mitigation

The primary challenge for this system is not technical, but strategic: the **velocity and density of the data source**. While the current review data is sufficient for an MVP, relying solely on organic Google Maps reviews presents a long-term limitation.

- **Challenge: Low-Frequency Data:** The organic rate of new reviews may be too slow to detect subtle, emerging trends quickly.
- **Mitigation Strategy: Proactive Review Generation Program:** We recommend a business initiative to supplement the organic data. By implementing a simple program (e.g., a QR code at checkout offering a small discount on the next purchase for leaving a review), you can significantly increase the volume of feedback. This creates a powerful, virtuous cycle:
 - **More Data for AI:** Provides a richer, more frequent data stream for our agents, leading to more accurate and timely insights.
 - **Increased Customer Engagement:** Encourages customers to provide feedback and fosters a sense of connection, which can increase repeat business.

- **Improved Public Perception:** A higher volume of recent, positive reviews can help improve the overall star rating and bury older, negative feedback.

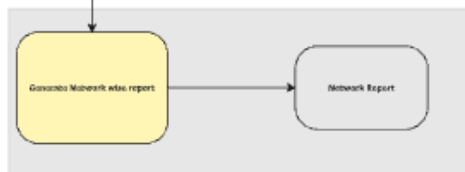
1. Add New Reviews to DB



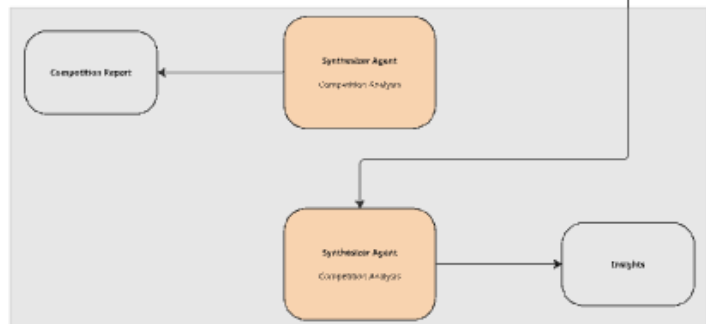
2. Generate Static Location Status



3. Network-wide overview



4. AI Strategic Insights



5. Chatbot



System Architecture Draft

5. Proposed MVP Infrastructure

To deliver the Prototype & Pilot, we will utilize a minimal, cloud-based infrastructure designed for rapid development and cost-efficiency.

- **Backend:** A serverless function environment (e.g., Vercel, AWS Lambda) will host the AI agent logic. This allows for scalable, on-demand processing without the need for dedicated servers.
- **Database:** A simple, managed database (e.g., Supabase, Firebase Firestore) will store the structured review data and the insights generated by the agents.
- **Frontend UI:** A modern, web-based dashboard built with a component-based framework (like React) will provide the interactive user interface. The wireframes we have designed will serve as the direct blueprint for this UI.

This lean setup ensures a fast time-to-market for the MVP while being robust enough to scale for future development.

6. Recommendation & Next Steps

Based on these findings, we confidently recommend proceeding with the **Prototype & Pilot Package**. The project is not only technically feasible but also poised to deliver significant value by transforming raw customer feedback into a strategic asset.

The next step is to review and approve the **Statement of Work (SOW)** for this package, which will allow us to begin the development sprint.