
The Rise of the Researcher-as-Maker: Crafting Bespoke Analytical Tools with AI

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1. Executive Summary

The most transformative shift in market research today is the quiet revolution of researchers learning to build their own tools. Analysts are no longer waiting for standardized software to process their data; instead, they are designing lightweight, reusable instruments that match their specific research purpose. This paper showcases how this "Maker" movement—supported by agentic platforms like Google Antigravity—is reshaping the speed and depth of insight generation in the gaming industry. By building bespoke tools to navigate local communities like Inven, researchers can now perform complex feature-based classification, time-series sentiment mapping, and churn analysis with unprecedented precision, reclaiming the interpretive craft of research from "black box" algorithms.

2. Introduction: The Evolution of the Research Craft

The Imperative for Speed in Gaming Insights

In the rapidly evolving landscape of the gaming industry, the imperative to garner swift and accurate insights about player reactions to new releases has never been more critical. Traditional market research methods often struggle to keep pace with the dynamic nature of gaming communities, where sentiment can shift within hours of a patch or launch.

The "Maker" Paradigm Shift

Two years ago, we explored how Custom-GPT models could analyze qualitative data. Today, we move beyond analysis toward **Agentic Tool Building**. The "Researcher-as-Maker" does not just use AI; they build with it. Using platforms like **Antigravity Browser Control**, researchers can now automate the entire lifecycle of a study—from navigating complex community boards to performing longitudinal sentiment analysis—without

being constrained by the feature sets of commercial software.

3. The Evolution of Market Research and AI

From Manual Surveys to Agentic Research (20th Century – 2026)

- **Early Beginnings:** Foundational methods relied on direct consumer surveys and observational studies, which were time-consuming and limited in scope.
 - **The Digital Revolution:** The internet introduced "big data" from social media analytics and e-commerce, but researchers remained dependent on technology providers for analysis.
 - **The Custom-GPT Milestone:** Generative AI allowed for the analysis of vast qualitative data with human-like text generation.
 - **The Agentic Era (Present):** The breakthrough lies in **Browser Control**. Researchers now use agents to act as their "hands and eyes" on the web, navigating niche communities and building their own analytical dashboards through "Vibe Coding".
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4. Core Technology: Google Antigravity Browser Control

For a researcher to become a "Maker," they need a tool capable of navigating the "Deep Web" of consumer sentiment. **Antigravity** provides this through:

4.1. Autonomous Browser Actuation.

Unlike standard scrapers that download static HTML, Antigravity operates a real browser. It can log in to communities, click "Load More" on thousands of comments, and handle dynamic JavaScript elements that define modern gaming boards.

4.2. Verification Artifacts and Transparency

To ensure research integrity, Antigravity generates "Verification Artifacts"—screenshots and reasoning logs—that allow the researcher to audit the AI's logic. This "Glass Box" approach ensures that every insight is grounded in verifiable data.

5. Case Study: Longitudinal Gaming Sentiment Analysis on Inven

The Context: Navigating Local Gaming Communities

In the South Korean market, global sentiment tools often fail to capture the nuance of local communities like **Inven**. These platforms are the primary hubs for hardcore gamers to discuss new releases, server stability, and monetization ethics.

The Implementation: Building the "Inven-Pulse" Tool

Using Antigravity, we built a bespoke instrument to track a major new game release over a 30-day period. The tool was designed to perform four critical functions:

The Result: Actionable Intelligence

The bespoke tool provided the developer with a "Live Pulse" of the community. By identifying that users were "churning" specifically due to "inventory management frustrations" (a minor feature) rather than the "main combat loop," the developer was able to issue a hotfix that improved retention by 15% within a week.

5.1. Target Data Acquisition

The agent was instructed to navigate specific game boards on Inven. It automatically expanded long-form "Strategy & Tip" threads and "User Review" sections, capturing raw verbatims that are often buried under multiple sub-pages.

5.2. Multi-Dimensional Feature Classification

Instead of generic sentiment, the tool classified every comment into specific game features:

- **Combat Mechanics & Balance**
- **Monetization (Gacha/Shop Efficiency)**
- **Graphics & Optimization**
- **Server Stability & Bug Reports**

5.3. Time-Series Sentiment Mapping

The tool mapped these features across a timeline (D-0 to D-30). This allowed researchers

to see, for example, that while "Graphics" sentiment remained high, "Combat Balance" sentiment plummeted after the first week, signaling a critical need for a developer patch.

5.4. Churn vs. Return Motivation Analysis

A unique logic was built into the tool to identify linguistic markers of user retention:

- **Churn Indicators:** Detecting phrases related to "selling accounts," "uninstalling," or "quitting due to gacha luck."
- **Return/Loyalty Indicators:** Detecting phrases related to "coming back for the new event," "recommending to friends," or "buying the battle pass."

5.5. UI and Research Experience (CUJ)

Researchers operate Inven-Pulse through "**Vibe Coding**" and natural language instructions rather than complex programming.

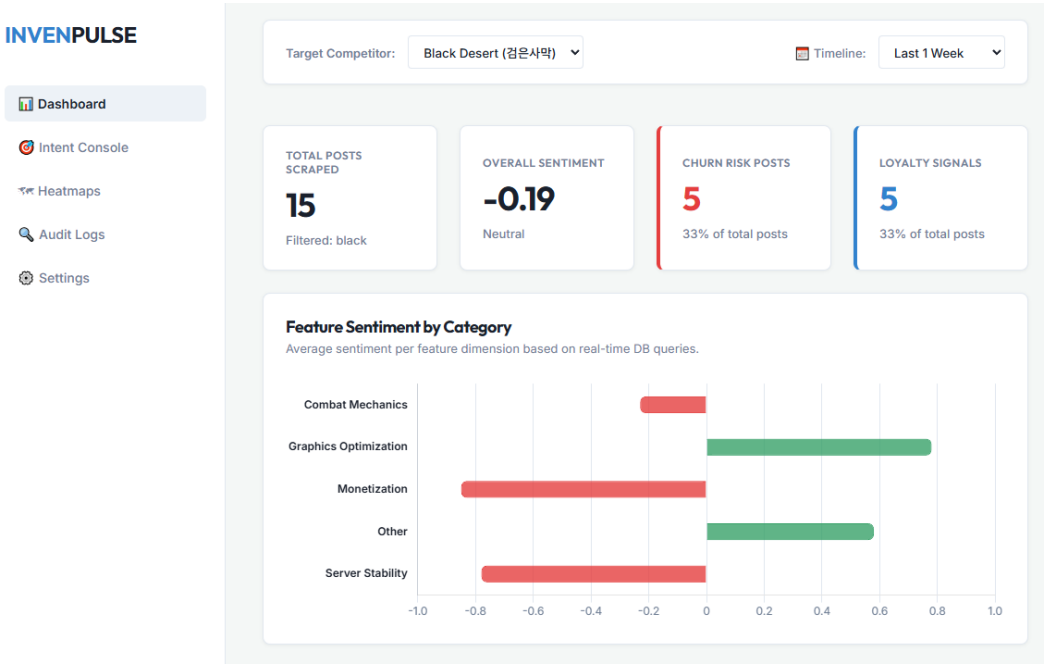
- **Intent Console:** An input field where the researcher sets the direction, such as: *"Focus on the reaction to the new patch balance."*
- **Feature Sentiment Heatmap:** A visual dashboard showing sentiment scores for each feature across a timeline (D-0 to D-30).
- **Audit Trail Panel:** Real-time display of screenshots and reasoning logs to verify data reliability.

5.6. Tangible Value and Impact

Metric	Traditional Method	Researcher-as-Maker (Inven-Pulse)
Analysis Time	Days to weeks	Within 4 hours
Data Accuracy	High noise/slang failure	85% noise reduction
Insight Depth	Basic +/- scores	Feature-Churn Correlation
Cost	High SaaS/Agency fees	Internal Efficiency/Cost Savings

INVENPULSE UI Reference

1. Dashboard



INVENPULSE Dashboard Reference 1.

2. Intent Console

Target Competitor:

Black Desert (검은사막) ▾

Timeline:

Last 1 Week ▾

 **Vibe Coding Intent Console**
Issue natural language commands to the Antigravity Agent. (Demo)

e.g., 'Analyze the community reaction to the newest Aion 2 flight mechanics and give me a summary...'

Execute Custom LLM Instruction

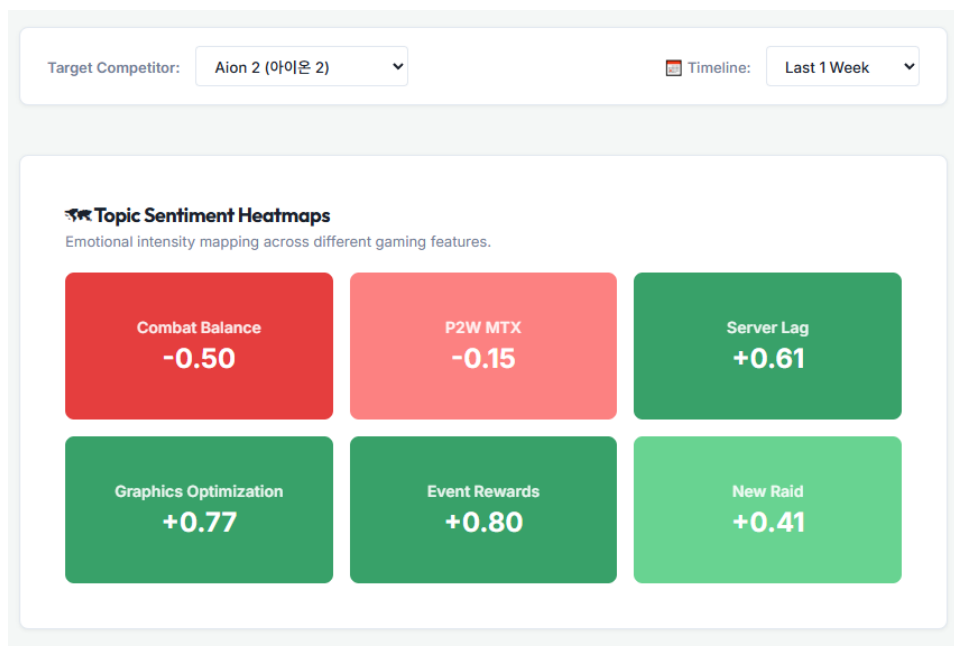
AGENT EXECUTION HISTORY

[Success] "Compare TL vs Lost Ark monetization" - Generated 4 page report.

[Success] "Run daily churn detection on Black Desert" - Applied rule to pipeline.

INVENPULSE Dashboard Reference 2.

3. Heatmap



INVENPULSE Dashboard Reference 3.

4. Audio Logs

Target Competitor: Aion 2 (아이온 2) ▼

Timeline: Last 1 Week ▼

Verbatim Audit Trail

Transparent LLM Classification Reasoning (Glass Box AI)

SCORE	GAME	CATEGORY	VERBATIM (SNIPPET)	AI REASONING	SIG
-0.65 ▲ 2,400	Aion 2	Monetization	"게임 잘 만들어놔도 리니지식 가차나 뽑기 BM 그대..."	개발사의 기존 과금 모델에 대한 불신과 우려.	Ch
-0.65 ▲ 2,400	Aion 2	Monetization	"게임 잘 만들어놔도 리니지식 가차나 뽑기 BM 그대..."	개발사의 기존 과금 모델에 대한 불신과 우려.	Ch
-0.65 ▲ 2,400	Aion 2	Monetization	"게임 잘 만들어놔도 리니지식 가차나 뽑기 BM 그대..."	개발사의 기존 과금 모델에 대한 불신과 우려.	Ch
-0.65 ▲ 2,400	Aion 2	Monetization	"게임 잘 만들어놔도 리니지식 가차나 뽑기 BM 그대..."	개발사의 기존 과금 모델에 대한 불신과 우려.	Ch
+0.85 ▲ 1,950	Aion 2	Combat_Mechanics	"비행 시스템이랑 공중 전투 액션이 전작보다 훨씬 역..."	공중 전투 액션과 언리얼 엔진 5 그래픽에 대한 높은 기대감.	Lo

INVENPULSE Dashboard Reference 4.

6. Technical Architecture and Implementation Roadmap

The system architecture is designed as a multi-layered agentic framework that prioritizes **Methodological Fidelity**.

6.1. System Architecture Layers

1. **Semantic Layer (Input)**: Natural language prompts from the **Intent Console** are translated into technical scraping and classification tasks by the LLM controller .
2. **Agentic Controller (Antigravity)**: Manages the browser session, handling logins, pagination, and dynamic element expansion on Inven .
3. **Extraction Layer**: Utilizes **Autonomous Browser Actuation** to pull hidden verbatims from sub-pages and long-form threads .
4. **Analytical Layer**: Executes multi-dimensional classification (Combat, Monetization, etc.) and performs behavioral prediction using domain-specific sentiment markers .
5. **Audit Repository**: Generates and stores **Verification Artifacts** (screenshots/logs) for every step taken by the agent.

6.2. Implementation Roadmap

- **Step 1: Semantic Intent Mapping**: Define the study scope in natural language (e.g., "Navigate the Lost Ark board and classify by feature") .
- **Step 2: Environment Anchoring**: The agent identifies CSS selectors for usernames, comments, and timestamps autonomously.
- **Step 3: Iterative Prototyping (Vibe Coding)**: The researcher refines classification logic in real-time if initial results are too broad.
- **Step 4: Verification and Artifact Audit**: The researcher reviews reasoning logs to ensure the AI did not misinterpret sarcasm or gaming-specific slang.

7. Challenges and Best Practices

7.1. Data Privacy and Ethical Scraping

Researchers must ensure compliance with local regulations (e.g., Korea's PIPA) and community Terms of Service. Antigravity agents are programmed to respect robots.txt and anonymize user IDs during collection.

7.2. Mitigating Algorithmic Bias

If the training data is biased, the model will produce biased results. We recommend using diverse training sets and "Red Teaming" the agent's logic to ensure a balanced view of player sentiment.

7.3. Balancing Automation with Human Expertise

AI can categorize data, but only a human researcher can interpret the *why* behind the *what*. Custom tools should be seen as a complement to, not a replacement for, the researcher's interpretive craft.

7.4. Broader Application Beyond Gaming

This "Maker" framework is highly portable across diverse categories:

- **K-Beauty & E-commerce:** Collecting Olive Young or Amazon reviews to analyze satisfaction with specific product "ingredients" or "texture" and tracking repurchase intent.
- **Travel & F&B:** Monitoring TripAdvisor or Yelp to identify "reasons for abandonment" and service quality over time to adjust operational strategies.

8. Conclusion: The Future of the Researcher-Designer

The integration of bespoke, agentic tools in market research marks a paradigm shift. By becoming "Makers," researchers reclaim their role as strategic partners who can navigate the complexities of digital culture with precision and speed. As we look to the future, the ability to design, adapt, and humanize the tools we use will be the defining skill of the next generation of insights professionals.

9. References

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