



Smarter, Safer, Scalable

Price and Stock Monitoring: A Price Intelligence Application for Thousands of Products

How we transformed commercial data from 20 sources into a unified catalog featuring history, alerts, dashboards, and conversational analysis.

CASE STUDY

Industry: Retail / E-commerce

Client: Confidential

Year: 2026

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WHY MARKET MONITORING MATTERS

In the e-commerce and retail landscape, competitors' prices and stock levels fluctuate rapidly, with the same product often listed simultaneously by multiple retailers. OPTI's client needed more than just raw pricing data from their systems; they required **continuous visibility** over the sources and products within the ecosystem:

- **Pricing decisions** must be based on multi-criteria comparisons with competitors and suppliers to monitor margins and availability, with a keen focus on product specifications.
- Historical data is essential for **trend analysis**, alongside **alerts for price drops** (undercutting own prices) or stock-outs.
- Commercial teams need unified, permission-based access to view the **company's positioning** relative to all market sources.

OPTI provides [Google Cloud and Vertex AI services](#) and has developed a proprietary price intelligence application. This solution includes AI-powered product search and dedicated dashboards for monitoring price, stock, and margins.





CHALLENGES

The application was designed as an operational layer for product intelligence. The main challenges involved complex comparison logic and the delivery of actionable alerts:

Same product, dozens of retailers



A single product can appear across dozens of competitors with slightly different names. Correlation was achieved via SKU where available, or through a **custom AI-driven engine** for all other cases, using a confidence threshold (e.g., 95%) and human confirmation.

Monitoring and Alerts – History of price, stock, and details



Three primary use cases were identified for the commercial team:

Price Comparison: The main competitiveness metric.

Some retailers use vouchers for discounts, requiring the system to calculate the final net price.

Stock Comparison: Crucial because stock-outs lead to customers migrating to alternatives.

Specification Updates: Tracking the "last updated" date of specs is vital for supplier relations, allowing the team to identify feature changes or the launch of new versions.



SOLUTION

OPTI built an integrated software application leveraging **Google Data Studio, Google BigQuery, and Google Gemini** for comprehensive product catalog monitoring:

1. Control Center



The central hub functions as a "**command center**." Instead of searching through separate files or manual reports, the user has a **single interface** to understand catalog size, retailer distribution, and the evolution of price, stock, and specifications. It ensures high performance via **Cloudflare CDN**.

2. Monitored Product Catalog



The catalog displays products with essential information and key actions::

- Product Name
- SKU or Identifier
- Brand and Photo
- Base Price
- Minimum Price (includes vouchers)
- Maximum Price (in a period)
- Retailer or Supplier
- Specification Change Date
- Last Update
- Alert Configuration

3. Product Page with Prices and Retailers



This page offers a **complete 360-degree view of a product**. For example, for a desktop computer, it displays the base price, the lowest price (including vouchers), the highest price, 12 monitored retailers, active alerts, and the spec update date. This allows users to grasp market dynamics instantly without navigating through multiple screens.

4. Price and Stock History with Selectable Periods



While a current price may seem competitive, history might reveal significant fluctuations, recent retailer price hikes, or seasonal trends. **Interactive charts** allow the correlation of price or stock variances with internal data to refine future pricing strategies.

5. AI Search and Reporting for the Entire Team

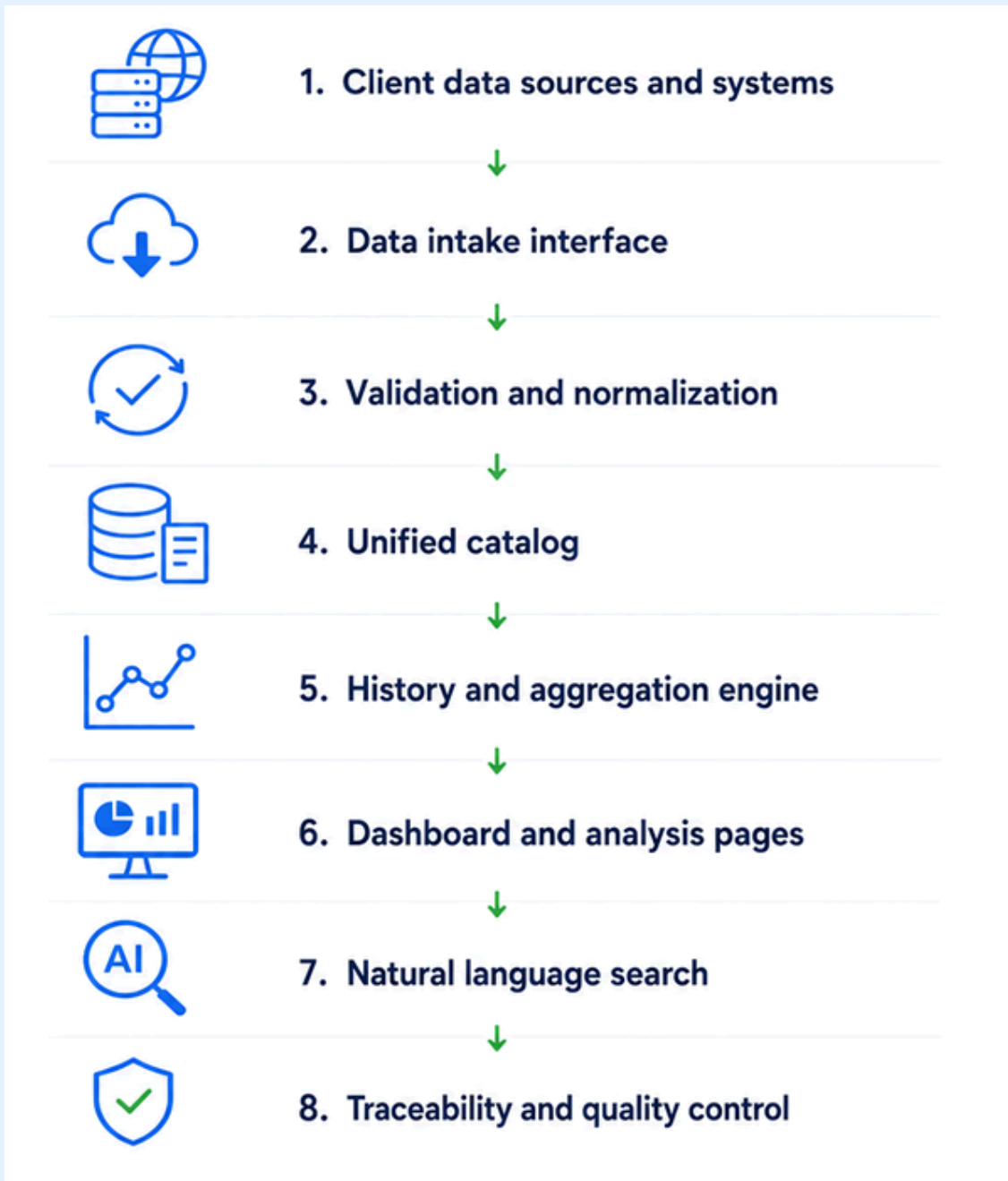


Beyond smart dashboards, the project includes an AI search zone using [Conversational Analytics via Google Cloud](#). Users can ask questions in natural language, and the system rapidly generates custom tables, charts, and analyses based on available data.



ARCHITECTURE

The architecture developed by OPTI is a multi-layered workflow, ranging from client data sources to **AI integration and quality control**:





RESULTS

After 2 months of operation for e-commerce and B2B operations:



Full Visibility

A centralized view of 2,000 products across retailers and suppliers, including price, stock, and details.



Faster Pricing Decisions

Instant display of base, min, and max prices with % variances. Estimated analysis time reduced by 50%.



Historical Analysis

Identification of trends and seasonality; reduced dependency on Excel.



Rapid Comparison

Real-time list of 20 retailers and suppliers with product details and commercial margins.



Traceability and Trust

Increased data confidence and rapid verification of anomalies for the entire team.



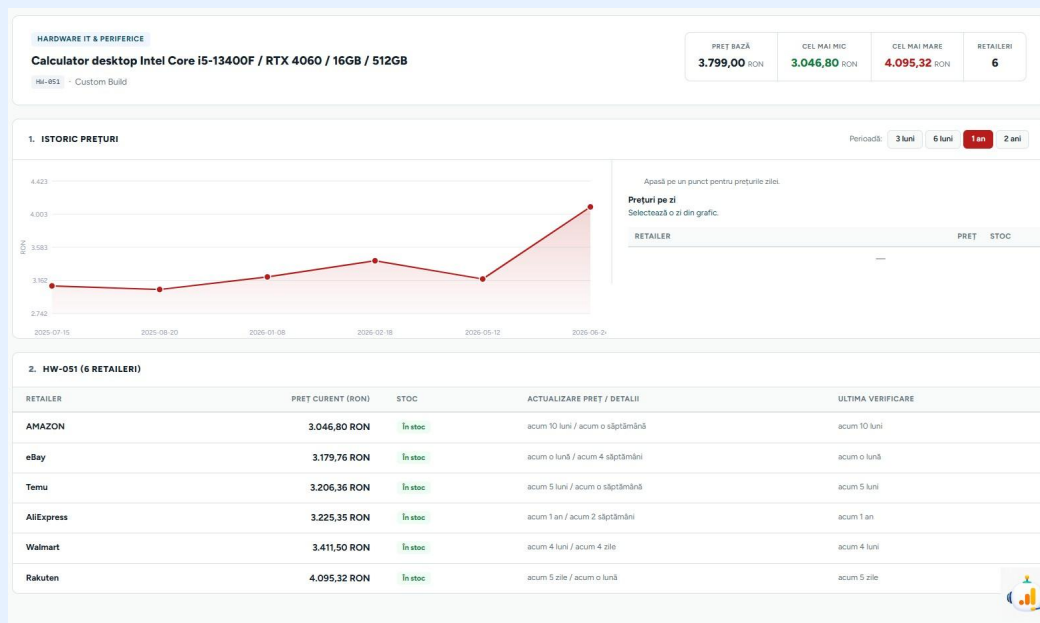
AI Adoption

Rapid identification of relevant products and reports without needing technical support.

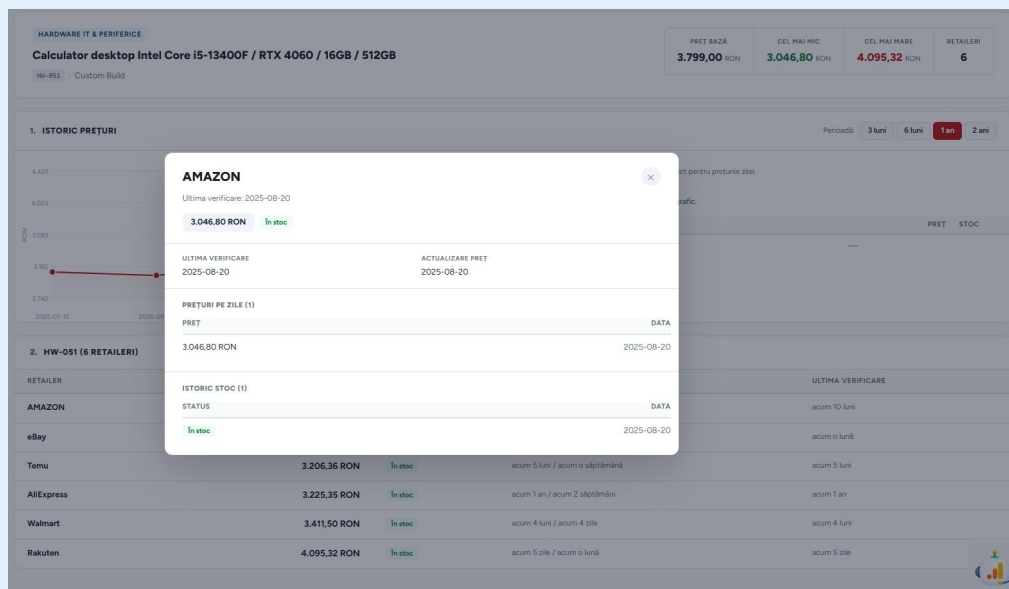


INTERESTED?

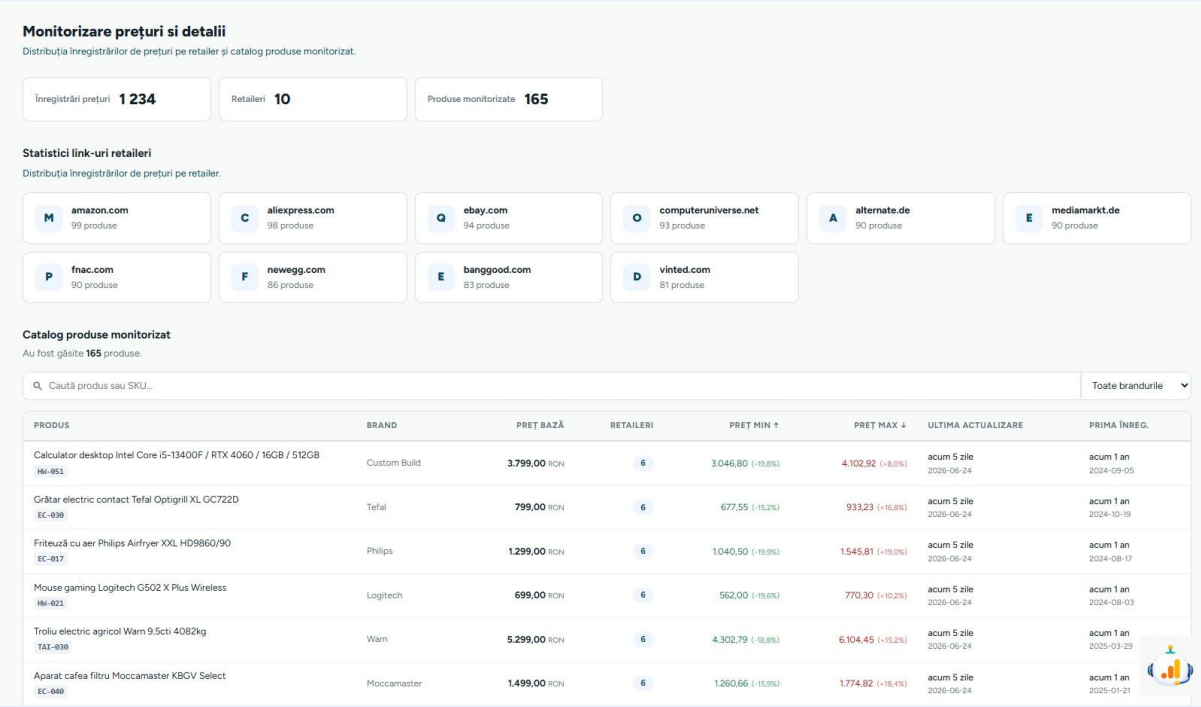
A Price Intelligence MVP can be delivered in 4-6 weeks.



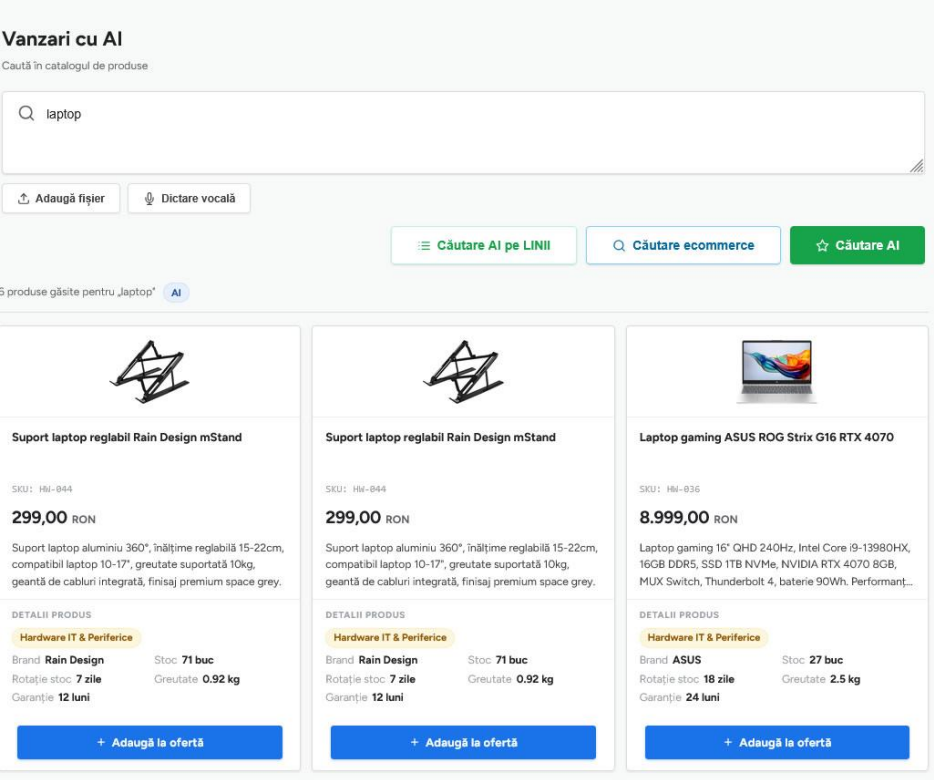
The product page provides a complete view of market positioning. (Demo data)



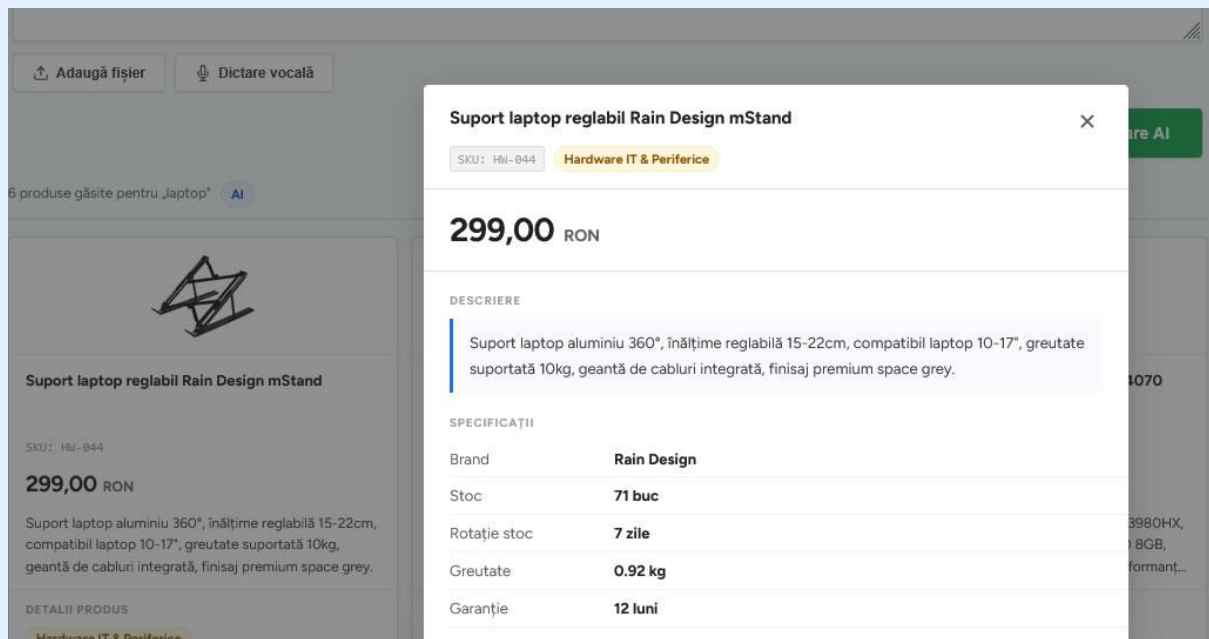
Retailer details allow for quick verification of source, price, and stock. (Demo data)



The dashboard centralizes the monitored catalog and offers rapid access. (Demo data)



Search from product [AI Sales](#) finds relevant catalog products quickly. (Demo Data)



The details window provides instant commercial and technical info. (Demo data)

tell me the products with the greatest price variation in the last 3 months (in english)

Here are the products with the greatest price variation over the last 3 months (from **April 14, 2026** to **July 14, 2026**).

The calculation uses the standard unit base price (`pret_baza`) extracted from the order transaction records during this period. Price variation is defined here as the absolute difference between the highest and lowest prices at which a product was sold.

product_sku	product_title	total_orders	min_price	max_price	price_difference	percentage_variation	std_dev_price
1100990	SATA 544 Filtru dublu cu regulator de presiune	2.0	4119.36	6865.6	2746.24	66.67	1941.884926765744
50410904	GLASURIT Basecoat 55- M 25 White Base 3,5L	10.0	832.68	1850.4	1017.72	122.22	429.1084293742084

Conversational Analytics enables rapid custom report generation. (Demo data)

TESTIMONIAL

"We had the data, but we couldn't use it to see how supplier prices changed or how competitors were positioned. The application developed by OPTI transformed this information into a daily tool for our commercial team."

— E-commerce Manager

TECHNOLOGIES & METHODOLOGY

Services: Business Analysis, Process Modeling, Architecture, Backend Development, Data Integration, Frontend Development, AI Integration, Google Cloud Integration, QA & Testing.

Tech: Bootstrap, React, PHP 8.4, Google BigQuery, Google Cloud, Google Data Studio, Google Gemini, Conversational Analytics, Cloudflare CDN.

Methodology: Discovery & Objective Setting, Data Modeling (Products, SKU, History, Alerts), Main Dashboard & Sub-modules, Scheduler Engine (Normalization, Aggregation), AI Integration (Semantic Search & Conversational Analytics).

Standards: ISO 9001 (Quality), ISO 27001 (Information Security), ISO 42001 (AI Management).



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LEARN MORE

- ⇒ Read on [AI-Ready Infrastructure for Web, Email and Sales →](#) - case study covering infrastructure update
- ⇒ Read the case study on [E-Commerce UX & SEO modernization →](#)
- ⇒ Read [The Guides for Integrating AI into B2B Workflows in 2026 →](#)
- ⇒ View all [Our Data and Business Intelligence Services →](#)



OPTI

Intelligent Business Processes. Scalable Results.

We build **software, AI agents and data integrations** together with Google Cloud services and HubSpot CRM setups, with quality, security and AI ISO certifications.

OPTI has been distinguished with excellence awards, such as **Best R&D Program of the Year Award** at the ANIS Gala 2026 and **Bronze Startup of the Year** at Romanian Startup Awards 2026. Founded in 2005, OPTI is a HubSpot Solution Partner and Google Cloud Partner.

CERTIFICATIONS



KNOW-HOW

