

CASE STUDY

What 5 Million Medical Records Taught an \$89B Insurer About Cancer Care—and How AI Made It Possible

Executive summary

For millions of cancer patients, the financial burden of treatment is as devastating as the disease itself. Hanwha Life, South Korea's first and longest-standing life insurer with \$89 AUM, wanted to offer better financial protection but faced a major challenge—**millions of messy, hard-to-read medical and insurance records** that made it difficult to design relevant policies.

By leveraging Upstage AI's document parsing and large language model (LLM) technology, Hanwha Life processed 5 million medical records to uncover hidden patterns in cancer treatment costs. These insights led to the creation of new highly personalized cancer health insurance policies, improving customer retention, new policy adoption, and operational efficiency.

The challenge

Overwhelming Volume of Medical Data

Hanwha had millions of medical records, insurance claims, and hospital bills stored in cluttered formats—handwritten documents, scanned PDFs, and structured hospital data. Without a scalable solution, extracting key insights for insurance product design was slow, expensive, and prone to errors.

Missing Key Insights for Smarter Coverage

Traditional underwriting models failed to capture real-world treatment costs, genetic testing trends, and recurring expenses for cancer patients. Without accurate data, Hanwha struggled to offer relevant and competitive cancer health insurance products.

Competitive Pressure & Need for AI Powered Innovation

With South Korea's insurance landscape evolving, Hanwha needed an AI-driven approach to modernize operations, improve efficiency, and deliver data-backed coverage options to policyholders.

About Upstage AI

Nobody talks about the real reason AI workflows break. Upstage AI helps **Fortune 500** enterprises fix broken automation by tackling the **#1 hidden roadblock: document complexity**. Our document parsing & LLM tech liberates data in scanned PDFs, complex tables, and charts—cutting manual effort by 70% and infrastructure costs by 50%. We power **60%+ of Korea's life insurance**, helping **Samsung Life save \$28M annually**, and enable IT and operations teams to scale AI that actually works in production.

"This new special contract is significant in that it provides customers with the benefits they need by closely observing what actually happens to them through our own statistical DB that uses AI solutions."

Koo Chang-hee

Head of General Insurance



Why Upstage AI?

Hanwha needed an AI partner to turn millions of complex medical and insurance records into actionable insights without disrupting their operations. Upstage AI delivered with:

Generative AI-powered Document Parsing

Efficiently extracts and structures data from unstructured documents like medical records and insurance claims with exceptional accuracy - without the need for pre-training.

Fine-Tunable LLMs

Proprietary Solar LLM enables intelligent workflows, improving decision-making through enhanced context, pattern recognition, and automation.

Proven Enterprise-Scale Track Record

A trusted partner in insurance, finance, and healthcare, helping multiple Fortune 500 Companies streamline processes, reduce manual work, and gain a competitive edge.

The solution

Hanwha implemented Upstage AI's Document Parsing to analyze 5 million insurance claims from the past 10 years. The AI extracted and structured key medical data, enabling Hanwha to:

1. Classify & Analyze Medical Claims

- AI categorized medical expense statements from hospitals
- Identified high-cost and high-frequency procedures related to stomach, liver, and lung cancer

2. Uncover Key Treatment Cost Patterns

- Discovered that chemotherapy and radiation therapy costs were a major financial burden for patients, averaging \$5,696 per treatment cycle
- Recognized that genetic testing was an emerging cost driver for personalized cancer care

3. Launch Data-Driven Cancer Coverage Products

- New health insurance offerings provided targeted financial protection for high-cost treatments, including:
 - Outpatient chemotherapy and radiation therapy coverage
 - Next-generation genetic testing coverage for personalized treatments
 - Surgical coverage for high-frequency cancer procedures

By liberating the data and leveraging AI-powered insights, Hanwha could design policies based on real-world treatment costs, ensuring greater relevance and financial security for policyholders.

*"Upstage delivers exceptional performance, **achieving a recognition rate of over 95% with its base models across various document types.** Unlike traditional solutions with limited OCR capabilities, Upstage has enhanced its model performance and developed a range of commercial models, enabling broader applications in document processing. We chose Upstage as a partner for its scalability and look forward to future collaborations."*

Gyeong-won Jeon

Data Analytics Team Leader



Results

Hanwha's adoption of AI-powered document processing had a direct impact on policyholders, ensuring that cancer patients received financial protection tailored to real-world treatment costs. By leveraging AI insights, Hanwha was able to design policies that lowered out-of-pocket expenses and improved access to life-saving treatments.

1. Reduced Financial Burden

AI-backed insurance covered real-world treatment costs more effectively.

2. Access to Personalized Cancer Care

Genetic testing coverage enabled faster, more targeted treatments.

3. Better Coverage for High-Cost Surgeries

New policies helped patients afford lifesaving cancer procedures.

Benefits

For Hanwha, AI didn't just enhance operational efficiency—it unlocked new revenue streams, improved underwriting accuracy, and strengthened the company's market position. By automating manual data extraction and optimizing infrastructure costs, Hanwha was able to scale innovation while reducing overhead, giving them a competitive edge in AI-driven insurance.

1. New Revenue Potential

Personalized policies attracted new customers and increased upsell opportunities for existing policyholders.

2. 70% Reduction in Manual Processing

AI automated data extraction, allowing teams to focus on high-value tasks.

3. 50% Lower Infrastructure Costs

AI's efficiency reduced overhead and cut processing expenses in half.

4. Stronger Market Position

Hanwha Life emerged as a leader in AI-driven insurance, differentiating from competitors.

"As the first case, we have developed a special contract for the 3 major cancers (stomach, liver, and lung) with a high incidence rate, and we will expand the scope of application in the future to provide practical coverage for a wider range of diseases."

Koo Chang-hee

Head of General Insurance



Next steps

Following the success of its AI-driven cancer insurance transformation, Hanwha plans to:

- Expand AI-driven coverage models beyond cancer to other critical illnesses
- Integrate AI-powered fraud detection and risk assessment for greater underwriting accuracy
- Further collaborate with Upstage AI to enhance policy automation and customer experience with an auto-validator to check critical information and correct final outputs to achieve 100% accuracy

Key highlights

AI Unlocked Hidden Insights from 5 Million Medical Records

Hanwha leveraged AI-powered document processing to extract critical patterns from 5 million insurance claims and medical records, turning messy, unstructured data into actionable insights that shaped smarter insurance products.

Personalized Cancer Coverage Designed with Real-World Cost Data

Instead of relying on traditional actuarial models, Hanwha used AI-driven insights to create new cancer health insurance policies that directly aligned with actual treatment costs, providing better financial protection for patients facing expensive therapies.

Efficiency at Scale: 70% Less Manual Work, 50% Cost Reduction

By automating data extraction, Hanwha cut manual effort by 70% and lowered infrastructure costs by 50%, making advanced insurance modeling faster, more scalable, and cost-efficient—proving that AI is transforming how insurers design products, process claims, and serve policyholders.

About Upstage AI

Upstage AI builds models that transform complex, high-volume documents into structured, actionable data. From healthcare to insurance, Fortune 500 enterprises trust Upstage to handle unstructured data—including charts, tables, and handwritten text—at scale.

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Deploy with AWS: Upstage AI is optimized for cloud, hybrid, and on-premise solutions on AWS infrastructure.

See Upstage in Action: [Schedule a demo](#) today and discover how AI-powered document intelligence can transform your business.



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- **SaaS Partner**
- **Training Partner**
- **Marketplace Seller**
- **Network Competency**