

CONFIDENTIAL AI PROOF OF CONCEPT

InsureAI

RAG-based policy review, real-time knowledge retrieval and automated policy-gap analysis.

InsureAI was developed as a POC for an insurance consulting firm that needed to accelerate policy review, clause comparison, and compliance analysis across complex insurance documents. The consulting team worked with large volumes of insurance policies, internal knowledge-base documents, standard templates, compliance references, and client-submitted PDFs.

Project classification: This proof of concept was developed for a confidential insurance consulting firm.



INDUSTRY Insurance & Compliance	CLIENT TYPE Insurance consulting firm	PROJECT STAGE Proof of concept
EVIDENCE Pilot-observed	DELIVERY SCOPE Knowledge ingestion, policy Q&A and gap analysis	

Reduced repetitive policy-review effort The proof of concept reduces repetitive document search and initial clause cross-checking.	Faster grounded search across insurance knowledge Semantic retrieval provides faster access to approved policy, template and standards content.	More consistent clause and standard comparison Policy comparison applies the same selected organisational standards across each review.
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Who needed the solution

InsureAI was developed as a POC for an insurance consulting firm that needed to accelerate policy review, clause comparison, and compliance analysis across complex insurance documents. The consulting team worked with large volumes of insurance policies, internal knowledge-base documents, standard templates, compliance references, and client-submitted PDFs. Reviewing these documents manually required significant time, domain expertise, and careful attention to policy wording, exclusions, limits, endorsements, and coverage differences. The client needed an AI-powered system that could ingest organizational knowledge documents and user-supplied insurance policies, retrieve relevant context in real time, answer policy-related questions, and identify gaps between uploaded policies and standardized internal knowledge.

02 / CHALLENGE

What needed to change

The main challenge was that insurance policy review was highly manual, document-heavy, and time-consuming.

Teams manually reviewed long policy documents	Teams had to manually read long insurance policy PDFs.
Clause checks required repeated cross-document comparison	Preparing compliance notes required repeated cross-checking and documentation.
Internal standards were difficult to search consistently	Policy terms had to be compared against internal standards and knowledge-base documents manually.
Compliance notes required manual cross-checking	Preparing compliance notes required repeated cross-checking and documentation.
Review traceability was difficult to preserve	Manual reviews made it harder to preserve traceability for audits and internal review cycles.

03 / WORKFLOW TRANSFORMATION

Before and after

Previous workflow

- Teams manually reviewed long policy documents
- Clause checks required repeated cross-document comparison
- Internal standards were difficult to search consistently
- Compliance notes required manual cross-checking
- Review traceability was difficult to preserve

Structured workflow

- Ingest policy knowledge
- Chunk and index content
- Answer grounded questions
- Compare policies and identify gaps
- Review structured outputs

04 / SOLUTION

How we approached it

We designed InsureAI as a Retrieval-Augmented Generation based insurance intelligence platform for policy review and gap analysis. The solution combined document ingestion, PDF processing, semantic chunking, vector embeddings, similarity search, AI-powered Q&A, source attribution, and automated policy gap detection.

01

Ingest policy knowledge

Load policies, standards, templates and reference documents into one knowledge layer.

02

Chunk and index content

Segment documents and create semantic retrieval indexes.

03

Answer grounded questions

Return source-linked responses from the approved knowledge base.

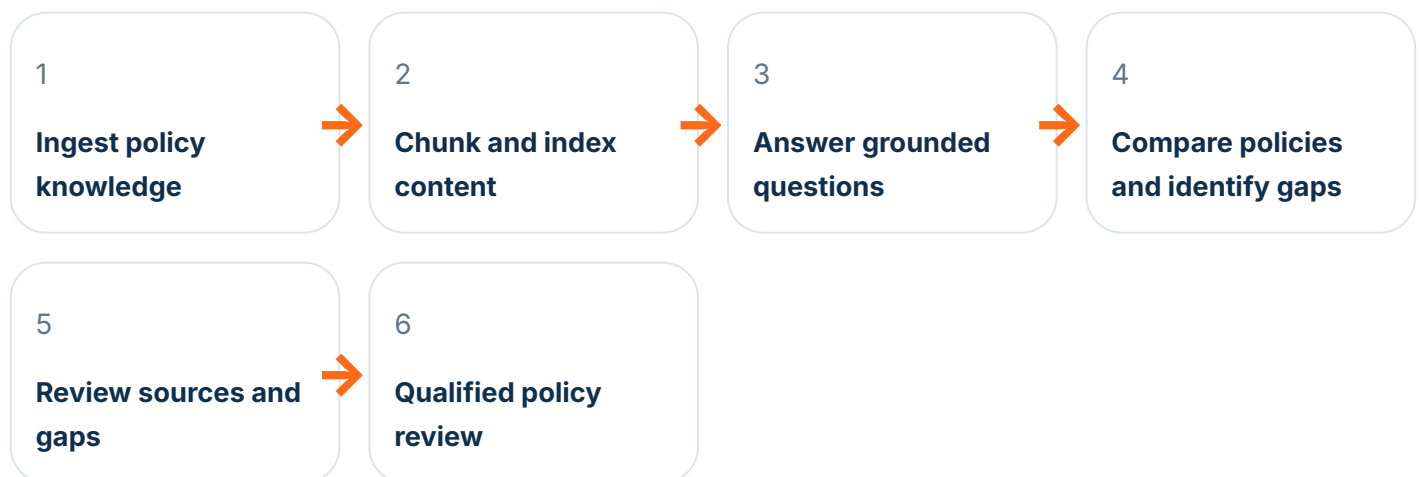
04

Compare policies and identify gaps

Check uploaded policies against internal standards and flag differences or missing clauses.

05 / EXAMPLE WORKFLOW

From input to reviewable output



06 / DELIVERY SCOPE

What the delivery covered

Business and product workflow

- Knowledge-Base Ingestion
- Multi-Document PDF Processing
- Chunk Segmentation and Indexing

AI, data and automation

- LangChain

Application and cloud engineering

- React
- Python
- FastAPI
- MongoDB
- Docker
- Nginx

Scope boundary

The work was a proof of concept. Final policy, legal and compliance judgement remains with qualified reviewers, and no quantified time-saving claim is made.

07 / ARCHITECTURE AND CONTROLS

How the system is organised

LangChain

React

Python

FastAPI

MongoDB

Docker

Nginx

TypeScript

Grounded responses

Knowledge answers retain source references from approved policy and standards documents.

Human policy review

Gap indicators support qualified reviewers; they do not make final legal, coverage or compliance decisions.

Controlled comparison

Uploaded policies are compared with selected organisational standards and templates.

Confidential document handling

Client and policy information remains anonymised in the public case study.

08 / BUSINESS VALUE

Value observed during validation

- | | | |
|-------|---|-----------------------|
| 1 | Reduced repetitive policy-review effort
The proof of concept reduces repetitive document search and initial clause cross-checking. | Pilot-observed |
| <hr/> | | |
| 2 | Faster grounded search across insurance knowledge
Semantic retrieval provides faster access to approved policy, template and standards content. | Pilot-observed |
| <hr/> | | |
| 3 | More consistent clause and standard comparison
Policy comparison applies the same selected organisational standards across each review. | Pilot-observed |

4 **Earlier visibility of policy gaps and exclusions** Pilot-observed

Gap analysis surfaces missing clauses, exclusions, limits, endorsements and wording differences for expert review.

5 **Reviewable source traceability for audit and internal approval** Pilot-observed

Source-linked answers give reviewers a traceable basis for follow-up and approval.

09 / TECHNOLOGY

Technology and component roles

LA **LangChain**
RAG and LLM
application
orchestration

RE **React**
Reviewer or
product user
interface

PY **Python**
AI, data-
processing and
backend logic

FA **FastAPI**
Backend APIs
and workflow
orchestration

MO **MongoDB**
Document and
application data
storage

DO **Docker**
Containerised
deployment

NG **Nginx**
Reverse proxy
and production
serving

TY **TypeScript**
Typed
application
engineering

PD **PDF processing**
Document
parsing,
chunking and
normalisation

Explore related case studies

FINANCIAL SERVICES & ANALYTICS

FinSight AI

Multi-tenant bank-statement analysis, financial Q&A and visual intelligence for finance teams.

CYBERSECURITY & COMPLIANCE

CMMC Compliance AI Backend

Agentic RAG, NIST-grounded reasoning and structured compliance-document generation for CMMC workflows.

HEALTHCARE & CLINICAL RESEARCH

Clinical Data Harmonization

Hybrid RAG and fine-tuned small language models for explainable source-to-standard clinical data mapping.

Working on a similar challenge?

Discuss the workflow, data, integrations and evidence required for a practical first release.