

# CONTEXTIQ PRO: Intelligent Knowledge Retrieval for Appian Case Management

"Stop agents from using outdated policies. Automatically."

Team: TECH TITANS | Appian AI Application Challenge 2026 | IIT Madras

github link : <https://github.com/ssanjay083/contextiq-pro-appian>

- "We're addressing a real problem where agents make high-stakes decisions using fragmented and outdated information."

## THE PROBLEM

# Why Agents Struggle Today

### The Old Way:

- ✗ 847 search results
- ✗ Multiple browser tabs
- ✗ Conflicting documents
- ✗ Outdated policies
- ✗ No verification trail

### The Cost:

- • 23 min per case
- • 12% compliance errors
- • \$850K fines/year
- • Agent burnout

**REAL SCENARIO:** Agent uses outdated policy → Wrong decision → Customer dispute → Financial & legal impact

This happens daily across insurance, government, and compliance-heavy industries.

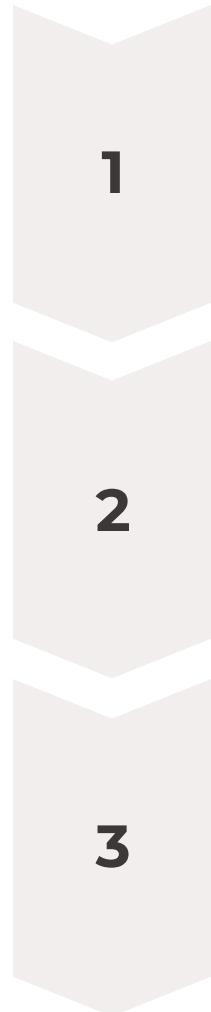
“The problem is not agent skill — it’s fragmented knowledge and missed updates.”

## OUR SOLUTION

# ContextIQ Pro

## GraphRAG-Powered Knowledge Assistant

**ONE-LINE PITCH:** "AI that understands RELATIONSHIPS between policies, detects conflicts, and prevents errors before decisions are made"



The system reads the live case context from Appian—such as case type, location, workflow stage, and key attributes—without requiring the agent to search or input queries.

### [ContextIQ Pro AI Engine]

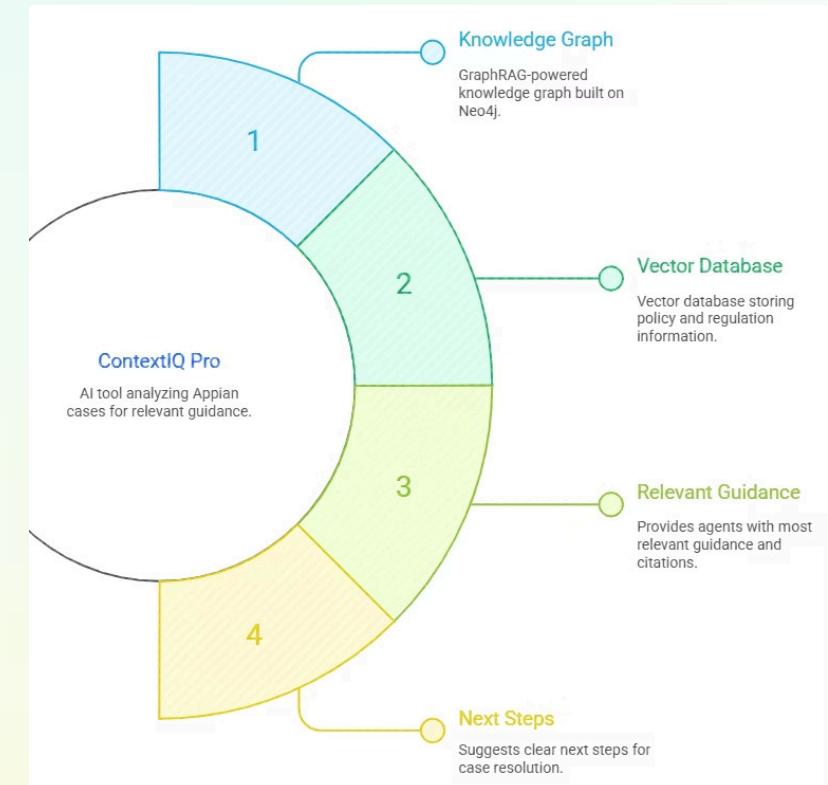
ContextIQ Pro analyzes this case context using a GraphRAG-powered knowledge graph to reason over relevant policies, versions, timelines, and potential conflicts.

### [Relevant Policies + Citations + Guidance]

The agent is shown the most relevant policy clauses, exact page-level citations, and clear guidance directly inside Appian—ready to use for decision-making.

Powered by a relationship-aware knowledge graph.

- “Instead of agents searching, the system pushes the right knowledge at the right moment.”



## THE SECRET SAUCE

# 3 Key Capabilities

What makes ContextIQ Pro different:

### 1. CONFLICT DETECTION



- Detects outdated policies
- Flags federal vs state conflicts
- Identifies expired emergency rules

### 2. TEMPORAL INTELLIGENCE



- Tracks policy versions over time
- Applies rules valid at claim date
- Prevents wrong-version usage

### 3. EXPLAINABLE AI



- Clear reasoning
- Confidence scoring
- Exact page-level citations

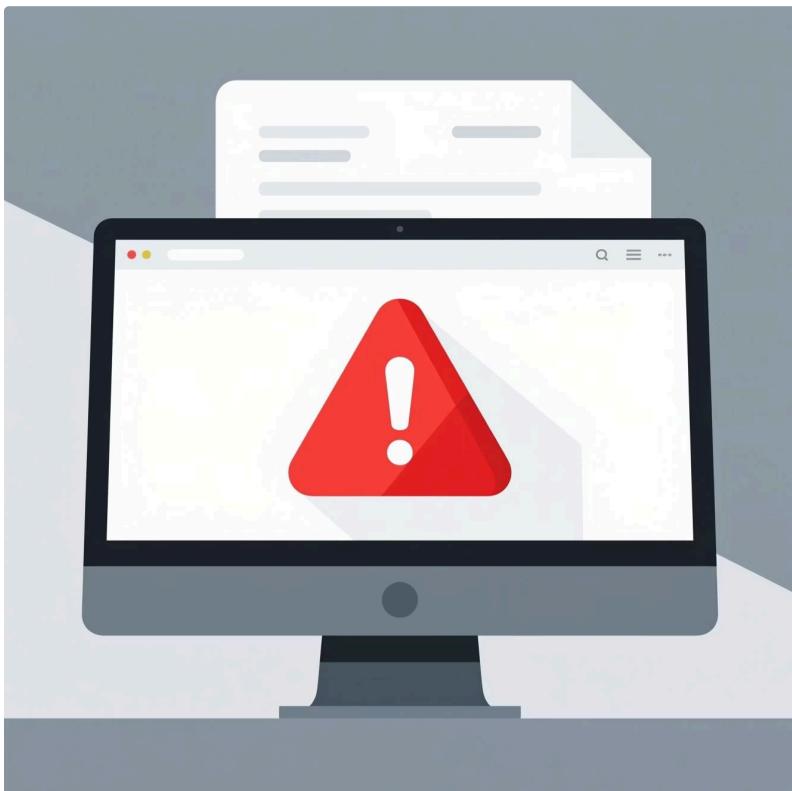
“These capabilities transform knowledge from a risk into a safeguard.”

## DEMO SCENARIO

# Crisis Prevention in Action

## SCENARIO

Agent reviewing Florida flood claim (\$45K).  
Attempts to approve using outdated policy.



### ALERT – ACTION BLOCKED

**ISSUE:** Policy v2.0 (Jan 2024) is outdated

**CURRENT:** Policy v2.1 (Nov 2024)

**RISK IF PROCEEDED:** Incorrect payout, Compliance violation, Financial penalty

**RECOMMENDED ACTION:** Switch to Policy v2.1

## OUTCOME

- ✓ Error prevented
- ✓ Correct guidance applied
- ✓ Compliance maintained

“This scenario shows how errors are stopped before they reach customers.”

## BUSINESS IMPACT

# Real-World Impact

(100-Agent Organization)

Metric	Before	After	Improvement
Avg Handle Time	23 min	5 min	↓ 78%
Compliance Errors	12%	0.8%	↓ 93%
Cases/Day/Agent	18	62	↑ 244%
Cost per Case	\$47	\$12	↓ 74%
Training Time	6 weeks	10 days	↓ 76%

**Estimated Annual Value:**

**\$15.75M**

**Break-even:**

**~5 days**

Speaker Notes: "This is faster decisions with significantly lower risk."

# ENTERPRISE-GRADE ARCHITECTURE

1

**GraphRAG Core:** Relationship-aware reasoning across policies and regulations

2

**Knowledge Graph (Neo4j):** Explicit modeling of policy versions, supersession, and conflicts

3

**Vector Search (Pinecone):** Precise retrieval of relevant clauses and paragraphs

4

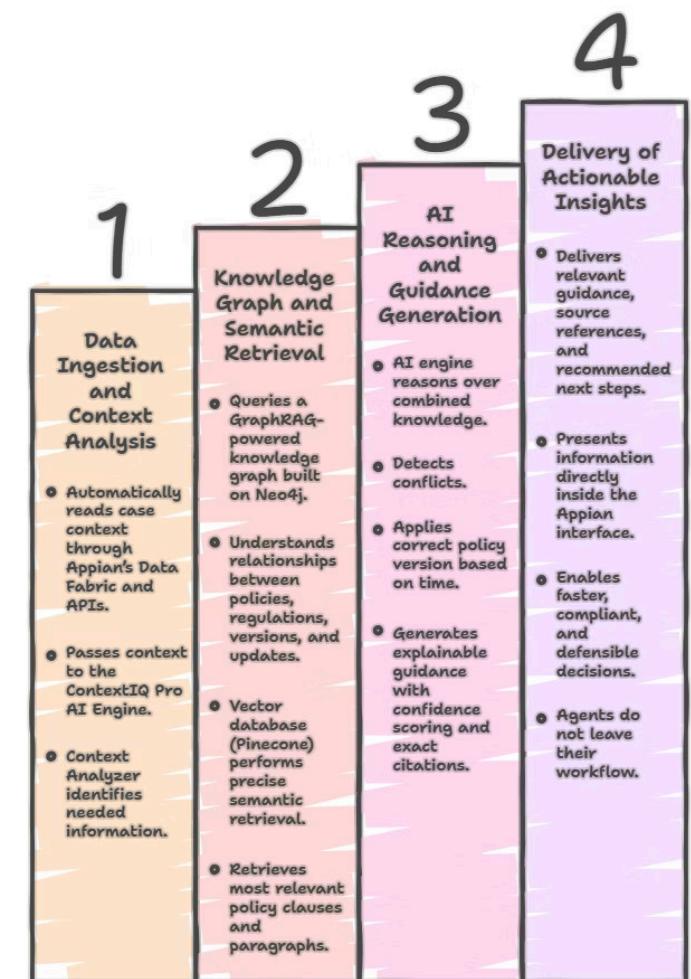
**Conflict Detection Layer:** Early identification of outdated or conflicting rules

5

**Confidence & Explainability Layer:** Transparent answers with citations and confidence scoring

ONE-LINE TECH SUMMARY: “ContextIQ Pro uses GraphRAG and knowledge graphs to reason over policy relationships, time, and conflicts—directly within Appian workflows.”

## ContextIQ Pro Workflow



## COMPETITIVE ADVANTAGE

# Why We Beat Everyone Else

Feature	Others (Basic RAG)	ContextIQ Pro
Search Type	Keyword only	GraphRAG + Semantic
Understands Relationships	✗ No	✓ Full knowledge graph
Conflict Detection	✗ No	✓ Automatic detection
Version Tracking	✗ No	✓ Temporal intelligence
Explainability	✗ Black box	✓ Full confidence breakdown
Appian Integration	✗ API only	✓ Native integration

## COMPETITIVE MOAT:

1. GraphRAG applied to insurance case management
2. Automatic conflict detection using policy relationships
3. Deep, native Appian integration

**Strategic advantage:** Significant head start over flat document-search systems

## IMPLEMENTATION ROADMAP

# From Concept to Deployment



### PHASE 1: MVP DESIGN (2 Weeks)

For Hackathon Submission

- GraphRAG knowledge modeling
- Conflict scenarios defined
- Appian-themed UI design



### PHASE 2: PRODUCTION (6 Weeks)

Pilot Deployment

- Multi-source connectors
- Full Appian API integration
- Learning feedback loop



### PHASE 3: SCALE (6 Months)

Enterprise Rollout

- Multi-industry support
- Advanced analytics
- 10,000+ concurrent users

## APPIAN INTEGRATION POINTS:

✓ Data Fabric – Auto-ingest | ✓ AI Copilot – Interaction | ✓ Process Models – Triggers | ✓ Web APIs – Exposure | ✓ RPA – Automation

# Assumptions & Scope

## ASSUMPTIONS

- Policy, regulation, and SOP documents are available in digital form
- Documents are authoritative and approved by the organization
- Appian case data (type, location, stage) is accurate and complete
- Initial deployment targets a single domain (e.g., insurance claims)

## WHAT THIS DEMO DOES NOT COVER

- Full-scale production deployment
- Real-time ingestion of newly published regulations
- Model fine-tuning on proprietary datasets
- Edge cases requiring human legal interpretation

# The Future of Knowledge Work

Our vision: To enable support agents to make **accurate, timely, and defensible decisions** by giving them the **right knowledge at the right moment**, directly inside their Appian workflows.

- **Why This Matters**

ContextIQ Pro helps:

## Agents

- Reduce cognitive load and stress
- Avoid mistakes caused by outdated or conflicting policies
- Make decisions with confidence and clear justification

## Organizations

- Lower compliance risk and regulatory exposure
- Improve operational efficiency and consistency
- Maintain a clear audit trail for every decision

## Citizens & Customers

- Receive fair, policy-compliant outcomes
- Experience faster case resolution
- Build trust in institutions that handle high-stakes decisions

## Real-World Impact :

- ✓ Fewer compliance and policy errors
- ✓ Faster and more consistent case resolution
- ✓ Transparent, explainable decisions backed by sources
- ✓ Better outcomes for people who depend on these decisions

*“ContextIQ Pro doesn’t replace human judgment — it strengthens it with trustworthy, contextual knowledge.”*

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# THANK YOU