EMERGING TECHNOLOGY WORKSHOP

Risk-Based Oversight (RBO) Pilot Project

AI-Assisted RBO DGCA Indonesia

The Operational Problem

The Data Paradox

- **Problem:** Formula Rich, Data Poor.
- **Bottleneck:** Manual processing of massive unstructured data (Findings/Audits).
- **Goal:** Use AI RAG as a pre-processing layer for national oversight.

Pilot Project Scope

Sandbox Prototype

- **Objective:** Validate Hybrid Architecture.
- **Comparison:** AI-Assisted vs. Manual Processes.
- **Environment:** Secure & Isolated.

Operational Focus

- **Duration:** 6 Months (Historical Data).
- **Constraint:** AI as supports, Never Replaces.
- **Focus:** Regulatory Decision Making.

Data Ingestion Workflow

Structured Data

- **Source:** IMSIS Database
- **Format:** JSON (Standardized)

Unstructured Data

- **Source:** Financial PDFs
- **Hypothesis:** Financial Health = Safety Culture?

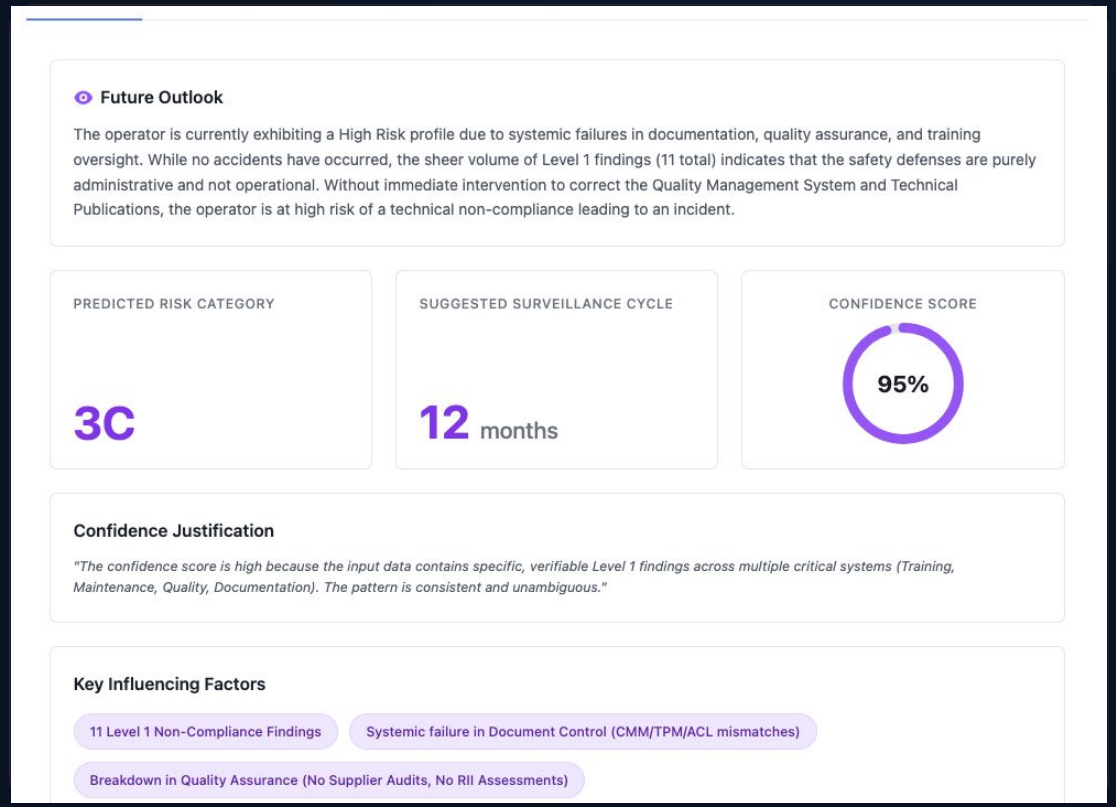
Vectorized Regs

- **Source:** CASR & Staff Instructions
- **Purpose:** Legal Grounding for AI

Semantic Analysis

The Force Multiplier

- **Task:** Find hidden risk patterns.
- **Success:** Correlated "Late Crew Changes" with "Maintenance Deviations".
- **Role:** Advisor (Context Provider).
- **Limitation:** Not a Scorer (Lacks binary clarity).



This dummy data is for the AI dataset training only.

The Hybrid Architecture

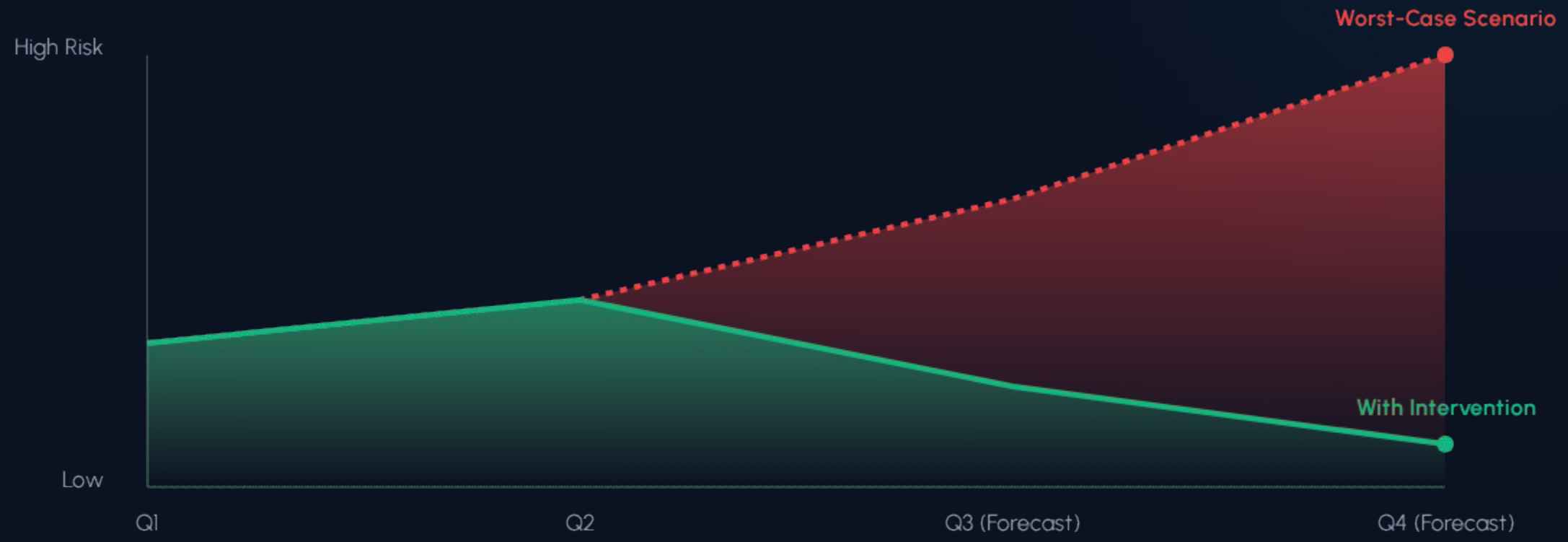
AI Layer (The Assistant)

- **Focus:** Qualitative Context.
- **Input:** Unstructured Data.
- **Output:** Summaries & Drafts.

Deterministic Layer (The Engine)

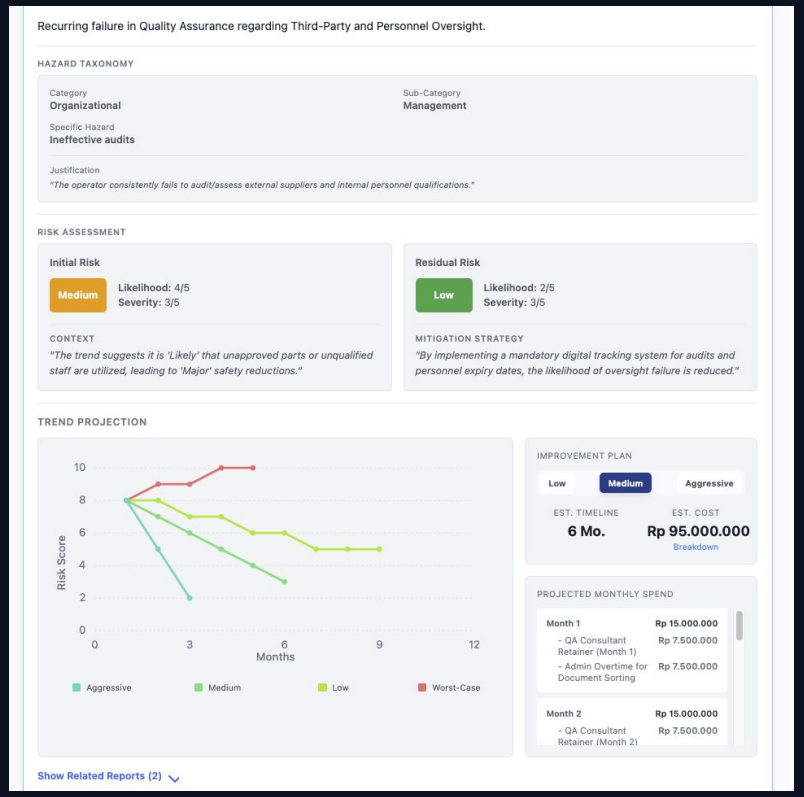
- **Focus:** Quantitative Scoring.
- **Logic:** Hard-coded Staff Instructions.
- **Output:** Safety Ratings (Math Certainty).

Predictive Modeling



Shift: From Reactive Oversight → Predictive Oversight.

Resource Estimation



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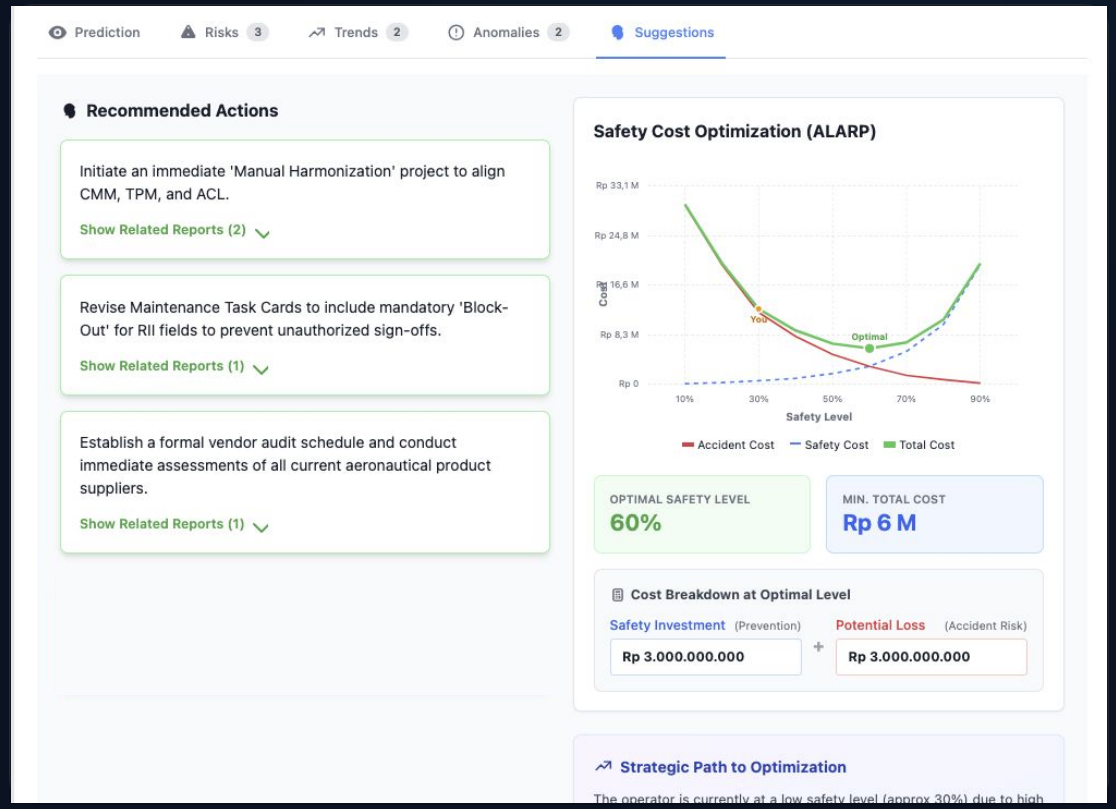
Operational Efficiency

- **Task:** Estimate man-hours to close findings.
- **Benefit:** Validate Operator's corrective plans.
- **Reality Check:** Benchmark for RBO follow-up phase.

Financial Relevance

The Hypothesis

- **Question:** Does Financial Drop = Safety Risk?
- **Analysis:** Link "Low Liquidity" to "Operational Distress".
- **Result:** AI monitors financial/safety correlations.



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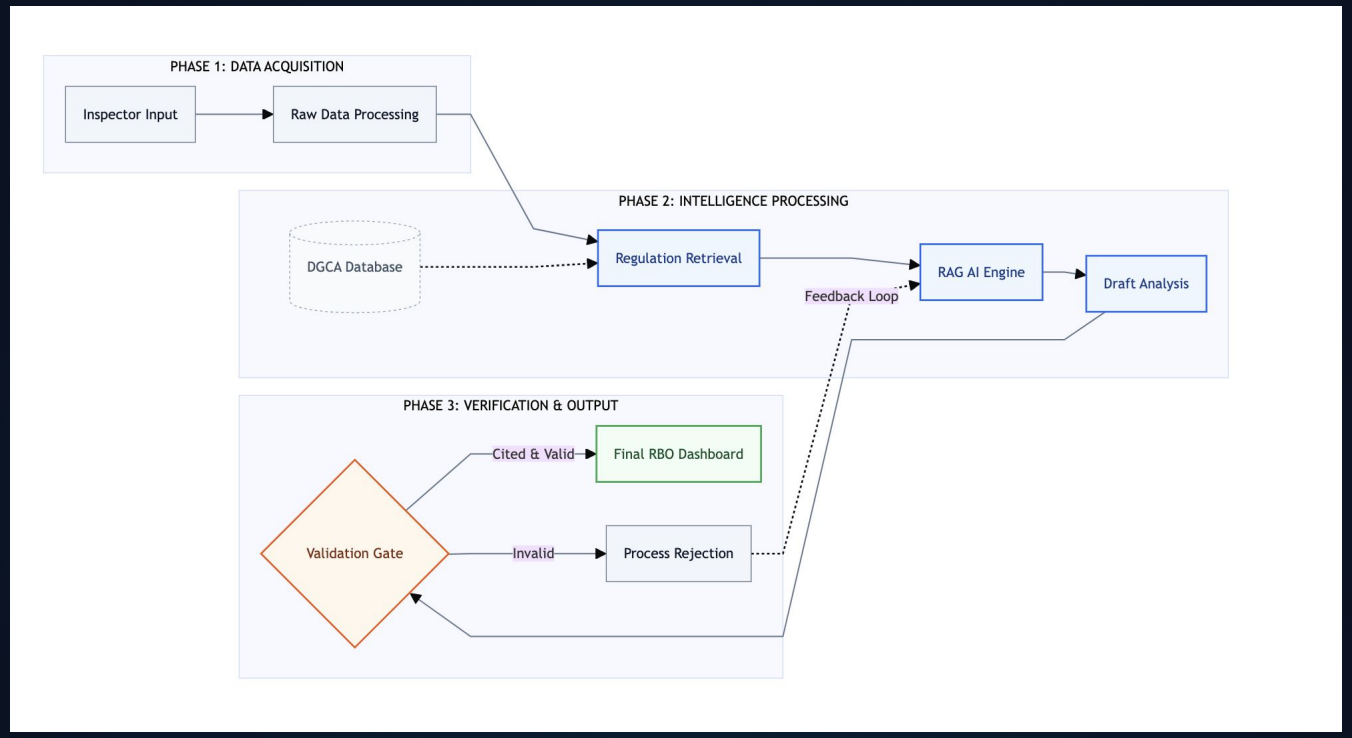
RAG Validation

Grounded Regulatory Assistant

- **Mechanism:** Retrieval-Augmented Generation (RAG).
- **Mandate:** Retrieve CASR paragraph *before* advising.
- **Outcome:** Reduces Hallucinations.
- **Shift:** "Generic Generator" → "Grounded Assistant".

RBO AI Assisted Workflow



1

Data Acquisition

Standardized Input.
(Factual Foundation)

2

Intelligence

Contextual Analysis.
(CASR Query & Draft)

3

Verification

Quality Control.
(Citation Check)

4

Approval

Human-in-the-Loop.
(Final Sign-off)

Barriers & Roadmap

Data Sovereignty

Requires on-premise solutions for sensitive data.

Reliability

Workload shifts to Verification. Human is non-negotiable.

Regulation

Lack of Aviation AI Governance (Legislative Gray Area).

UP NEXT

Core RBO Equations

Speaker: Cipta