



PharmaIntel
TEAM ELITES - Agentic AI

PharmaIntel – Agentic AI for Pharmaceutical Innovation

Team Name: PharmaIntel

| Field | Details | Roles |
|-----------------|--|-----------------------------------|
| Member I | Ayush [G. H. Patel College of Engineering & Technology] | Team Leader & Agentic Work |
| Member II | Shashank Padmasali [TKR College of Engineering and Technology] | Data Science, Analytics, Research |
| Member III | Harshit Pathak [Shri Mata Vashno Devi University] | Backend Development, Agentic Work |
| Member IV | Amit Kumar Gupta [ABES Engineering College] | UI/UX Design, Presentations |
| Contact Details | +91 7016515524 / ayushkhubchandani1789@gmail.com | |



Shape the future
with confidence

Problem Statement

Pharmaceuticals (Challenge I)

Accelerating Drug Repurposing Through Agentic AI

Proposed Solution

- We suggest the PharmaIntel agentic AI, based on LangGraph, as a means of automating the phases of Hypothesize-Test-Pivot cycle in the pharma R&D.

Solution Architecture



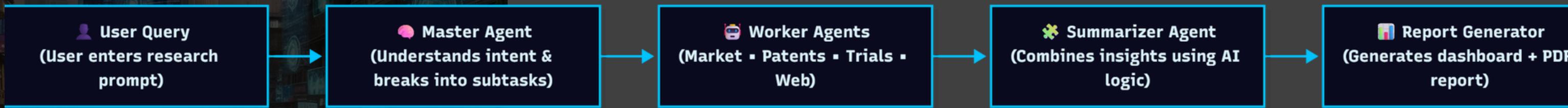
- It specializes in independent Failure Analysis, whereby the causes of failure of the candidates such as oral sildenafil systemic side effects are determined.
- This allows the AI to make a diversion towards a new 505 opportunity that can be patented inhaled sildenafil overcoming the oral side effects.



Shape the future
with confidence

Our Approach — Turning Queries into Discoveries with Agentic AI

- The PharmaIntel is an intelligent Web-based Agentic AI System, which transforms user queries into actionable innovation reports automatically and intelligently.



This Approach Works:

- To create a stateful AI graph that reflects the Hypothesize-Test-Pivot cycle of R&D (as opposed to linear ones), we selected LangGraph..
- Autonomous Failure Analysis with our graph-based design allows the AI to understand the cause of failure in trials of oral sildenafil failures, rather than just eliminating them..
- It is a modular " Agentic Mesh" in which a Master Agent coordinates domain-specific worker agents (e.g., Patent, Clinical Trials, IQVIA) to provide an in-depth and expert-level analysis in each area.
- We put in place essential human-in-the-loop safety measures, whereby a human scientist has to confirm the strategic pivots of the AI (such as the notion of the inhaled hypothesis) before going ahead, a combination of autonomous speed and expert control.

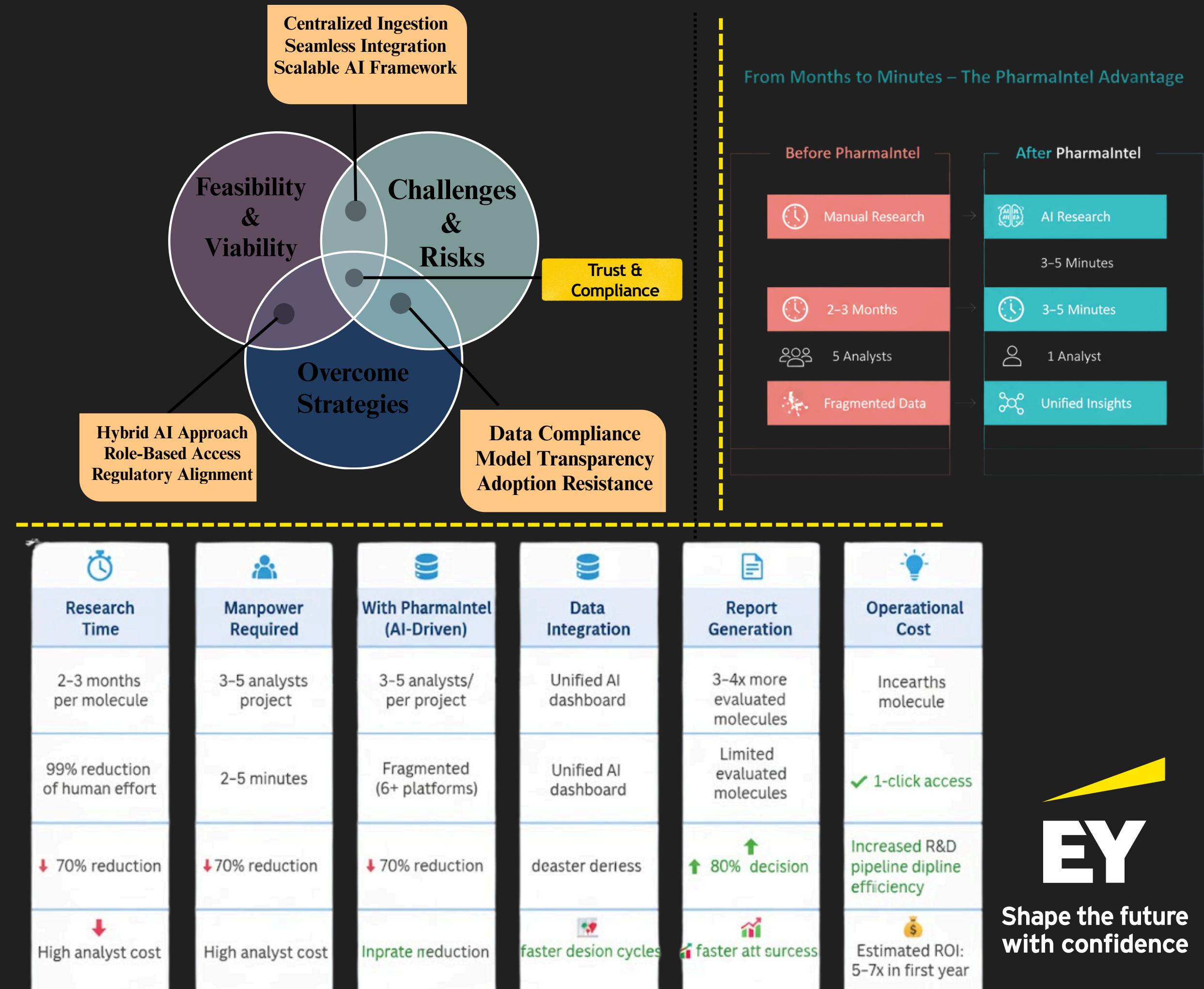
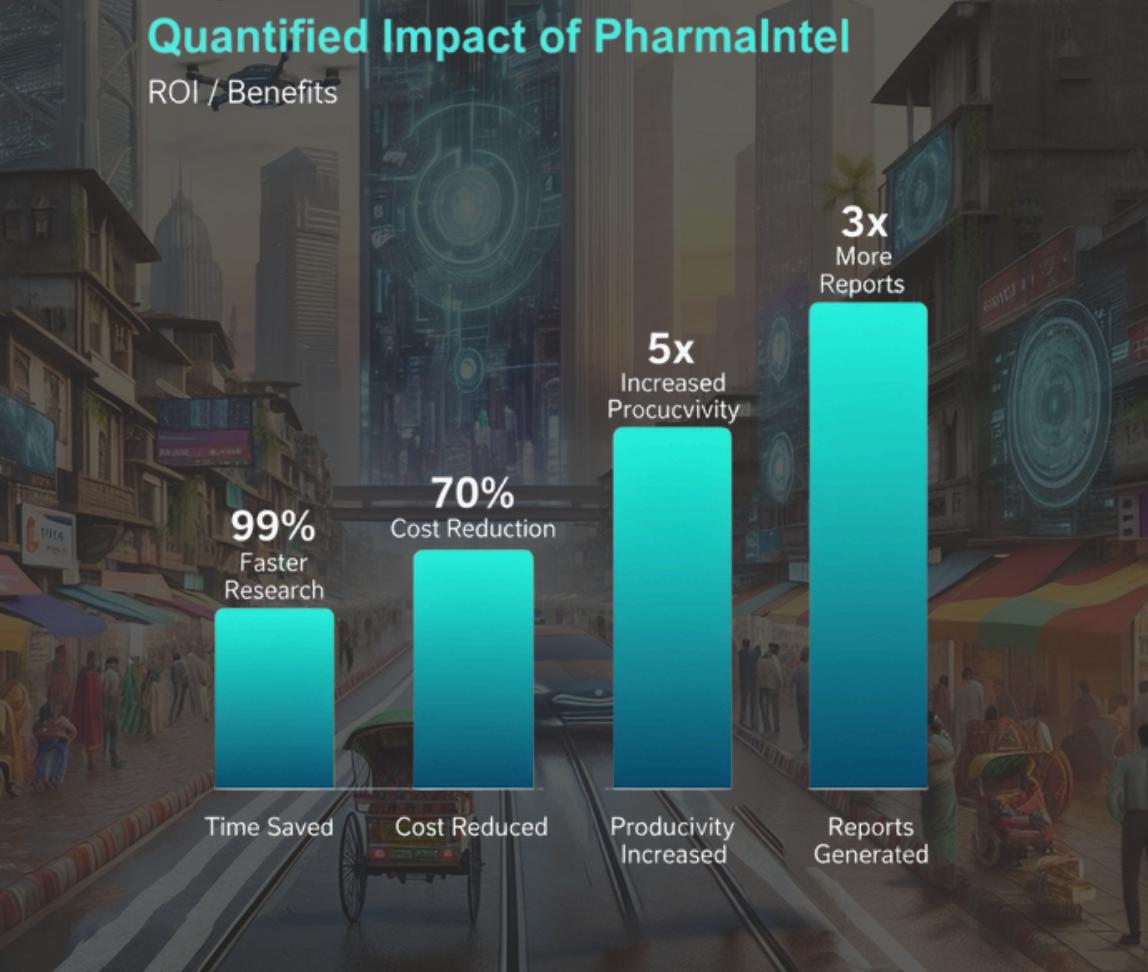
“From question to insight — one AI ecosystem empowering pharmaceutical innovation.”



Shape the future
with confidence

Benefit from PharmaIntel

PharmaIntel's Agentic AI system enables measurable improvements in research efficiency, decision-making, and operational cost. The platform decreases human effort by automating manual literature review, patent search, and trial analysis, thus reducing research timelines and enhancing innovation throughput.



Research And Reference

- [arXiv \(2408.13378\) – Agentic AI Frameworks for Autonomous Goal-Driven Systems](#)
- [arXiv \(2504.17967\) – Multi-Agent Collaboration and LLM Coordination](#)
- [arXiv \(2507.07426\) – LLM-Augmented Agents for Scientific Research Automation](#)
- [PubMed \(40674898\) – AI Acceleration in Biomedical Discovery](#) [NVIDIA Blog](#) – [IQVIA](#) Uses AI Agents in Clinical Research Workflows
- [PMC Article \(PMC11984889\) – Inefficiencies in Molecule Discovery Processes](#)
- [Agilisium Report – Agentic AI in Enterprise-Scale Decision Systems](#)

At PharmaIntel, academics combine leading-edge academic research with real-world pharmaceutical datasets to ensure scientific accuracy and enterprise readiness.

| Dataset / API | Purpose |
|---------------------------|--|
| ClinicalTrials.gov API v2 | Ongoing and completed clinical trials |
| USPTO PatentsView API | Active/expired patent searches |
| FDA Orange Book Data | Approved formulations and generics |
| DrugBank API | Drug info, mechanisms, interactions |
| PubMed / PMC | Research papers and publications |
| India TradeStat | Import/export of APIs and formulations |
| FDA FAERS | Adverse event and safety data |
| PubChem REST API | Molecular structure and properties |
| MeSH (NLM) | Standardized biomedical terminology |

“PharmaIntel bridges cutting-edge research with real-world pharmaceutical data to create an intelligent, agentic innovation ecosystem.”



Shape the future
with confidence