

Harnessing AI for smarter Clinical Trial Supply Chains

Révérien UWACU

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Who I Am & Why I'm Here

Révérien Uwacu

15 years of experience at J&J, UCB, Baxter, Thermo Fisher ...

IT and Pharma Supply Chain to blend **technology with logistics** to drive efficiency and innovation.

Rêve Solutions Consulting, bringing a global perspective—rooted in my African heritage and firsthand experience with the challenges of **clinical trial accessibility** in underrepresented regions.

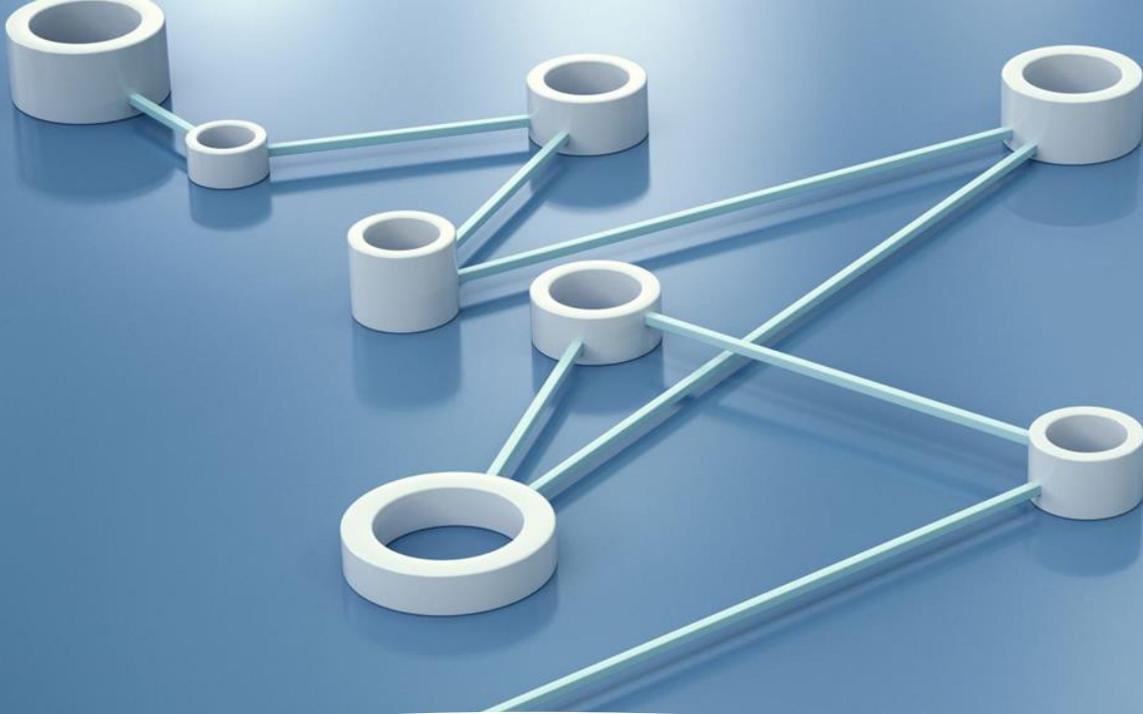
My Mission?

Bridge the trust gap between global pharma and the feasibility of conducting clinical trials in emerging markets.

Why Now?

We stand at a pivotal moment—AI-driven solutions are transforming **efficiency, compliance, and inclusivity** in clinical trials. By leveraging technology, we can make these trials **more accessible, cost-effective, and globally representative**.

Let's drive this change together



The Challenge

- **Delays** -> **85%** of clinical trials face delays due to supply chain inefficiencies
 - A single day's delay can cost pharma companies +/- **\$800K**.
- **Diversity** -> Africa: **18%** of the world's population, **25%** of the disease burden, but only **3-4%** of trials.
- **Compliance & Regulatory** -> **Different and complex regulatory requirements**, leading to delays in trial approvals. Regulatory compliance is becoming more demanding with evolving guidelines on **data privacy, patient safety, and cross-border research**

The challenge



Delays

Poor demand forecasting
Slow logistics
Lack of tracking
Manual processing



Lack of Diversity

Limited infrastructure
Recruitment Bias
Socioeconomic barriers
Trust gap



Compliance complexity

Fragmented regulations
Paper-based audits
Data privacy concerns

The reality of AI in Clinical Trials: From awareness to action

The Challenge:

Slowness in **implementation**.

The biggest **barriers**?

Trust, execution fears, and regulatory concerns—not budget.



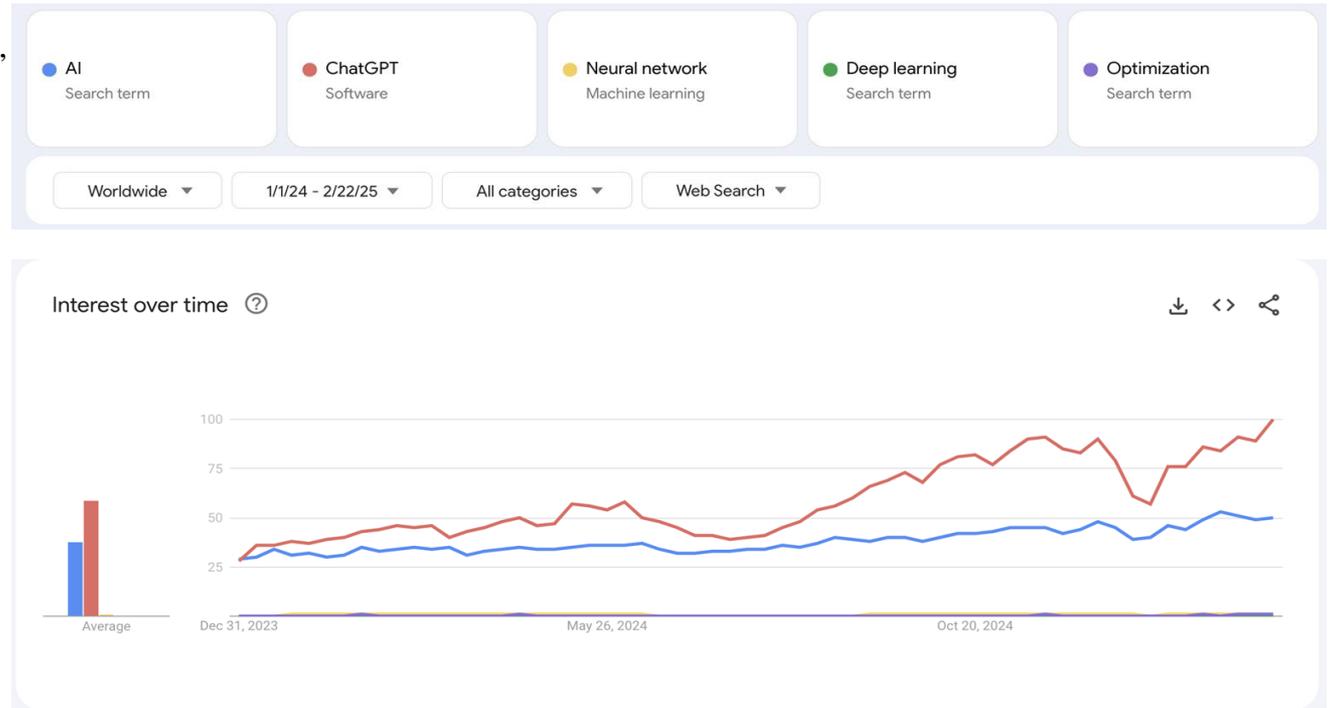
The Truth About AI:

- **Myth:** AI will solve all clinical trial problems.
 - **Reality:** AI is **a tool, not a solution**—execution matters more.
- **Myth:** Cost is the biggest adoption hurdle.
 - **Reality:** **Regulatory & trust issues** are the real bottlenecks.

Google Trends

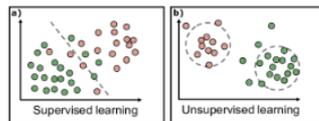
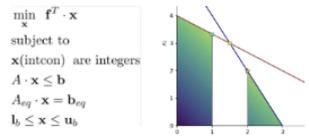
Google search trends for ChatGPT, generic AI vs. other AI techniques and technology

The general population associates AI with generative AI (ChatGPT), while other forms are not very popular in searches



AI in clinical supply forecasting

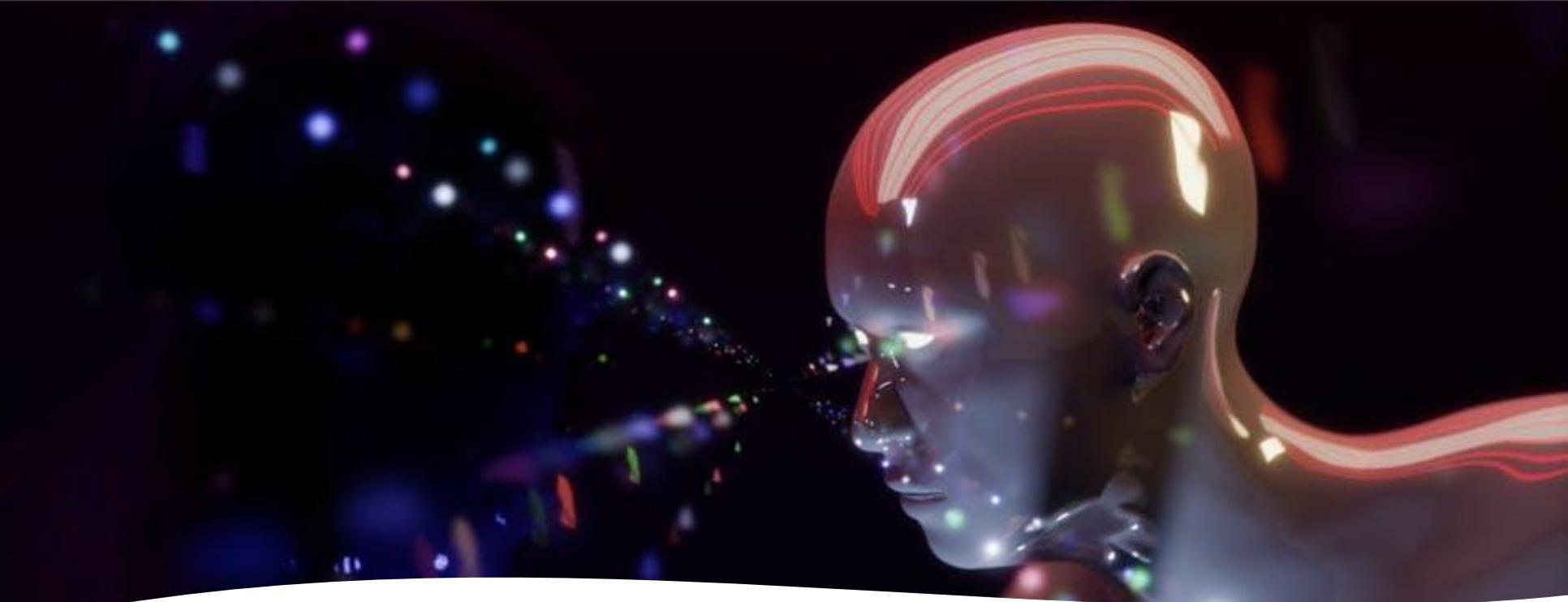
Current and prospective applications



AI class	Techniques	Applications	Challenges
Operations Research	Mixed Integer Programming Stochastic Optimization	Production plan Site supply strategy Protocol design Packaging/labelling design	Complex models Garbage in, garbage out Resolution time
Machine Learning	Classification, Clustering Bayesian inference Reinforcement learning	Sites selection Enrollment projections Enrollment updates Assumptions re-evaluation (titrations, weight ranges...)	Requires training on large datasets to be reliable and effective "Mysterious" / black box effect
Generative AI	Natural Language Processing Image Processing Large Language Model (LLM)	Interpret data sources and model mapping Support bot and in-tool automation Reports narrative and calls to action	200B parameters (gpt-4o) Not reliable on logic / math Cognitive bias and pleaser behavior Data localization and privacy



<https://www.coursera.org/learn/generative-ai-with-llm/>

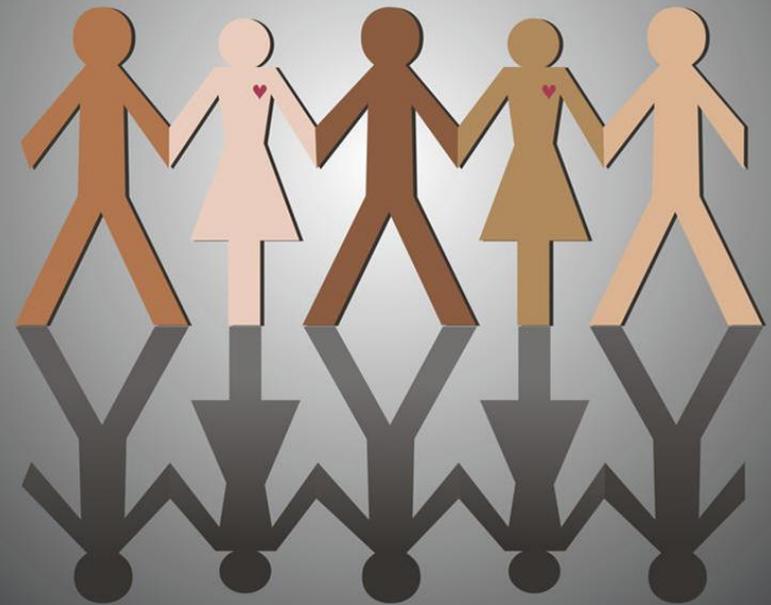
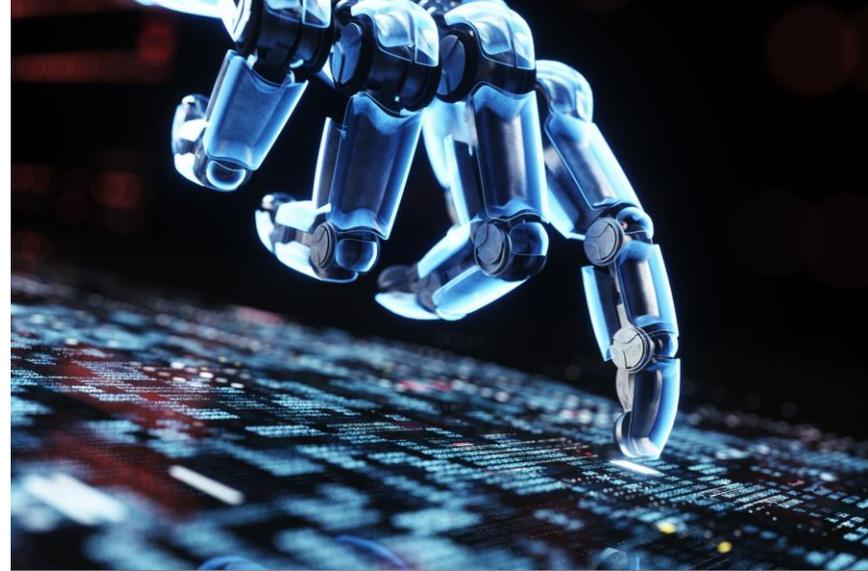


How AI eliminates delays & waste in Clinical Trials

- **AI-driven demand forecasting** should prevent overstocking & trial delays (**supply waste reduction**)
- **Machine learning models** predict **patient enrolment patterns**, ensuring efficient drug allocation.
- **AI-powered risk assessment** enables **real-time drug distribution tracking** for improved efficiency.
- **Digital transformation** supports **real-time monitoring, predictive modelling, and automated compliance**.
- **AI-driven real-time tracking** strengthens **regulatory compliance and logistics efficiency**.

AI for improving diversity in Clinical Trials

- AI-powered site selection identifies underrepresented populations
- Automated patient matching increases minority recruitment (**TwinRCTs™** (Twin Randomized Controlled Trials) by **Unlearn.AI**)
- AI chatbots & remote monitoring reduce dropout rates (**Curebase** – complete trials from home)



diversity

Regulatory barriers costing Pharma Millions



- Paper-based processes lead to errors and inefficiencies.
- High costs & regulatory barriers slow scalability.
- Lack of digital solutions in low-income regions makes trials inaccessible.

AI-Driven regulatory & compliance Advantages

Key AI Applications in regulatory & compliance

- **AI Automates compliance reporting** → Reduces **human error** and accelerates regulatory submissions.
IQVIA
- **AI-Powered Data Monitoring Committees (DMCs)** → Improve **trial oversight & patient safety** by detecting risks early.
COGNIZANT
- **AI fraud detection** → Eliminates **non-compliant sites**, preventing **data manipulation & protocol violations**.
ATACCAMA

Real-World impact of AI in compliance

- **30% reduction** in compliance-related errors through AI-powered regulatory submissions.
- **40% faster approval times** for new drug applications using AI-assisted compliance tools.
- **Millions saved** annually by preventing fraud & reducing manual auditing costs.

Deloitte

The Business Case: AI's ROI for Pharma & CROs

Company	AI Use Case	ROI/Impact
Takeda	AI-driven supply chain	\$60M saved (50x ROI)
PwC	AI insights for sales	+30% sales
PwC Projection	Full AI adoption	\$254B additional profits by 2030

Pharma Companies: AI's Financial Impact

•\$60M saved by Takeda through AI-driven supply chain optimization (50x ROI).

ParkourSC

•30% increase in sales using AI insights at a leading pharma firm.

PwC

•\$254B additional operating profits projected in pharma by 2030 with full AI adoption.

PwC Strategy&

AI's Impact on CROs (Contract Research Organizations)

•388% ROI in 6 months at AAH Pharmaceuticals from AI-driven supply chain solutions.

Nucleus Research

•Faster clinical trial approvals and better data management using AI-powered platforms.

Advarra

•4.1% R&D return growth in pharma R&D investments, reversing decline trends.

Deloitte

Why Pharma must act now: AI's competitive advantage

AI's transformative role in Clinical Trials

- **AI is not a cost—it's an investment with a proven, high ROI.**
- **AI is no longer optional—it's a competitive differentiator.** Early adopters are already gaining a **strategic edge** in **efficiency, patient diversity, and regulatory compliance.**
- **AI-driven trials improve speed and cost-effectiveness.**
- **Companies that fail to adopt AI quickly will face increased costs and regulatory risks.**
- **Pharma & CROs using AI are gaining financial & operational advantages.** AI-powered solutions are already **reducing compliance errors by 30%, cutting delays by 25%, and boosting efficiency across global trials.**

The Future is AI-Driven. Those who embrace AI will lead in **innovation, compliance, and patient accessibility**—the rest will struggle to keep up.

The question is no longer *“Should we use AI?”*—it's *“How fast can we implement it to stay ahead?”*



The reality: AI execution challenges

Most organizations **struggle to bridge the gap** between AI strategy and execution. Many have the **right intentions** but remain stuck due to:

- **Regulatory fears**
- **Trust issues**
- **Lack of a structured adoption framework**

Is the challenge **AI itself** ?

—it's about **how to implement it efficiently and at scale**.

The key is not just **adopting AI**, but **ensuring it delivers measurable impact**.

A structured, actionable approach to AI adoption—one that eliminates risks and accelerates implementation.

How do we turn AI potential into Reality?

To make AI work:

- **A clear execution strategy**—beyond just AI enthusiasm.
- **Regulatory alignment** to move past compliance roadblocks.
- **The right partnerships** to remove adoption barriers.

A Practical AI execution framework

- **A structured approach** to move from AI readiness to real-world adoption.



AI EXECUTION PLAYBOOK FOR CLINICAL TRIALS

SMARTER, FASTER, MORE INCLUSIVE: THE AI REVOLUTION IN CLINICAL TRIALS

AI in clinical trials is no longer just a concept—it's a competitive advantage. However, most pharma companies and CROs struggle with real-world implementation. This playbook provides a step-by-step roadmap to remove trust barriers, align AI with regulations, and integrate AI into supply chains seamlessly and profitably



AI execution Playbook

**An exclusive, step-by-step
guide for clinical trial leaders.**

Companies that integrate AI into clinical trials **TODAY** will cut trial costs by **20%**, avoid multi-million-dollar delays, and be first to market.

The real question isn't **IF** you use **AI**—but **HOW FAST** you can integrate it."

THANKS

Let's make Clinical Trials Smarter,
Faster, and More Inclusive—
Together

Want to future-proof your trials?
Let's talk!

www.reve-solutions.com

