The shifting conversation with AI: Making AI Useful

March 2025

TSA Conference

Dr. Diane Gutiw

Dr. Diane Gutiw

Co Chair Canadian AI Council, AI Expert and Lecturer

Dr. Diane Gutiw holds a PhD in Medical Information Technology Management where she conducted doctoral research on medical AI/expert system solution modeling and adoption as well as a certification in Medical AI from Harvard Medical School. Diane is the Vice President leading the Global AI Research Centre which provides thought leadership on AI best practices and guardrails.

Diane is being engaged by organizations to assist in better understanding their data through data science, AI and Machine Learning to expand the scope of evidence-based decision-makings. Diane focuses on building strategies for AI Ethics and AI Policy/Governance. is also focused on designing models to develop guardrails for responsible use of AI. Diane is currently the Co Chair of the Canadian Government AI Council as well as an advisor to the EU AI Commission Plenary advising on the Code of Conduct for the EU AI ACT.

Areas of Expertise

- Healthcare and Life Sciences
- Utilities and IoT
- Social Care
- Public Sector
- Transportation and Logistics
- Finance

Specializations

- Artificial Intelligence
- Machine Learning
- Neural Networks and GenAI
- Big Data Analysis and Solutions
- Intelligent Automation
- Natural Language Processing
- Cloud Data Management Platform design

AI is not new

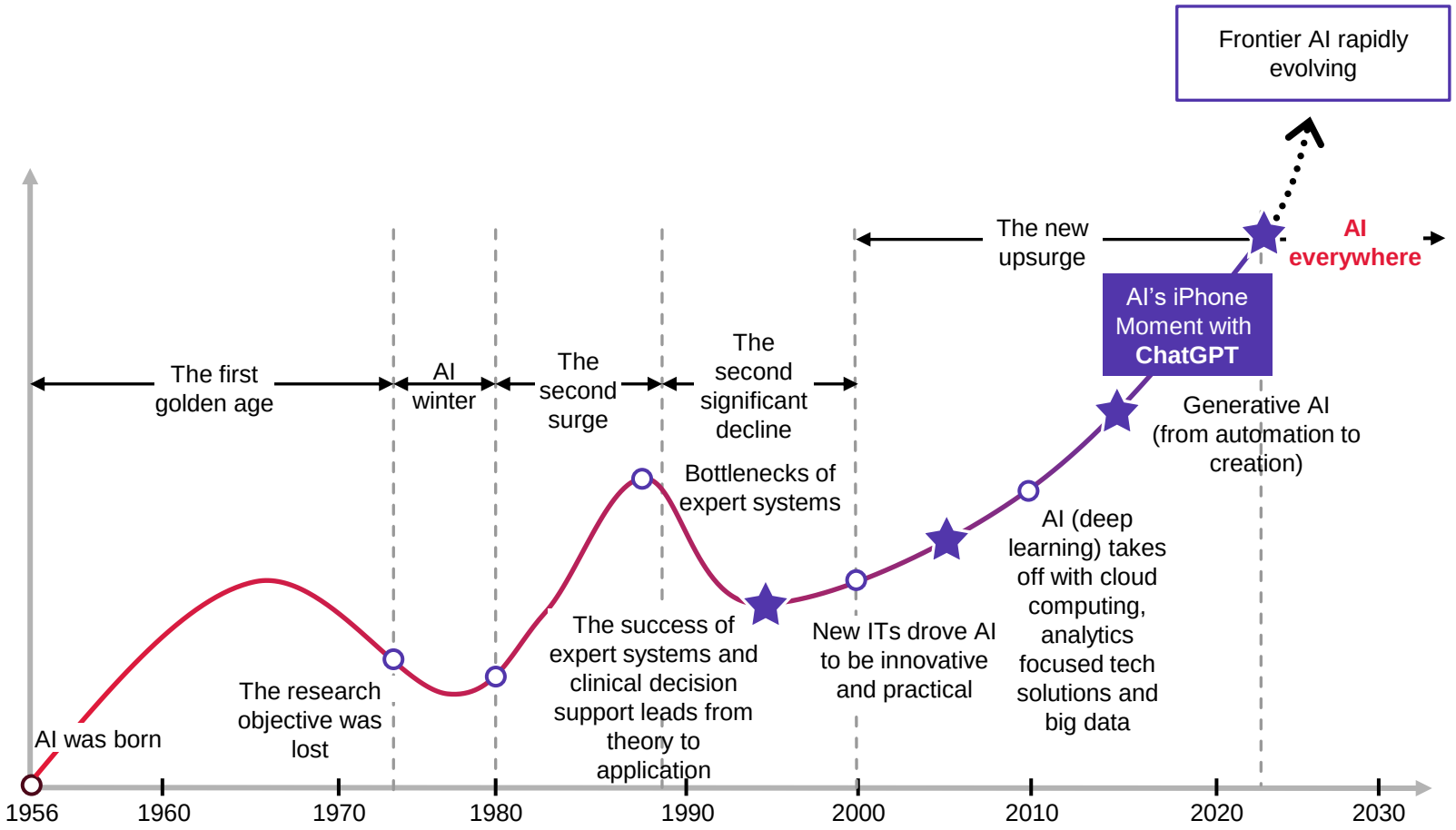


Figure adapted from the "Reflection of the development history of AI," published in the article "Artificial Intelligence in Product Lifecycle Management" by Wang et al. in 2021

AI Use Cases

★ 2020s

- Predict adverse drug events
- Autonomous robotics and AI integration into modalities
- Advancements in GenAI and foundation models for analysis of documents and images/clinical foundation models

★ 2010s

- Predictive models for preventative medicine, diagnostics and treatments
- Personalized treatments and vaccines
- Genomic modeling
- Analyze human emotions at event
- Detect anomalies in diagnostic images

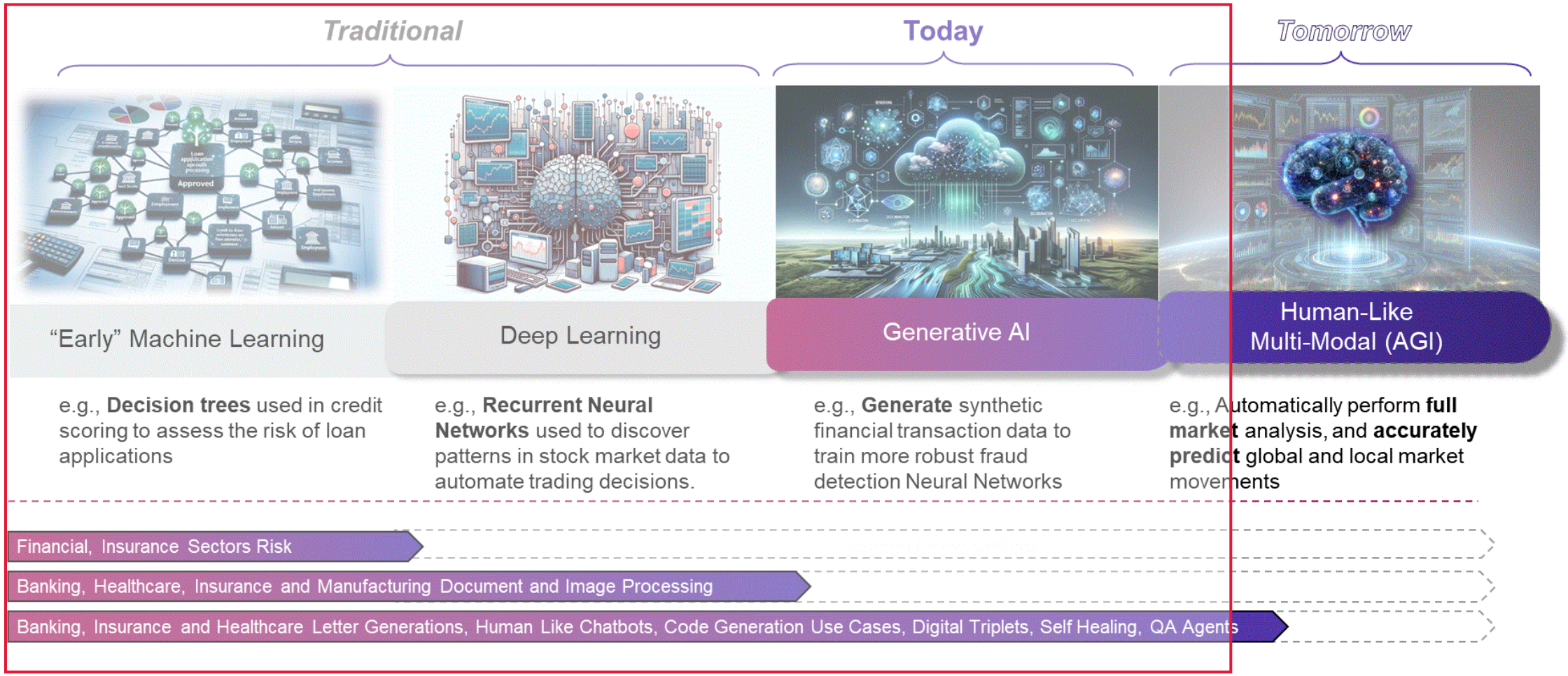
★ 2000

- Operational pattern analysis for improved care delivery
- Discover errors in healthcare billing

★ 1990s

- Clinical decision support, medical expert systems (triage, diagnostics, treatment protocols)

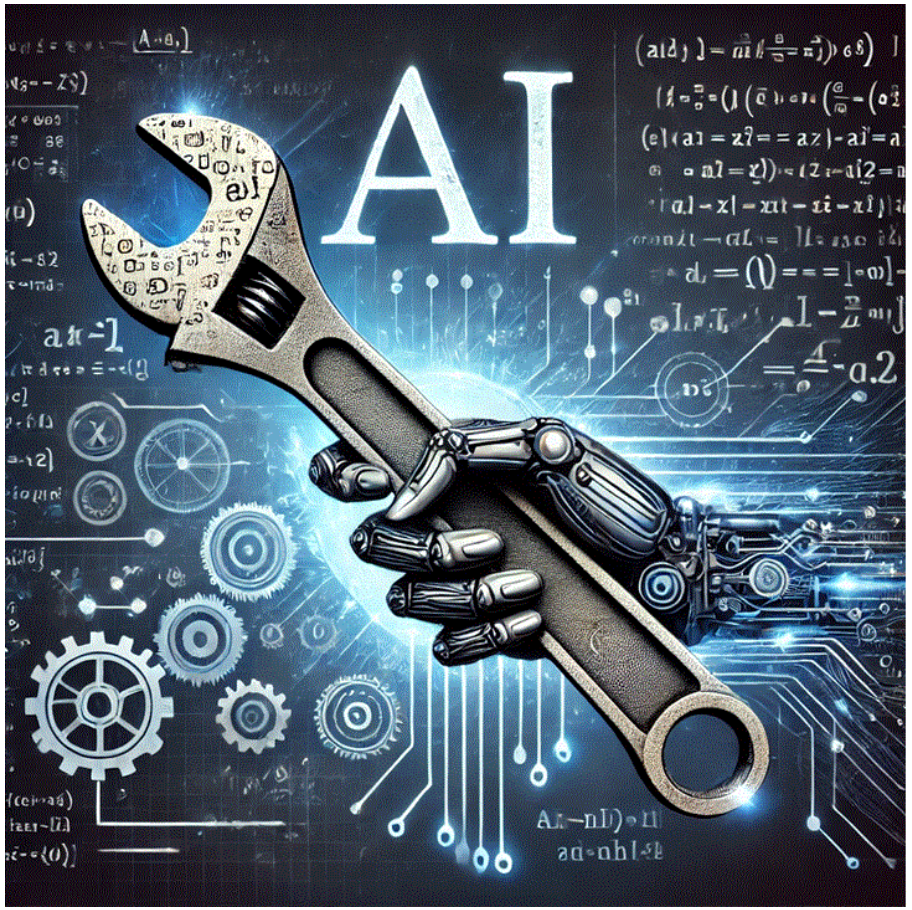
AI Technology Continuum

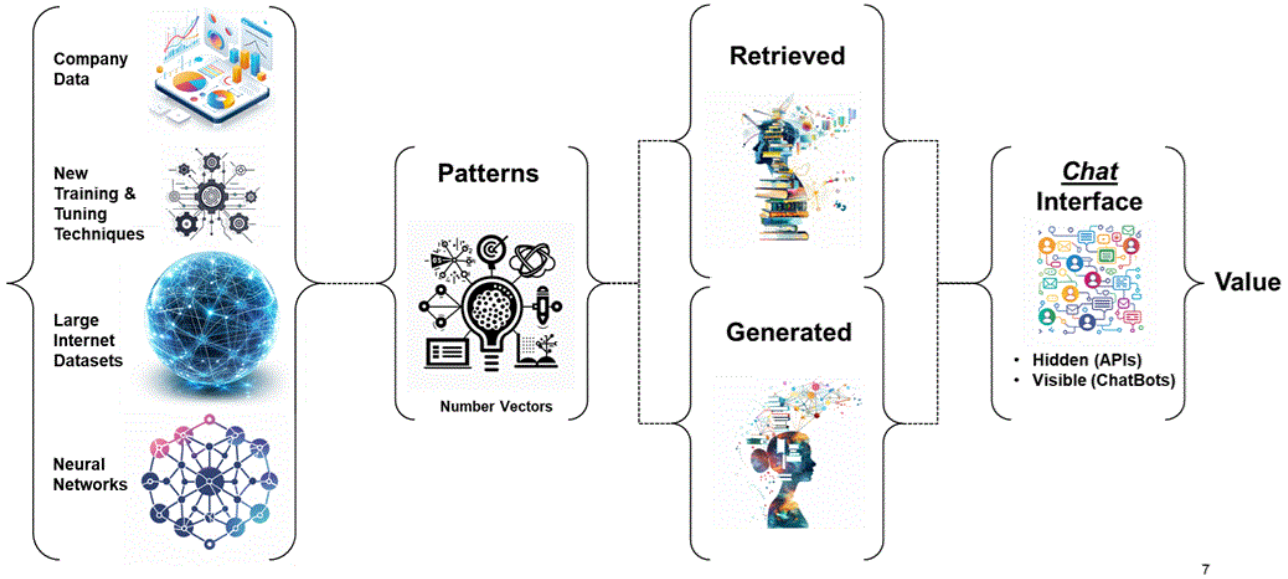


If we consider information curation is the same as water systems ..

We can only trust the safe ingestion of information with transparency, regulation and ongoing auditing.

AI is just a tool ..
…and we need to make sure the new tools like LLMs are useful





As a tool LLMs provide great service ..

Generation

Capabilities:
- Synthetic Data
- Metadata
- Synthetic images
- Citizen support
- Expert advice
- Scenario Risk Modeling
- Personalized Planning

Reduction

Capabilities:
- Real time risk assessment
- Fraud detection
- Client Case summarization
- Citizen support
- Expert advice
- Personalized training
- Knowledge Management

Transmutation

Capabilities:
- Language translation
- Regulatory compliance
- Analytics and BI
- Citizen support
- Written communications
- Situation analysis
- Best practice advice

Knowledge Access

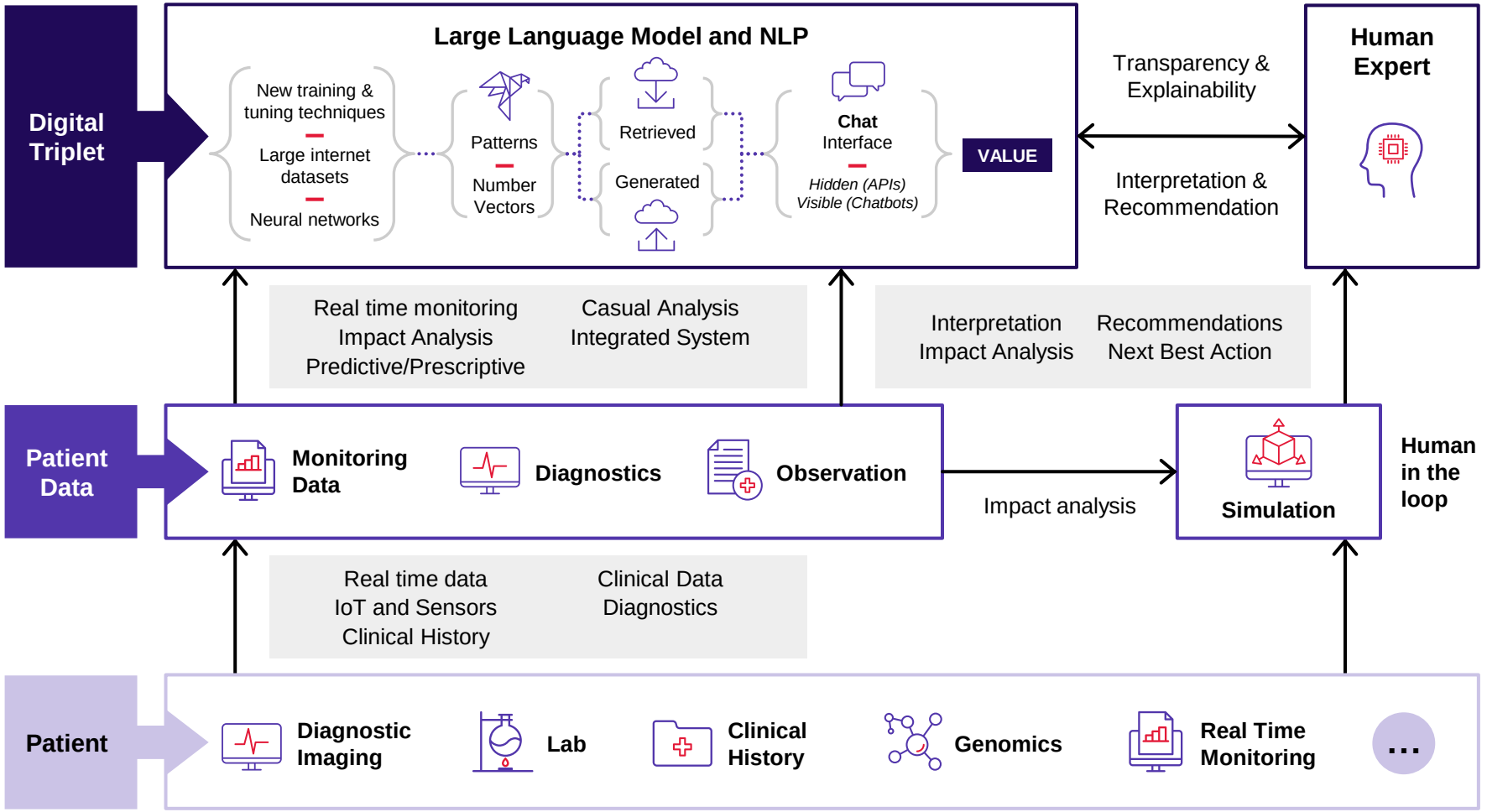
Capabilities:
- Access to knowledge base
- Historical trends analysis
- Regulatory compliance advice
- Planning to local requirements
- Validation of strategy
- RAG model support
- Institutional knowledge

Emergent Behaviors

Capabilities:
- Regulatory planning
- Financial impact analysis
- Case Management
- Operational efficiency
- Information quality validation
- Deidentification and redaction
- Cybersecurity enhancements

Extend your data investment with AI Triplet

- **Real-time expert advisor** of Digital Twin users
- Leveraging AI to **extend existing investments** in Digital Twin
- **Exploration of situation and options** in Natural Language
- Provides **additional insights** in context of the business problem



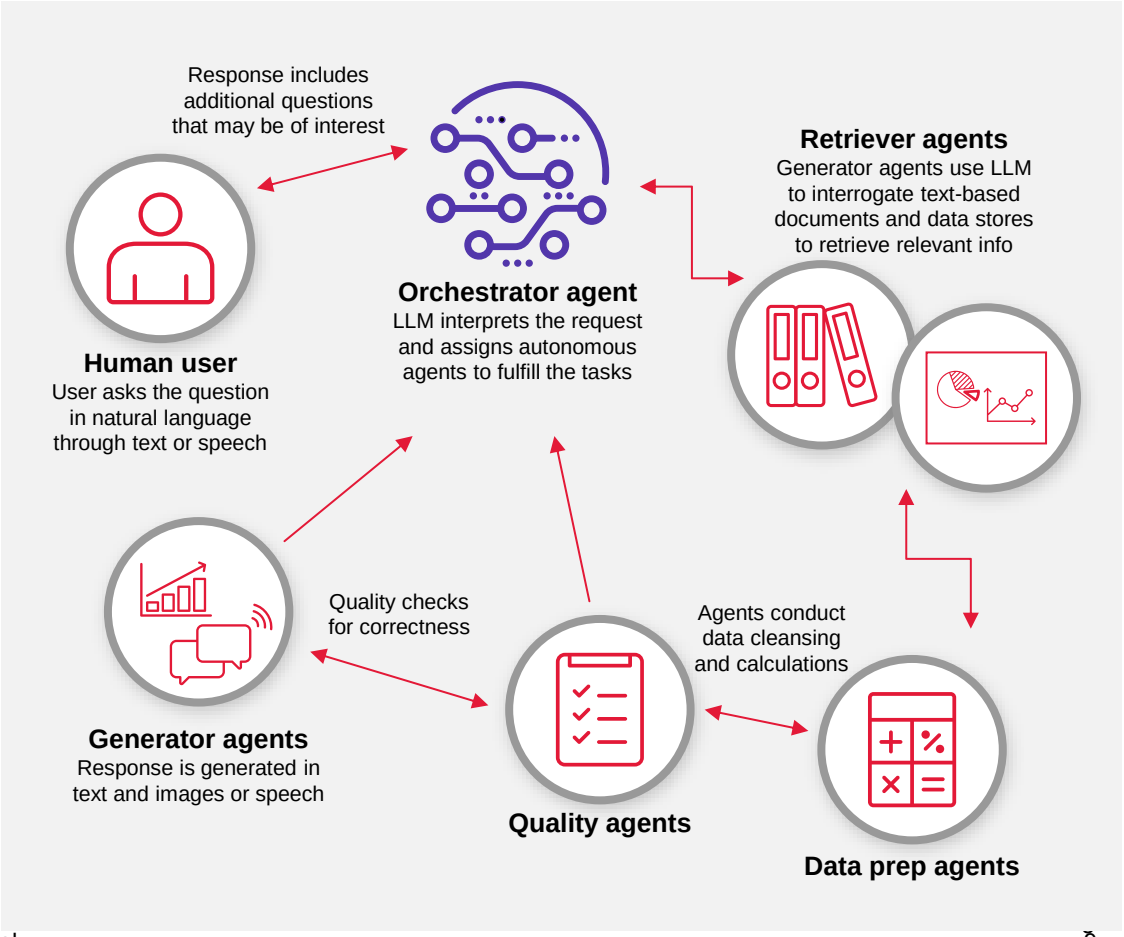
Looking at AI as a tool opens the door for Agentic AI

Agentic AI refers to AI agents that **collaborate autonomously** to achieve specific goals needed to fulfill a more complex request from the human initiator, much like a group of skilled assistants.

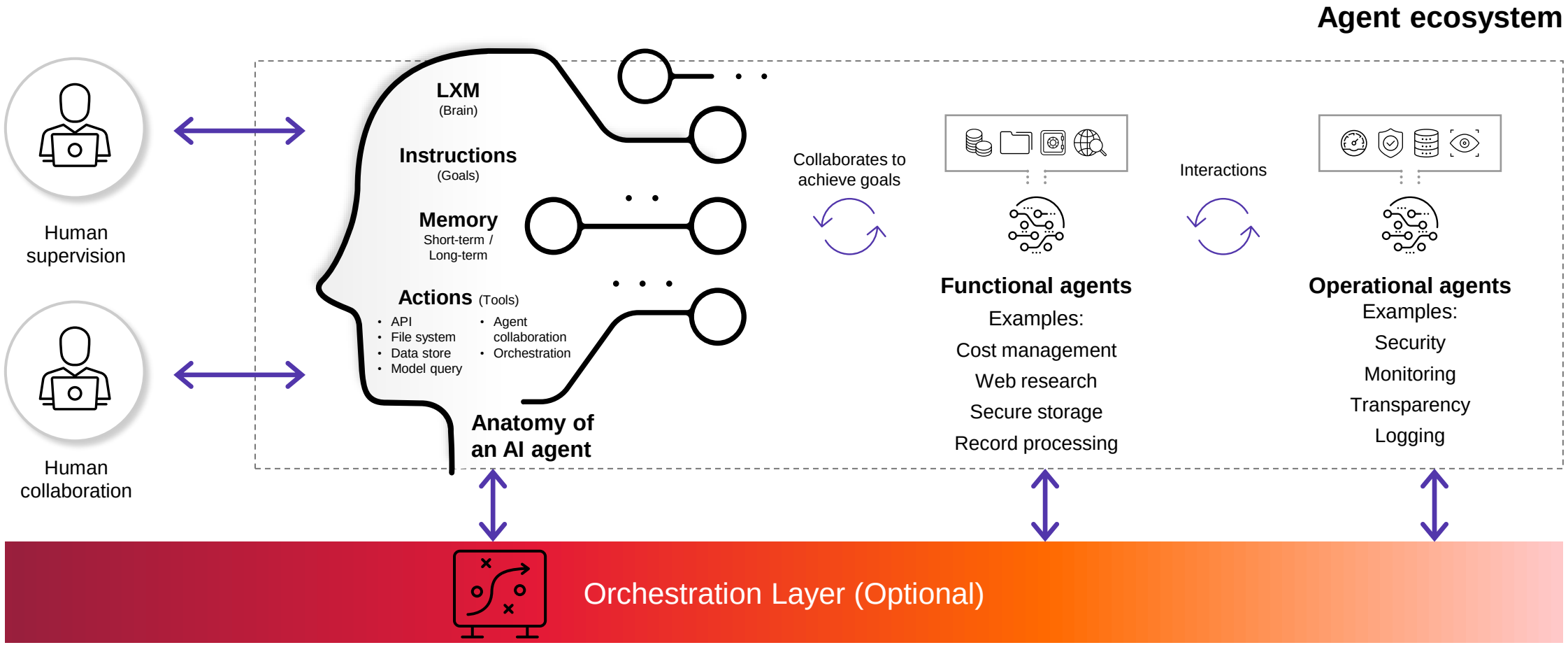
The clinician provides a single natural language instruction to agents fine-tuned on Oncology and Clinical Trials: “What is the most appropriate clinical trial for Mr. Smith based on his comorbidities, ***and what are the current requirements and outcomes for similar patients in that trial?”***

The **Orchestrator AI** agent understands the request and assigns the task to different agents to:

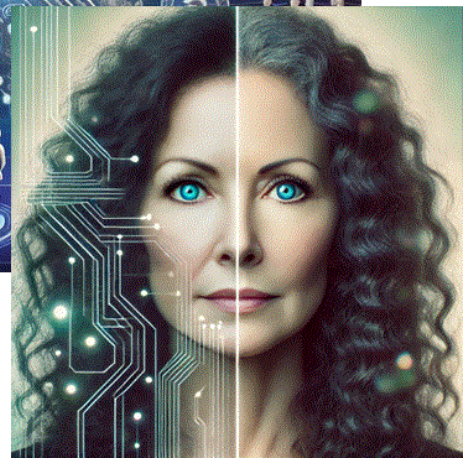
- **Retrieve** the information from data, spreadsheets on SharePoint and relevant documentation for the time period and SBUs
- **Validate** the response for correctness
- **Calculate** the response with knowledge of relevant data and models
- **Generate** image graphs along with the text response

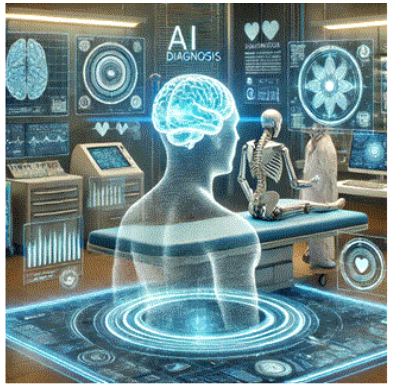


The Human-Agent Partnership Framework ecosystem

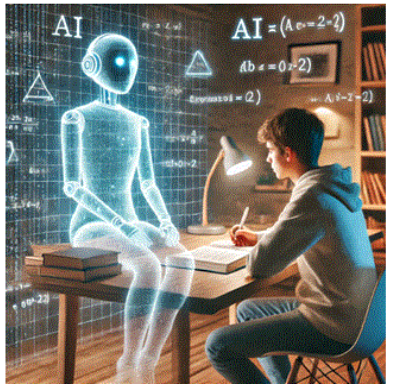


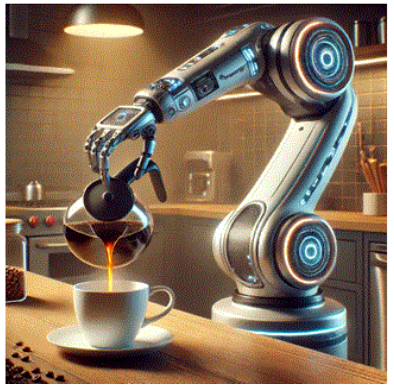
I asked GPT what is coming next?





It is up to us to evolve AI to be useful ..





11

AI is not ready to take anyone’s job .. but let’s design the **tool** to be really good intern(s)!

Discussion/Questions