AI without the Hype

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Presenter: Frank Mendoza

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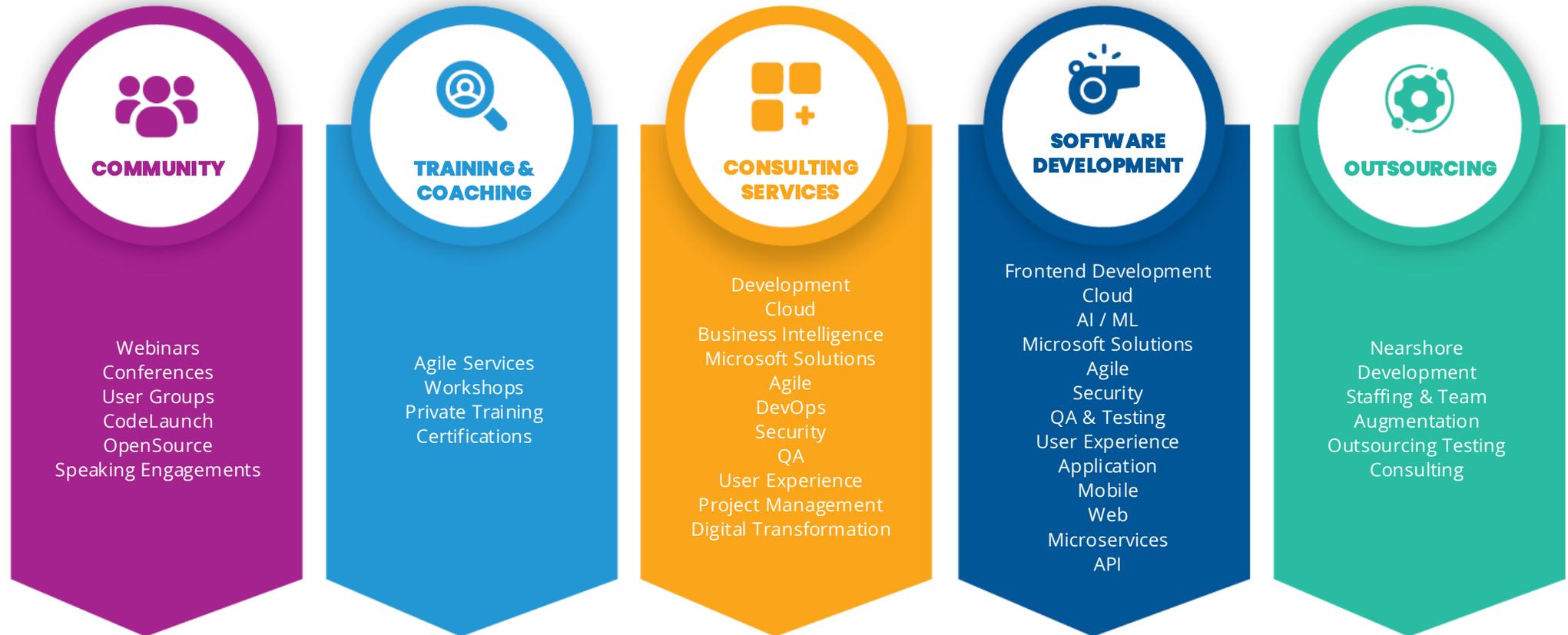HOUSTON

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Introductions

Frank Mendoza
Principal Consultant
AI/ML Practice Lead – ATX

- Certified AI/ML Engineer Professional
- Analytics Expert Network (IIA)
- Co-Chair of Austin AI Alliance

Objectives & Goals

Objectives:

- **Demystify AI** by breaking down key concepts
- Showcase **real-world applications** that deliver measurable business value
- Provide practical understanding of how to **apply AI in their own organizations**

Goal:

- Help attendees recognize the difference between buzzwords and usable tools
- Share AI use cases to illustrate how AI is solving tangible problems across industries
- Encourage thoughtful adoption of AI by focusing on clarity, context, and business impact

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Gartner Hype Cycle: What Actually Works in the Real World

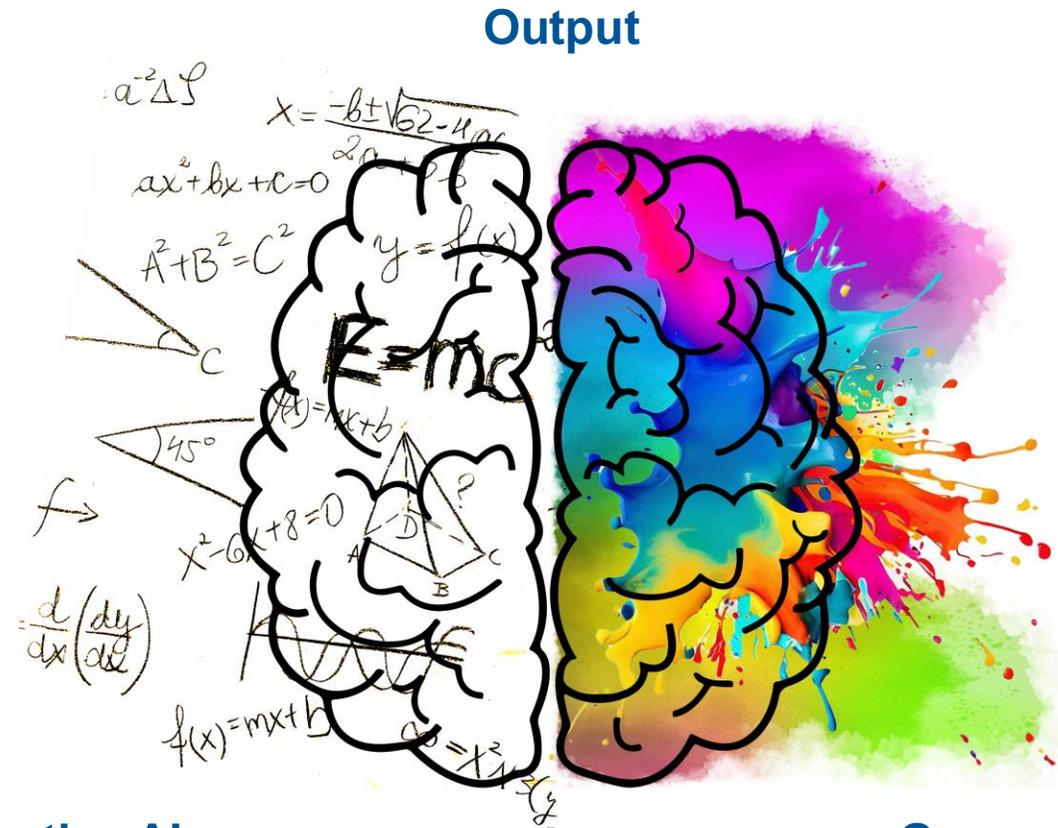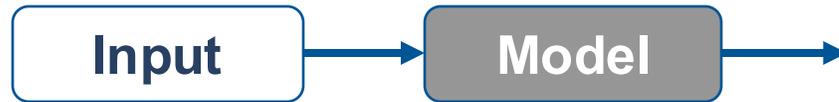Cutting through buzzwords to showcase practical, proven AI solutions
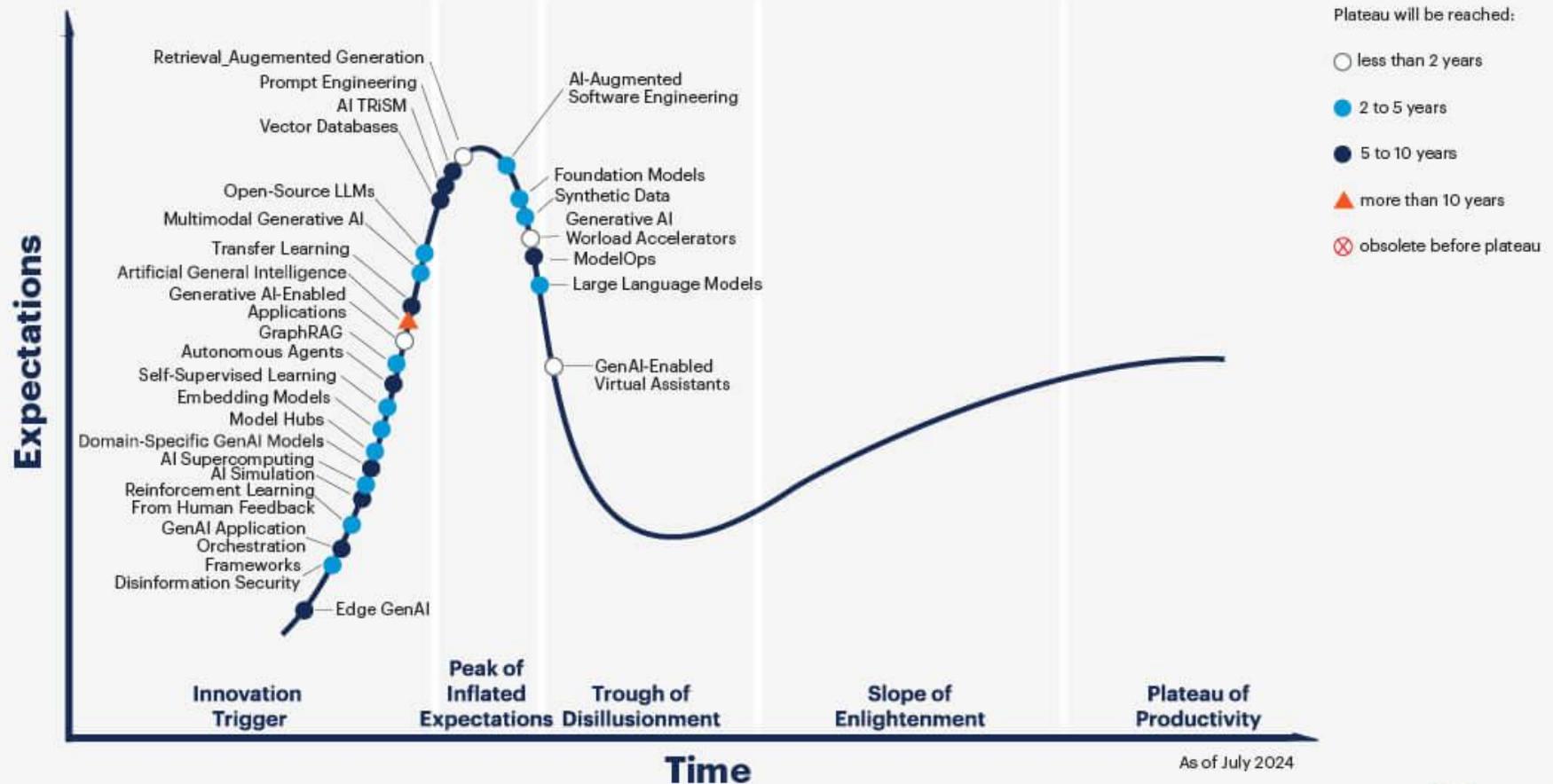
What Do We Mean by 'AI'?

Different tools for different problems

Output

Input → **Model** →

Discriminative AI
- Number
- Class
- Probability

Generative AI
- Text
- Image
- Audio

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AI is not just a Chatbot

AI is not one thing—it's a toolbox of technologies to optimize existing processes

- **Predictive Analytics**

- **Process Automation**

- **Computer Vision**

- **Recommender Systems**

- **Fraud Detection**

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Key AI Concepts We'll Reference Today

AI is about reducing friction and improving accuracy

- **Large Language Models (LLM)**

- **NLP (Natural Language Processing)**

- **OCR (Optical Character Recognition)**

- **IoT (Internet of Things)**

- **RAG (Retrieval-Augmented Generation)**

- **Agents**

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Why Context Matters in AI Solutions

LLMs are powerful—but they don't know your business

- LLMs are trained on public data—they don't know your proprietary content

- They can hallucinate or give confident but incorrect answers

- Context windows are limited—long conversations can lose relevance

- Solutions like RAG and fine-tuning help bridge the gap

Real-World Case Studies

Louis Riel School Division – Predictive Analytics for Student Success

Education | Machine Learning for Early Intervention

PROACTIVE PATHWAYS IN EDUCATION

Client: Louis Riel School Division, a K–12 public school district

Industry: Education (K–12 Public School)

Challenge: Difficulty identifying at-risk students early enough to intervene effectively

AI Solution: Machine learning regression models to predict student performance, paired with a BI dashboard for educators

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Louis Riel School: Key Results

- Early identification of at-risk students → enabling proactive support

- Data-driven resource allocation → targeted interventions

- Public sector innovation → showcased partnership with Google

- **Metrics:** Improved timing of interventions and qualitative educational benefits

Medtronic – Real-Time Data Pipelines for Manufacturing

## Healthcare | IoT + Predictive Analytics for Factory Operations

MANUFACTURING INTELLIGENCE

Client: Medtronic, a global leader in medical device manufacturing

Industry: Healthcare (Medical Device Manufacturing)

Challenge: Factory operations relied on delayed, paper-based data, limiting visibility and responsiveness in production

AI Solution: Implemented IoT sensors and Kafka-based streaming pipelines to enable real-time data flow and predictive maintenance

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Medtronic: Key Results
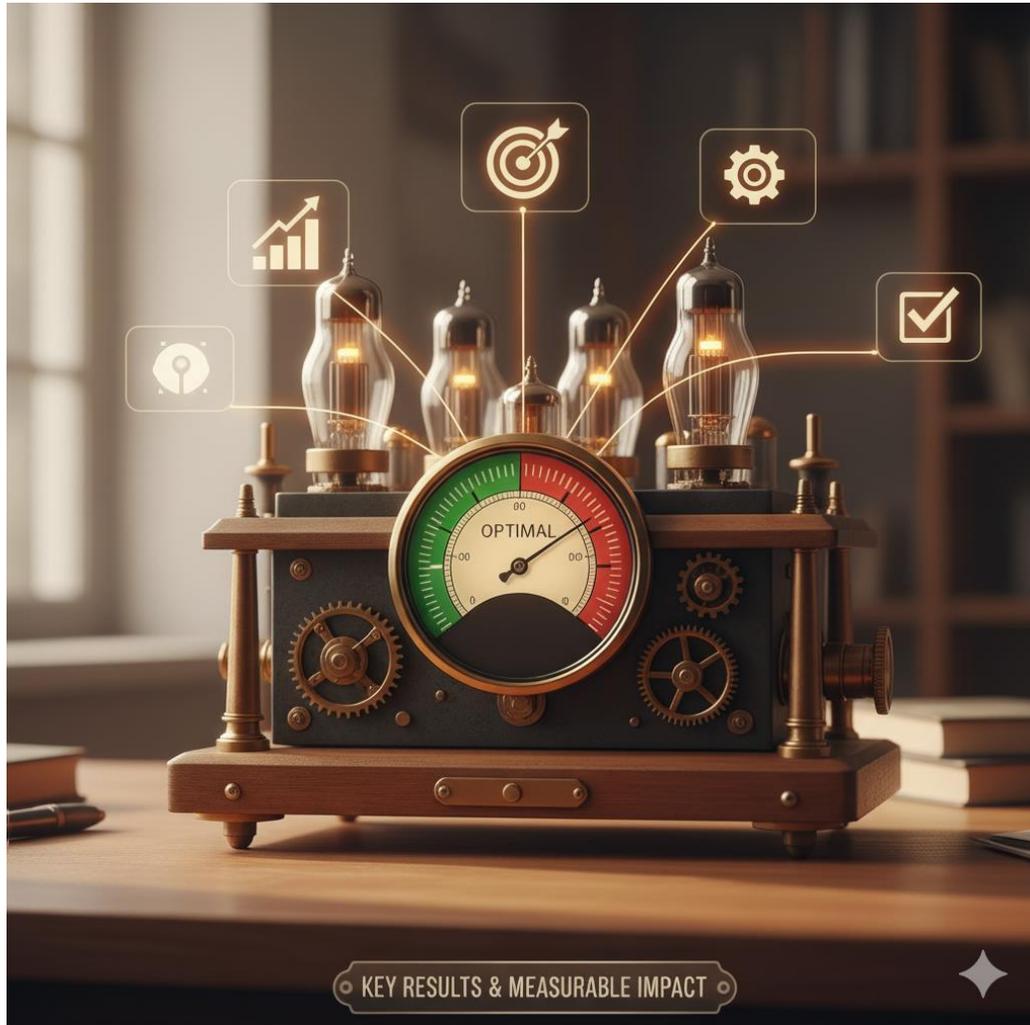
- Real-time visibility into production (eliminated paper lag)

- Reduced downtime through predictive maintenance alerts

- Operational savings realized from automation and fewer errors

- **Metrics:** Qualitative improvements in productivity and uptime

CATALIS – Advanced Document Redaction Solution

Public Sector | NLP + OCR for Scalable Redaction
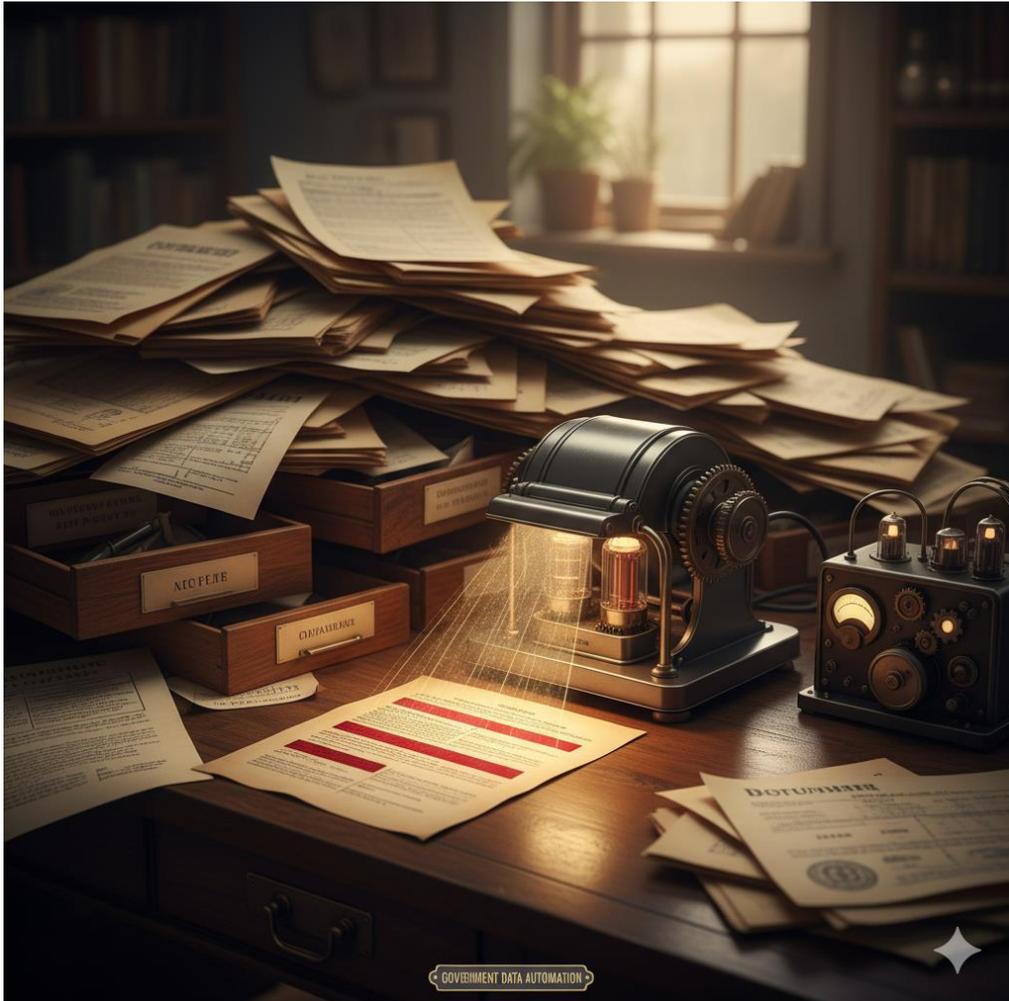
Client: CATALIS, a GovTech SaaS provider supporting public sector agencies

Industry: Public Sector (GovTech SaaS)

Challenge: Manual redaction of sensitive documents was slow, costly, and error-prone

AI Solution: Leveraged AWS NLP and OCR to automate text redaction using a serverless cloud architecture

CATALIS: Key Results

- Major efficiency boost—significantly more documents redacted per hour

- Reduced costs by removing dependency on on-premises infrastructure

- Scalable solution enabled new revenue stream across agencies

- **Metrics:** "Significant" efficiency gains and cost savings

Lakeshore Learning – Agentic AI for Sales Enablement

EdTech | AI-Powered Lead Generation

Client: Lakeshore Learning, a leader in educational materials

Industry: EdTech Manufacturing

Challenge: Manual lead generation was slow and limited in scope

AI Solution: Agentic AI web agents crawl public funding databases to identify new opportunities and automate lead generation

Lakeshore Learning: Key Results

- Manual work cut down → faster lead discovery

- New funding opportunities identified → broader reach

- Sales team refocused on closing deals → higher productivity

- **Metrics:** Time saved on research, increased number of qualified leads, improved sales team efficiency

Institute of Food Technologists – AI Knowledge Platform

Nonprofit | AI-Powered Knowledge Access
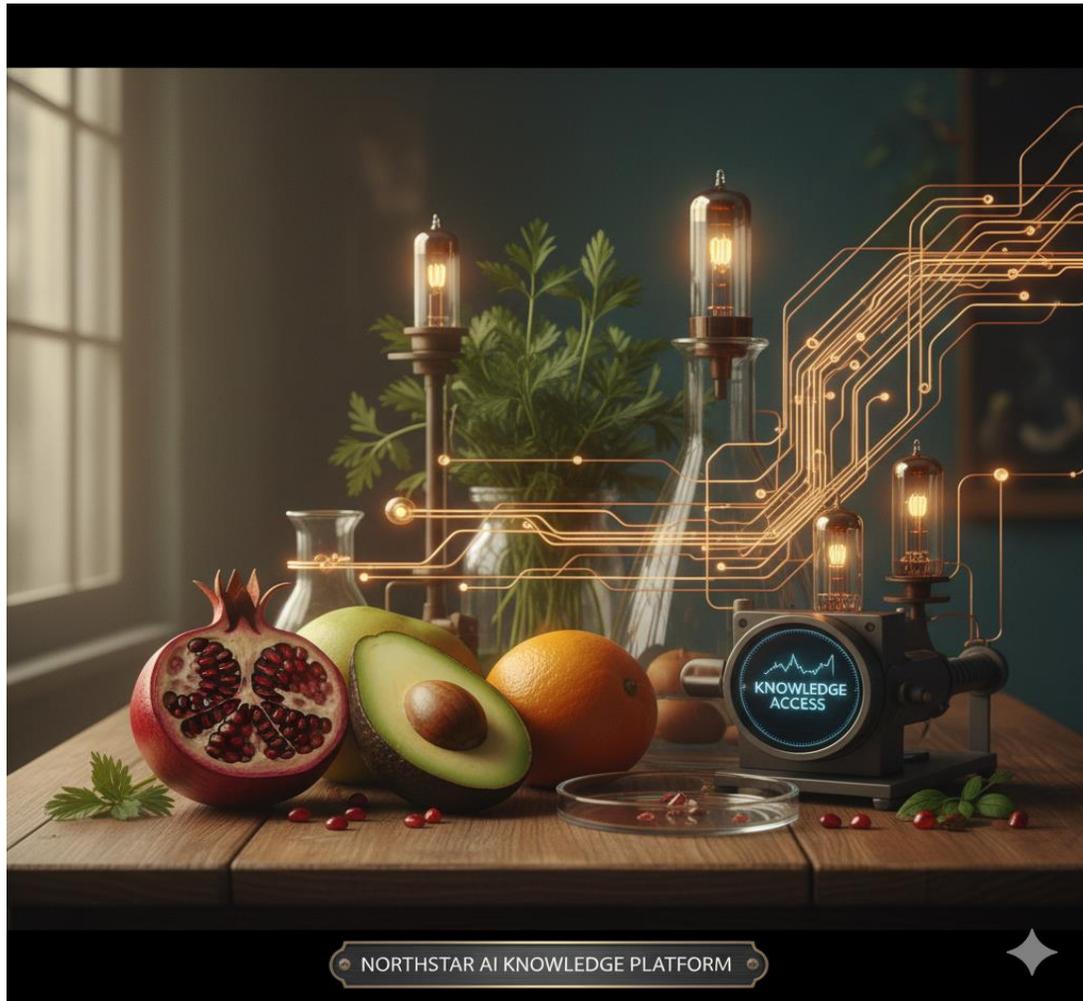
Client: Institute of Food Technologists, supporting food science professionals

Industry: Nonprofit (Food Science Association)

Challenge: Members struggled to access proprietary research quickly and reliably

AI Solution: Retrieval-Augmented Generation (RAG) chatbot and AI-powered search over proprietary content in Azure

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Institute of Food Technologists: Key Results

- Instant access to research library (seconds vs. hours)

- Reliable, source-cited answers (improved trust)

- Streamlined product R&D (automated nutrition label generation)

- **Metrics:** Improved efficiency and user satisfaction

Q&A

AI without the Hype