Delivery of AI Apps
Lessons from the Field

Presented at Microsoft Federal Developer Summit

November 13th 2024

Agenda

- AIS Introductions
- Spectrum of Federal Customer Case Studies
  - Crawl: PoC with Solution Accelerators
  - Walk: Copilot Studio and GenAI Native solutions
  - Run: Advanced Integrated Solutions
- Lessons Learned

AIS Introductions

Matt Walker

Solution Director, Data and AI

Yared Tsegaye

VP, Cloud Modernization & AI Solutions

Brent Wodicka

Chief Technology Officer

Beyond "chat with your data"

Chatbot / chat with your data use cases are great as a first step to unlock initial value and confidence, but when we find use cases that integrate naturally with knowledge workers day-to-day, we can achieve lasting impact.
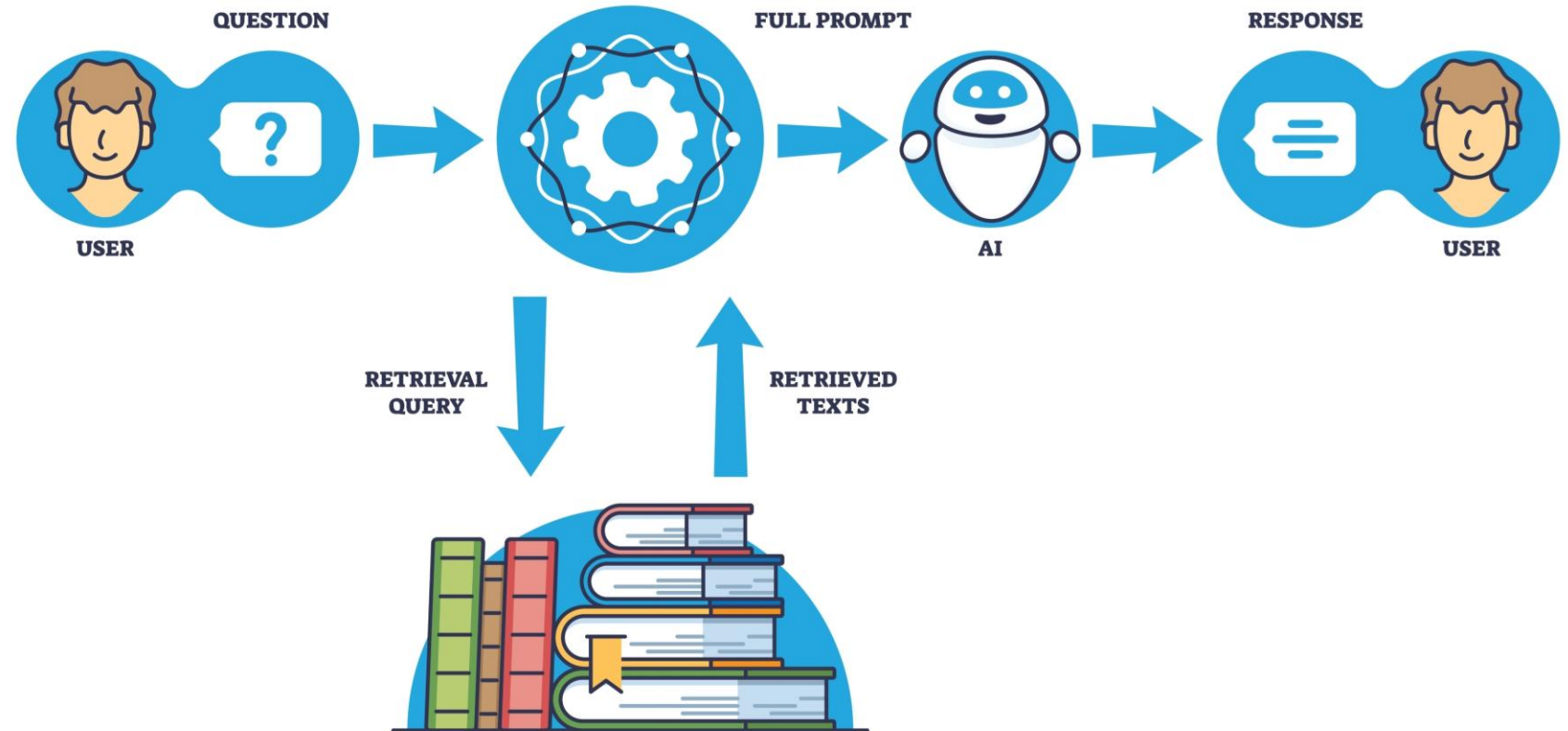
Categories of AI Experiences

- AI takes center stage

- AI works in the background

- AI improves on familiar experiences by integrating naturally

RAG is the bridge between LLM and knowledge workers

Retrieval Augmented Generation (RAG) continues to hold its place as the most efficient way to personalize LLM interactions.

Measuring Gen AI success is nuanced

Measuring the success of your Gen AI initiatives can be complex and highly specific to your situation, especially as complex use cases continue to emerge.
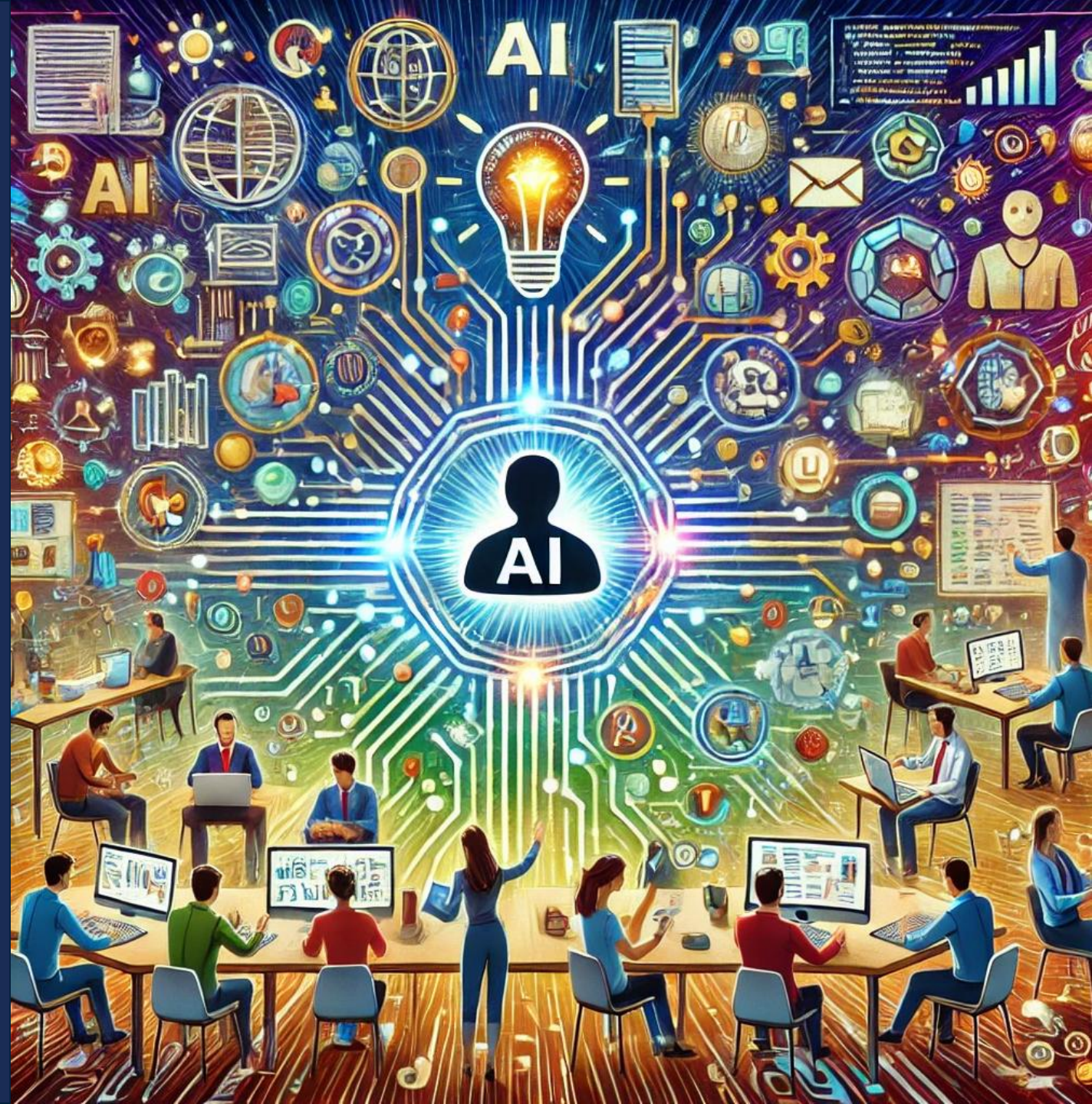
Framework for Measuring Success

- Accountability

- Accuracy

- User Gratification

- Safety/Security

- Scalability

Advantage for Knowledge Workers at all levels

- Irrespective of role / industry

- Shortcut path to personal capability without formal training

- Often consumed outside of work, but ideas are used work later...

Spectrum of AI Applications:

Proof of Concepts

- Exposure and Understanding of the Tech
- Standalone Chatbots/Copilots – Good way to interact with the technology
- **Example: Information Assistant Solution Accelerator**

Integration, Exploration

- Integration of Gen AI into existing products
- Exploring deeper, industry-specific or mission-impacting use cases
- **Example: Copilot Studio and GenAI Native solutions**
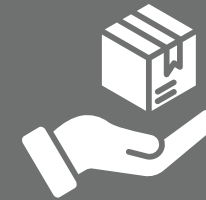
Complex, Mature

- Fully launched products, deployed solutions
- Incremental, iterative build
- Developed a proficient app with specific market fit
- **Example: AI Knowledge Miner**

ais

Crawl: Proof of Concepts

PoC with Solution Accelerators

- Organizations at the Beginning of AI Adoption
  - Common objectives: efficiency, cost reduction, improved services.
  - Constraints: limited resources, need for quick wins.

- Common Use Cases
  - General Chat (Private ChatGPT)
  - Chat with work data (RAG)
  - Automated Document Summarization
 - Knowledge Base Support

Building Organizational Confidence in AI

- Tangible Proof of Concept
  - Demonstrates AI capabilities in a controlled, low-risk environment.
  - Helps stakeholders visualize the potential impact of AI initiatives.
- Reducing Resistance to Change
  - Success with initial projects builds trust and acceptance among staff.
  - Sets the stage for broader AI adoption within the organization.
- Skill Building
  - Provides hands-on experience with AI tools, building internal expertise.
  - Equips staff with foundational AI skills, preparing them for more advanced implementations.
- Foundation for Future AI Initiatives
  - Solutions are built on platforms that can grow with organizational needs.
  - Facilitates the addition of more complex AI functionalities over time.

Information Assistant

- **Open-source toolkit by Microsoft** for public sector development teams.

- **Customizable knowledge base** tailored to specific federal or organizational document with advanced and scalable RAG Pipeline.

- **Support for secure private endpoints** and zero trust networking to protect sensitive data.

- **Scalable solution** designed to handle increasing document volumes and user demands as organizations grow.

https://github.com/microsoft/PubSec-Info-Assistant
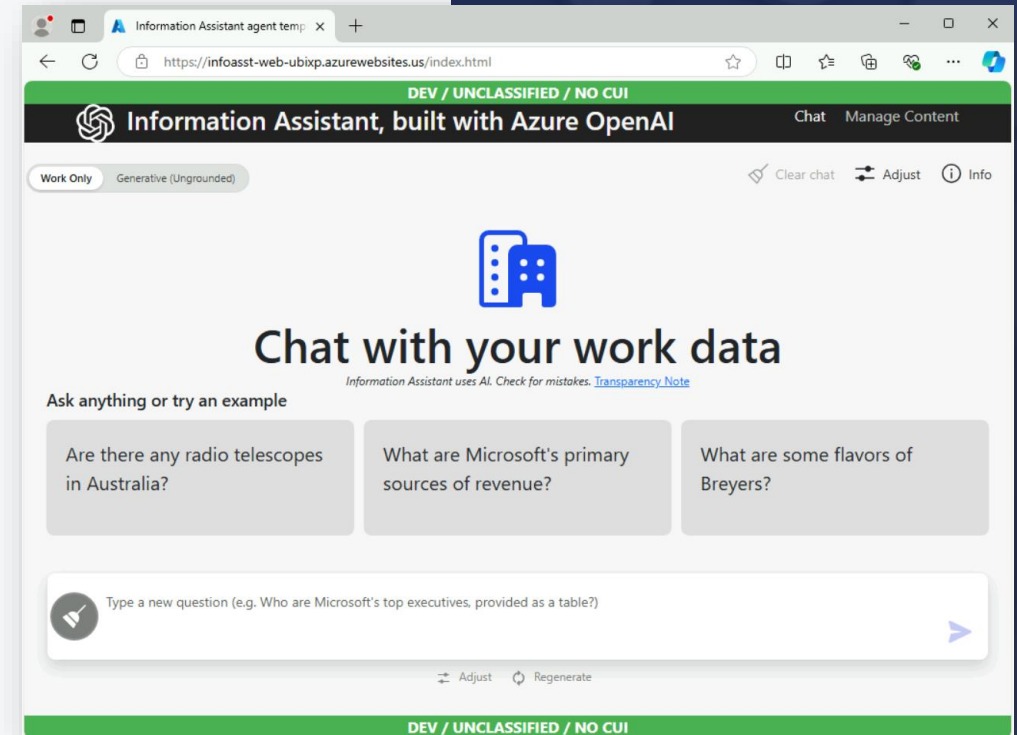
Walk: Integration, Exploration

Integrated GenAI native solutions

- Organizations Advancing AI Use
  - Common Objectives: Improved user experience, enhanced productivity, deeper data insights.
  - Focus: More integrated solutions, building on early success in the "Crawl" phase.

- Common Use Cases
  - Advanced Retrieval (Function Calling, Semantic Search)
  - State Management (Assistants API)
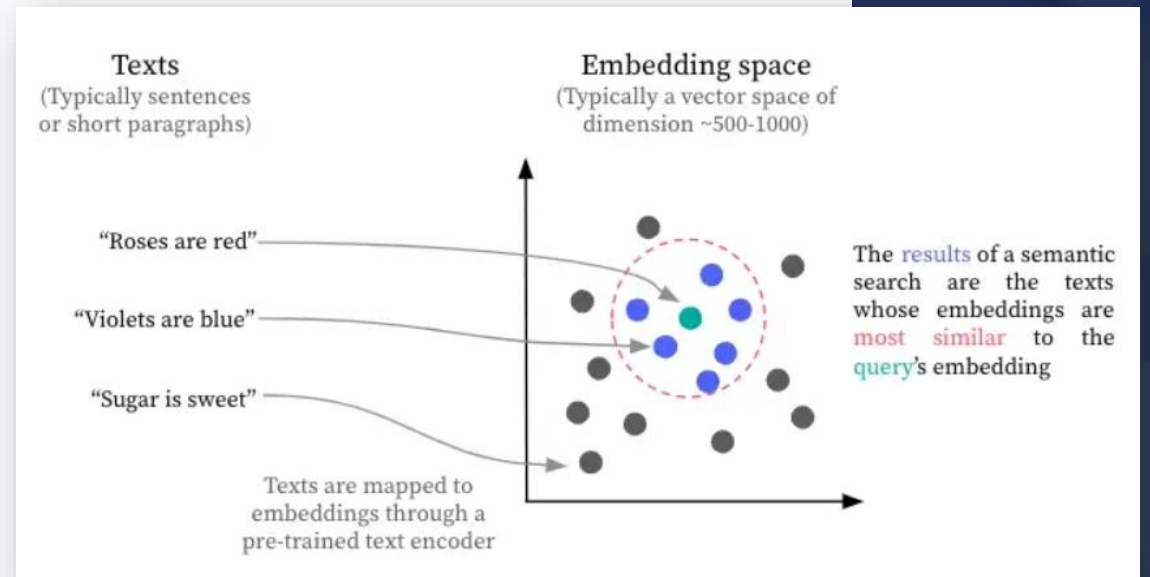 - Complex Interactions (Code Interpreter)

API-Based Data Access

- **Static Querying**: Traditional APIs retrieve specific, predefined fields based on exact matches, limiting the flexibility of responses.

- **Rigid Structure**: API data calls rely on structured data and precise inputs, which can restrict user exploration and require users to know specific query terms.

- **Limited Contextual Insight**: APIs typically return exact data fields without deeper context, reducing adaptability for complex, intent-based searches

Advantages of Semantic Search

- **Richer, Contextual Responses**: By leveraging a vector database, data is stored in high-dimensional embeddings, allowing GenAI to provide responses that consider relationships and context within the data.

- **Enhanced Flexibility for Complex Queries**: Allows users to ask broader or nuanced questions without needing exact terms, ideal for more complex queries.

- **Scalable for Expanding Knowledge Bases**: Vector storage scales to accommodate growing datasets, supporting organizations with evolving, large-scale data needs.

Texts
(Typically sentences or short paragraphs)

Embedding space
(Typically a vector space of dimension ~500-1000)

"Roses are red"

"Violets are blue"

"Sugar is sweet"

The results of a semantic search are the texts whose embeddings are most similar to the query's embedding

Texts are mapped to embeddings through a pre-trained text encoder

Semantic Search - Beyond Document Retrieval

- Effective for both unstructured documents and traditionally structured data, such as relational databases, enhancing search across diverse data types.

- Optimized for handling large, evolving datasets, suitable for complex knowledge bases.
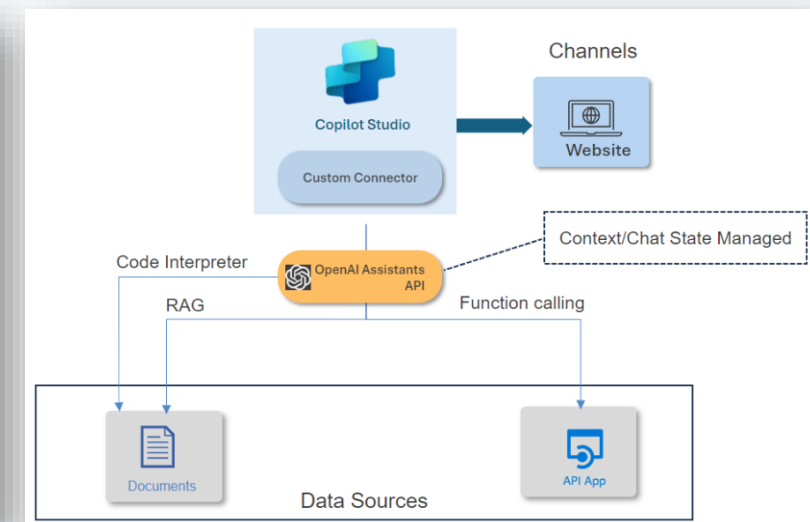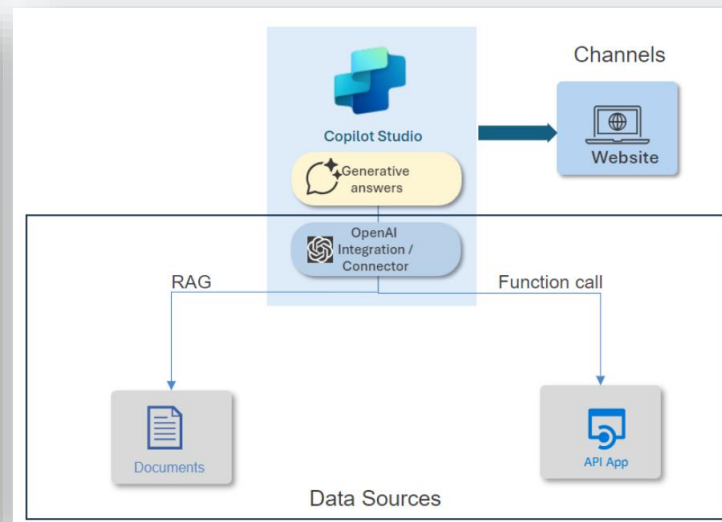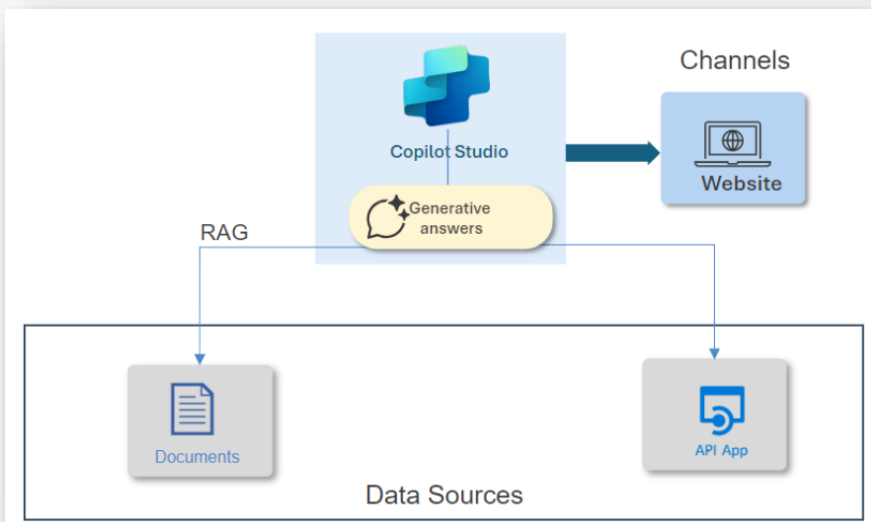
Run: Complex, Mature

Fully Integrated AI Solutions

- Organizations with Product-Oriented Mindset
  - Common Objectives: Continuous improvement, strategic automation, and competitive differentiation.
  - Focus: Driving innovation with advanced AI models, extracting value from unstructured data, and optimizing for long-term impact.
- **Advanced Use Cases**
  - Knowledge Miner (Advanced entity extraction and analysis)
  - Structured Data from Unstructured Sources (leveraging layered approaches to vision models)
  - Predictive Analytics (AI-driven forecasting and scenario planning)
  - Autonomous Decision-Making Systems (complex rule-based automation)

Marketplace Offering

- AI Knowledge Miner

- Enterprise Agreements make transactable offerings more accessible

- Next is Secure Data Landing Zone (Private to Customers)

AI Knowledge Miner: PDF & Unstructured Data Extractor (preview)

Applied Information Sciences

AI Knowledge Miner: PDF & Unstructured Data Extractor (preview)

♡ Add to Favorites

Applied Information Sciences | Azure Application

Plan

Standard

Create

- **Advanced Data Extraction:** Utilize powerful LLM technology to extract relevant information from various document formats.
- **Intelligent Data Mapping and Population:** Automatically fill forms with extracted data, displayed alongside the source document for easy verification.
- **Robust Data Storage:** Securely store processed data in your chosen format, fully compliant with industry standards.
- **Performance Optimization:** Designed for efficiency, handling large and complex documents with speed and accuracy.
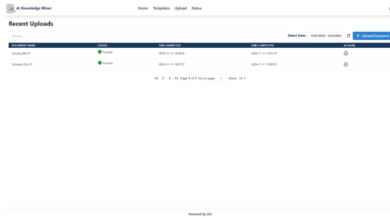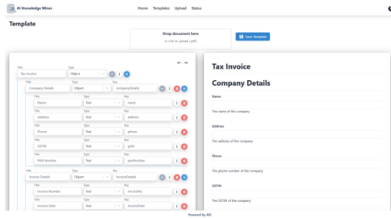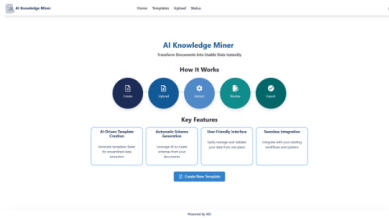
Differentiators

- **Specialized for Regulated Industries:** Tailored solutions for sectors like healthcare and finance, ensuring compliance with strict regulatory requirements.
- **User-Centric Design:** A friendly interface with intuitive layouts and clear visual feedback enhances user experience and reduces training time.
- **Security First:** Rigorous security protocols protect sensitive information during data extraction, storage, and transmission.
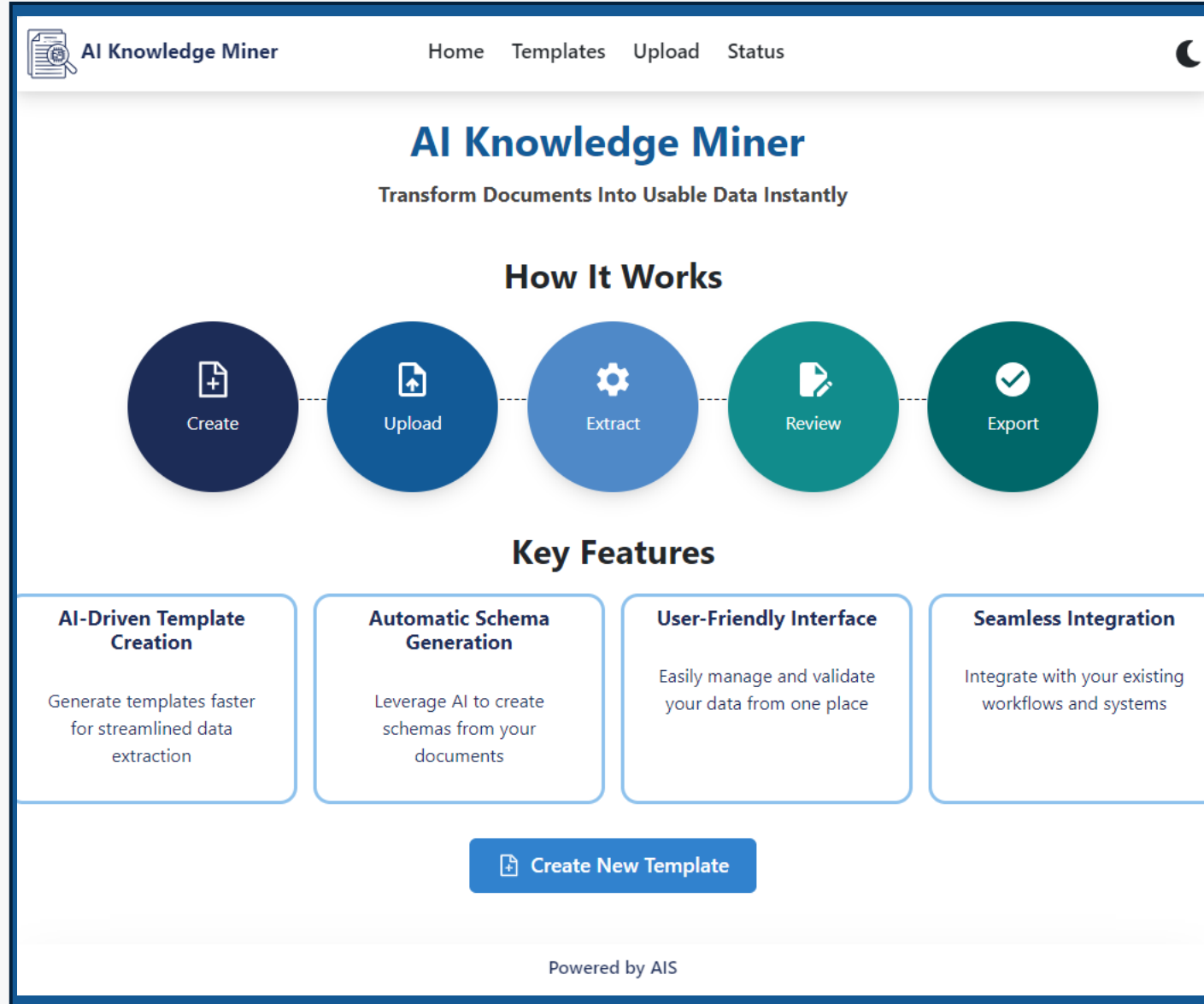
Industry-Specific Use Cases

- **Financial Services:** Automate client onboarding processes by extracting data from identification documents and financial statements directly into compliance forms.
- **Healthcare:** Streamline patient intake by converting information from medical forms and historical health records into electronic health records.
- **Oil & Gas:** Enhance reporting accuracy by pulling data from field reports and regulatory documents into compliance tracking systems.
- **Defense:** Quickly process classified and unclassified documents while maintaining data integrity and security standards.

Transform your document workflows with AIS's solution accelerator, where efficiency meets compliance.

Media

Marketplace Offering

AI Knowledge Miner | Home | Templates | Upload | Status

AI Knowledge Miner

Transform Documents Into Usable Data Instantly

How It Works

Create — Upload — Extract — Review — Export

Key Features

AI-Driven Template Creation

Generate templates faster for streamlined data extraction

Automatic Schema Generation

Leverage AI to create schemas from your documents

User-Friendly Interface

Easily manage and validate your data from one place

Seamless Integration

Integrate with your existing workflows and systems

Create New Template

Powered by AIS

Marketplace Offering

- **Schema Selection Upon Upload:**
  - When uploading new PDF documents, users can choose from previously saved schemas to apply the desired data extraction rules.
- **User Empowerment:**
  - By allowing users to define and edit schemas, the solution empowers them to tailor the extraction process to their specific requirements.
- **Validation Interface:**
  - The split-screen view enhances transparency and trust in the extraction process by allowing users to cross-reference extracted data with the original content.

Lessons Learned

- **Moving Beyond Chatbots**
  - Shift focus from simple chat interactions to comprehensive AI solutions that add value across multiple functions.
  - Ensure integration into daily workflows to drive meaningful adoption and lasting impact.
- **Integration for Real Value**
  - True staying power and impact come from embedding GenAI within core processes, making it an indispensable part of operations.
- **Transparency and Accuracy**
  - Accurate knowledge citation and solution transparency are essential for building trust and credibility among users.
- **Capitalizing on Strategic Resources**
  - Use EA agreements to access transactable services, funding PoCs and easing tech adoption through financially supported pilots.

ais
at a glance

40+ years IN BUSINESS

850 employees WORLDWIDE

38 states WITH AIS EMPLOYEES
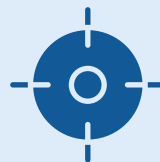
4 countries WITH AIS EMPLOYEES

AZURE EXPERTISE SINCE 2008

TOP MICROSOFT PARTNER ALL DESIGNATIONS + 14 ADVANCED SPECIALIZATIONS

IP & FRAMEWORKS FOR AGILITY AND SCALE

FOCUSED ON MISSION-DRIVEN CLOUD TRANSFORMATION

CORE VALUES IN EDUCATION AND KNOWLEDGE SHARE

Deep DoD experience and expertise

First ATO in IL2/4/5/6 clouds

Large-scale cloud migration and modernization

LEADING REGULATED INDUSTRY SOLUTIONS

DEDICATED TO DELIVERY EXCELLENCE

CMMI SVC ML3
ISO 9001
ISO 27001
SOC 2 Type II

Our Microsoft Partnership

Our certified capabilities and other accolades

Microsoft Designations

- ✓ Business Apps
- ✓ Data & AI
- ✓ Digital & App Innovation
- ✓ Infrastructure
- ✓ Modern Work
- ✓ Security

Advanced Specializations

1. Adoption and Change Management
2. AI & Machine Learning
3. Analytics
4. Azure Virtual Desktop
5. Build and Modernize AI Apps
6. Cloud Security
7. DevOps with GitHub
8. Identity and Access Management
9. Kubernetes on Azure
10. Low Code Application Development
11. Microsoft Azure VMware Solution
12. Threat Protection
13. Windows and SQL Server

Competencies

- Application Development **Gold**
- Application Integration **Gold**
- Cloud Platform **Gold**
- Cloud Productivity **Gold**
- Collaboration and Content **Gold**
- Communications **Gold**
- Data Analytics **Gold**
- Data Platform **Gold**
- Datacenter **Gold**
- DevOps **Gold**
- Enterprise Mobility Management **Gold**
- Messaging **Gold**
- Project and Portfolio Management **Gold**
- Security **Gold**
- Windows and Devices **Gold**

Accolades

- **2023-2024 Azure OpenAI Partner**
- 2021 WW Partner of the Year for Power Apps and Power Automate Finalist
- 2020 WW Partner of the Year for Power Apps and Power Automate Winner
- 2019 US Partner of the Year for Business Applications in Dynamics 365 for Sales Winner
- 2018 US Partner of the Year for Azure Performance Winner
- 2017 WW Partner of the Year for DevOps Winner
- 2014 Regional Partner of the Year for Azure Winner

ais

Innovation Integrated: End-to-End Cloud Solutions

- Expertise at every layer of cloud transformation – value creation accelerated, from infrastructure and governance to innovation and intelligence

- Since "red dog days" we've built a mature and ever-evolving model for adopting and getting value from cloud

- Cloud excellence is in our DNA, threaded with expertise in security and governance, operations and maintenance, DevOps and IaC, artificial intelligence, and more

- Where strategy meets execution – AIS drives vision to value, with expert speed and reliable IP

- Balancing speed and outcomes, our cloud solutions are engineered for today's needs and tomorrow's challenges

ais

If AIS does one thing well, it's Microsoft Cloud.

Here are two ways we support our customers:

- **Small scope, funded engagements to accelerate getting started** – leveraging available programs to support customers in the initial steps of adopting cloud, exploring use cases, creating a roadmap and building some trust and experience in working with AIS. Whether we engage through AMM (Infra), CSI (Security), or Azure Innovate (Data & AI), for us it all comes back to cloud-based transformation, and success requires a partner with strong depth and breadth on Microsoft cloud. This is a great way to get started.

- **Tailored education, envisioning & enablement** – creating platform, adoption, governance, and product teams for enterprise-scale transformation. This type of support doesn't fit well into any one solution area or well-packaged customer engagement/funding program, but the level of customization is what some customers need.

ais