



OKLAHOMA
OMES Enterprise
Data Driven Services

State of Oklahoma Emerging Technology Playbook

May 2024



Navigating Emerging Technologies

Understanding Emerging Technologies



Artificial Intelligence

Overview:

- Refers to the simulation of human intelligence in machines designed to think and learn like humans.

Applications:

- Automates tasks, enhances decision-making, and improves efficiency across various sectors.

Benefits:

- Increases productivity, reduces human error and provides insights through data analysis.



Generative AI

Overview:

- A subset of AI focused on generating new content, such as text, images and music, based on input data.

Applications:

- Content creation, virtual assistance and personalized recommendations.

Benefits:

- Enhances creativity, streamline manual processes and personalizes user experiences.



Machine Learning

Overview:

- A branch of AI that enables systems to learn and improve from experience without being explicitly programmed.

Applications:

- Predictive analytics, fraud detection and personalized marketing

Benefits:

- Improves accuracy over time, adapts to new data and automates complex decision-making

How Emerging Technologies Can Help State Agencies

- Emerging technologies offer state agencies unprecedented opportunities to **enhance efficiency, effectiveness** and **service delivery**.
- By leveraging innovative technology such as Artificial Intelligence (AI), Machine Learning (ML) and Generative AI (GenAI), public sector organizations can **automate routine tasks, improve decision-making** and **enhance transparency**.
- AI and ML can be used for **predictive analytics**, helping agencies **anticipate** needs and **allocate resources** effectively.
- GenAI can **generate** new content and insights, aiding in **personalized communication** and **innovative** problem-solving.
- Additionally, these technologies can **enable better data management** and **citizen engagement**, ultimately leading to **more responsive and citizen-centric services**. Through the adoption of emerging technologies, state agencies can drive innovation, streamline operations and **improve the overall quality of public services**.



Emerging Technologies Service Catalog

GenAI Chatbots and Virtual Agents



Generative AI (GenAI) Chatbot – Ready to Deploy

GenAI chatbots, like those listed below, are transforming the way businesses interact with their customers and manage internal processes. These advanced chatbots are intuitive and efficient, using natural language processing to understand and respond to user inquiries in a conversational manner.

Vendor	Tool / Technology	Tech Stack	Estimated Cost Model	Time to Implementation	Procurement Vehicle	User Experience
Google	GenAI Chatbot	Agent Builder	\$360/m. for 25,000 searches	2-4 weeks (OMES)	IA SOW (OMES Effort)	Enterprise Search
AWS	GenAI Chatbot	Lex	\$1,000/m. unlimited messages	2-4 weeks (OMES)	IA SOW (OMES Effort)	Enterprise Search
Microsoft	Sharepoint Chatbot	OpenAI - GPT 4 Copilot Studio	\$200/m. for 12,500 GenAI messages (statewide)	2-4 weeks (OMES)	IA SOW (OMES Effort)	SharePoint Search Used for Documents w/ Complex Questions

Benefits include:

- Customer Support
- Information Retrieval
- Task Automation
- Personalized Interactions
- Data Collection and Analysis



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Generative AI (GenAI) Virtual Agents – Ready to Deploy

GenAI chatbots, like those listed below, are transforming the way businesses interact with their customers and manage internal processes. These advanced chatbots are intuitive and efficient, using natural language processing to understand and respond to user inquiries in a conversational manner.

Vendor	Tool / Technology	Tech Stack	Estimated Cost Model	Time to Implementation	Procurement Vehicle	User Experience
AWS	GenAI Chatbot and Virtual Agent	Lex / Amazon Connect	Implementation Cost (vendor) \$1,500 for 10,000 engagements	8-12 weeks (vendor)	SW1050	Enterprise Search and Integration with Call Center
Google	GenAI Chatbot and Virtual Agent	CCAI	Implementation Cost (vendor) \$360 for 25,000 engagements	8-12 weeks (vendor)	SW1050	Enterprise Search and Integration with Call Center

Benefits include:

- Customer Support
- Information Retrieval
- Task Automation
- Personalized Interactions
- Data Collection and Analysis

Case Study: Leveraging Google Agent Builder for a Scalable Enterprise Search

Problem Statement: A chatbot solution to help users navigate state websites at scale

Project Overview

OMES Data Services is revolutionizing state agency operations with Vertex AI's Agent Builder. Agent Builder not only enhances service capabilities but also offers unparalleled scalability, enabling seamless integration across multiple state agencies. This scalability allows agencies to implement robust enterprise search functionality, making it easier for agencies to access and share critical information.

Tools & Integrations

Vertex AI



Timeline to Deploy

2-3 weeks from kickoff

Data Services Solution

A screenshot of a web page titled "Data Driven Services" with a chatbot overlay. The page content includes a breadcrumb trail: "Office of Management and Enterprise Services (090) > Divisions > Information Services > Data > Data Driven Services". The main heading is "Data Driven Services" with an orange arrow icon. Below the heading, there is a paragraph: "OMES Data-Driven Services is dedicated to supporting Oklahoma State agencies with data management tools, platforms and services. The team provides:" followed by a bulleted list: "• State Data Platform management and oversight", "• Data solutions through business intelligence, data science, and reporting and analytics", and "• Database administration, data storage management, data modernization, and data archival". Another paragraph follows: "Data-Driven Services helps state agencies find the latest data management and technology tools to align with agency priorities and initiatives. The result is an even more efficient, transparent and accountable state government." There are two links: "View announcements" and "please contact the OMES Data-Driven Services." The chatbot overlay is titled "Oklahoma Conversational AI" and contains the text: "I am the virtual assistant for the State of Oklahoma, Data Services. How can I help you today?" with several example questions in bubbles: "How do I connect the data from various state agencies?", "Need a new Database?", "What does Data Services do?", and "Can you list the services provided by OMES Data Services?". At the bottom of the chatbot is an input field "Ask something..." and a blue close button.

Link to Chatbot

[OMES Data Services Page](#)

Virtual Agents



Virtual Agent – Ready to Deploy

Virtual agents, also known as intelligent virtual assistants, are AI-driven programs designed to interact with users in a natural, conversational manner. They leverage advanced technologies, such as natural language processing, machine learning and artificial intelligence to understand and respond to user queries effectively.

Vendor	Tool / Technology	Tech Stack	Cost Model	Time to Implementation	Procurement Vehicle	User Experience
AWS	Virtual Agent	Amazon Q	TBD – Consumption Model	2-4 weeks	IA SOW (OMES effort)	Virtual Agent Searchability
Microsoft	Virtual Agent	PubSec Information Assistant	Starting at \$830/m. Consumption Model.	TBD	IA SOW (OMES effort)	Virtual Agent Searchability

Benefits include:

- 24/7 Availability
- Efficient
- Scalable
- Consistency
- Cost Effective



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Case Study: Executive Order Virtual Agent

Problem Statement: Create an intuitive, executive-facing tool to easily understand and search Oklahoma EOs

Project Overview

OMES Executive Leadership recognized the need for a more efficient way to access executive orders. They engaged OMES Data Services to develop a tool that leverages emerging technologies, including GenAI, to meet this need. The goal was to create a ChatGPT-like experience that provides a state executive-friendly, conversational interface.

This tool enhances accessibility, efficiency and informed decision-making.

Tools & Integrations

Azure AI Search



Azure OpenAI



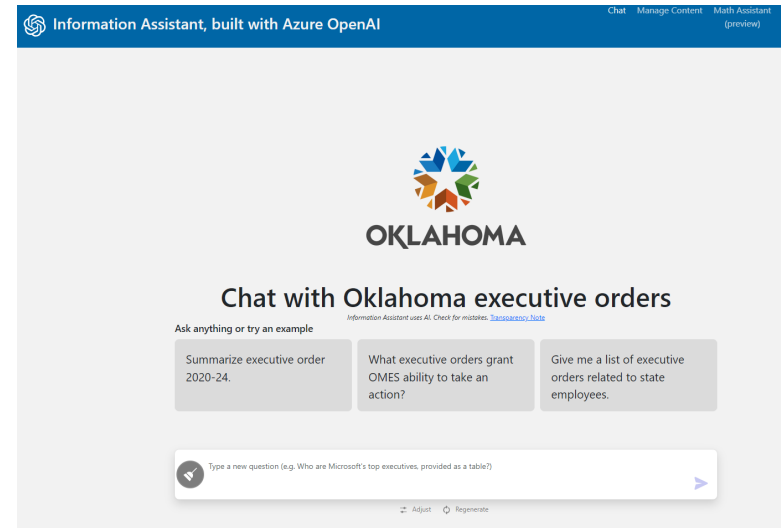
Azure OpenAI



Timeline to Deploy

2-4 weeks from kickoff

Data Services Solution



Tool Solution

OMES Data Services has developed a sophisticated virtual agent using Microsoft Power Virtual Agents. This tool is designed to help executives effortlessly search, access and comprehend executive orders issued by the State of Oklahoma, enhancing accessibility, efficiency and decision-making.

This tool uses natural language processing, search functionality, includes a user-friendly interface and boasts integration with the Microsoft ecosystem

Vision and Document AI



Vision AI and Document AI – Ready to Deploy

This is a revolutionary technology to manage and access visual and textual information through advanced Vision AI and Document AI technologies, including optical character resolution (OCR). Vision AI can assist with image recognition, OCR integration, data governance (tagging and metadata), and facial recognition. Document AI helps with automated document processing, enhanced search and retrieval, real-time analysis and digital archiving.

Vendor	Tool / Technology	Tech Stack	Cost Model	Time to Implementation	Procurement Vehicle	User Experience
Google	Vision AI	Cloud Vision API	TBD – Consumption Based	8-12 weeks POC	IA SOW (OMES) SW1050 (Vendor)	Photo/Video data extraction
Google	Document AI	Cloud Vision API	TBD – Consumption Based	8-12 weeks POC	IA SOW (OMES) SW1050 (Vendor)	Document data extraction
AWS	Textract	ML, AWS Services	TBD – Consumption Based	8-12 weeks POC	IA SOW (OMES) SW1050 (Vendor)	Document data extraction

Vision AI Benefits include:

- Image recognition
- OCR integration
- Real-time image analysis
- Automated tagging and metadata
- Facial recognition

Document AI Benefits include:

- Efficiency
- Productive document search
- Better decision-making
- Accessibility



Case Study: ODOT Leverages Vision AI for Image Recognition

Problem Statement: Drive efficiencies with Vision AI technology for manual processes

Project Overview

ODOT leadership communicated a business opportunity to automate the manual process of reviewing images YOY evaluating deterioration in pavement markings, missing or damaged signs, guardrails, Light Poles, and Rumble Strips.

They engaged OMES Data Services to create a solution that not only allowed them to automate this manual process but also increase response time to critical road issues.

Tools & Integrations

Cloud Vision



Vertex AI



Timeline to Deploy

8-12 weeks from kickoff

Data Services Solution



Tool Solution

OMES Data Services developed a robust image recognition model focused on precision and reliability. This tool utilized Optical Character Recognition (OCR) to extract latitude and longitude as well as a systematic geospatial mapping to visually represent YOY change.

Case Study: ODOT Leverages Document AI for Content Management

Problem Statement: Drive efficiencies and cost savings with Document AI for manual processes

Project Overview

ODOT and OTA have a vast library of documents describing warranty deeds and easements. At present, when information is needed, a technician needs to look up the document manually in their document repository. However, to increase public transparency and improve efficiency, this archive needs text extracted with Optical Character Recognition (OCR) and for the descriptions of easements turned into a GIS feature class. This will enable a public map and dashboard where people can examine the record.

Tools & Integrations

Document AI



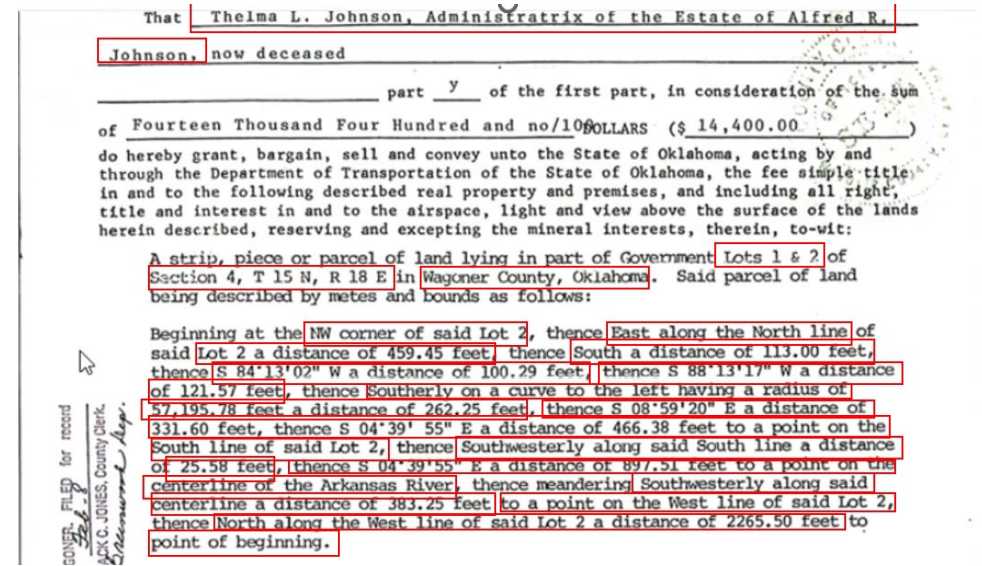
Vertex AI



Timeline to Deploy

4-6 weeks from kickoff

Data Services Solution



Tool Solution

OMES Data Services performed Optical Character Recognition (OCR) to extract text from the document archive, performed text analytics against the extract to generate metadata, and extracted the easements descriptions that was used to power a public map and dashboard for users to view the records.

Code Assistance



Code Assistance – Ready to Deploy

Code assistance tools, such as GitHub Copilot and Gemini Code Assist, leverage AI and machine learning to enhance the coding experience, boosting productivity and ensuring higher code quality and standardization. These tools provide real-time code suggestions and completions, helping developers write code faster and with fewer errors. Additionally, they enable seamless collaboration by ensuring consistency across the codebase, making it easier for teams to work together effectively.

Vendor	Tool / Technology	Tech Stack	Cost Model	Time to Implementation	Procurement Vehicle	User Experience
Github	Copilot	OpenAI Codex, Azure, OpenAI API	\$39/month per user	2 weeks	TBD	Efficient and intuitive coding
Google	Gemini Code Assist	Visual Studio Code	\$19/month per user (Requires upfront annual commitment)	2 weeks	TBD	Efficient and intuitive coding

Benefits include:

- Faster Development Cycles
- Faster Onboarding
- Error Reduction
- Best Practices
- Consistent Code
- In-Context Learning



Getting Started with Emerging Technologies

Ready to Get Started with Emerging Technologies?

Please reach out to the Data Services team to get started with Emerging Technologies or submit a Project Initiation Request:

Tristan Kilgore – State Data Strategy Manager

Tristan.Kilgore@omes.ok.gov

Caleb Koehn – Technical Product Owner

Caleb.Koehn@omes.ok.gov

Project Initiation Request Form – [LINKED HERE](#)

Thank You

