Generative AI Landscape, Use Cases & Applications

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Agenda

Where we are Today
Introduction to generative AI, the Microsoft Copilot ecosystem, Azure AI portfolio, our commitment to Responsible AI and Protecting your Data

Models & Capabilities
What is behind the scenes? Overview of Azure OpenAI Service and its cutting-edge models, features and solutions with other Azure AI Services

Use Cases
Top use cases for generative AI including industry highlights and highly requested customer scenarios

Sample Architecture
Example diagrams showcasing select use cases and scenarios featuring Azure OpenAI Service integrated with other Azure AI Services

Customer Inspiration
Publicly available Azure OpenAI Service customer stories featuring a wide range of use cases and company types

The journey continues with generative AI

Artificial Intelligence

Machine Learning

Deep Learning

Generative AI
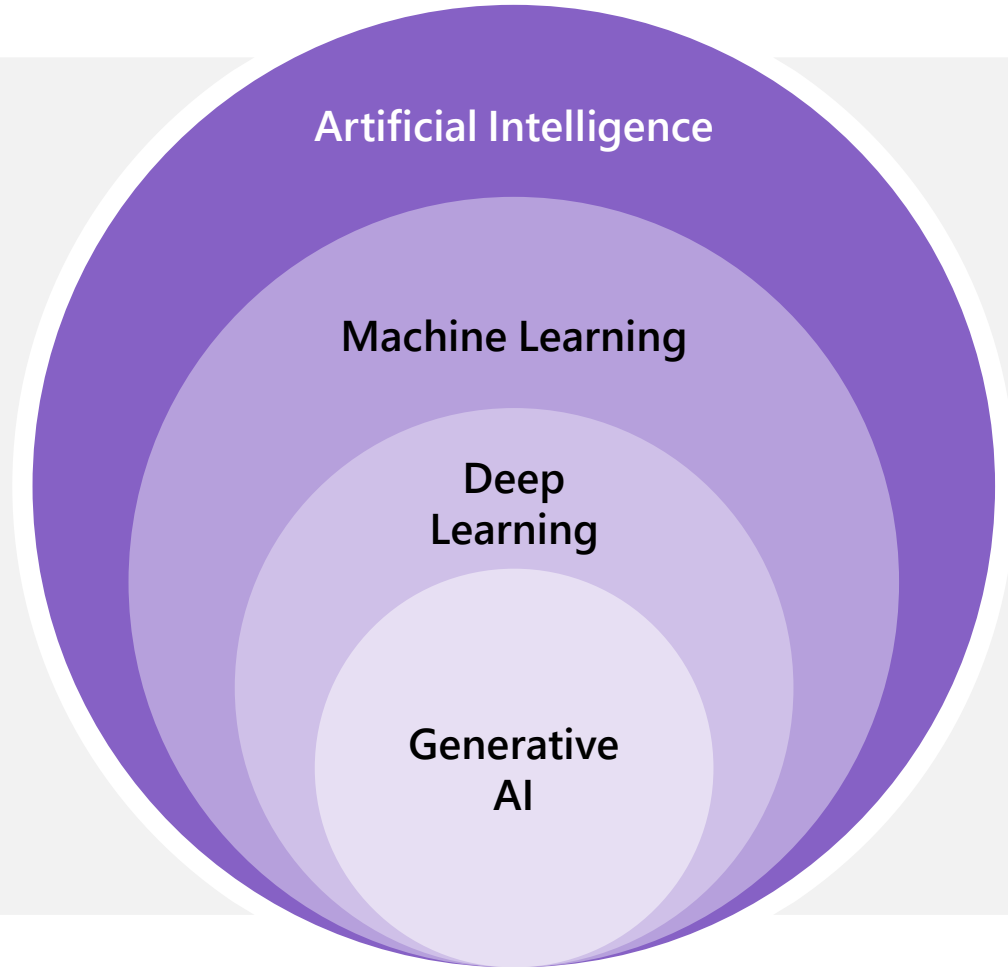
1956 — **Artificial Intelligence**
The field of computer science that seeks to create intelligent machines that can replicate or exceed human intelligence.

1997 — **Machine Learning**
Subset of AI that enables machines to learn from existing data and improve upon that data to make decisions or predictions.

2012 — **Deep Learning**
A machine learning technique in which layers of neural networks are used to process data and make **decisions.**

2021 — **Generative AI**
Create new written, visual, and auditory content given prompts or existing data.

GPT-4 Turbo – The most powerful Generative Model to date

- GPT-4 Turbo can process a much larger amount of text than GPT-4, with a 128k context window (the equivalent of 300 pages of text in a single prompt).

- GPT-4 Turbo has an updated knowledge cutoff of April 2023, which means it can generate more relevant and up-to-date responses based on the latest information.

- GPT-4 Turbo is also more cost-effective than GPT-4, as it costs 3X less for input tokens and 2X less for output tokens.

- GPT-4 Turbo also supports Vision, which enables it to accept images as inputs and generate captions, analyses, and document readings.

We are inspired by our customers

Microsoft is powered by Azure AI

Applications

Microsoft 365   Microsoft Dynamics 365   Partner Solutions

Application Platform
AI Builder

Power BI   Power Apps   Power Automate   Power Virtual Agents

Scenario-Based Services

Bot Service   Cognitive Search   Document Intelligence   Video Indexer   Metrics Advisor   Immersive Reader

Customizable AI Models

Vision   Speech   Language   Decision   Azure OpenAI Service

ML Platform

Azure Machine Learning

A copilot for every Microsoft Cloud experience

Microsoft 365 Copilot
Empower everyone with a copilot that works alongside you

Dynamics 365 Copilot
Specialized copilots for every role and function

Copilot in Power Platform
Imagine it, describe it, and Power Platform builds it

Microsoft Security Copilot
Defend at machine speed with Microsoft Security Copilot

Windows Copilot
The first centralized AI assistance on a platform

GitHub Copilot
Increase developer productivity to accelerate innovation

Amplifying human ingenuity with a copilot for everyone

	Solution Area	Copilot	Availability	Blog	Video
	Modern Work	Microsoft 365 Copilot	Early Access Program	LINK	Outlook: LINK Teams: LINK PowerPoint: LINK Word: LINK Excel: LINK
		Bing Chat Enterprise	Public Preview	LINK	LINK
		Windows Copilot	Windows Insider Preview	LINK	LINK
	Business Applications	Copilot in Power Apps	Public Preview	LINK	LINK
		Copilot in Power Automate	Public Preview	LINK	LINK
		Copilot in Power Virtual Agents	Varies by Capability	LINK	LINK
		Microsoft Sales Copilot	Public Preview	LINK	LINK; Guided: LINK
		Copilot in Dynamics 365 Customer Service	Public Preview	LINK	LINK
		Copilot in Dynamics 365 Customer Insights	Public Preview	LINK	Guided 1: LINK; Guided 2: LINK
		Copilot in Dynamics 365 Business Central	Public Preview	LINK	LINK
		Copilot in Dynamics 365 Supply Chain Center	Public Preview	LINK	LINK
	Digital & App Innovation	GitHub Copilot	Generally Available	LINK	LINK
		GitHub Copilot X	Private Preview	LINK	LINK
	Data & AI	Copilot stack with Azure AI	Generally Available	LINK	LINK
		Copilot in Power BI	Private Preview	LINK	LINK
		Copilot in Microsoft Fabric	Private Preview	LINK	LINK
	Security	Security Copilot	Private Preview	LINK	LINK

It's time to develop your own custom copilots
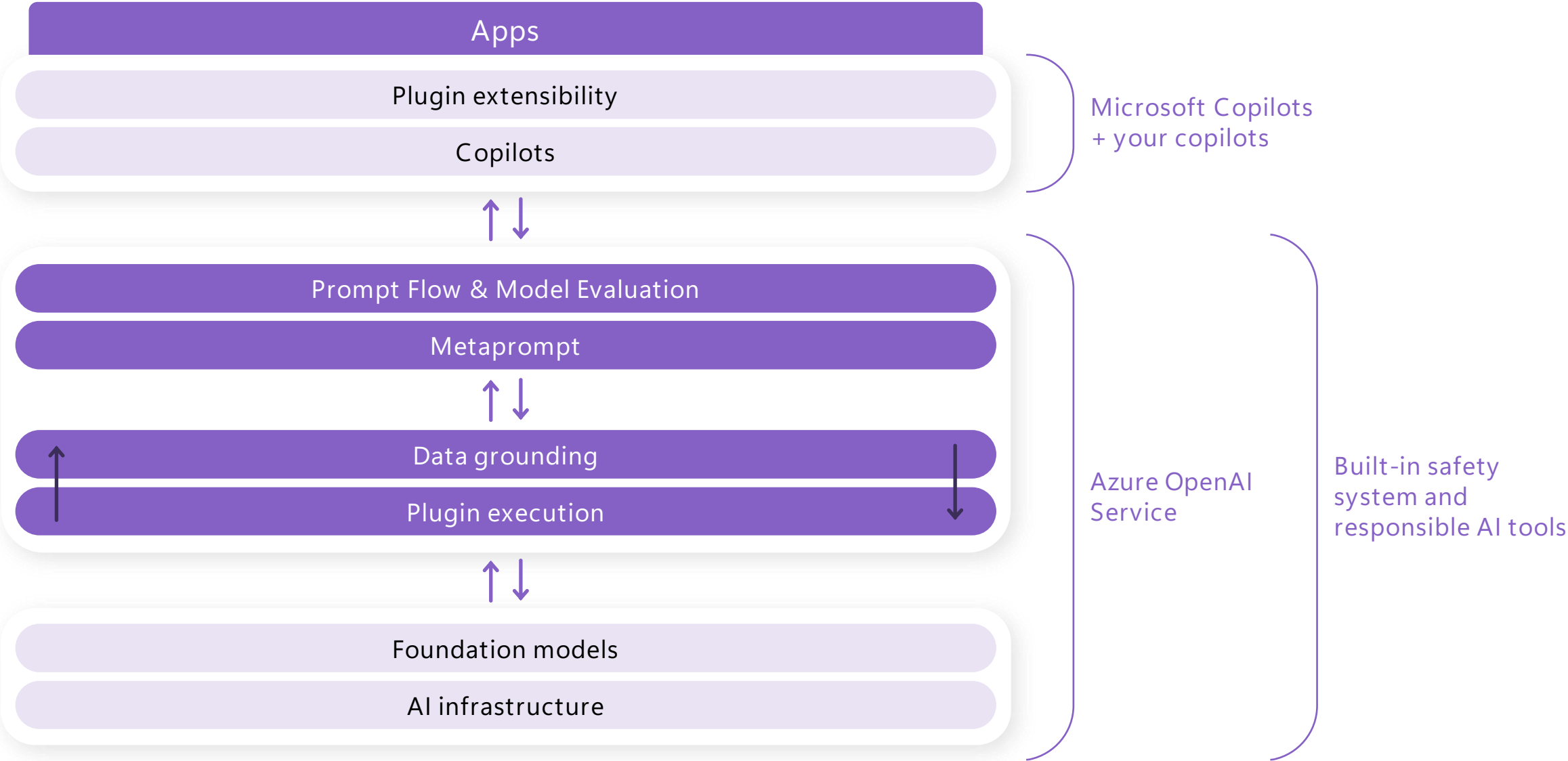
You can have confidence when using Azure OpenAI Service

When you use Azure OpenAI Service, your prompts (inputs) and completions (outputs), your embeddings, and your training data

Are NOT available to other customers.

ARE NOT available to OpenAI.

Are NOT used to improve OpenAI models.

Are NOT used to improve any Microsoft or 3rd party products or services.

Are NOT used for automatically improving Azure OpenAI models for your use in your resource (The models are stateless, unless you explicitly fine-tune models with your training data).

Your fine-tuned Azure OpenAI models are available exclusively for your use.

The Azure OpenAI Service is fully controlled by Microsoft; Microsoft hosts the OpenAI models in Microsoft's Azure environment and the Service does NOT interact with any services operated by OpenAI (e.g., ChatGPT, or the OpenAI API).

Models and Capabilities

GPT-4 & GPT-4 Turbo

The next level in text generation with improved alignment

Generate complex documents

Steer with nuanced instructions

Instruct and annotate in any language, slang, dialect

Azure OpenAI Service

GPT-4 **GPT-4-Turbo** **GPT-3.5-Turbo** **DALL·E**

Generative Text Models, with varying capabilities and uses

Generative Image Model

Deploy on your own data

Provisioned throughput model

Functions and Plugins

Generative AI + Document Intelligence

The next level of document intelligence integrated with Azure OpenAI Service

Extract Structured and Unstructured Data

Summarize Content

Generate Summaries

Whisper

The next level
in transcription and
translation

Transcribe

Translate

Azure AI Studio

- Build and train your own models
- Ground Azure OpenAI Service and OSS models using your data
- Built-in vector indexing
- Retrieval augmented generation made easy
- Create prompt flows
- AI safety built-in

Azure OpenAI Service on *your* data

App or Copilot agent

API & SDK

Azure OpenAI Service on your data

Data Sources
(search, files, databases, storage etc.)

Additional 3P Data Sources
(files, databases, storage data etc.)
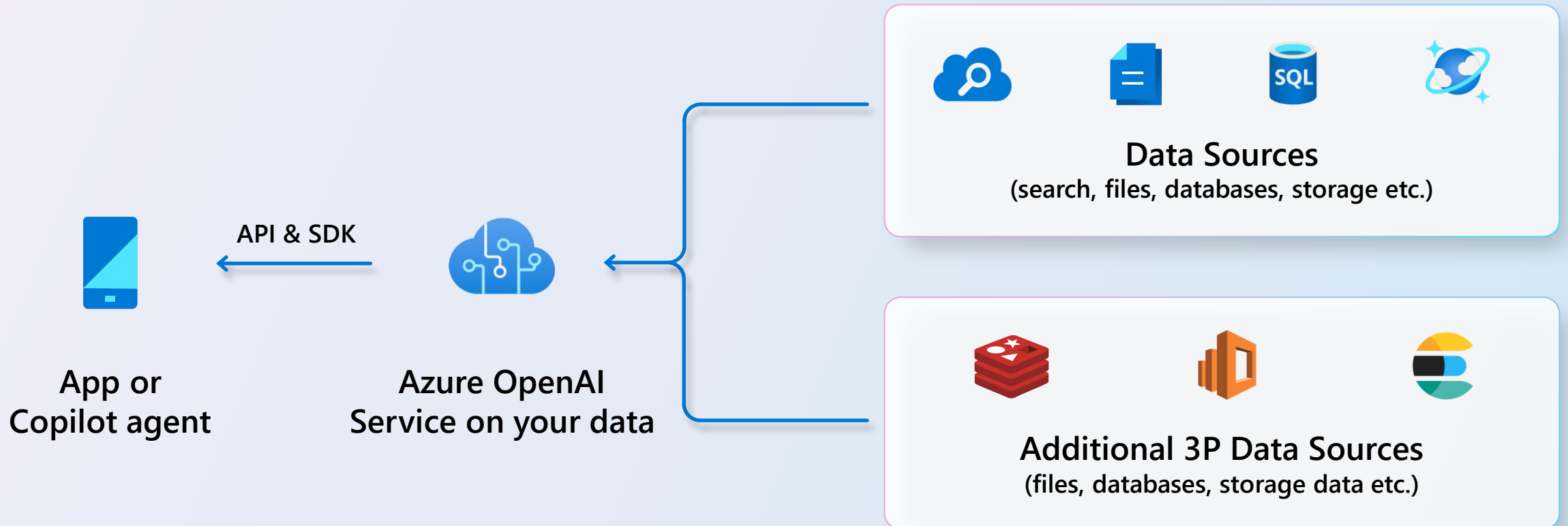
Use Cases & Customer Requests

Introduction to top use cases

Business Problem	Productivity is lagging	Need for process Automation	Degraded Customer Experience	Creating Content is Time Consuming
Business Needs	Increase Productivity	Automate Processes	Improve Customer Experience	Build Creative Content
Solutions	• Conversational Search/Knowledge Insights • Code Generation and Documentation • Trend Forecasting • Report Summarization & Generation	• Document Processing • Workflow Management • Fraud Detection • Supply Chain Optimization	• Intelligent Contact Center • Agent/Employee Assistance • Virtual Assistance • Call Analytics • Call Summarization	• Marketing/Sales Content Generation • Personalized Content Generation • Product Design & Development • Digital Art

What can Generative AI Do?	Generate New Revenue Streams Deliver Differentiated Customer Experiences Modernize Internal Processes

Top capabilities and scenarios

1.0

| Content generation | Summarization | Code generation | Semantic search |

Examples of advanced use cases

2.0

Telecommunications

Media Workflows, Cross Content Linking, Content Creation for Media, Speech Analytics, Analytics for B2C Contact Center, Cognitive Contact Center, Skilling Automation, Realtime Speech Transcriptions & Summarization

Manufacturing & Industrials

ChatGPT Enabled Technical Support, Customer Sentiment Analysis, Customer Service Knowledge Mining, Digital Proposal Assistant, Customer Journey Analytics, Consumer Insights Advanced Analytics, Records Summarization, Anomaly Detection, Virtual Agents with Copilot

Automotive, Mobility & Transportation

Marketing Content Generation, Contextual Contact Center, Customer Feedback Loop, Smart Incident Manager, Customer Comms, Text Summarization & Analytics

Customers Bringing it to Life

STRABAG — Coca-Cola — KPMG — Icertis — ODP — CARMAX — zammo.ai

Industry Trends 1/3

Industry	Azure OpenAI Top Patterns	Public References
Automotive, Mobility & Transportation	**Contact Center** – Extract rich insights from call transcripts. E2E Call Center analysis: Classification, sentiment, summarization and email generation. Automatically generate responses to customer inquiries. Summary of customer support conversation logs. Improved customer satisfaction. Improve time to resolution.	CARMAX
	Smart Virtual Agents/Customer & Employee Communication – Intelligent automated responses to customers and employees through the value chain. Generate human-like responses for live chat/voice applications.	BMW Group
	Automated Documents Processing – Automate Invoice processing for large volumes using Microsoft Cognitive Services, and Azure OpenAI.	
	Incident Reporting & Prediction – Text summarization and pattern recognition to automatically generate reports on equipment and process failures, etc. Generate automated responses and notifications.	
	Automated Content Generation – Generative AI can be used to automatically generate content on a variety of topics, saving time and money for content creators. Generate more relevant content with summarization. Improve SEO (search engine optimization).	
Financial Services	**Contact Center** – Extract rich insights from call transcripts. E2E Call Center analysis: Classification, sentiment, summarization and email generation. Automatically generate responses to customer inquiries. Summary of customer support conversation logs. Improved customer satisfaction. Improve time to resolution.	AMERICAN FIDELITY _a different opinion_
	Smart Virtual Agents/Customer & Employee Communication – Intelligent automated responses to customers and employees through the value chain. Generate human-like responses for live chat/voice applications.	nationale nederlanden
	Automated Documents Processing – Ability to ingest forms and other unstructured data as part of an automated workflow, supporting Claims and other areas of the business using Microsoft Cognitive Services, and Azure OpenAI. Digitize documents, extract key information through Semantic or Cognitive Search and summarize (financial document summarization, RFI/RFPs processing, etc.).	

Industry Trends 2/3

Industry	Azure OpenAI Top Patterns	Public References
Manufacturing & Industrials	**Contact Center** – Extract rich insights from call transcripts. E2E Call Center analysis: Classification, sentiment, summarization and email generation. Automatically generate responses to customer inquiries. Summary of customer support conversation logs. Improved customer satisfaction. Improve time to resolution. **ChatGPT Enabled Technical Support** – Contextual human like responses to customers' technical questions and inquires with better recommendations based on internal and external content databases. **Customer Service Knowledge Mining** – Ingest unstructured and structured data and draw better insights around key issues and patterns. **Anomaly Detection** – Provide NLP queries on the vision anomalies and causes. Use Synthetic Imaging to augment baseline ML training image volumes to improve ML accuracy. Improve quality insurance pass rates and reduce operational costs by catching anomalies faster, reducing amount of inventory that needs to be scrapped. **Virtual Agents with Copilot** – Intelligent automated responses to customers and employees through the value chain. Generate human-like responses for live chat/voice applications.	**STRABAG**
Telecommunications	**Contact Center** – Extract rich insights from call transcripts. E2E Call Center analysis: Classification, sentiment, summarization and email generation. Automatically generate responses to customer inquiries. Summary of customer support conversation logs. Improved customer satisfaction. Improve time to resolution. **Cross Content Linking** – Ingest content for different sources in various formats to improve knowledge mining and draw better insights. **Content Creation for Marketing/Media** – Generate marketing emails automatically based on personalized customer 360 information. **Realtime Speech Transcriptions & Summarization** – Perform entity extraction and generate summaries of audio transcripts.	AT&T

Industry Trends 3/3

Healthcare & Life Sciences

Streamline administrative tasks
Azure OpenAI Service can be used to automate administrative tasks such as scheduling, patient registration, and insurance verification, freeing up healthcare staff to focus on patient care.

Improve supply chain management
Healthcare providers can use Azure OpenAI Service to help analyze data and help optimize inventory levels of medical supplies, reducing waste and ensuring that essential supplies are always available when needed.

Predictive maintenance of medical equipment
Azure OpenAI Service can help monitor the performance of medical equipment enabling healthcare providers to predict when maintenance is needed and prevent unexpected downtime.

Automated medical coding
Azure OpenAI Service can be used to automatically analyze medical records and recommend medical codes for billing and reimbursement purposes, reducing errors and improving efficiency.

Enable data insights
By analyzing large amounts of data, Azure OpenAI Service can help healthcare providers identify patterns that enables more informed decisions about their practice.

Fraud detection
Healthcare providers can use Azure OpenAI Service to detect fraudulent insurance claims. Providers can use machine learning algorithms to analyze large volumes of data and identify patterns that indicate potential fraud. By detecting fraudulent claims early, healthcare providers can prevent losses and protect patients from unnecessary treatments.

Epic Epic brings GPT-4 to Electronic Health Records

- *We are working closely with Epic to integrate & modernize Electronic health records with GPT-4.*
- *Two-way impact: 1) less time at keyboard entering information and 2) help investigate data in a more conversational way.*

On Your Data – Use Cases

Use Cases	Use Case Details	Value	Customer Signals
B2C & B2B Chatbot	Enable customers to self-serve data requests directly from an authorized company knowledge base	Customer Service, Revenue, Productivity, Image	Piraeus Bank, Eurobank, H&M, Clifford Chance, Dealogic, HP, Mr. Cooper
Employee Chatbot	Increase employee productivity by reducing the amount of time needed to find critical information in the company's collective knowledgebase – could also free up internal tech support queues	Productivity	Vattenfall, Robert Bosch, PepsiCo, Johnson Controls, Novelis, Caterpillar, Dell, Lazard, Takeda, Nat'l Bank of Canada, Fujitsu, Emerson, Caisse de depot et placement du Quebec, CDPQ, BDO USA, AstraZeneca, Focal Front, Wipro
Product & Facility Documentation	Making libraries of product and facility documentation available to employees, customers, and other stakeholders	Productivity, Decision-making	Hitachi Solutions, Shaw Industries, Emerson, Komatsu
Agent Assist	Improve agent interactions with customers with live access to company data	Customer Service, Productivity	Lexmark, Avanade
Document Intake/Indexing	Easily add documents to the company's collective knowledgebase for future retrieval	Productivity	Johnson Controls
Legal Review	Quick access to legal insights from existing and upcoming legislation to properly advise clients	Decision Making, Productivity	KBC Group, Clifford Chance
Financial Analysis	Tap into internal and external financial data resources to improve analytical insights	Decision Making, Productivity	Jabil, Sogeti, Hubbell, CDPQ
Marketing Insights	Tap into internal and external resources to accurately reply to internal and external requests	Decision Making, Accuracy, Productivity	HP, Hitachi Solutions
Software Development	Translate meeting notes into requirements	Productivity, Time-to-Market	Sogeti
HR Bot	Simplify complex policies and procedures	Employee Satisfaction	Sogeti
Customer Management	Tap into call logs to harvest customer sentiment and insights (churn propensity, purchase candidates, etc.)	Productivity, Revenue, Customer Service	Trinity Industries, SCIEX
Industry/Competitive Insights	Tap into publicly available resources to gain insights on the industry and competitors	Productivity, Strategy	The Andersons

Accessibility & Inclusion

Chat or Copilot Experience	Code Generation	Voice Input	Image Generation

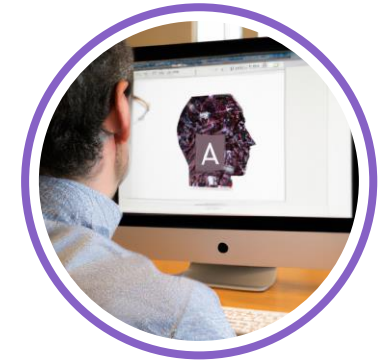Natural language interfaces can assist everyone with their unique needs

Makes developing code more inclusive and easier for all users

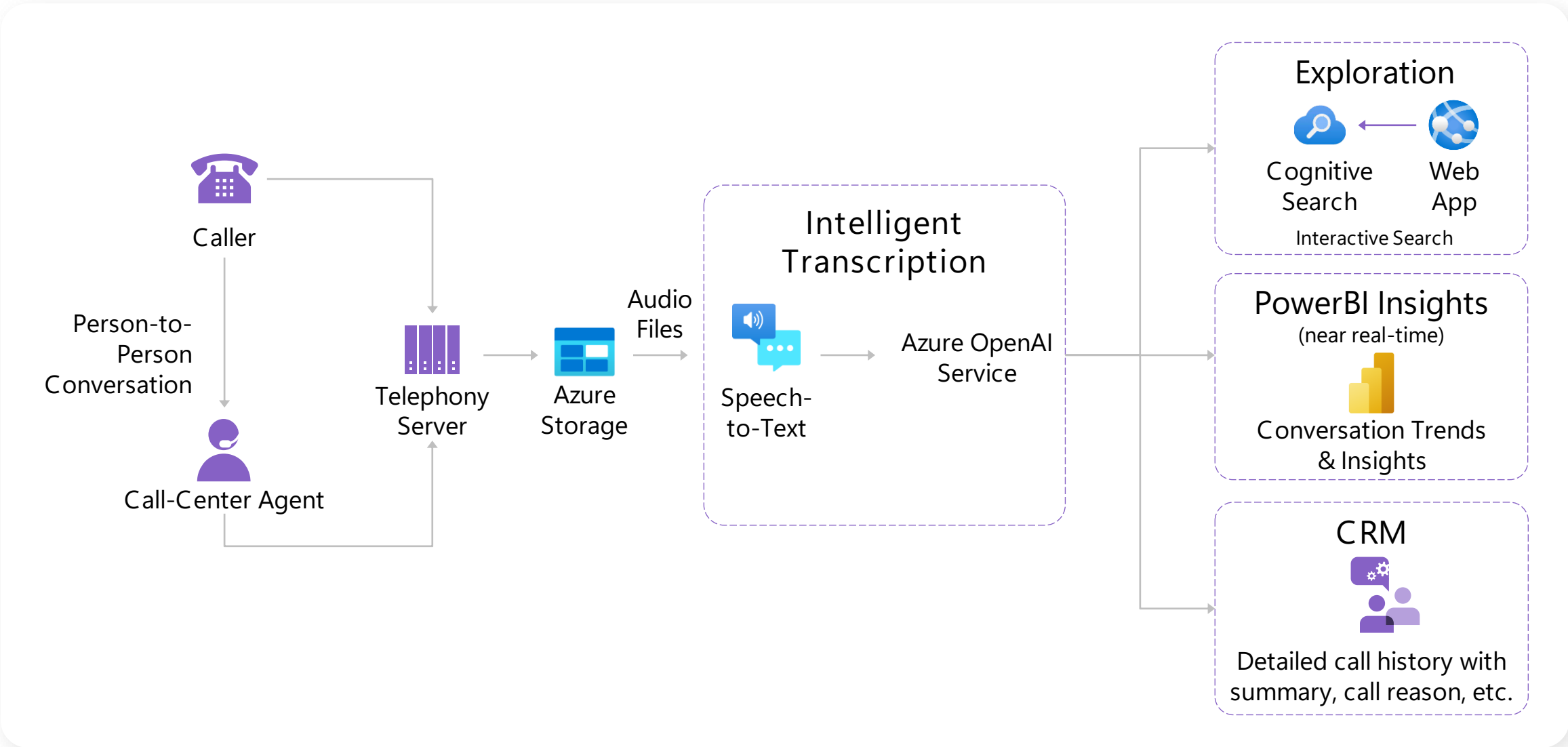Makes services easier for people with mobility disabilities and those on the go

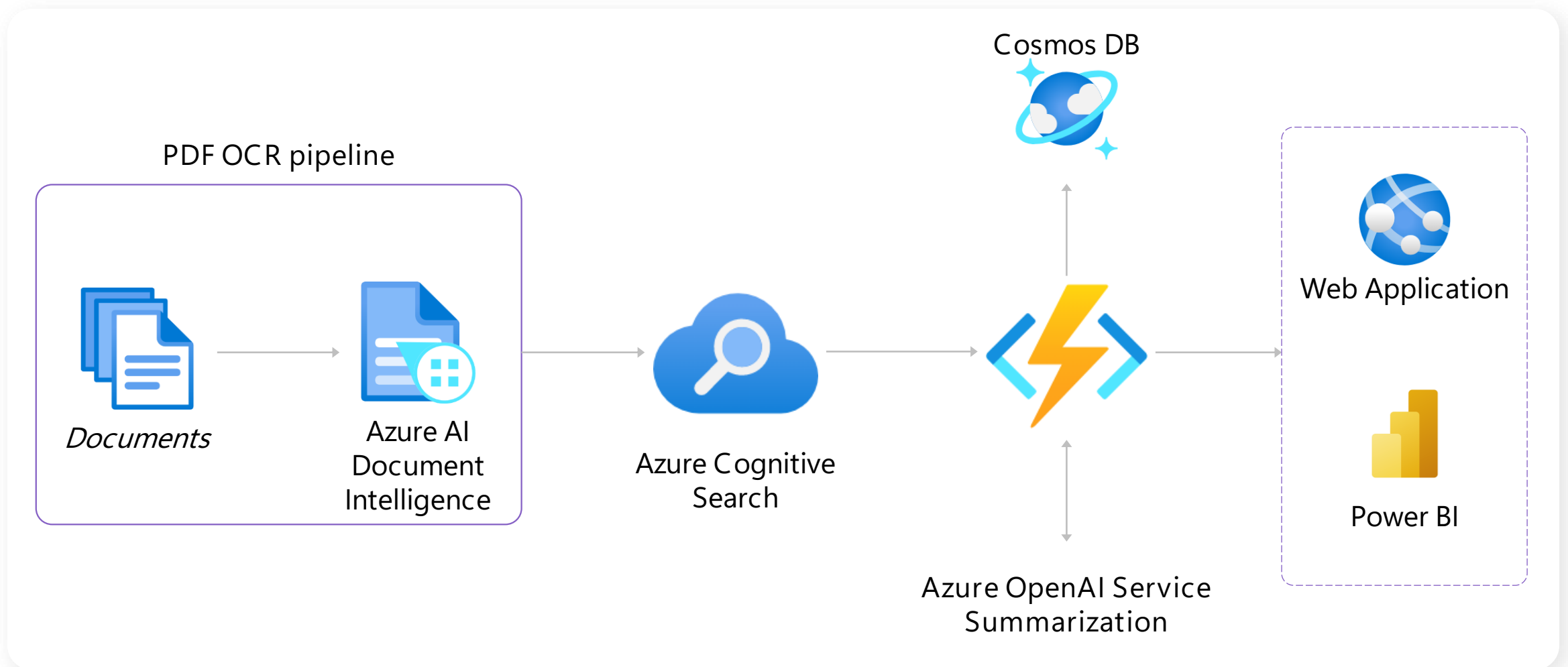Makes content generation easier for all and more accessible to people with vision disabilities
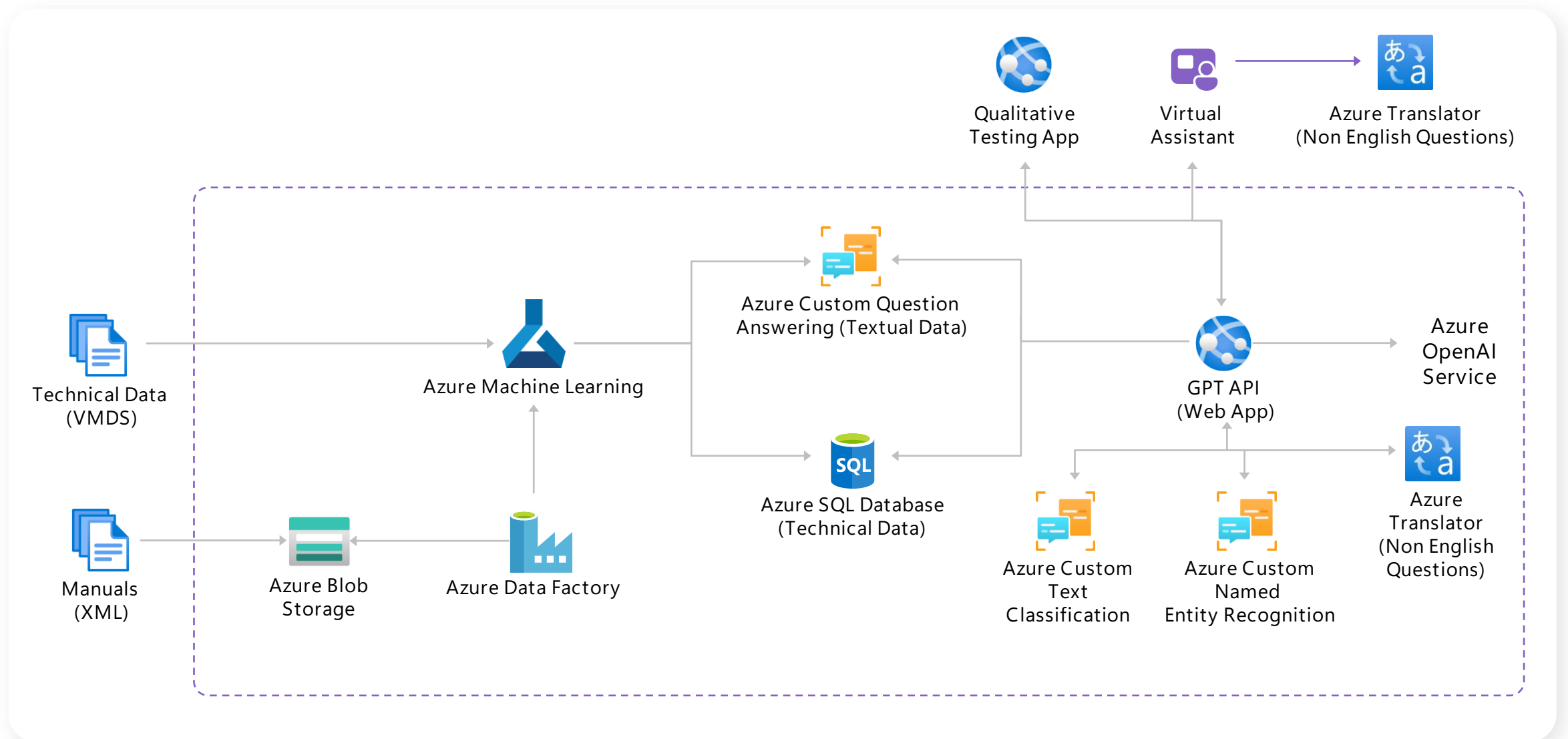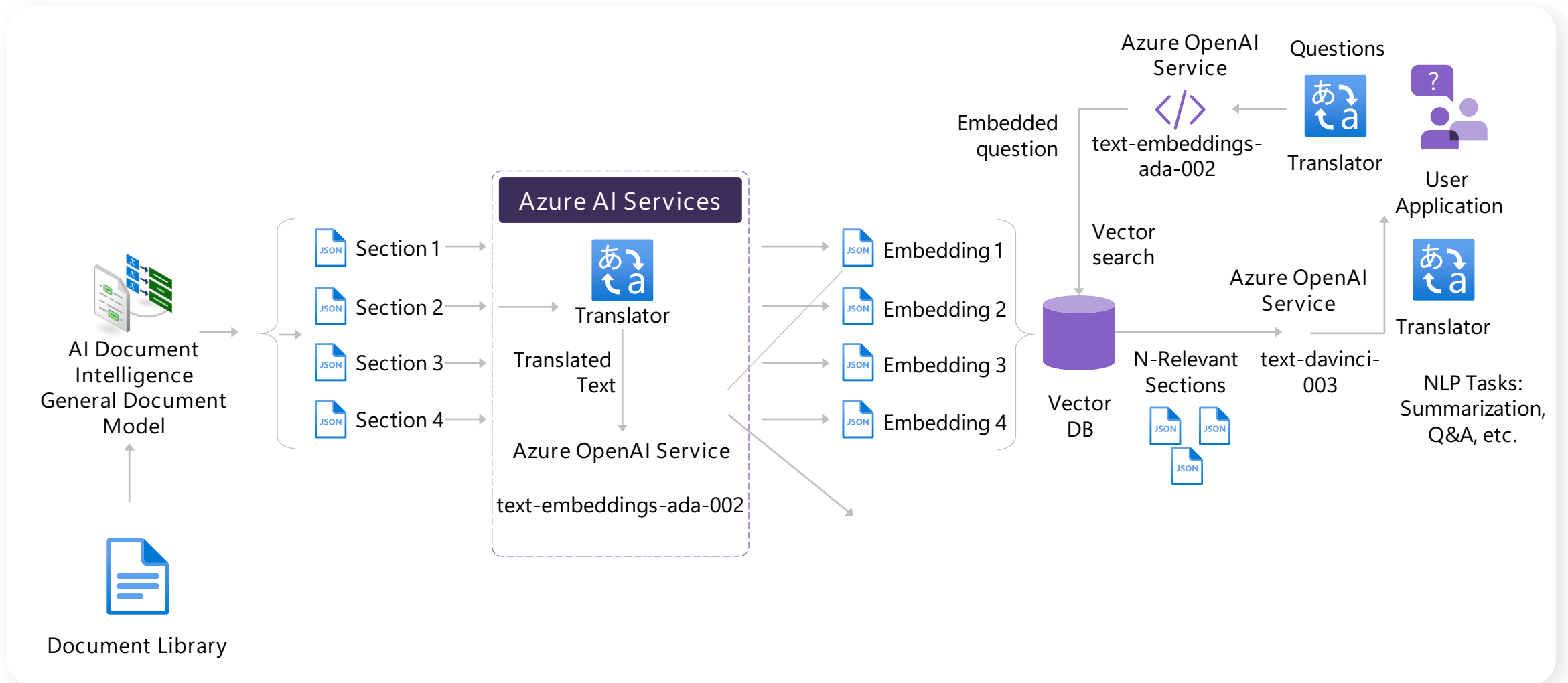
AOAI+

Contact Center Analytics

Document processing and summarization

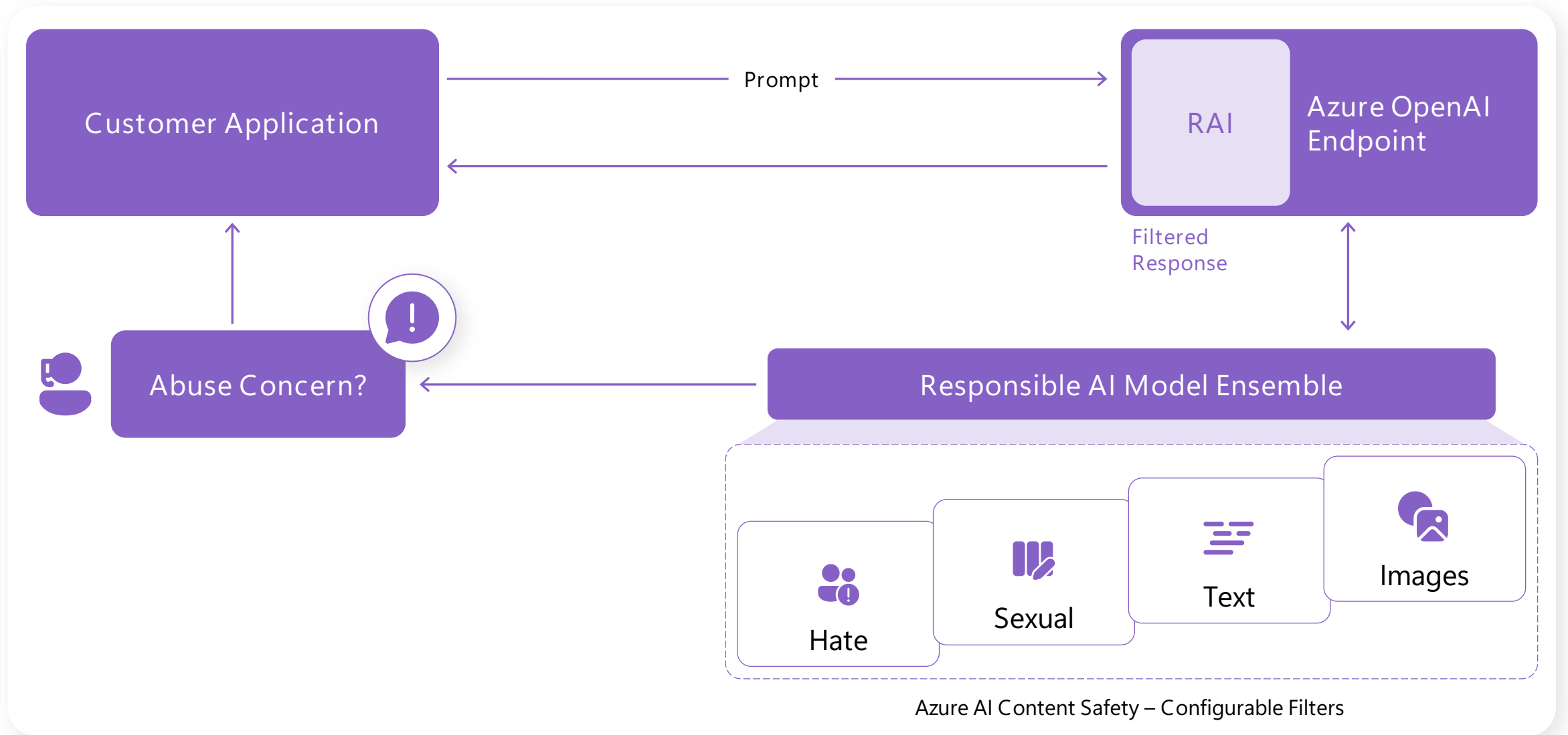# Virtual Assistant

Document Embedding with Translation

Responsible AI in Azure OpenAI Service

Customer Application

Prompt →

RAI — Azure OpenAI Endpoint

Filtered Response

Abuse Concern?

Responsible AI Model Ensemble

Hate   Sexual   Text   Images

Azure AI Content Safety – Configurable Filters
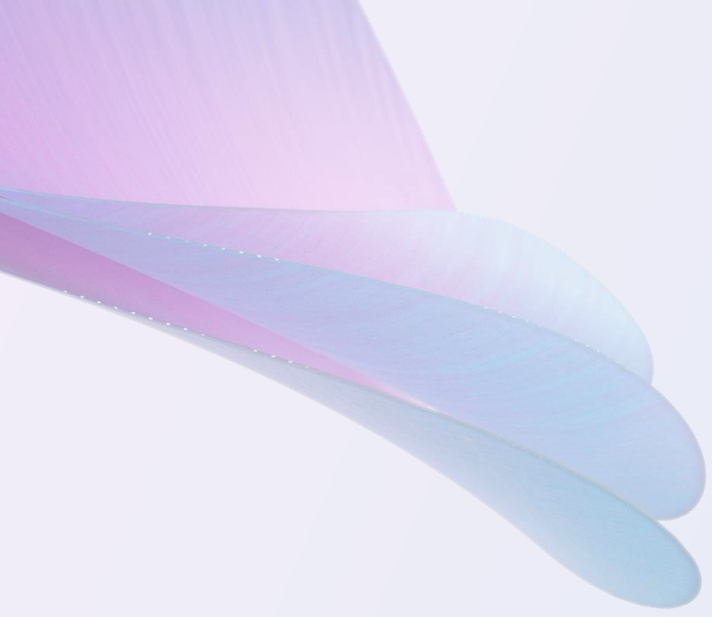
Customer Inspiration

CARMAX®

Content Generation & Summarization

Customer:
CarMax

Industry:
Retailer

Size:
10,000+ employees

Country:
United States

Products and services:
Azure AI
Azure OpenAI Service

Read full story here

"

With the help of Azure OpenAI Service, we're disrupting our industry for a second time by delivering cutting-edge digital tools and capabilities and becoming a true omnichannel retailer."

— **Shamim Mohammad, Executive Vice President and Chief Information and Technology Officer, CarMax**

Situation:

With 45,000 cars in its inventory, CarMax needed a fast and efficient way to analyze customer reviews and provide brief, meaningful summaries for each model that would aid potential purchasers and boost the pages' search engine rankings.

Solution:

After choosing to work with OpenAI, CarMax migrated to OpenAI Service to take advantage of the scalability, security, and Responsible AI features it provides.

Impact:

CarMax was able to produce the equivalent of 11 years' worth of car summaries in a matter of months, freeing editorial staff to focus on more substantive content, providing customers with valuable insights, and successfully boosting search rankings.

Microsoft

Make My Trip is using Azure OpenAI powered chat to bring their services to a broader Indian audience

"It will open the industry to new audiences – the next 100-200 million users in India – who are not very comfortable with English but are fluent in their language, and who are more comfortable interacting with voice than navigating a complex app on their phone.

It will also improve accessibility for users with disabilities who are unable to use an app effectively."

Generative AI can make travel services more accessible to millions of Indians: Sanjay Mohan, Group CTO, MakeMyTrip - Microsoft Stories India

Jugalbandi chatbot – AI4Bharat and Microsoft India

Jugalbandi is an AI assistant offering Indians access to government information via voice-based chat.

The service is available in 10 of India's 22 languages via custom language models trained on AzureML

Azure OpenAI Service powers chat, fine-tuned with Indian government data

Voice based experiences in local languages provides broader inclusivity to government information.

With help from next-generation AI, Indian villagers gain easier access to government services - Microsoft Stories India

Viettel & Microsoft Cooperation

Viettel hợp tác cùng Microsoft nâng cao năng lực ứng dụng Cloud
và AI tại Việt Nam - Viettel (vietnam.vn)

Thank you