

ArcGIS & AI

Thomas Gassner & Leslie Jessen & Gerhard Trichtl

SynerGIS

*2026 ESRI USER CONFERENCE AUSTRIA
– powered by SynerGIS*



AI and ArcGIS:

Creating a More Intelligent World
Through Geospatial AI

*Advancing the science, experience
and impact of GIS*

What Value Does AI Bring to ArcGIS?

It helps organizations:

- Extract information at scale
- Understand patterns and relationships
- Make GIS easier to use
- Automate multi-step workflows
- Bring geography into enterprise AI systems

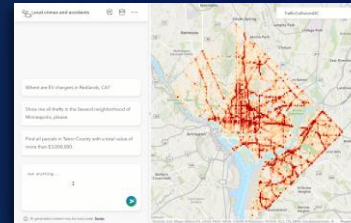
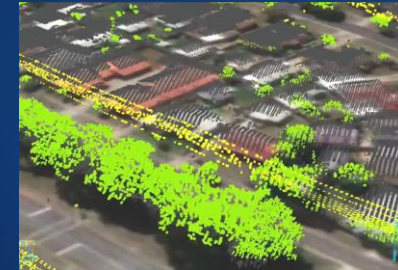
Automated
Data Creation



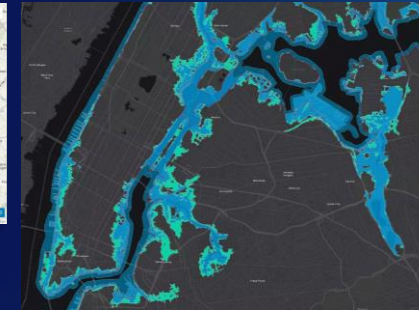
Automated Data Conversions



Automated Analysis



Productivity & Efficiency



Accurate Predictions



Automated Insights



EXTRACT → UNDERSTAND → SIMPLIFY → AUTOMATE → INTEGRATE

Geospatial AI

Integrating the Power of GIS and AI Across Organizations and Workflows



AI Assistants

*Enhancing User
Experiences*

Experience



AI Tools & Models

*Advancing the
Science of GIS*

Science



Agentic AI

*Automating Tasks &
Expanding GIS*

Impact



ArcGIS

- GIS Tools & Data
- Agents
- Models
- LLMs

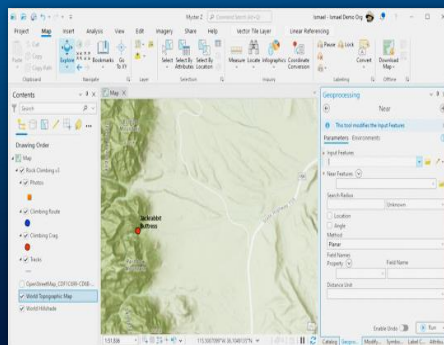
Helping people solve real problems

AI Assistants

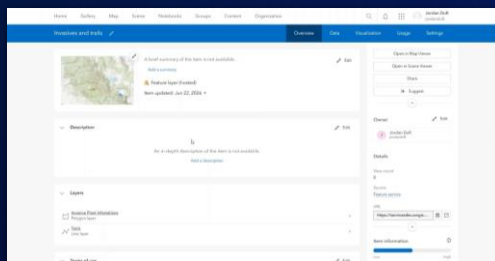
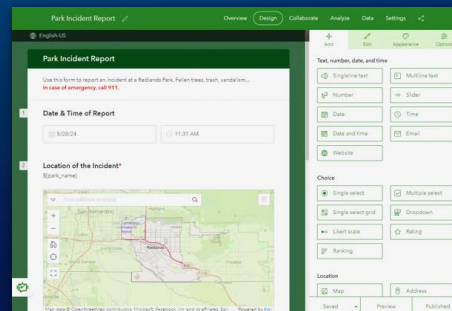
Helping Users Be More Productive

Apps & Workflows

Pro



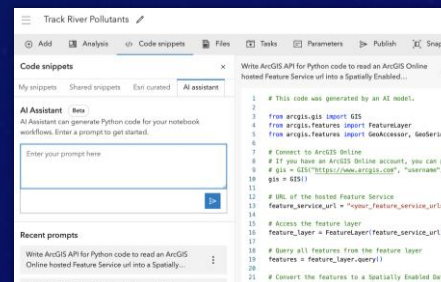
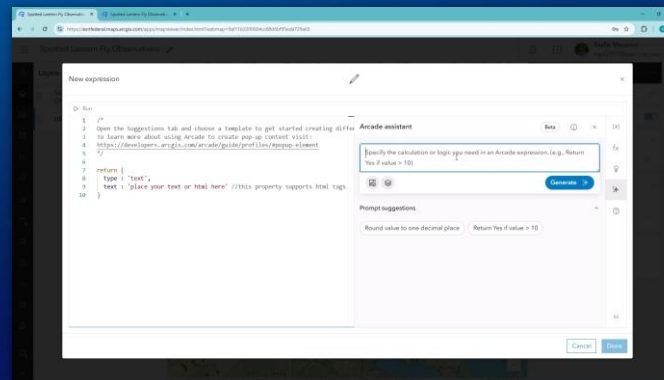
Survey123



Item Details

Coding

Arcade



Notebooks

New & Improved

- ArcGIS Pro
- Survey123
- ArcGIS Solutions
- Business Analyst
- Drone2Map
- Translation
- ... and Many More

Coming

- ArcGIS Enterprise
- More AI Assistants

... Supporting everyday GIS users
Included with user types

AI Assistants (Online) | Release Plan *

October 2025

Preview

- Business Analyst
- Survey123
- Translation

Beta

- Documentation
- Arcade
- Hub
- StoryMaps
- ArcGIS for Microsoft Teams
- Instant Apps

Private Beta

- Item Details
- Pro

February 2026

Preview

- Business Analyst
- Survey123
- Translation
- StoryMaps

Beta

- Documentation
- Arcade
- Item Details
- Notebooks
- Solutions
- ArcGIS for Microsoft Teams
- Instant Apps

Private Beta

- Pro

June 2026

General availability

- Business Analyst
- Survey123
- Translation

Preview

- StoryMaps

Beta

- Documentation
- Notebooks
- Item Details
- Arcade
- Pro
- Solutions
- Drone2Map
- ArcGIS for Microsoft Teams
- Instant Apps

Private Beta

- Urban

November 2026

General availability

- Business Analyst
- Survey123
- Translation
- StoryMaps
- Documentation
- Arcade
- Notebooks
- Item Details
- ArcGIS for Microsoft Teams
- Instant Apps

Preview

- Pro
- Solutions
- Drone2Map

Beta

- TBD

AI Assistants licensing

Included at no additional cost with ArcGIS Online and Enterprise organizational accounts

	Viewer	Contributor	Mobile Worker	Creator	Professional	Professional Plus
Documentation	○	○	○	○	○	○
ArcGIS for Microsoft Teams	○	○	○	○	○	○
Business Analyst				○	○	○
Instant Apps				○	○	○
Solutions				○	○	○
Survey123				○	○	○
StoryMaps				○	○	○
Experience Builder				○	○	○
Item Details				○	○	○
Drone2Map				○	○	○
Notebooks				○	○	○
Arcade				○	○	○
Pro				○	○	○

Higher user type levels include more capabilities

Geospatial AI

Integrating the Power of GIS and AI Across Organizations and Workflows



AI Assistants

*Enhancing User
Experiences*

Experience



AI Tools & Models

*Advancing the
Science of GIS*

Science



Agentic AI

*Automating Tasks &
Expanding GIS*

Impact



ArcGIS

- GIS Tools & Data
- Agents
- Models
- LLMs

Helping people solve real problems

AI Tools and Models

AI-Driven Geospatial Data Extraction and Analytics

Data Types

- Imagery, 3D, Text, Vector, Time Series

Workflows

- Feature Extraction, Change Detection, Text Entity Extraction, . . .
- Similarity Search, Predictive Analysis, Clustering, . . .

AI Models

- Ready-to-Use, ArcGIS Living Atlas of the World
- Train Your Own, Deep Learning Studio, Pro or Python

New

- Geospatial Vision Language Model (GeoVLM)

3D Feature Extraction

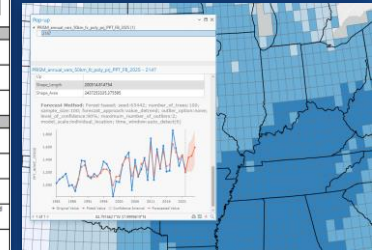


Change Detection



ROCHESTER POLICE DEPARTMENT INCIDENT REPORT							
Page 1 of 3		CR #		2024-00121806			
Incident Type	Report Date	Report Time	Date From	Time From	Date To	Time To	
07 MV Theft	06/04/2024	10:21	06/03/2024	16:30	06/04/2024	10:00	
Incident Address	78 BLOOMFIELD PL		Bed	265			
Vehicle License Control			SWC	Yes			
Status: PL 155.30 08 EF4 Attempt/Commit: Completed Counts: 1							
Description: Grand Larceny 4th: Motor Vehicle Value Exceeds \$100							
Location				Weapon			
Single Family Home							
Vehicle Type				Aggravated Assault Circumstances			
Stolen Vehicle-10				Gang Related			
No Bias-Not Applicable-77				Computer			
Date Type				No			
Entry Point				Method of Entry			
No Bias-Not Applicable-77				P of Persons Entered			
Status: PL 145.00 01 AM4 Attempt/Commit: Completed Counts: 1							
Description: Criminal Mischief 4th: Intent To Damage Property							
Location				Weapon			
Single Family Home							

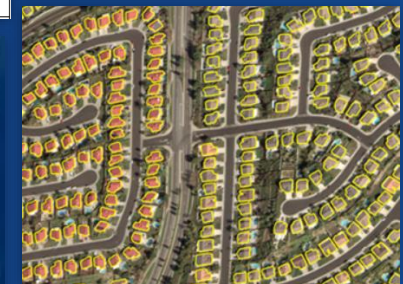
Time Series Forecasting



Entity Extraction



Landcover Classification



Object Detection

AI Models

Pretrained & Ready-to-Use

Task-Specific Models

- Agricultural Fields
- Buildings
- Cars
- Cloud Masks
- Common Objects
- Cooling Towers
- Crowd Counting
- Face Blurring
- Humans
- Insulator Defects
- Land Cover
- ... and More

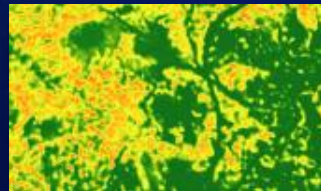
Crop Classification
(Prithvi)



Foundation Models

- CLIP Zero-Shot Classifier
- Depth Anything
- GroundingDINO
- Prithvi
- Prompt-Based Segmentation
- Segment Anything Model (SAM)
- Text SAM
- Time Series Forecasting (Time-MoE)

Canopy Height
Estimation (Meta)

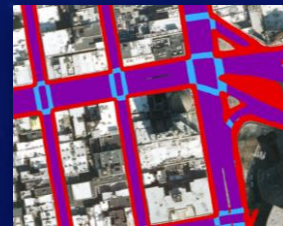


Cars (Text SAM)

Hugging Face Hub

- Image Inpainting
- Object Classification & Detection
- Pixel Classification
- Text Classification & Translation
- Text & Visual QA

Pedestrian
Infrastructure
Classification



Land Cover



Time-MoE

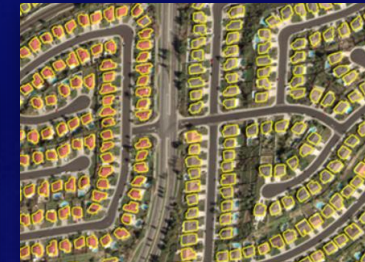


HF Visual Question Answering

New & Improved

- **Geodemographic Embeddings**
- **Geospatial Vision Language Model (GeoVLM)**
- **Global Location Encoder (Sentinel-2)**
- **HF Text Feature Extraction**
- Prithvi EO 2.0
- TerraMind
- DINOv2
- Clay
- DOFA

Building Footprints



GeoVLM

... Available as deep learning packages
on the Living Atlas

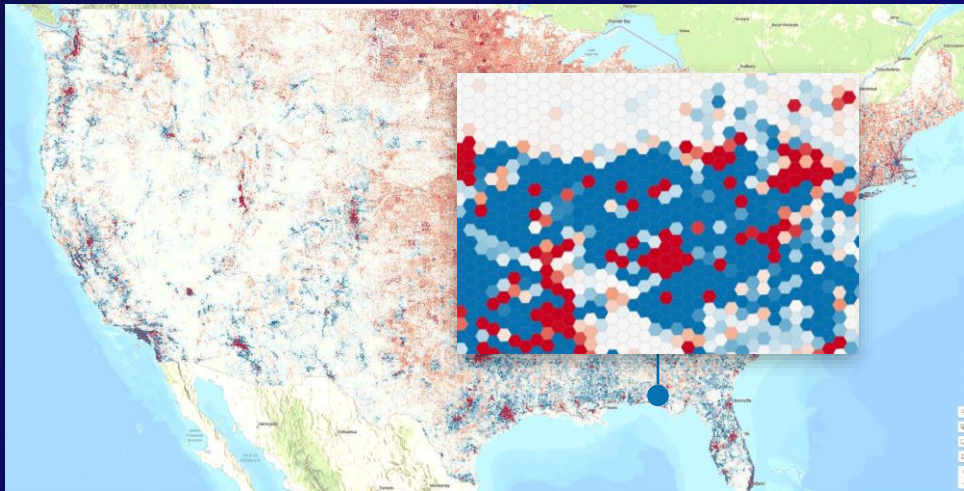
Location Embeddings

Augmenting Spatial Analysis with Additional Contextual Information

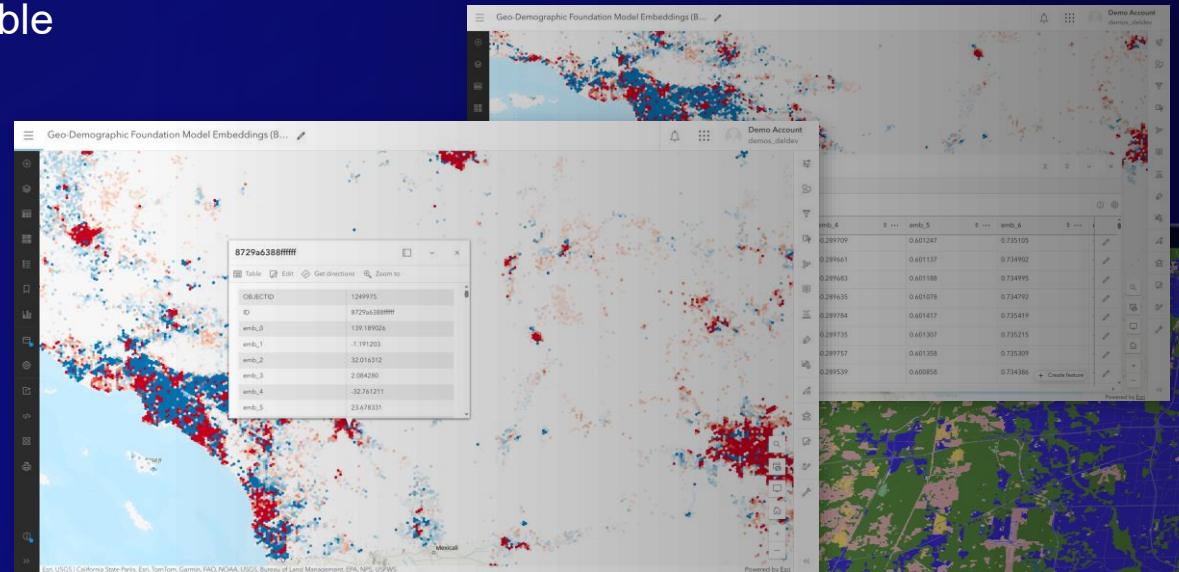
Location Embeddings are machine-understandable representations of **GEOGRAPHY**

... Providing deeper spatial insight
and better predictions

Geo-Demographic Location Embeddings

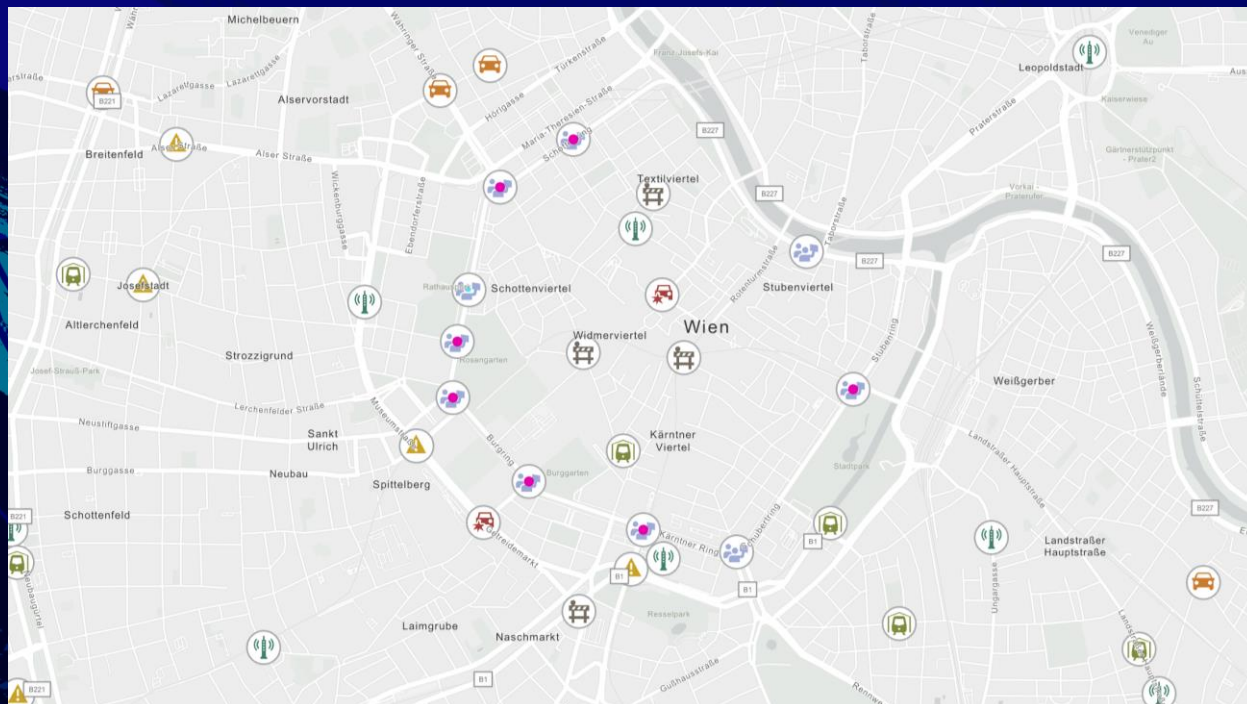


Numerical representations of relationships and patterns in geographic data



Supporting ...

Similarity Search
Pattern Recognition
Change Detection
Clustering



Embeddings

Leslie Jessen

Geospatial AI

Integrating the Power of GIS and AI Across Organizations and Workflows



AI Assistants

*Enhancing User
Experiences*

Productivity



AI Tools & Models

*Advancing the
Science of GIS*

Science



Agentic AI

*Automating Tasks &
Expanding GIS*

Impact



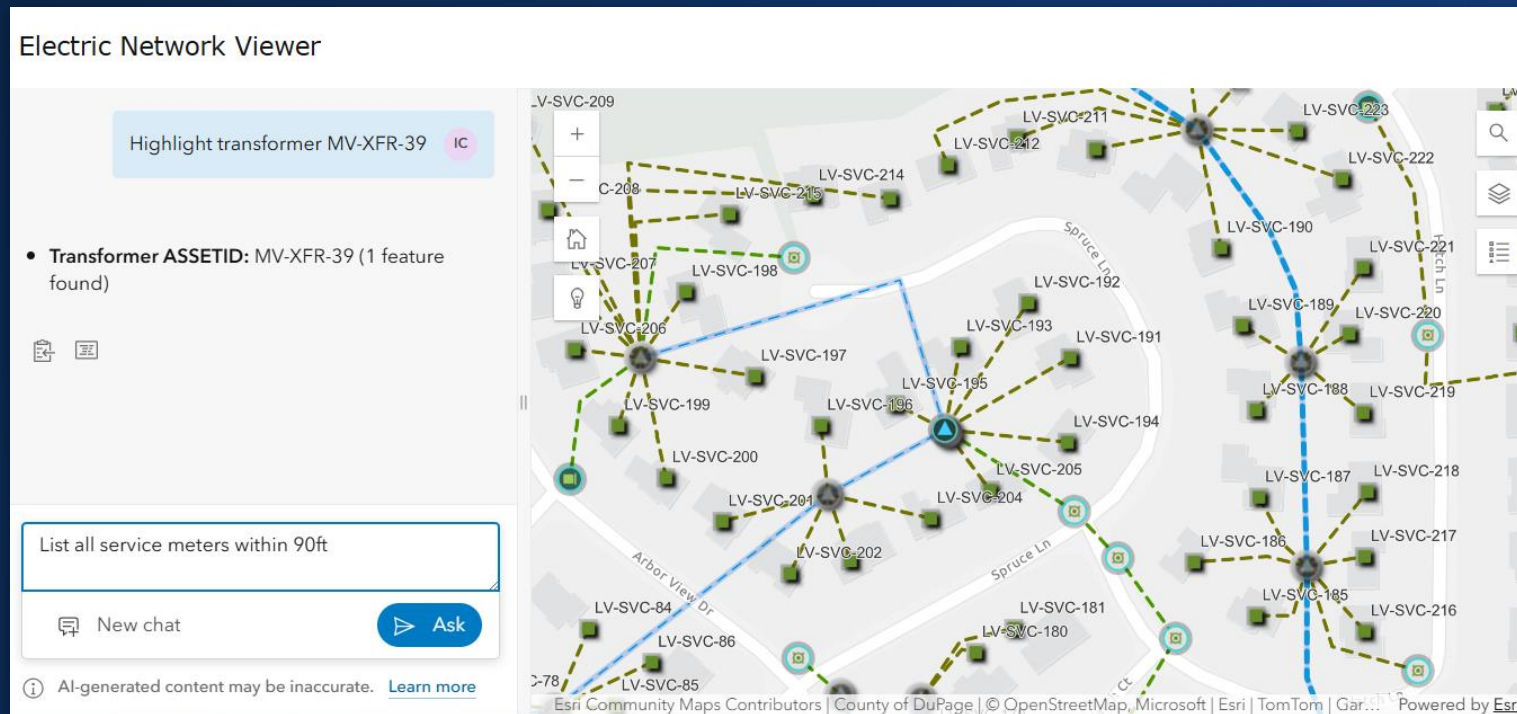
ArcGIS

- GIS Tools & Data
- Agents
- Models
- LLMs

Helping people solve real problems

Agentic AI

Expanding the Reach of GIS with Agentic Mapping Apps



Agentic AI

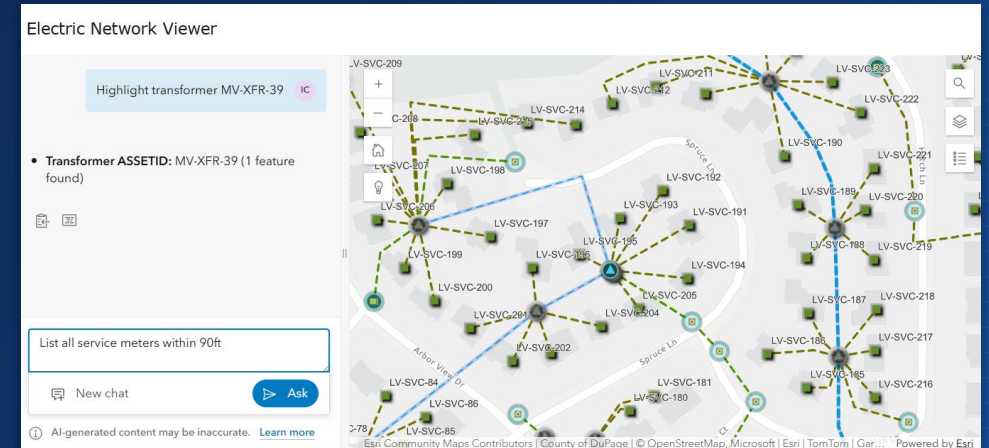
Expanding the Reach of GIS with Agentic Mapping Apps

Web
Map

Data Explorer
Instant App

OR

Maps SDK
for JavaScript



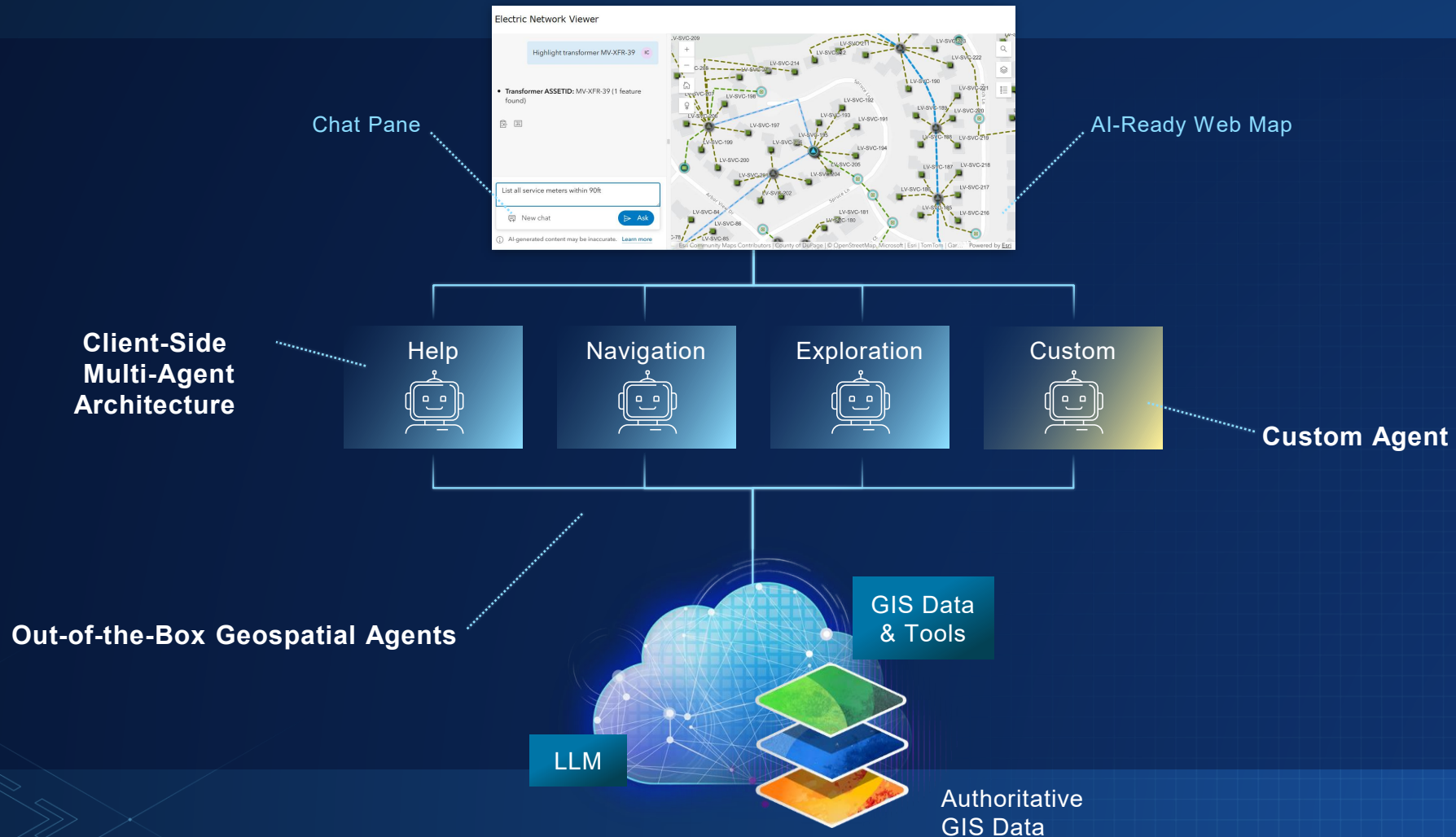
Agentic AI

Expanding the Reach of GIS with Agentic Mapping Apps



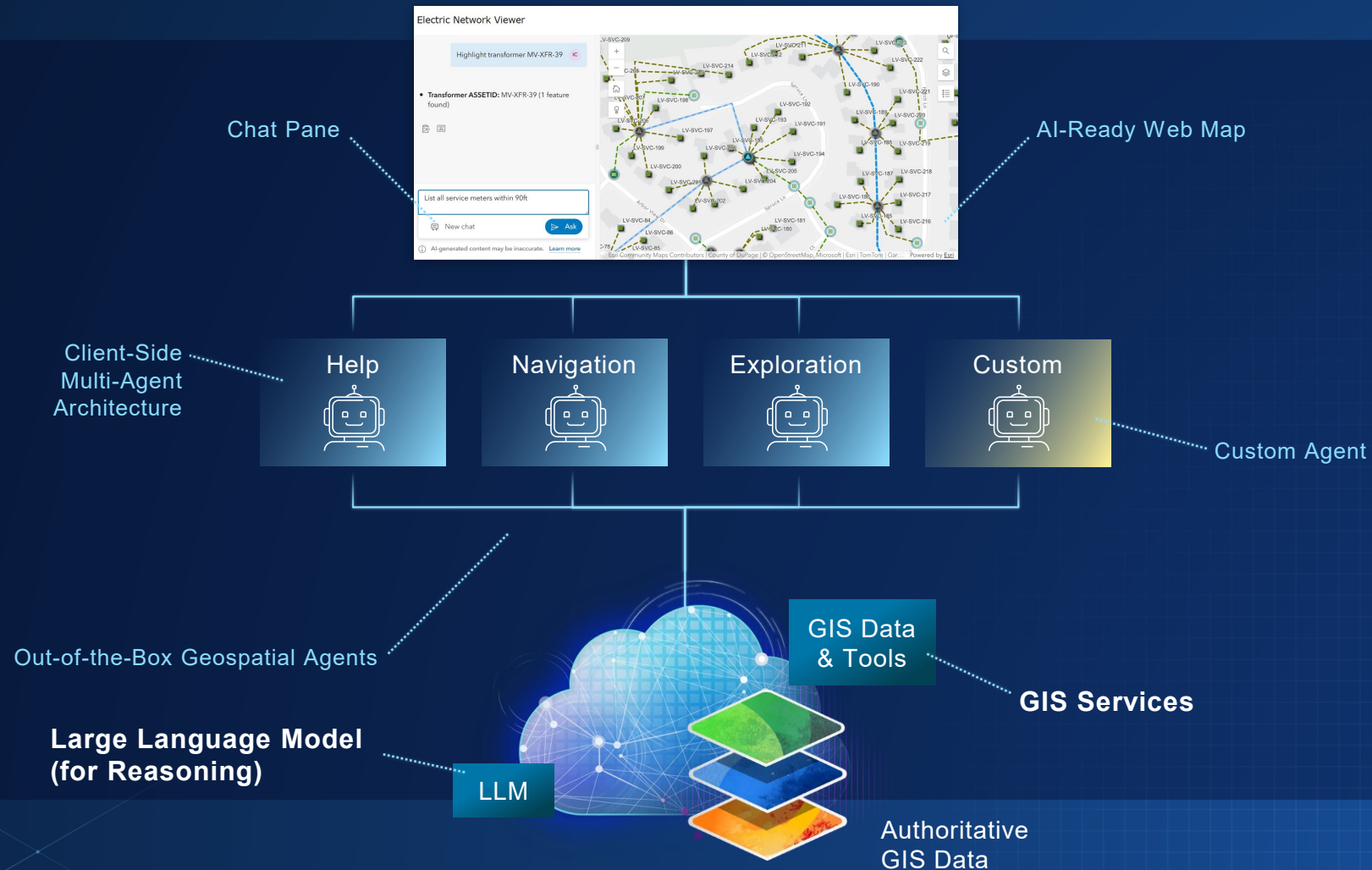
Agentic AI

Expanding the Reach of GIS with Agentic Mapping Apps



Agentic AI

Expanding the Reach of GIS with Agentic Mapping Apps



lasser

Show me how many dog drinking fountains there are in Vienna and where they are located. 10

Anzahl Hundetränkbrunnen in Wien: 1
Standort(e):

TYP	Bezirk (BEZ_NAME)	Straße (LEIT_STR)	Im Park (IN_PARK)	Entfernung zum Park (PARK_DIS)
Hundetränkbrunnen	Währing	Semperstraße	nein	508.8

Welche Typen von Brunnen gibt es auf der Mariahilfer Straße und formatiere die Ergebnisse als Tabelle. 10

Asking LLM to route to an agent

Geben Sie hier Ihre Nachricht ein...

Neuer Chat Beenden

10-generierte Inhalte sind möglicherweise fehlerhaft. Weitere Informationen

Map interface showing a location in Vienna (Währing) with a scale bar (1 m) and map controls.

Data Explorer Instant App

Thomas Gassner

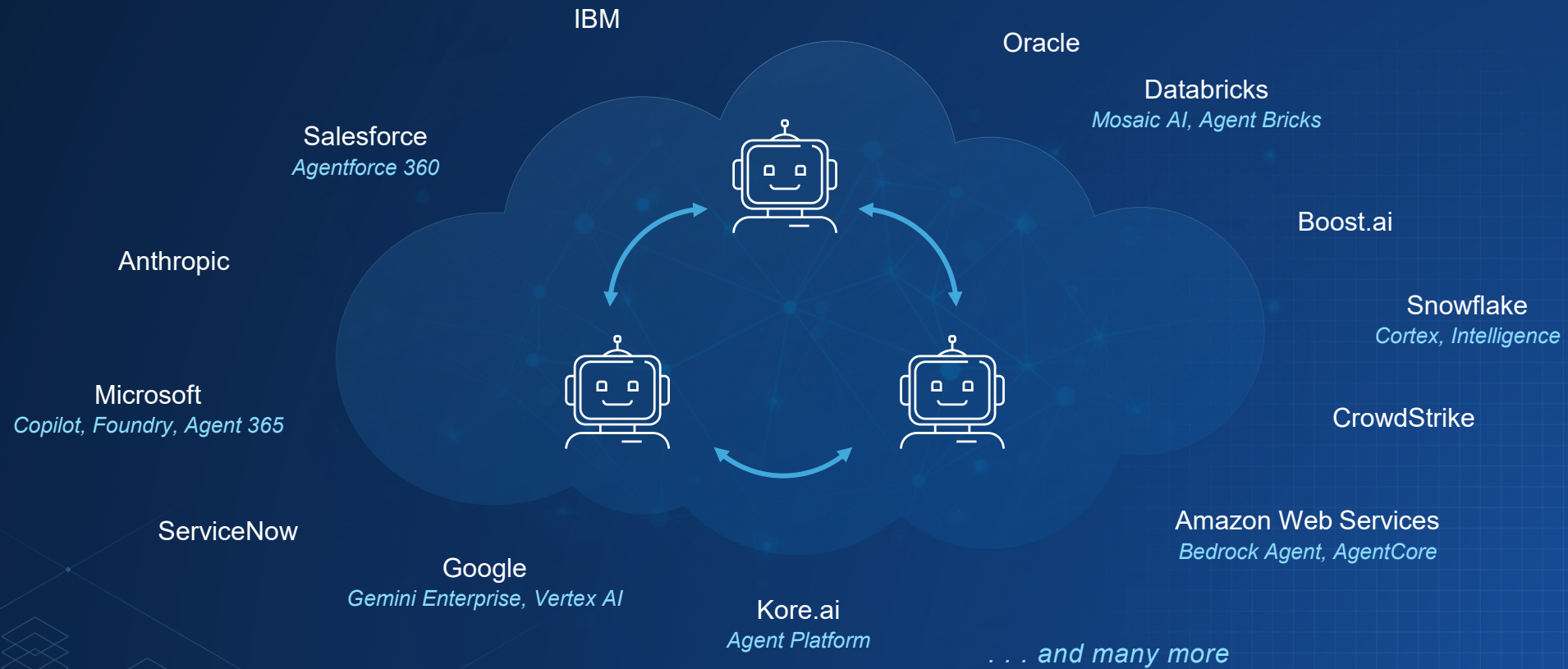
Agentic Mapping Apps

Release Plan



Agentic AI

Providing Geospatial Knowledge and Tools to AI Agents



Creating a new type of computing system

Agentic AI

Providing Geospatial Knowledge and Tools to AI Agents

ArcGIS

Online
Enterprise
Location Platform



Anthropic

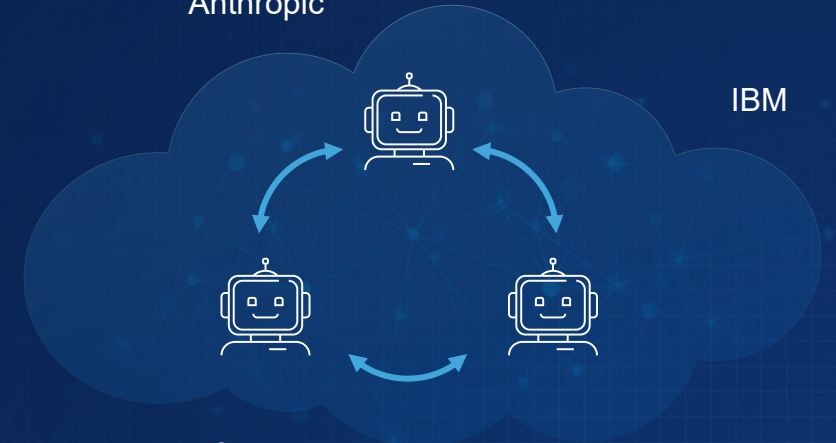
IBM

Microsoft

Google

Amazon Web
Services

... and many more



Creating a new type of computing system

Agentic AI

Providing Geospatial Knowledge and Tools to AI Agents

ArcGIS

Online
Enterprise
Location Platform

Data Sources

Geocoding

Feature Query

Geoprocessing

... More

MCP

Model Context Protocol

Anthropic

IBM

Microsoft

Google

Amazon Web
Services

... and many more

Creating a new type of computing system

copilotstudio.microsoft.com/environments/645cb93a-769b-e6a6-a41e-73ef054ee954/bots/56ba0fa1-75ab-f111-aaab-000d3ade8c2d/actions-adaptive/bcfb8045-3607-4d73-bb57-c3a...

Esri User Conference Austria

Übersicht Wissen Tools Agents Themen Aktivität Auswertung Überwachen Kanäle

← w-dev-mcp Aktiviert Speichern

Details Eingaben Tools Ressourcen

Tools
MCP-Tools ermöglichen Servern die Bereitstellung ausführbarer Funktionen, damit LLMs mit externen Systemen interagieren und reale Aktionen ausführen können.

Toolname	Beschreibung	
search_portal_content	This tool provides an interface for performing searches for ArcGIS Portal Items in the user's Portal and organization. Important: this tool only searches... Mehr anzeigen	☒
describe_item	This tool provides an interface for retrieving information about ArcGIS Portal Items in the user's Portal and organization by their id's... Mehr anzeigen	☐
describe_layer	This tool provides an interface for inspecting metadata about a layer or table of a Feature Service or Map Service. It also can include... Mehr anzeigen	☐
query_data	This tool provides an interface for querying a Feature Layer or Table for records or aggregations, after you have described the... Mehr anzeigen	☐
get_map_image	This tool renders a static map image from an ArcGIS MapServer by wrapping the Export Map REST API. Use this when the deliverable... Mehr anzeigen	☐
reverse_geocode	Converts a geographic location to the nearest address, also known as "reverse geocoding". For example, you can convert -79.3871... Mehr anzeigen	☐
find_address_candidates	This tool provides an interface for performing geocoding operations (using the "Find Address Candidates" API) against a Geocode...	☐

Ihren Agent testen

Schieberstandort oder die angeschlossene Wasserleitung im Netz näher untersuchen.

Vor einer Minute

wenn dieser Schieber geschlossen wird, welche Adressen wären davon noch betroffen?

Betroffene Adressen
Im verfügbaren Datenbestand sind dem Hausanschlussschieber HAS-007209 insgesamt 3 Adressen zugeordnet. Wenn dieser Schieber geschlossen wird, wären voraussichtlich folgende Anschlüsse betroffen:

- Technologiestraße 10, 1120 Wien
- Technologiestraße 9, 1120 Wien
- Liebenstraße 6, 1120 Wien

Einschränkung
Diese Aussage basiert auf der Zuordnung der Adressen zum Hausanschlussschieber HAS-007209 im Adress-Layer. Eine vollständige hydraulische oder netztopologische Aussage darüber, welche weiteren Kunden durch eine Absperrung tatsächlich wasserlos werden, wäre nur mit einer Netzverfolgung (Trace) auf einem Utility Network möglich. Solche Netzinformationen sind in den aktuell verfügbaren Daten und Werkzeugen nicht vorhanden.

Jetzt

Stellen Sie eine Frage oder beschreiben Sie, was Sie benötigen

0/2000

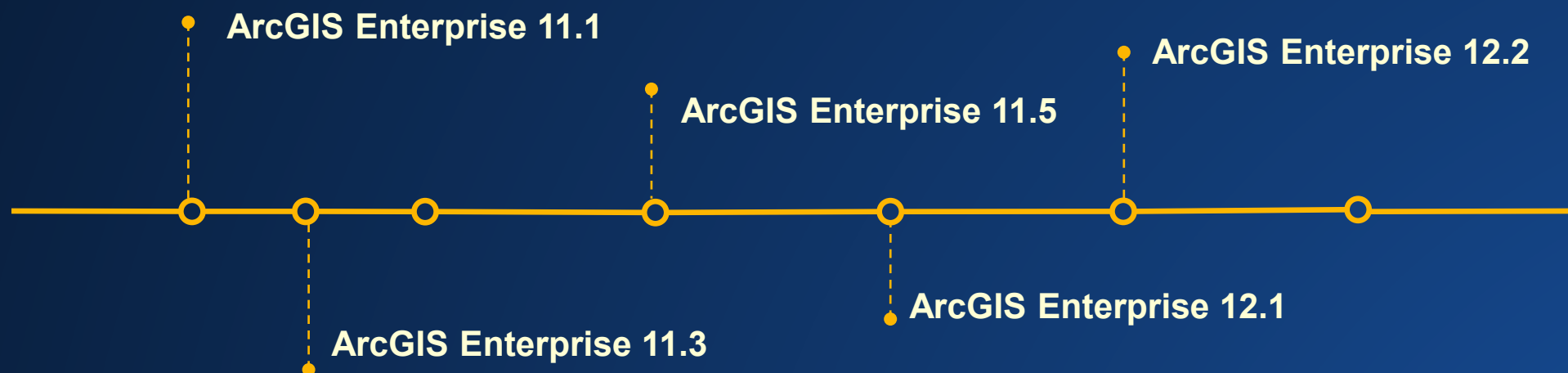
Sie testen die tatsächlichen Reaktionen und Fähigkeiten Ihres Agenten. Hier finden Sie Hilfe zur Problembearbeitung. Vergewissern Sie sich vor der Verwendung, dass die KI-generierten Inhalte korrekt und angemessen sind. Bestimmungen anzeigen

MCP in ArcGIS

Thomas Gassner

MCP in ArcGIS Enterprise

Release Plan



MCP Services for ArcGIS Enterprise setup is compatible with version 11.1 or newer
Now in beta at earlyadopter.esri.com (Windows/Linux)
General release November 2026 (Windows, Linux, Kubernetes)

MCP Tools

- Geocode addresses
- Query feature layers
- Run GP tools
- Search content
- Export map
- Routing

Security & Privacy

Secure
Privacy-preserving
Compliant
Governed

Ethics & Fairness

Fair
Ethical
Bias-aware
Human-centered

Transparency & Control

Explainable
Transparent
Trustworthy
Reliable

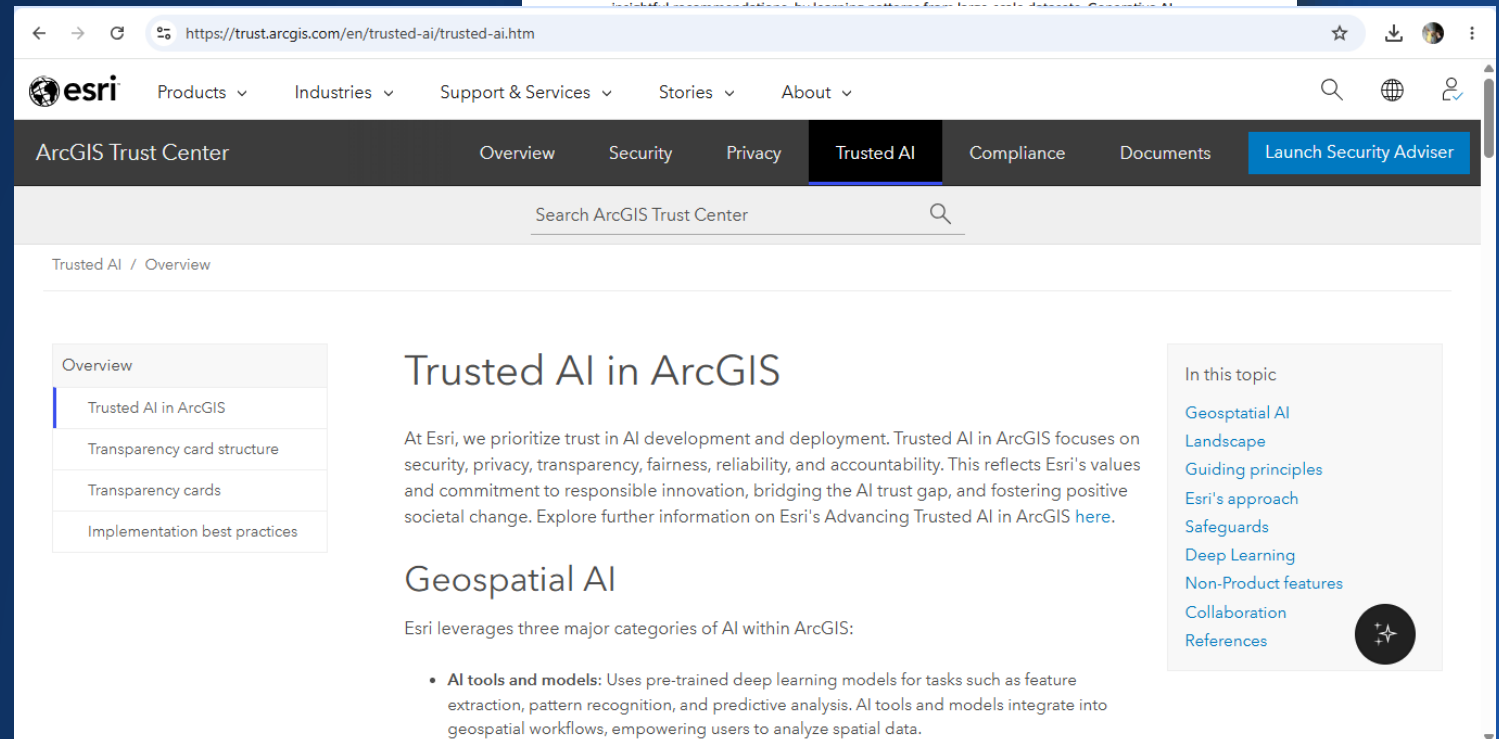
Trusted AI

in ArcGIS

Advancing Trusted AI in ArcGIS

New Trusted AI section in trust.arcgis.com

- trust.arcgis.com
- Outlines Esri's guiding principles for AI in ArcGIS
 - Security
 - Privacy
 - Transparency
 - Fairness
 - Reliability
 - Accountability



Trusted AI – Transparency cards

Search ArcGIS Trust Center

Trusted AI / Overview

Overview

Trusted AI in ArcGIS

Transparency card structure

Transparency cards

Implementation best practices

Transparency cards

The table below lists the AI transparency cards that provide in-depth details about our AI features development and deployment.

- See [Transparency Card Structure](#) document for details concerning each field.
- See [Living Atlas](#) for Esri's AI tools and models.

AI assistants	Deployment Status	Help documentation
✔ ArcGIS Business Analyst assistant	General Availability	Help document
✔ ArcGIS Survey123 assistant (Web Designer)	General Availability	Help document
✔ Translation assistant	General Availability	Help document
✔ ArcGIS StoryMaps assistant	Preview	Help document
✔ ArcGIS Hub assistant	Beta	Help document
✔ Documentation assistant	Beta	Help document
🔄 ArcGIS for Teams assistant	Beta	Help document
🔄 ArcGIS Pro assistant	Beta	Help document
🔄 ArcGIS Arcade assistant	Beta	Help document
🔄 Item Details assistant	Beta	Help document
🔄 ArcGIS Solutions assistant	Beta	Help document
🔄 ArcGIS Notebooks assistant	Beta	Help document
🔄 ArcGIS Drone2Map assistant	Beta	Help document

AI Transparency Card - ArcGIS Survey123 assistant (Web designer)

Section	Description	Response
Product - Name	ArcGIS product name (links to doc)	ArcGIS Survey123
AI Feature	AI feature name in the product. (links to doc)	ArcGIS Survey123 – Web designer assistant
Purpose	Actions AI feature is expected to perform within the product.	Jump-starts new Survey123 forms through a conversational experience. It guides you in shaping your survey's structure, allowing you to transform ideas into functional forms, make real-time adjustments to questions, and transition your draft into the Survey123 web designer for further customization.
Release Status	Release status of AI feature.	Preview
Certification	Certification status of AI feature.	None
Deployment	AI feature provided via what deployment model.	SaaS
Management	How AI feature can be enabled or disabled?	Opt-in by AGO Administrator
Data Access / Scope	Can the AI read or write to the customer's dataset?	None
Red Team Testing	Adversarial robustness tests / Protection against manipulation.	No: Not Scheduled
Management – Feedback	Can/how user AI feedback be enabled or disabled?	Opt-in by User
Management - Telemetry	How user AI telemetry data can be enabled or disabled?	EUE: Admin Config, Feature Specific: Required, Subprocessors: Required .
Prompt Stored	Are prompts submitted to the AI stored?	Not by default: Only when feedback provided, Retention Time: 30 days, Storage Purpose: Specific Improvement
Response Stored	Are AI-generated responses stored?	Not by default: Only when feedback provided, Retention Time: 30 days, Storage Purpose: Specific Improvement
Personal Data	Is personal data in training, testing, or validation datasets?	No
Processing Location	Where data is processed across the product, feature, and LLM levels, including details on any subprocessors.	Product: US AGO Infrastructure, AI Feature: US AGO Infrastructure, LLM: US Microsoft Azure OpenAI services
Intended Users	Primary intended users of the AI feature	GIS Analysts, General Public
Out-of-Scope Uses	Scenarios AI feature may not perform accurately or reliably.	Using the assistant to create surveys with highly specific or technical domain knowledge not covered in its training.
Key Function	Key capabilities and how the AI feature enhances workflows.	Augment: Assists in generating concepts into surveys from natural language prompts.
Model Type & Technique	AI model type and technique	Generative AI: Transformer
Model Used	Specific model(s) used, such as GPT-4, T5, etc.	Microsoft Azure OpenAI – GPT-4o

Esri AI Framework Use	Indicate if the AI feature utilizes the Esri AI Framework.	No
Model License	License of AI model powering the AI feature.	Licensed
Training Data Sources	Data sources used for development of the AI feature.	Mix: Microsoft Azure OpenAI service, Esri Content (documentation)
Human-in-the-Loop	Indicate if users can review or modify AI-generated outputs.	Yes. Users can review and modify AI-generated outputs from the AI assistant before storing or modifying customer content.
Input/Output Formats	Input and output formats that the model can handle.	Input: Text / Output: Plain text
Bias/Ethical Mitigations	Detail how biases are managed, especially in the data.	Utilizes Microsoft's Content Filter and avoiding customer data in training.
Security Mechanisms	Security mechanisms beyond guardrails and encryption.	Utilizes AGO infrastructure with AI gateway. No outside services are used.
Guardrails	Help provide secure AI. (Four types)	LLM Integrated: Integrated LLM only Adversarial Attack: Integrated LLM only Objectionable Content: Content filter Intellectual Property: Integrated LLM only
Encryption at Rest	Is AES-256 or better used for at rest encryption?	Yes
Encryption in Transport	Is TLS 1.2 or better utilized for encryption in transit?	Partially: Full backend transport encryption planned for GA release.

Our Vision

From AI Foundation to Intelligent Action

Now – *Building the Foundation for AI in ArcGIS*

ArcGIS is becoming a **trusted platform for Geospatial AI** - integrating models, assistants, agents, and intelligent services across GIS to advance spatial science, improve productivity, and expand the impact of geographic knowledge.

Next – *Advancing towards a System of Action*

ArcGIS becomes more **context-aware, workflow-aware, and action-oriented** - combining scientific AI, agentic AI, semantic intelligence, and human-guided orchestration to help organizations move from **data to insight to coordinated action**.

Always

Grounded in geography. Governed by trust. **Built for real-world impact.**