DC Compass
ArcGIS Hub AI for Public Engagement

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Generative AI

An old concept with rapid advancement

• AI has been around since the 1950’s
• Rise of a new type of AI capable of generating text, images, code and other types of data
• Tools such as ChatGPT, Gemini (Bard), Co-Pilot using generative and large language models
• Rapid advancement – changes in weeks, not months or years
• Could be as game changing as email
• Plenty of risks related to bias and misleading information
• Requires evaluation and testing over time
What’s the Problem?

Open Data is fantastic but...

There’s a lot of data available.
I searched “procurement” and returned 20 datasets; which do I use? Wait, I need to review every dataset’s metadata?

Despite how easy the tools have become, if you’re not a data person, it’s not that easy.
I need to write a query to get what I need.

How can I easily find out about city initiatives related to datasets?
I searched for “crashes” in the city. Tell me about the Vision Zero initiative.
DC Compass

Open Data & AI

- Combines the power of generative AI and Open Data
- Chatbot for users to ask questions about Open Data
- Uses data summary and GIS functions
- Allows for text or voice interaction and language translation
- Only utilizes Open Data (Level 0 per the DC Data Policy)
ArcGIS Hub
AI Assistants
Under-the-hood Discussion and Demonstration
AI in ArcGIS

**GeoAI**

Expanding and powering the *Science of GIS*, with AI models, tools and techniques, to automate data extraction at scale and uncover insights faster than ever.

**Generative AI**

Enhancing the *Experience of ArcGIS*, using *AI assistants*, to understand intent, get insights, perform GIS tasks and generate GIS content.
WebGIS

- App
- Map
- Services
- Data
WebGIS extended with AI Assistants

- App
- Map
- Services
- Data
- Assistant
- Agent
- Tools
  - Training
  - Prompts
  - LLM
How it works

Hub Assistant
- User Input
- System Prompt
- GIS Tools: Geocoder, Hub Search, Feature Layer Query, Statistics, …

Search Agent
"Reasoning"
- Input: You are… using these tools… the user asks “…”
- Response: “I would find this address, query for this dataset, then query the dataset with this input”

Search Agent
"Format Response"
- Input: {…}
- Response: “The 4 nearest schools are… <arcgis-map ../>
- Translate to User language

Hub Assistant
- use GIS Tools
- Large Language Model within Esri or customer accounts
- Update UI
- Embed Map + Data links

Geocode Location
Search Hub
Query Feature Layer
… other GIS services
ArcGIS Hub

Improve local, community understanding through curated content catalogs

“What is going on near my house?”

What is the city changing?

What roads are closed next month?

Are locusts getting worse?
## Other Considerations

<table>
<thead>
<tr>
<th>Validation</th>
<th>Provides links back to the data source allowing users to validate answers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risks</td>
<td>Continued understanding of how models operate to reduce chances of incorrect information. I.e., ask the same question twice with different answers</td>
</tr>
<tr>
<td>Feedback</td>
<td>Capture experience with thumbs up/down Survey123 webform. Discover issues &amp; opportunities for improvement.</td>
</tr>
<tr>
<td>Transparency</td>
<td>How does it work? What can it do? What can’t it do? How does is use your information?</td>
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DC AI Values & Strategic Plan

- Establishing an AI Advisory Group on AI Values Alignment
- Identify a series of AI strategic benchmarks
- Establish an AI Taskforce to examine the District’s current internal AI governance
What’s Next?

• Currently in public beta
• Continued improvement of existing functionality, model processes and more efficient use of tokenization
• On-going model evaluation: ChatGPT 3.5 vs 4
• Additional visualizations and GIS functions
• Provide access to additional components of the Open Data platform
• Extending to other DC hub sites
Resources

Esri R+D

• ArcGIS Hub –
• ArcGIS Hub -

District of Columbia

• DC Compass – opendata.dc.gov/pages/compass
• DC Compass Transparency – opendata.dc.gov/pages/compass-transparency
• Dataset Classification – opendata.dc.gov/pages/data-policy#classification
• AI Values & Strategy – techplan.dc.gov/aivalues