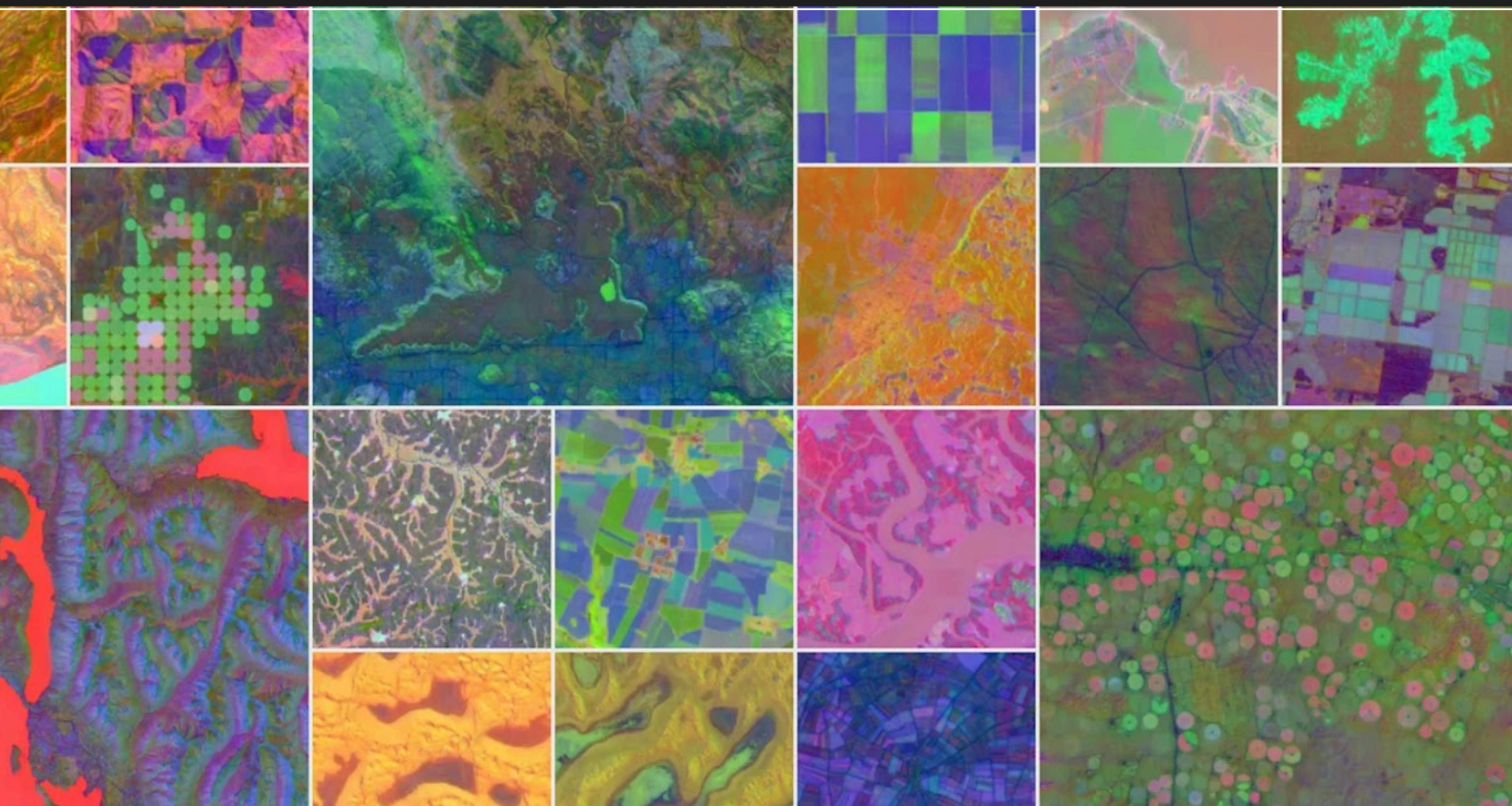


Matt Forrest, Wherobots



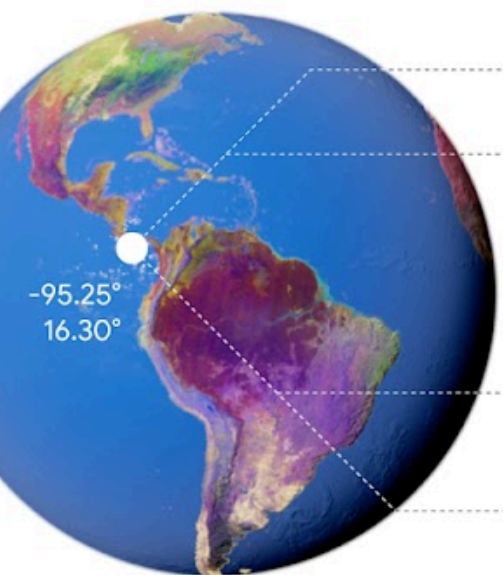
The Next

✦ What to expect (and feel) in location intelligence from now to 2030

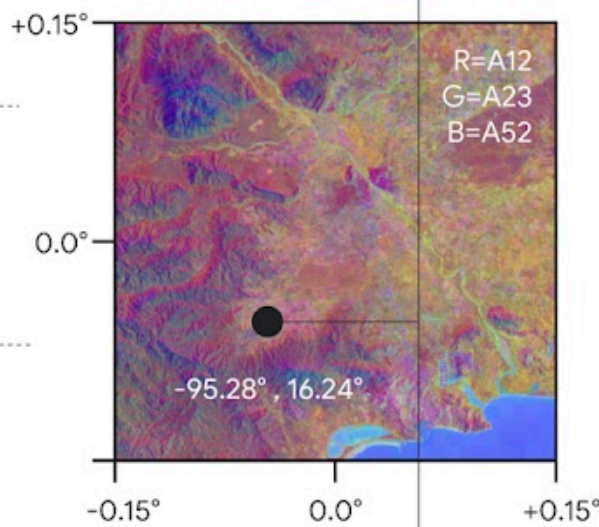


5 Years

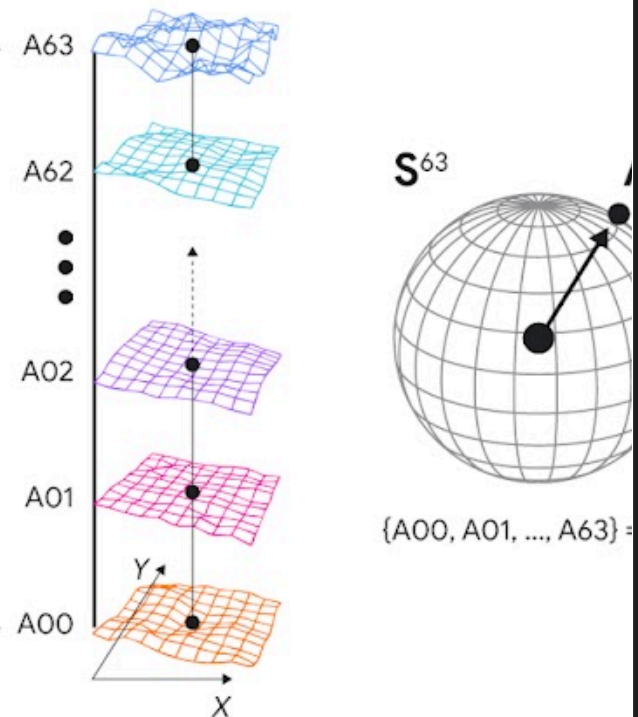
Global Embedding Field



Embedding Axes



Embedding Vectors

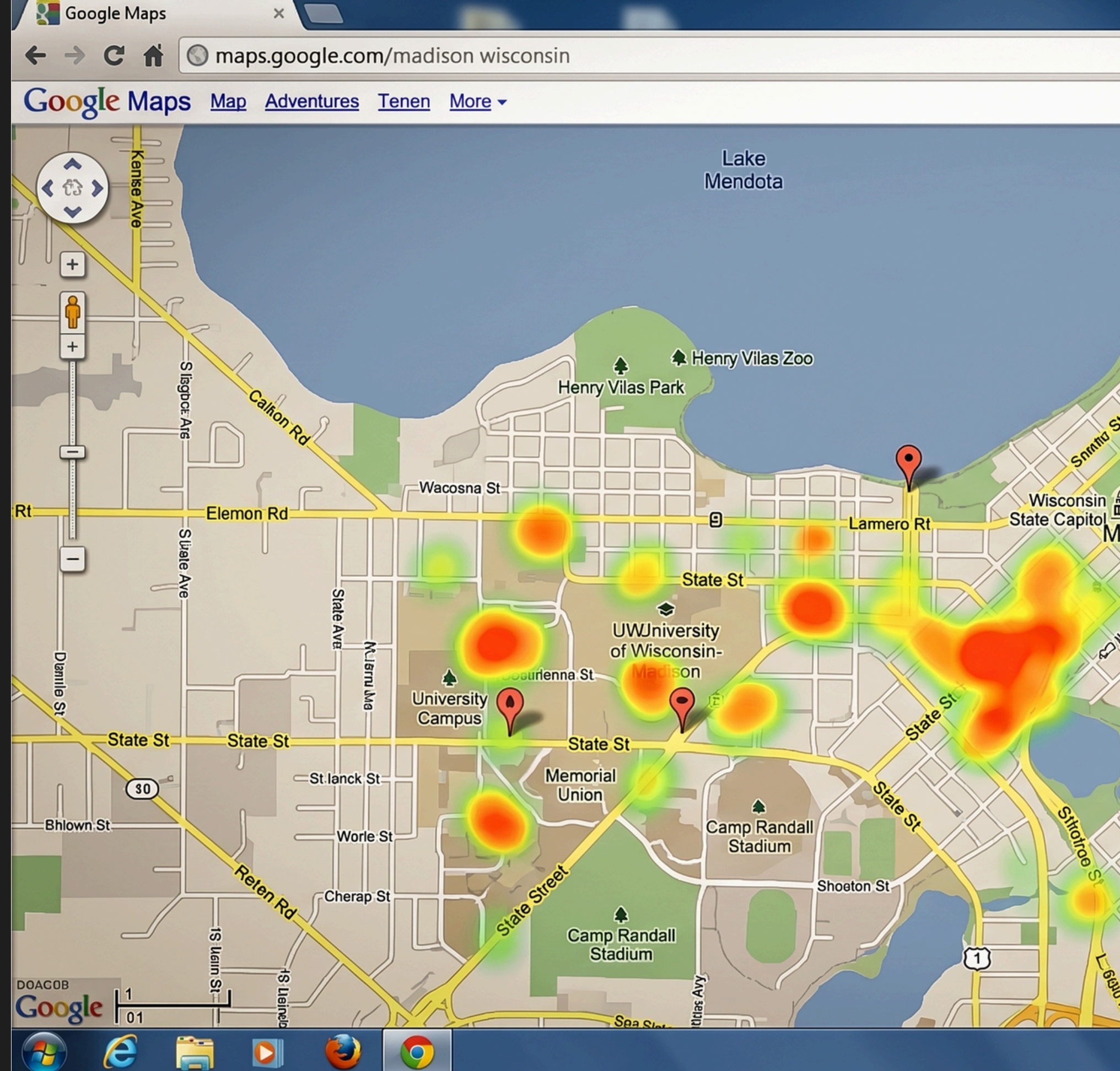


This sounds oddly familiar...

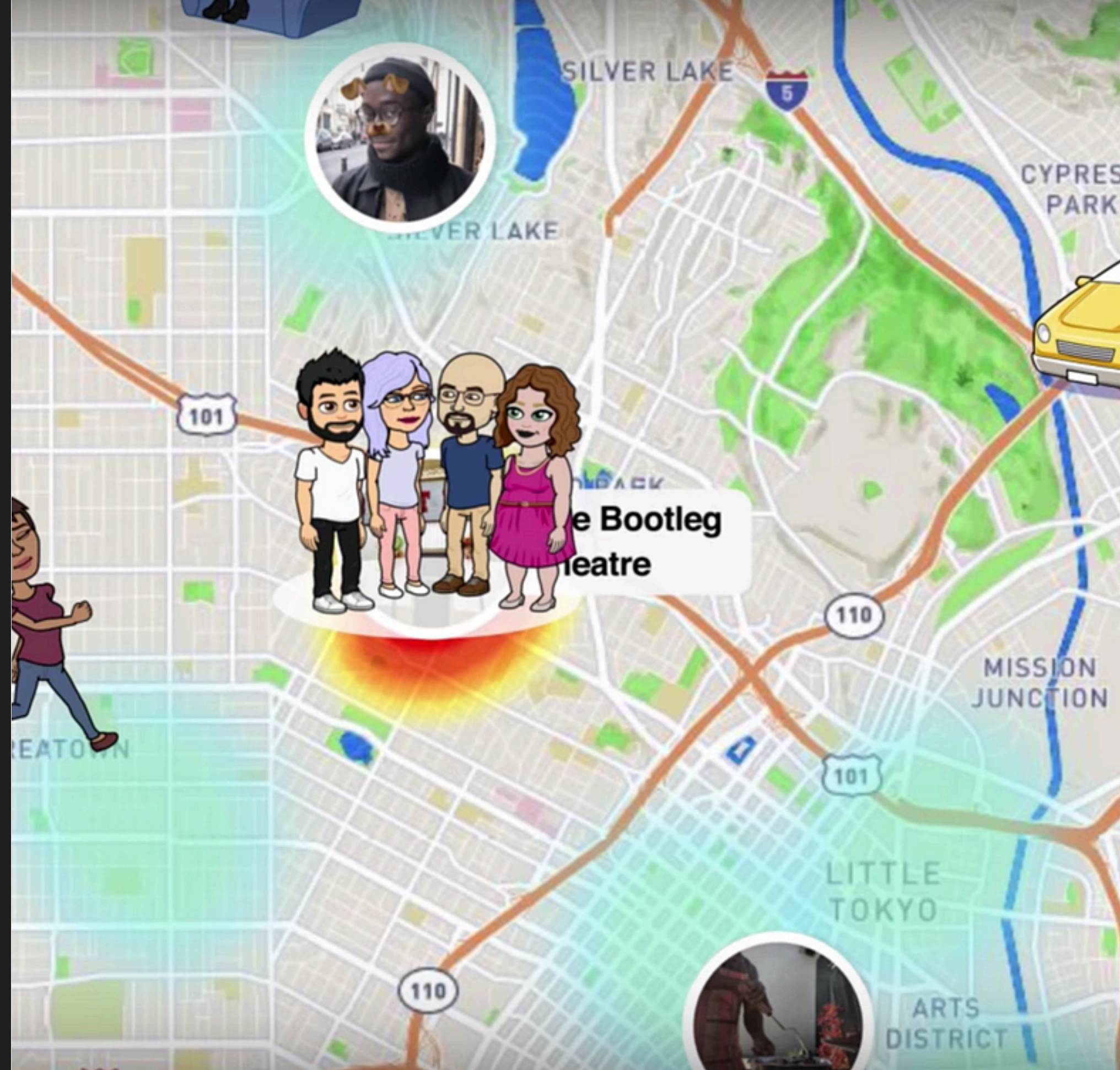
“What will the next 5 years in geospatial bring?”



Rewind to 2010 in Madison, WI



Turns out, he was right.



How do we analyze
the future? We
have to look at the
past.

[For Rent](#) [For Sale](#) [Rooms](#) [Sublets](#)

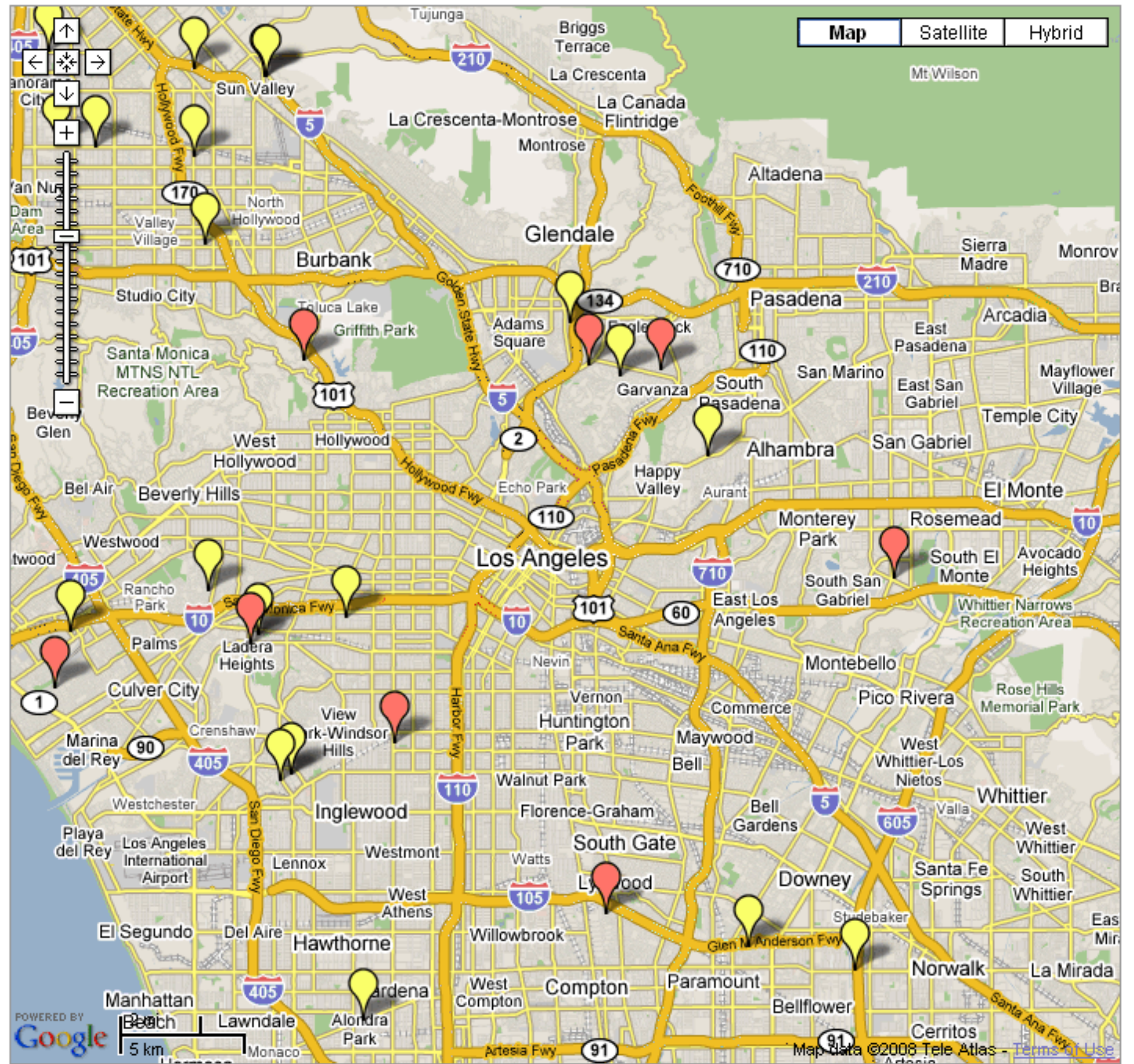
City:

Price:

[Show Filters](#) ^{New}

[Refresh](#)

[Link](#)



Chat with EDA Agent

Chat with EDA Agent

h

Send

```
app.py  floods.parquet  index.html  notes.sh
templates > $ notes.sh
  pip3 install flask duckdb pandas langchain openai sqlalchemy
PROBLEMS  OUTPUT  TERMINAL  Python
Deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
* Restarting with stat
/Users/mattforrest/Documents/rivers/.venv/lib/python3.13/site-packages/langchain/chat_models/__init__.py:33: LangChainDeprecationWarning: Importing chat models from langchain is deprecated. Importing from langchain will no longer be supported as of langchain==0.2.0. Please import from langchain-community instead:

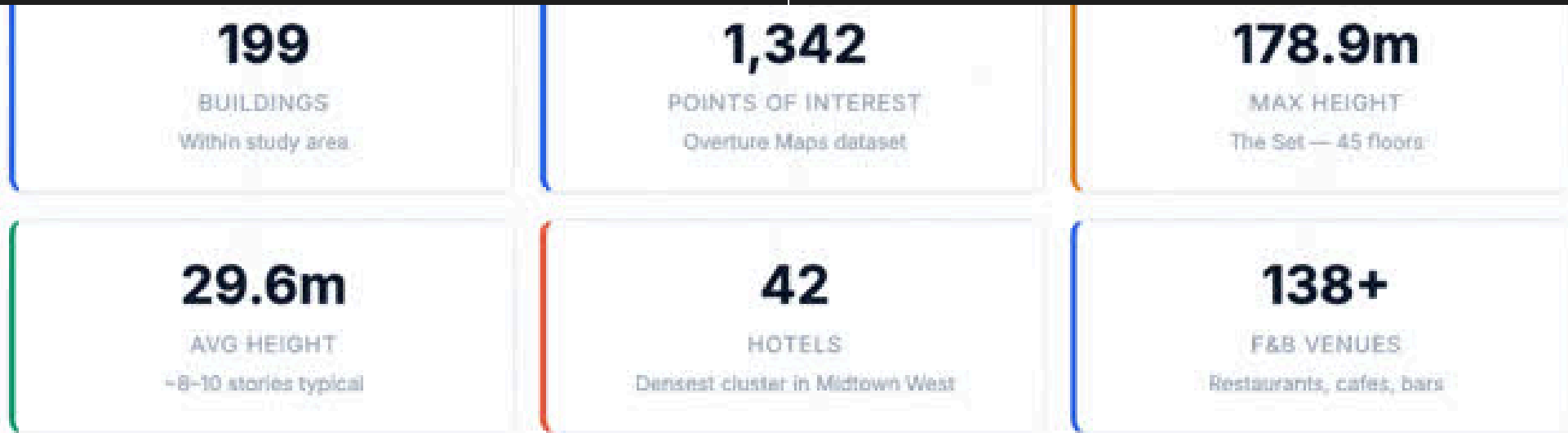
`from langchain_community.chat_models import ChatOpenAI`.

To install langchain-community run `pip install -U langchain-community`.
warnings.warn(
/Users/mattforrest/Documents/rivers/.venv/lib/python3.13/site-packages/langchain/chat_models/__init__.py:33: LangChainDeprecationWarning: Importing chat models from langchain is deprecated. Importing from langchain will no longer be supported as of langchain==0.2.0. Please import from langchain-community instead:

`from langchain_community.chat_models import ChatOpenAI`.

To install langchain-community run `pip install -U langchain-community`.
warnings.warn(
/Users/mattforrest/Documents/rivers/.venv/lib/python3.13/site-packages/duckdb_engine/__init__.py:184: DuckDBEngineWarning: duckdb-engine doesn't yet support reflection on indices
warnings.warn(
/Users/mattforrest/Documents/rivers/app.py:84: LangChainDeprecationWarning: The class `ChatOpenAI` was deprecated in LangChain 0.0.10 and will be removed in 1.0. An updated version of the class exists in the :class:`~langchain-openai` package and should be used instead. To use it run `pip install -U :class:`~langchain-openai` and import as `from :class:`~langchain-openai import ChatOpenAI`.
  llm_explore = ChatOpenAI(temperature=0.0, model_name="gpt-4.1-mini")
* Debugger is active!
* Debugger PIN: 380-086-804
127.0.0.1 - - [16/May/2025 15:57:28] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [16/May/2025 15:57:28] "GET /favicon.ico HTTP/1.1" 404 -
Ln 3, Col 15  Spaces: 4  UTF-8  LF  Shell Script
```





514 West 36th Street occupies a strategically significant position at the convergence of Hudson Yards and Hell's Kitchen — one of Manhattan's most actively transforming commercial corridors. Spatial analysis of 199 buildings and over 1,342 points of interest within approximately 500 meters reveals a dynamic mixed-use environment dominated by professional services, hospitality, and creative industries.

The building stock exhibits a bimodal distribution: a dense base of low-rise structures (65.6% under 20m) — legacy garment district warehouses and walk-ups — coexists with a cluster of 12 towers exceeding 100 meters. This pattern is characteristic of a neighborhood mid-transformation, where legacy stock creates near-term value-add opportunities while new towers establish the long-term rental ceiling.

The business mix strongly favors knowledge-economy and creative tenants: professional services, tech startups, coworking spaces, design studios, and advertising agencies collectively represent the largest demand segment. Proximity to the Javits Center, Penn Station, Port Authority Bus Terminal, and the Lincoln Tunnel provides multi-modal accessibility that is difficult to replicate elsewhere in Manhattan.

EXPERT INSIGHT

The combination of legacy low-rise stock amenable to repositioning, an established creative-economy tenant base, and major infrastructure adjacencies (Javits expansion, LIRR access at Penn, Hudson Yards buildout) creates a compelling risk-adjusted investment profile. This submarket has demonstrated 15-20% rent growth for repositioned assets over the past cycle, with further upside as Hudson Yards reaches critical mass.

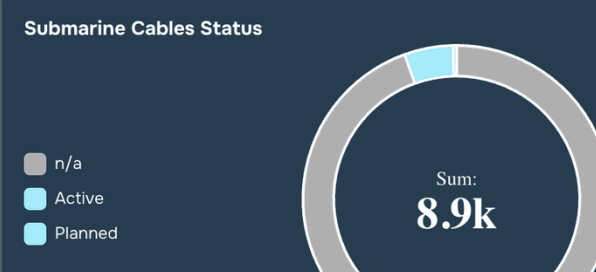
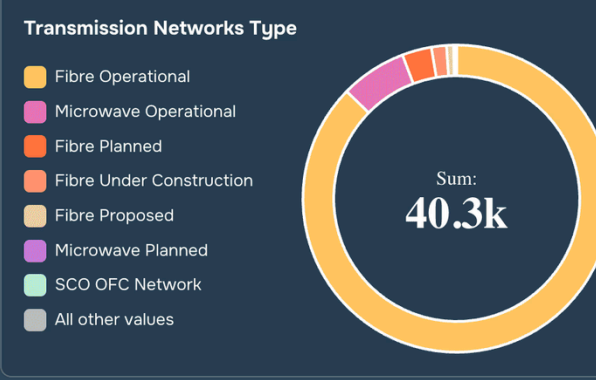
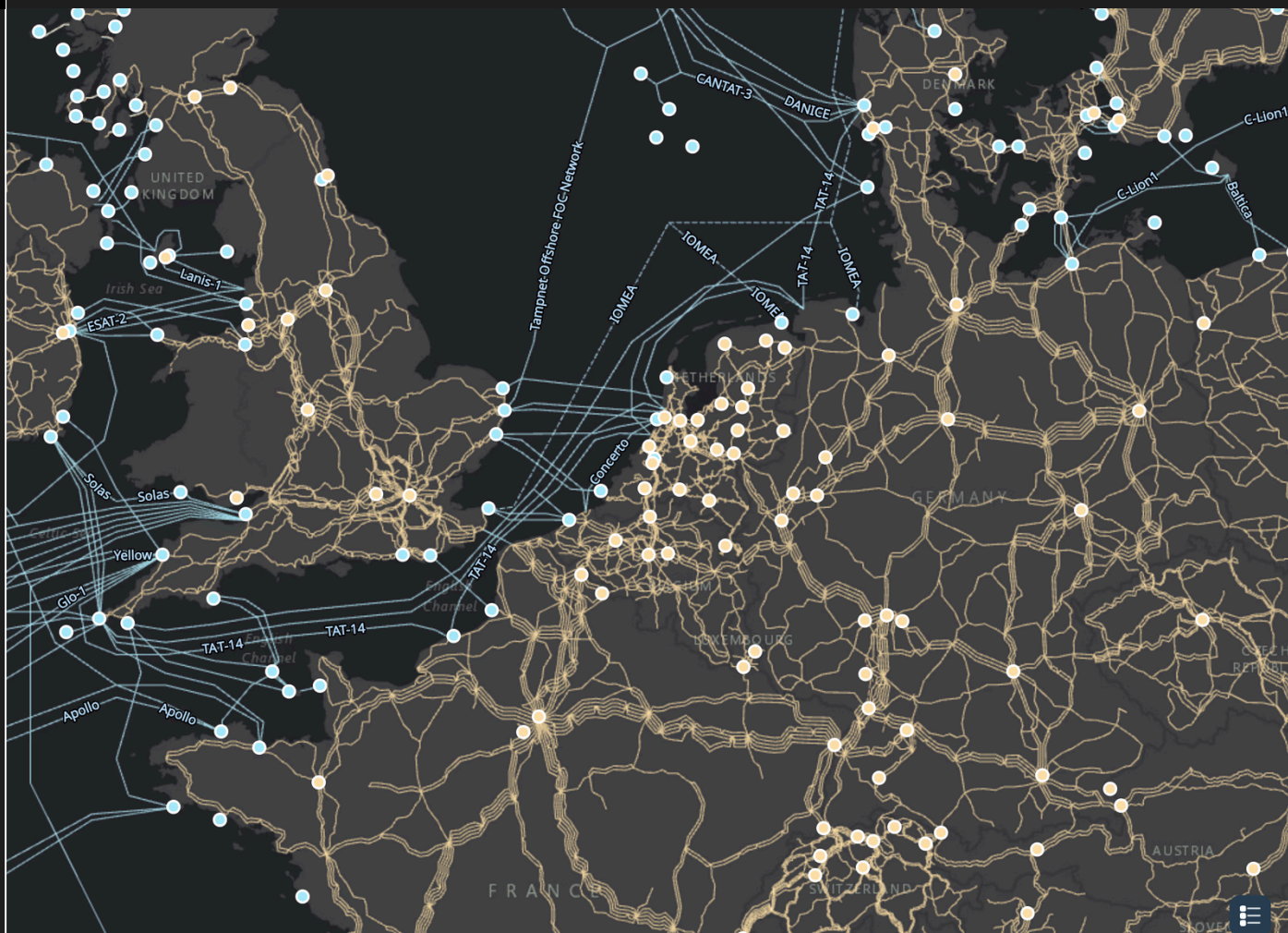




- ★ Five key themes emerged from this analysis
- ★ We can then analyze what impacts happened across four key user groups

2010 to 2025

- ★ Analyzed the past 15 years of location intelligence to predict what the future will look like



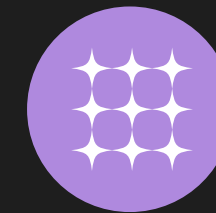
The 5 Key Themes



The view
from above
became free



Location
became invisible
infrastructure



We taught
machines to see
the earth



Maps
escaped the
specialists
desktop



Spatial data
stopped being
special



2010 to 2015: The data broke free



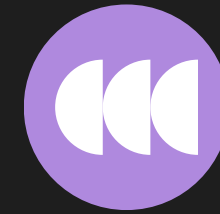
- 2010 – Planet Labs founded
- 2010 – Google Earth Engine announced
- 2013 – Landsat 8 launches with free, open data
- 2014 – Copernicus begins



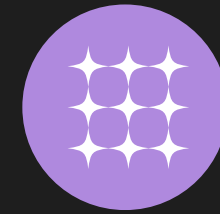
- 2010 – Mapbox founded
- 2011 – Leaflet.js released (42kb!)
- 2013 – QGIS 2.0 'Dufour' rebrands



- 2010 – Uber beta launches
- 2012 – Apple Maps launches
- 2013 – Google acquires Waze for \$1.1B



- 2014 – GeoJSON working group chartered
- 2015 – Zarr released



- 2012 – AlexNet wins ImageNet, deep learning revolution begins
- 2014 – First CNNs for vehicle detection in satellite imagery
- 2014 – Singapore begins national digital twin



2015 to 2020: The tools caught up



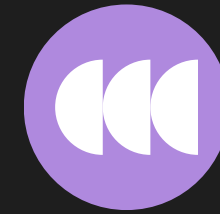
- 2015 – Sentinel-2A: free 10m global imagery
- 2017 – Planet launches 88 satellites on a single rocket
- 2018 – ICEYE first SAR microsatellite
- 2020 – SpaceX cuts launch costs 20x vs. legacy rockets



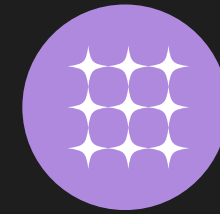
- 2015 – Uber open-sources deck.gl
- 2018 – QGIS 3.0: professional-grade open-source GIS
- 2018 – Uber open-sources kepler.gl



- 2016 – Pokémon Go: 232M players launches
- 2018 – GDPR takes effect (location = PII)
- 2018 – Google Maps API pricing increase



- 2018 – Cloud Optimized GeoTIFF gains adoption via GDAL
- 2018 – STAC spec released
- 2018 – Uber open-sources H3



- 2016 – Orbital Insight counts cars from orbit
- 2018 – Microsoft releases 125M AI-generated US building footprints
- 2019 – Meta's RapiD editor: AI-assisted OSM mapping



2020 to 2025: The walls came down



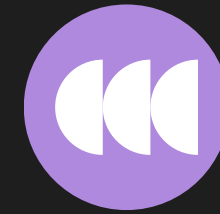
- 2021 – Planet goes public
- 2024 – WorldView Legion: 15 revisits/day at 30cm
- 2025 – CEYE reaches 50+ SAR satellites; Pixxel launches hyperspectral



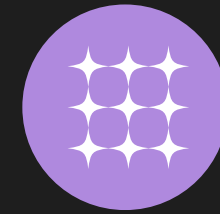
- 2020 – Mapbox goes proprietary; MapLibre fork begins (500k weekly downloads)
- 2021 – Felt launches 'Google Docs for maps'
- 2026 – ArcMap officially retired after 25+ years



- 2021 – Apple: 96% of US iPhone users reject tracking
- 2024 – FTC cracks down on location data brokers
- 2025 – Waymo: 400K+ rides/week across 6 US cities



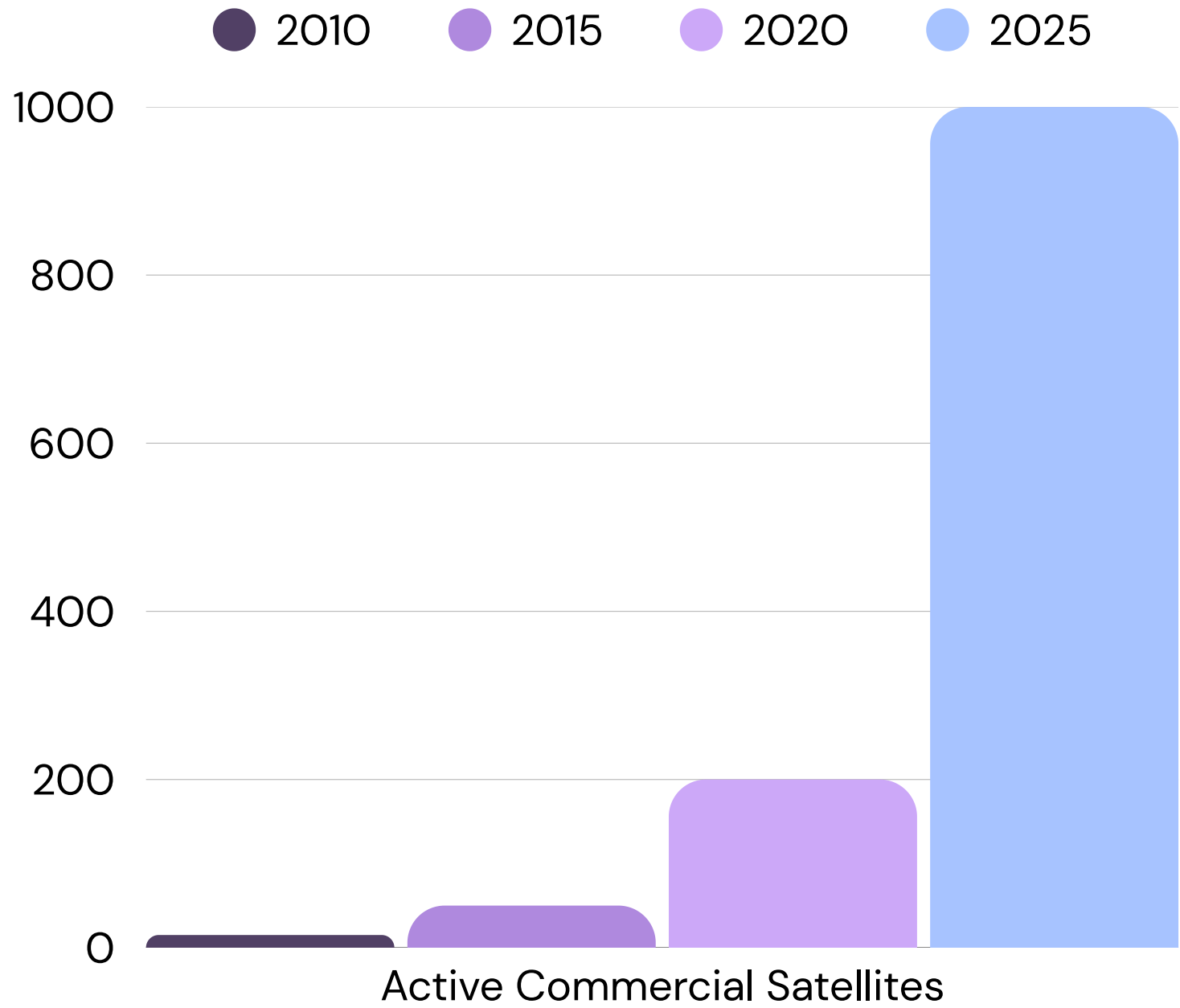
- 2022 – Overture Maps Foundation launched
- 2023 – GeoParquet 1.0 released; DuckDB spatial extension
- 2023 – Apache Sedona becomes top-level project
- 2025 – Parquet & Iceberg add native GEO types



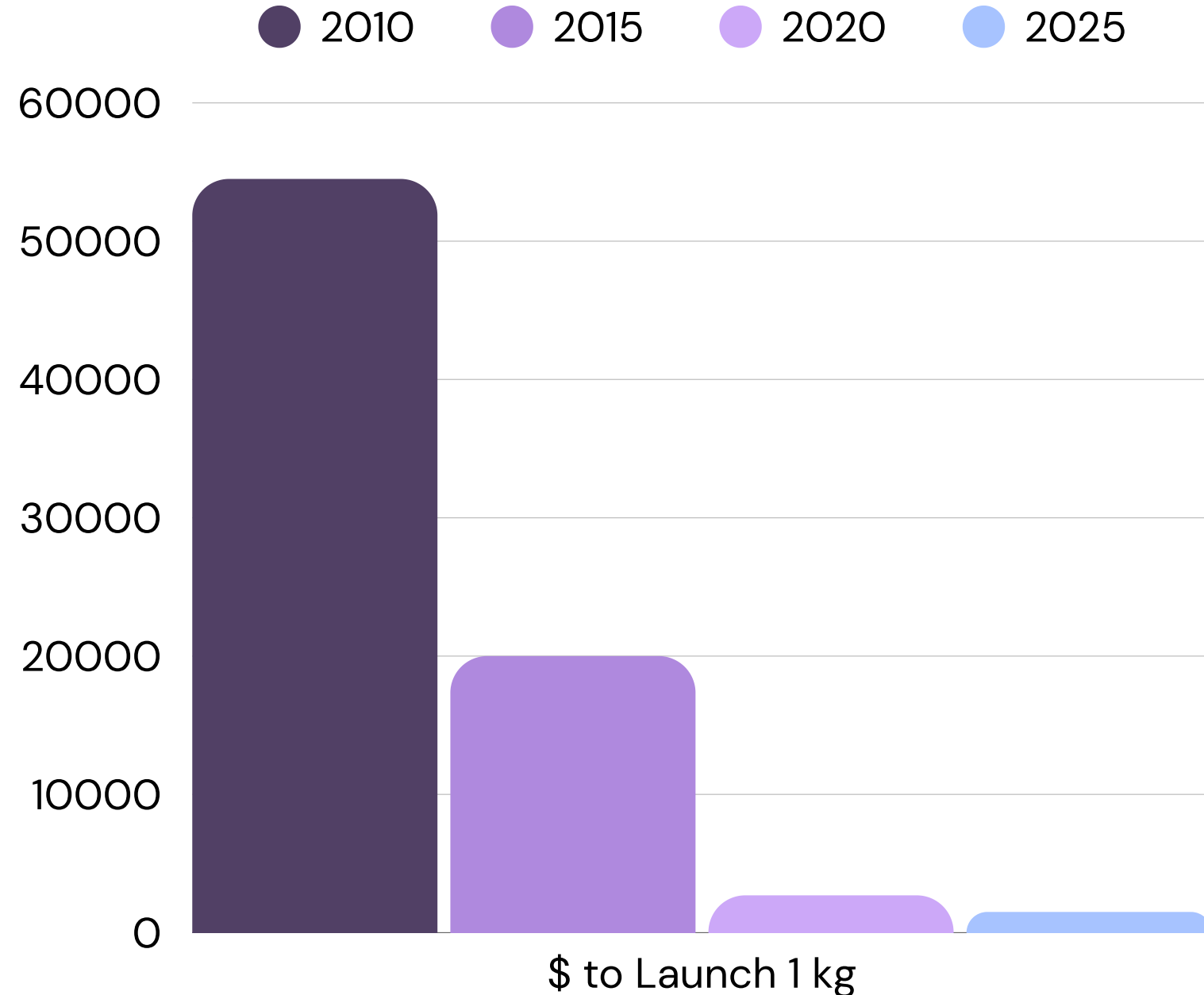
- 2023 – NASA/IBM release Prithvi first open geospatial foundation model
- 2023 – Meta's SAM adapted for satellite imagery
- 2025 – Google Earth AI; IBM/ESA TerraMind; foundation models



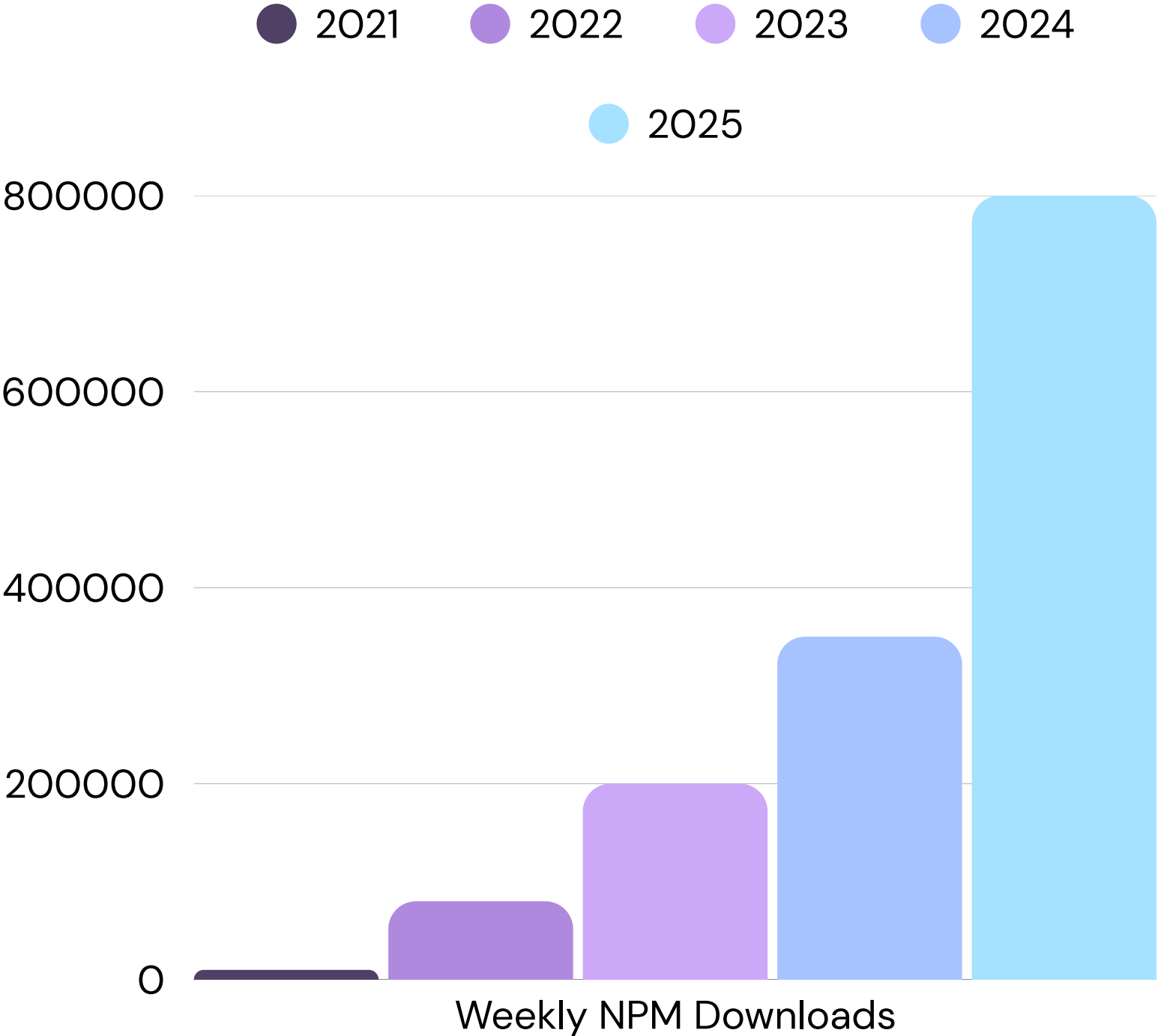
EO Satelites



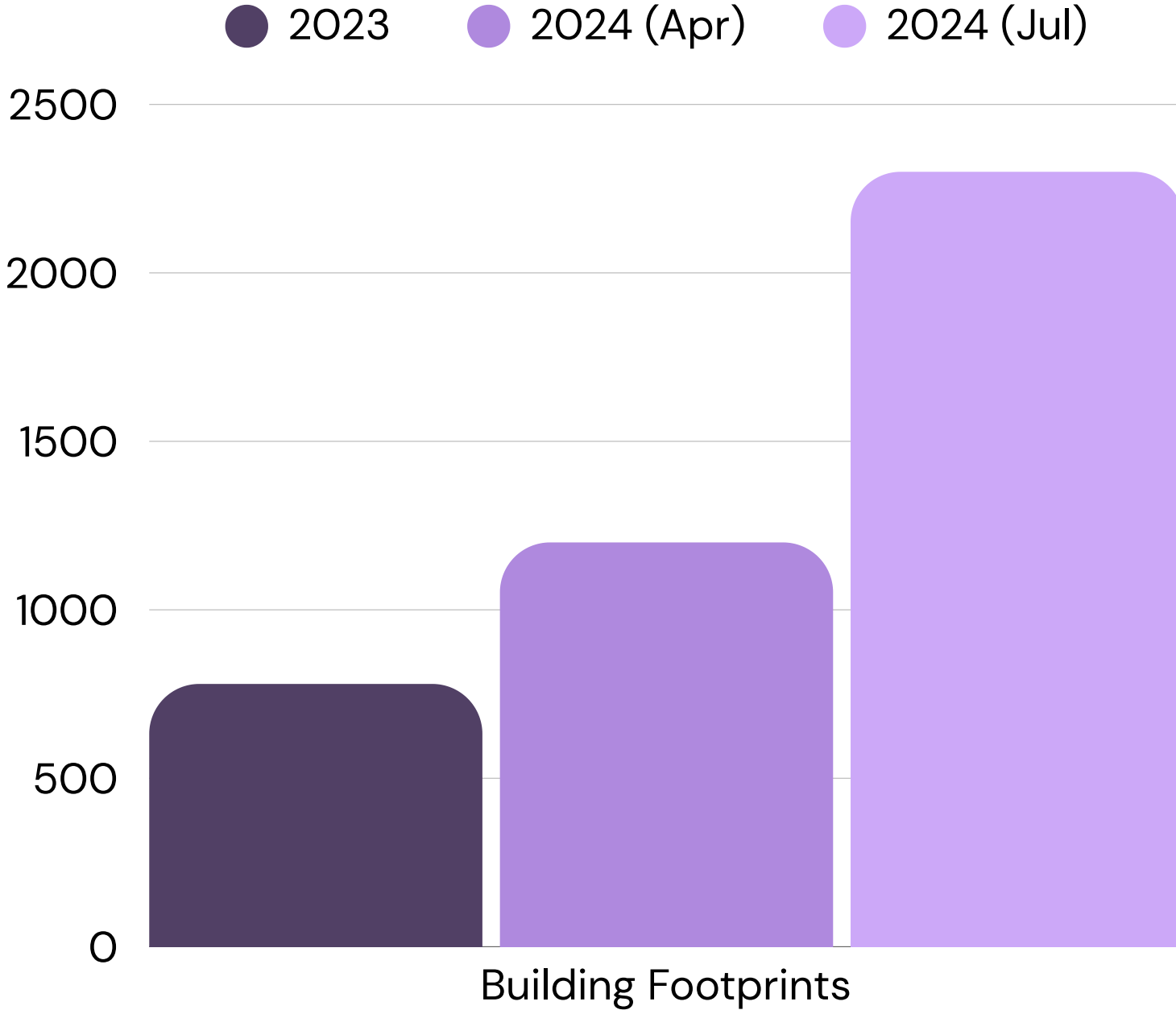
Cost to Launch



MapLibre

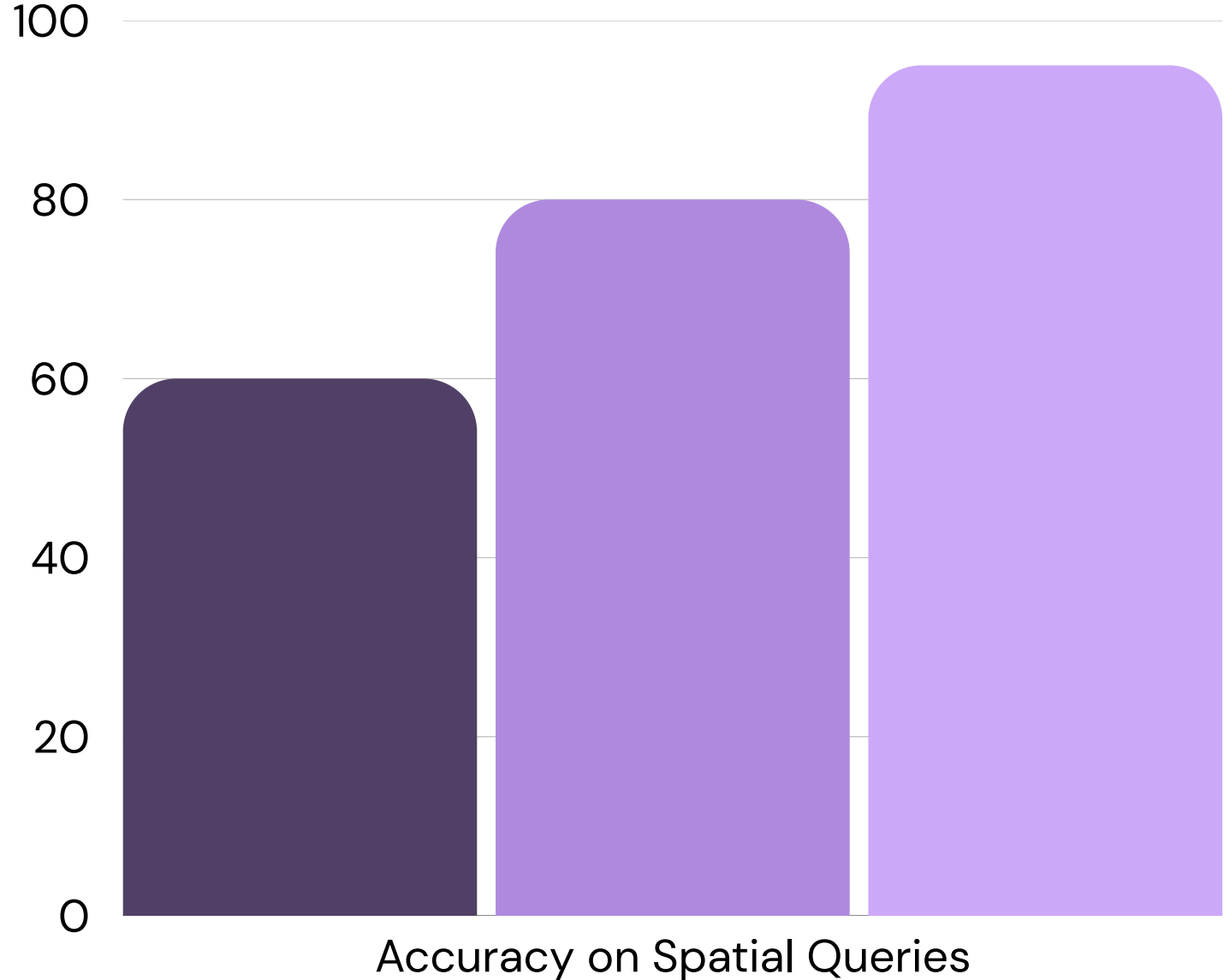


Overture



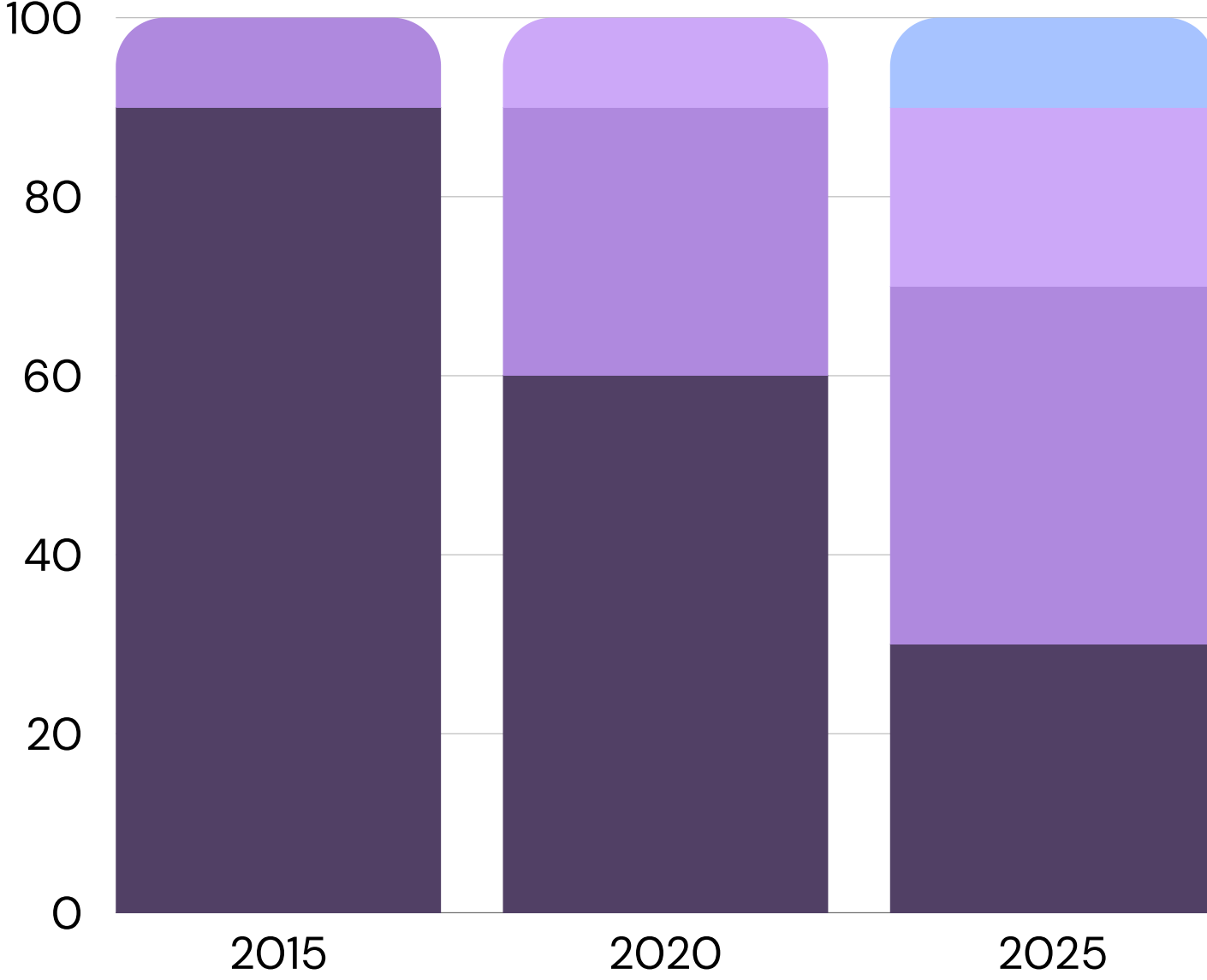
Spatial SQL

- GPT, Claude
- Aino, GTChain
- Human



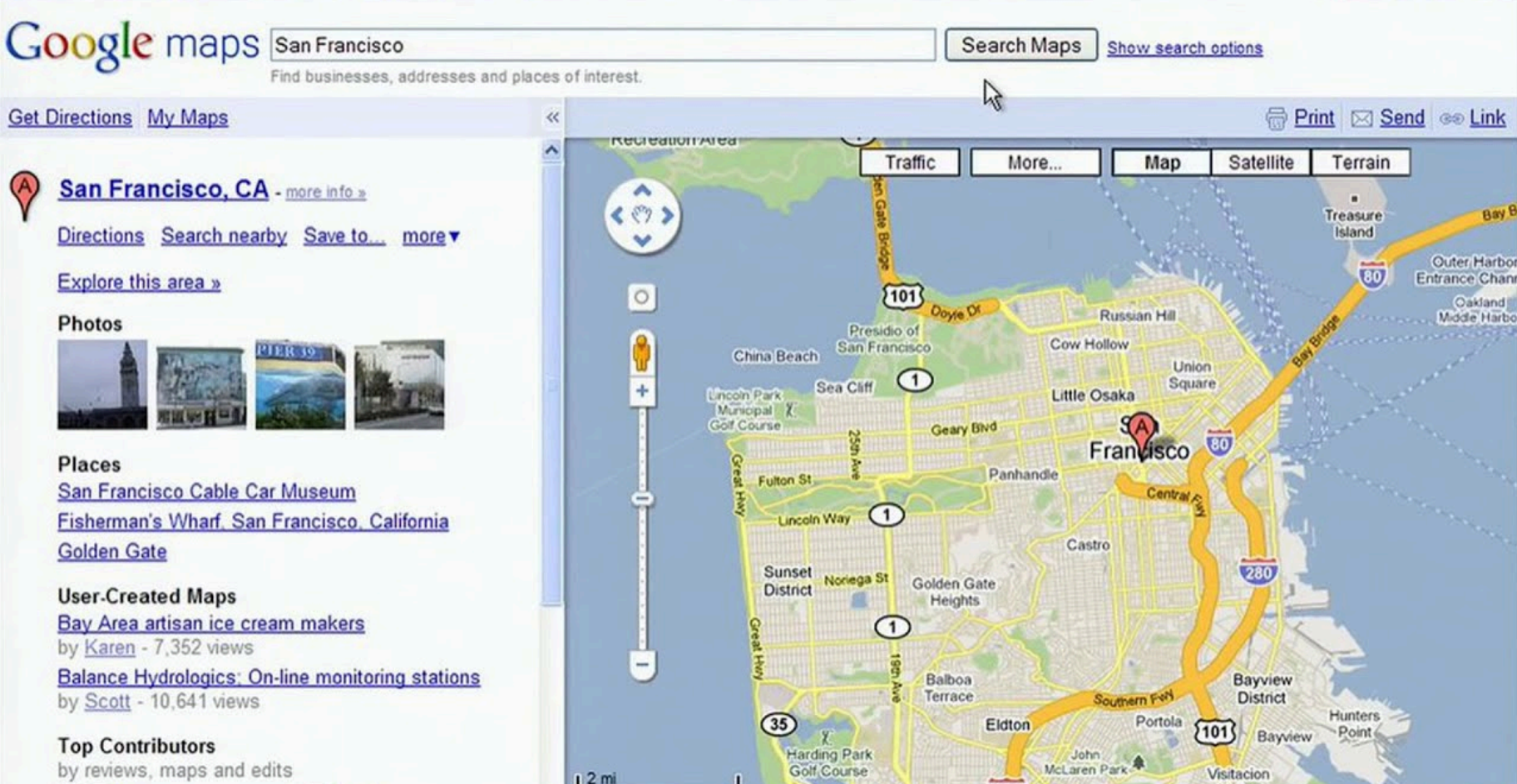
Spatial Tooling

- Desktop
- Cloud
- Notebook
- AI



**Technology is important but
what is more important is
what these changes felt like**



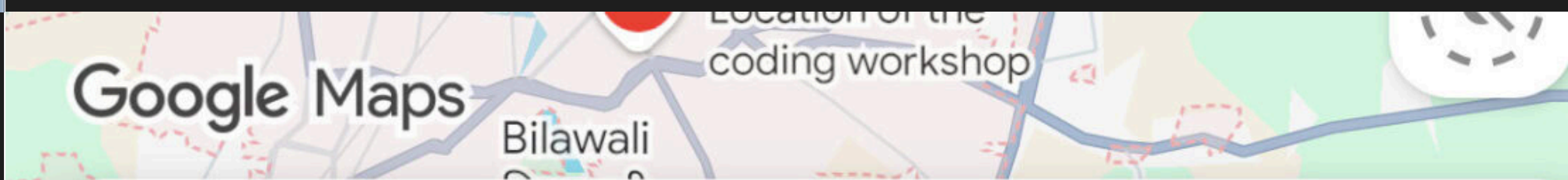


✦ Location tracking went from invisible to uncomfortable, you started seeing ads for places you just visited and wondering who's watching

✦ The map became the default interface for deciding where to eat, where to stay, and where to live

For Consumers

✦ Maps went from something you printed from MapQuest to something that lives in your pocket

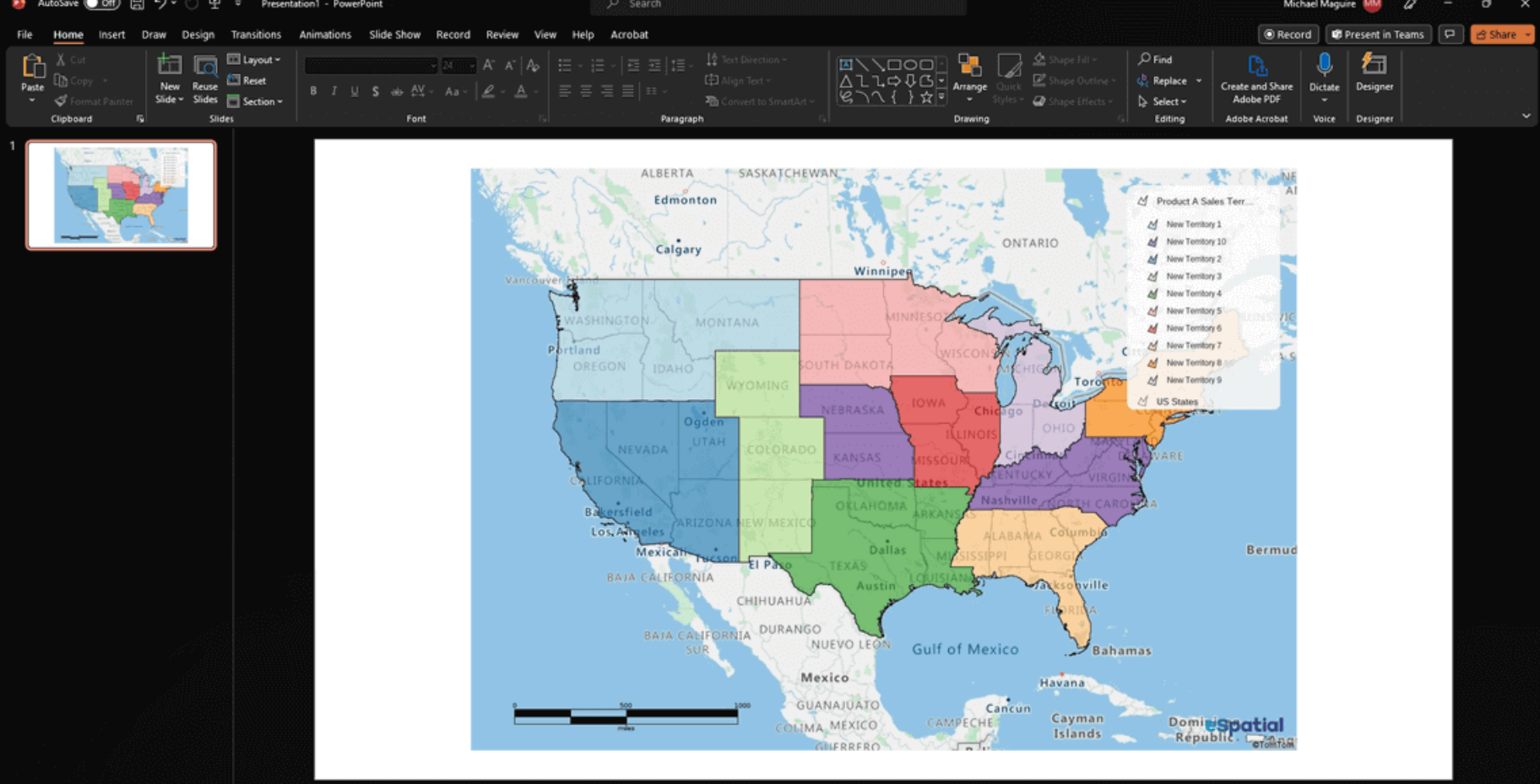


Ask Maps

cool things to do this weekend in my area?

Here are some events and activities happening this

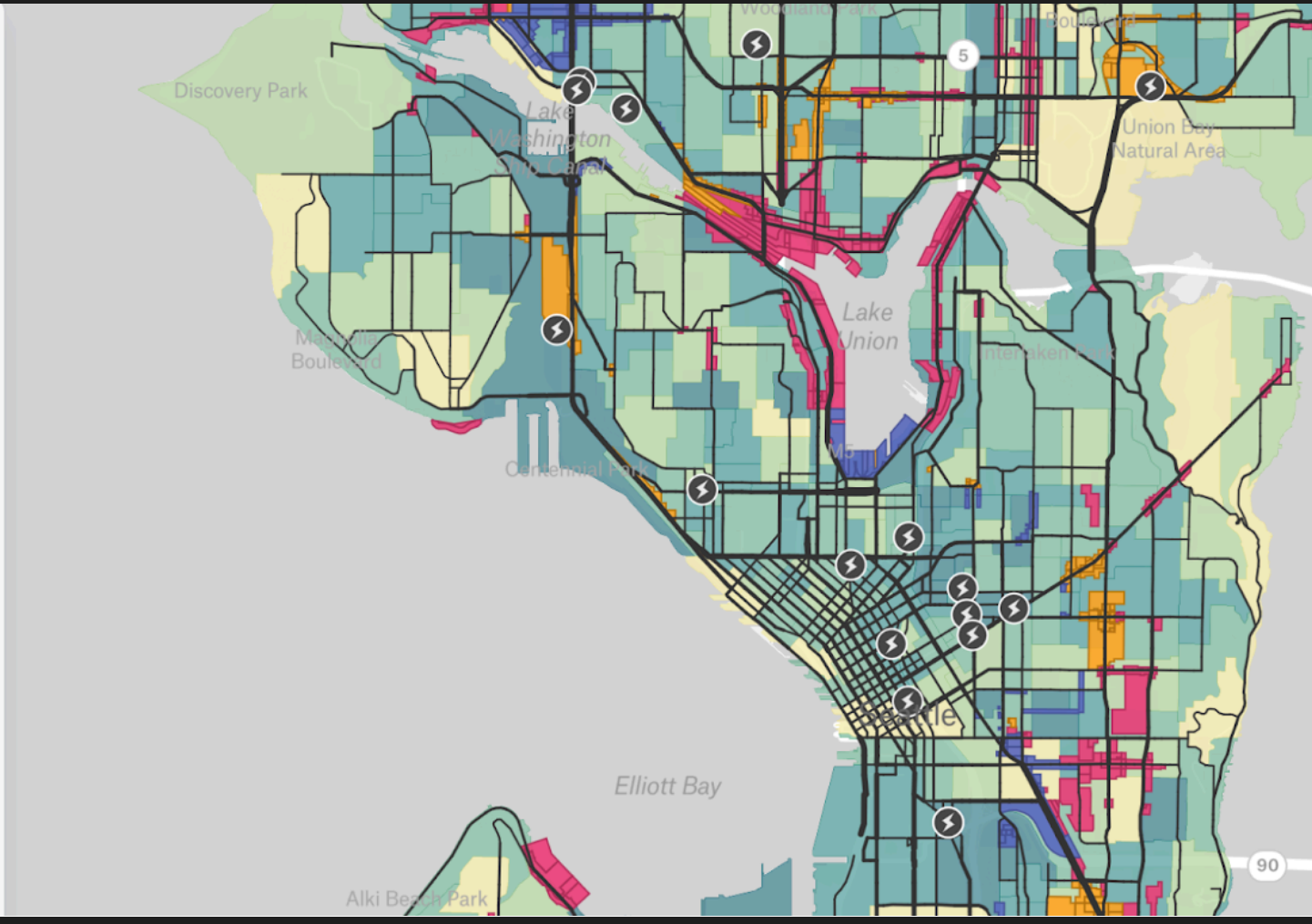
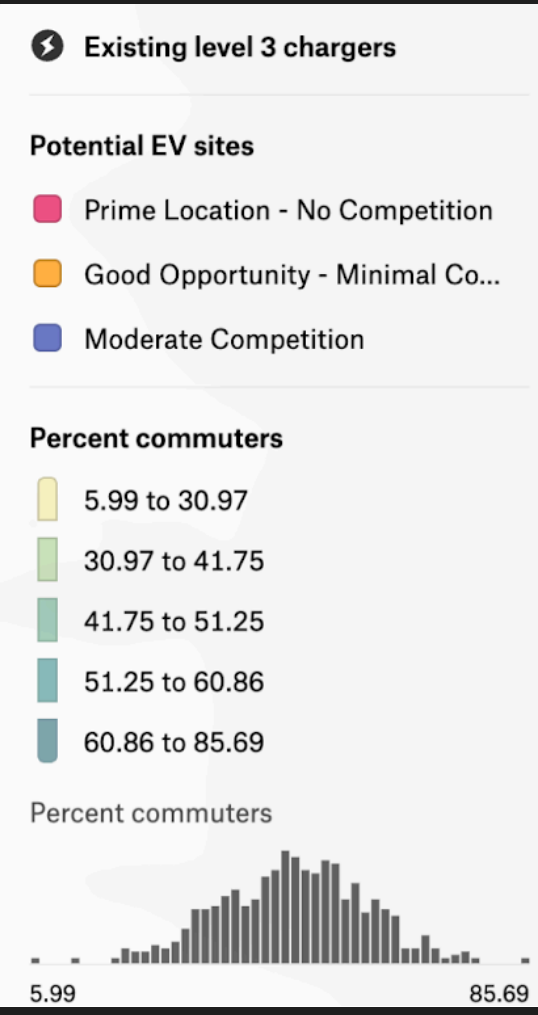




- ✦ Data about foot traffic, drive times, and trade areas became available for purchase, but you still needed a specialist to make sense of it
- ✦ The gap between "we know location matters" and "we can actually use it" stayed frustratingly wide for most organizations

For Business Users

- ✦ You started hearing "spatial" in conversations about supply chain, insurance, and marketing





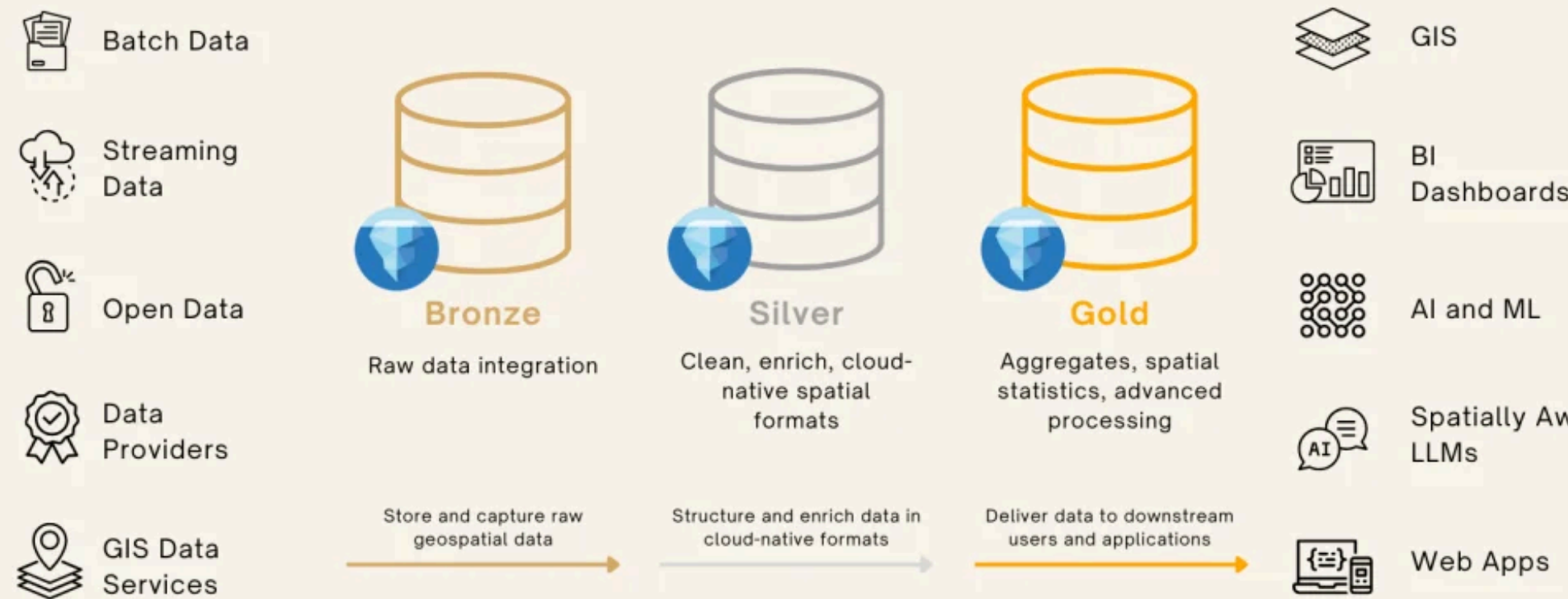
- ✦ The job title stayed the same but the job description changed three times: desktop GIS, then web GIS, then cloud-native, then data engineering
- ✦ The tools got dramatically better: QGIS went from scrappy to professional, Python went from optional to expected

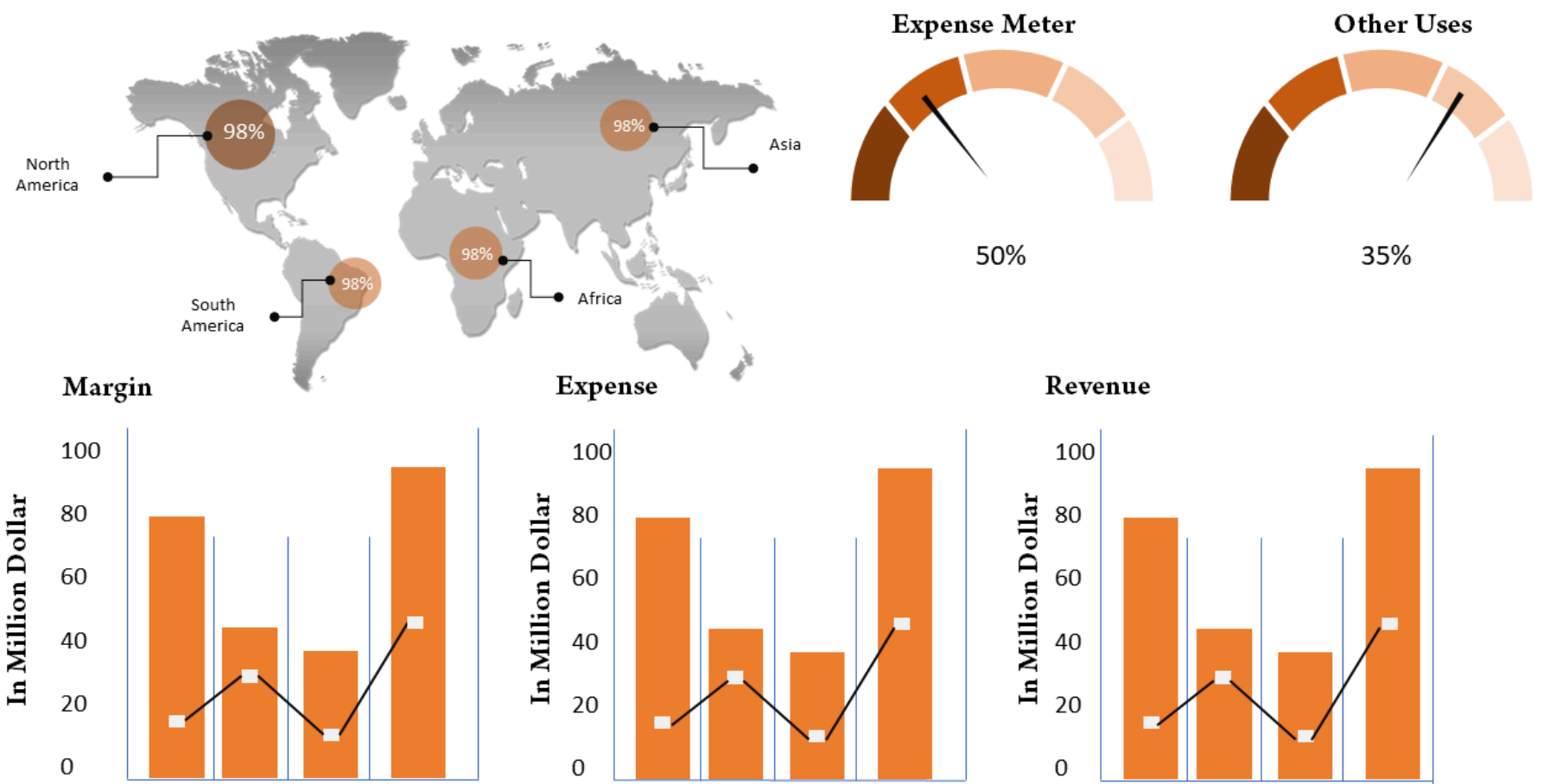
For Practitioners

- ✦ You started spending less time making maps and more time cleaning, transforming, and moving data between systems

Architecture

geospatial data pipelines with Apache Iceberg





- ✦ Location data became clearly valuable but remained trapped in specialized systems that didn't connect to the rest of the data stack
- ✦ You started hearing about competitors using satellite imagery and mobility data and wondered if you were falling behind

For Executives

- ✦ GIS went from a back-office function nobody questioned to a line item that kept getting harder to justify in isolation



The promise of "location intelligence for everyone" kept getting made at conferences but rarely showed up in the actual org chart





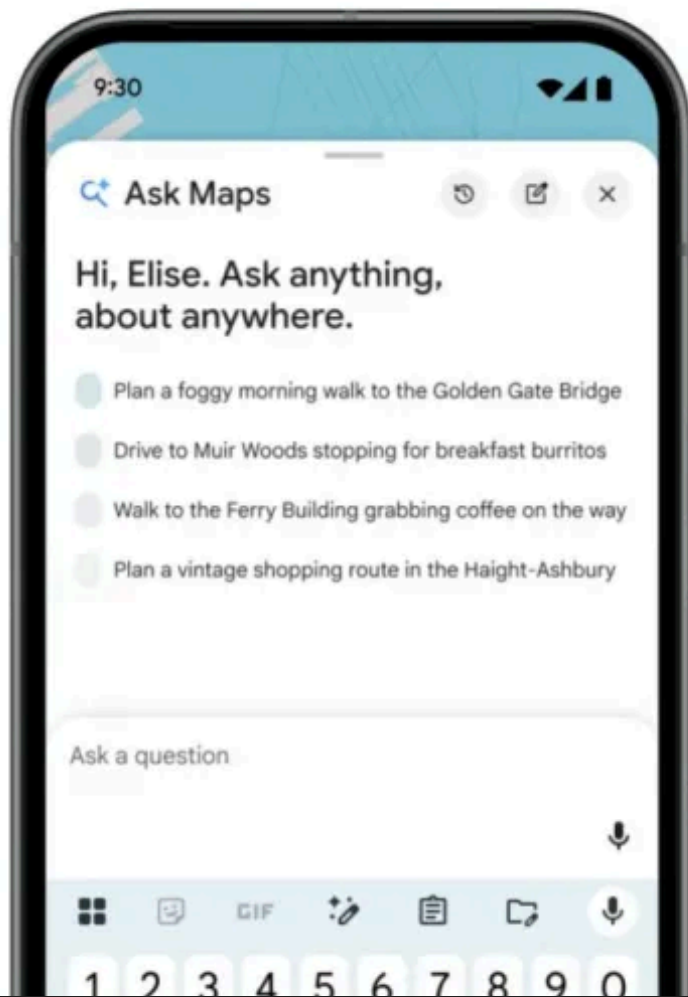
...we can predict what it will feel like (a lesson from the futurist)

We can only guess what the technology will be but...



**2025 to 2030:
The machines join in**





You'll stop typing searches and talk to the map: "where should I take my parents for dinner Saturday, somewhere not too loud, they like Italian"

The map will start knowing things about you that feel helpful and creepy at the same time: suggesting your kid's pediatrician before you search.

Consumers

AI won't feel like a new feature, it'll feel like the map graduated from a filing cabinet to a concierge



Layers Features

Champlain, Cuisine Découverte ✕

GERS: 367c5ce4-e923-4402-a051-4cd9a89f324e

theme: places

type: place

names:
primary: Champlain, Cuisine Découverte

categories:
primary: french_restaurant
alternate: mass_media, fast_food_restaurant

sources:
dataset: meta
record_id: 173064293286656
update_time: 2026-04-06T00:00:00.000Z
dataset: Overture
record_id:
update_time: 2026-04-07T10:00:15Z
property: /properties/confidence

The wait for an analysis will feel like a memory: you'll ask a question in your analytics tool and get a map back in the same meeting.

You'll make faster location decisions, but some will be wrong and you will need to catch them with human driven processes

Business User

The competitive advantage will move from having location data to asking better location questions: the data is ubiquitous.

IGHT-INTEL
MGO HUB ANALYSIS - V1.0

FACILITIES 3,123 DEMAND-PTS 8,079 15-MIN COV 57.9% GAP-ZIPS 15+ CORRIDORS 5

INTELLIGENCE REPORT - GREAT LAKES GATEWAY

The Chicago eight Network, scale.

ica's undisputed rail and intermodal capital, analyzed street by street. Chicago's scale creates logistics emphasis doesn't face — a metro too large for any five anchors to blanket, a street grid that runs 30 mph where ses say 45, and a geographic position squarely inside the Great Lakes lake-effect snow corridor. Four-part /sis covering facility coverage, last-mile bottlenecks, operator saturation, and weather-exposed lanes to Detroit, St. Louis, Indianapolis, and Minneapolis.

HIS: 3.9x the demand universe · 4.0x the facilities · 20x the snow corridor exposure · 23 pp lower coverage rate

BOUNDING BOX DATASETS EQUIVALENT MANUAL EFFORT



Options ▾ | 2025-09-18 19:04:14 ✓ Success | Add a note | Clear Dag Run | Mark Dag Run

Logical Date	Run Type	Start Date	End Date	Duration	Triggering User Name
2025-09-18 19:04:14	▶ manual	2025-09-18 19:04:21	2025-09-18 19:04:25	4.43s	admin

Task Instances | Asset Events | Audit Log | Code | Details

Q Search Tasks | All States ▾

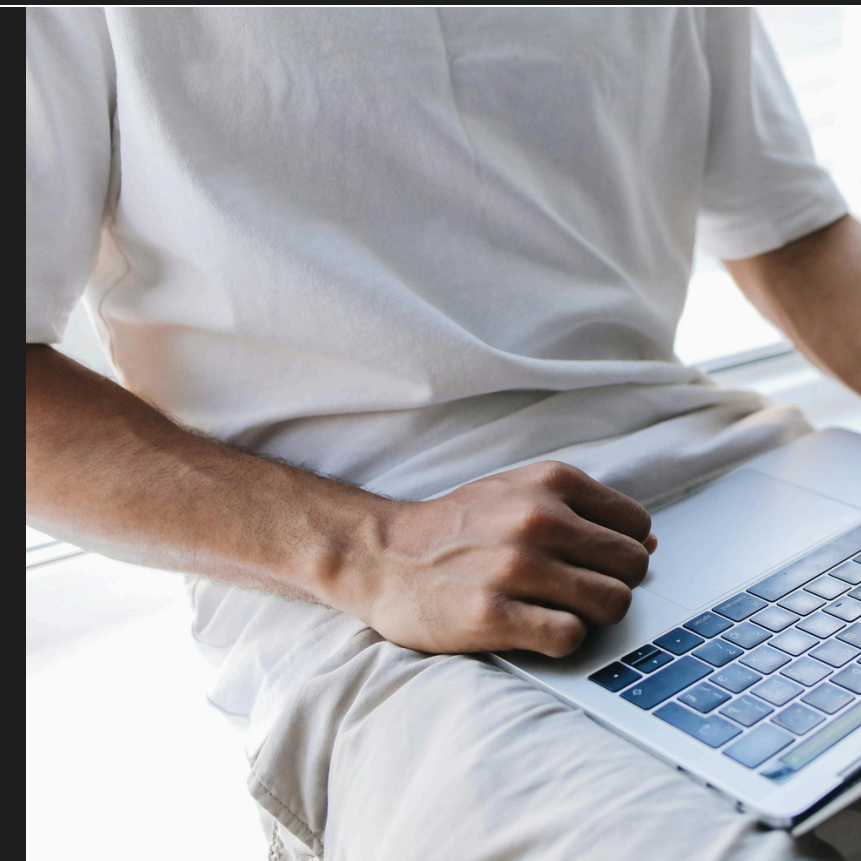
Task ID	Map Index	State	Start Date	End Date	Try Number
merge_data		✓ Success	2025-09-18 19:04:24	2025-09-18 19:04:24	1
get_data		✓ Success	2025-09-18 19:04:22	2025-09-18 19:04:23	1
create_employees_table		✓ Success	2025-09-18 19:04:21	2025-09-18 19:04:21	1
create_employees_temp_table		✓ Success	2025-09-18 19:04:21	2025-09-18 19:04:21	1

Instead of opening software you'll describe what you need in a sentence and watch the tools configure themselves, and it will be thrilling and unsettling.

The tedious parts of your job will vanish (ex. data cleaning) you'll be surprised how much of your time they used to consume

Practitioners

The career path will feel like a fork: one direction leads to data engineering and automation, the other leads to spatial strategy and decision support. The "person who operates GIS software" gets thinner every year.



You'll spend more time saying "no, that's wrong" to an AI than doing the analysis yourself.

Your spatial judgement will become the thing that makes you valuable.





You'll stop hearing pitches about "adding geospatial capabilities" and start seeing spatial analysis appear inside tools your teams already use.

The organizations that modernized their data infrastructure will pull ahead visibly (deploy in weeks while others spend months).

Executives

The board will start asking about spatial data the way they ask about cybersecurity because a competitor or a regulator made it impossible to ignore



Big, bold predictions.





By 2030, the majority of spatial analysis performed inside enterprises will be executed by people who don't identify as GIS professionals.



The Chicago Freight Network *at scale.*

North America's undisputed rail and intermodal capital, analyzed spatially to reveal problems Memphis doesn't face — a metro too large for any five and its road classes say 45, and a geographic position squarely inside the spatial analysis covering facility coverage, last-mile bottlenecks, and Milwaukee, Detroit, St. Louis, Indianapolis, and Minneapolis.

VS. MEMPHIS: 3.9× the demand universe · 4.0× the facilities



Within three years, a major business decision made by an autonomous AI spatial agent (without adequate human review) will fail publicly and expensively.





By 2030, the baseline for spatial data will be open, interoperable, and cloud-native and the commercial value will shift decisively from raw data to insight, speed, and trust.



Available Wherobots MCP
3 catalogs, 13 databases, 40+ tabs

Overture Maps Foundation
Global open map data — buildings, places, roads, land

- Buildings**
Height, floors, roof
- Places**
POI + categories
- Transportation**
Roads, speed
- Addresses**
Geocoded parcels
- Isochrones**
5-20 min reach
- Districts**
Admin

Foursquare + Regrid
POI data + US parcel records

- FSQ places**
Global POI
- Regrid parcels**
Valuation, zoning
- EA**
Sales
- Su**

Supplementary datasets

- NYC taxi trips
- US Census zips
- Open b

Spatial capabilities unlocked

- Spatial joins
- Isochrone analysis
- Pro
- Zonal statistics
- Hotspot detection
- M

Click any capability to see an

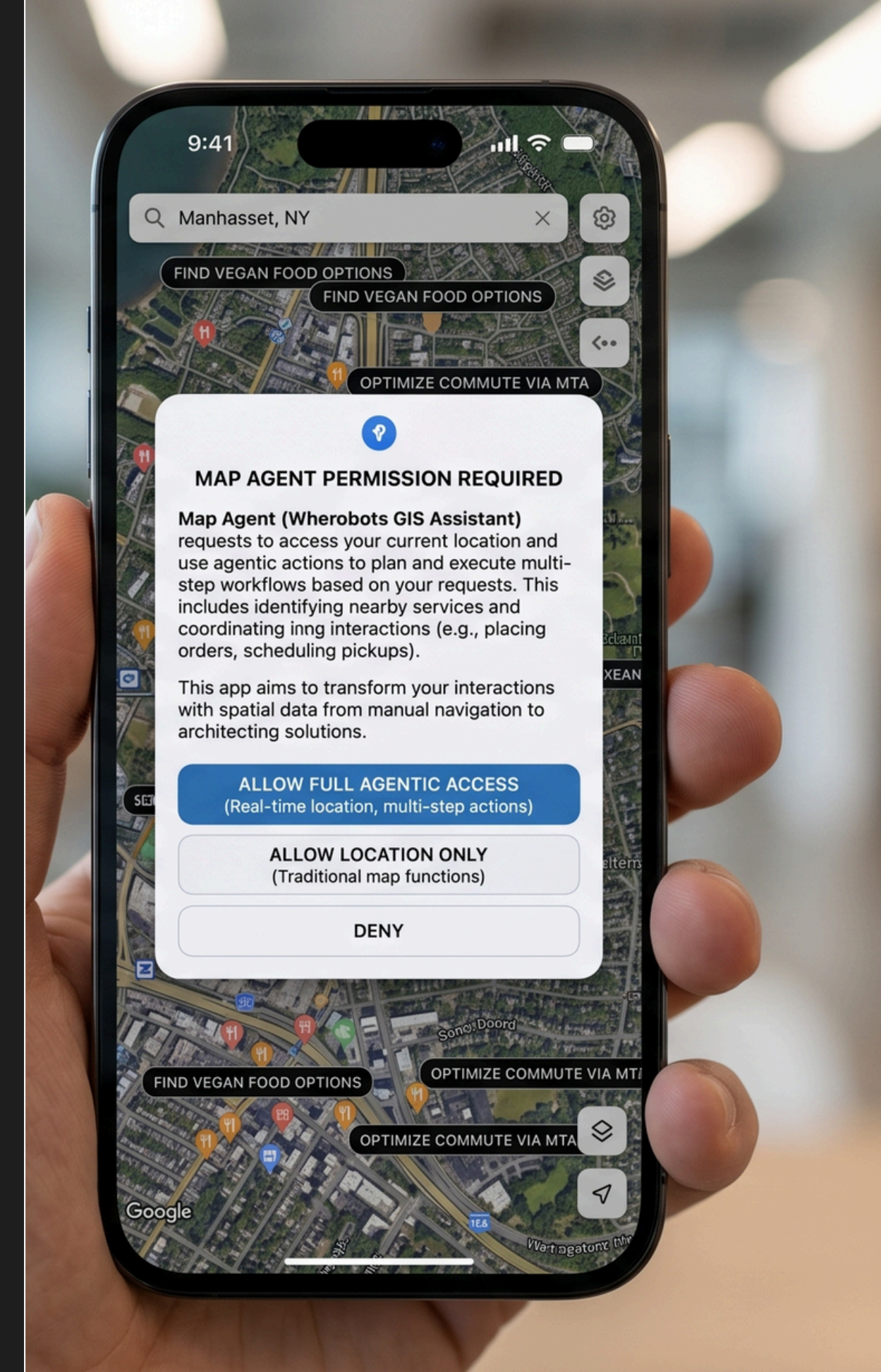
✦ 4

Foundation models for Earth observation will do to satellite imagery analysis what spreadsheets did to accounting: make the basic work trivially accessible and push experts toward higher-value judgment calls.




✦ 5


Privacy will become the defining competitive differentiator in location intelligence, not a constraint on it.




Thank You



 Website
forrest.nyc

 Email
matt@forrest.nyc

 Social Media (YouTube, LinkedIn, Instagram)
Matt Forrest

