



The GIS Debate 2026

Open Source,
Commercial and
the AI Wildcard

October 2026



Introduction

Is GIS dead yet? Round two.

In 2023 we asked whether proprietary GIS was on its way out. The answer was a firm no. Esri was still the heavyweight, open source was landing real punches, and most sensible organisations were quietly running both.

Three years later the fight has a new contestant, and it did not bother to queue. Artificial intelligence now writes the ArcPy script, drafts the SQL, reads the satellite image and, on a good day, explains the map back to you in plain English. On a bad day it does all of that with total confidence and the wrong coordinate system.

So the question has changed. It is no longer just open source versus commercial. It is: who, or what, is doing the GIS work, and who is checking it?

This edition refreshes the 2023 e-book with 2026 market data, doubles the surveys from five to ten, and puts AI where it now sits in most GIS teams: front and centre, slightly over-cafeinated, and in need of supervision.

Grab a coffee. Possibly two.

01

GIS in 2026: What Changed

GIS, short for Geographic Information Systems, is still the fusion of geography, data and technology. It lets us capture, manage, analyse and present spatial data so people can make better decisions. That part has not changed. Almost everything around it has.

The market kept growing

MarketsandMarkets puts the global GIS market at about USD 11.8 billion in 2025 and forecasts USD 28.6 billion by 2036, a compound annual growth rate of 8.4%. Analysts love a forecast, and the exact numbers vary by report, but the direction is the same everywhere: up.

Both camps shipped big releases

QGIS 4.0 “Norrköping”

Released in March 2026, moving QGIS onto modern libraries (the Qt6 migration) and adding more than 100 new features. Plugin developers had homework.

ArcGIS Pro 3.7

Released in May 2026 on Esri’s twice-yearly cycle, with no breaking changes and new AI-powered extraction from scanned maps.

“Maps help us understand the world and our place in it. GIS takes it a step further, enabling us to analyse, interpret, and solve real-world problems.”

Dr. Roger F. Tomlinson, Father of GIS

The database question is basically settled

PostgreSQL topped the 2025 Stack Overflow Developer Survey for usage (55.6% of developers), admiration and desire. For spatial people that matters, because PostgreSQL is where PostGIS lives. When the general developer world standardises on your database, hiring and tooling get easier.

Open data got serious

The Overture Maps Foundation's August 2026 release included more than 2.5 billion building footprints and over 73 million places, with five themes generally available. Open base data at that scale changes the cost of starting a project. You no longer pay for the basemap before you pay for the thinking.

Data went cloud-native

Formats such as GeoParquet and engines such as DuckDB's spatial extension let analysts query large spatial datasets straight from cloud storage, often from a laptop. For many workloads, the old rule of "load it into a big server first" no longer applies.

And then AI turned up

AI assistants moved inside the GIS software itself. Geospatial foundation models moved from research papers to public downloads. One even went to space. Chapter 03 covers it properly.



02

Unveiling the Contenders (2026 Edition)

In 2023 this was a two-horse race. In 2026 there are three, and the third one runs on GPUs.



Open Source GIS

Open Source GIS is still the welcoming neighbourhood restaurant that shares its secret recipes. QGIS, PostGIS, GeoServer, GDAL, OpenStreetMap and MapLibre remain the core menu, now joined by cloud-native tools such as DuckDB and GeoParquet.

What is new is the kitchen hand. AI coding assistants have made open source far easier to approach. The steep learning curve we listed in 2023 is flatter when an assistant can write the PyQGIS script, explain the GDAL error and suggest the PostGIS function you forgot existed.



Commercial GIS

Commercial GIS is still the fine-dining option, with Esri (ArcGIS), Precisely (MapInfo), Safe Software (FME), Mapbox, Carto and others on the menu. The premium experience now includes AI waiters.

Esri has rolled out a family of AI assistants across ArcGIS. As at June 2026, the Survey123, Business Analyst and translation assistants are generally available, while the ArcGIS Pro, Notebooks, Arcade and several other assistants are in beta. The integration is impressive. So is the reminder that beta means beta.

The Wildcard: AI and Earth Foundation Models

The third contender is not a GIS product in the traditional sense. It is a mix of big tech platforms and open AI models trained on decades of satellite imagery.



Google Earth AI

A set of geospatial models covering imagery, weather, floods and population, plus a Geospatial Reasoning agent that connects Gemini to them. In October 2026 Google described the agent as experimental and open to a limited group of early users.



Prithvi-EO-2.0

The NASA and IBM open foundation model for Earth observation, released under Apache 2.0 and available in sizes from tiny to 600 million parameters.



AlphaEarth Foundations

Google DeepMind's annual 10 m embeddings of the planet (2017 to 2025), available under CC-BY 4.0. Think of it as every pixel on Earth summarised into 64 numbers that machine learning can use.



Clay

An open foundation model with published embeddings, useful for aerial imagery workloads.

"None of these replace a GIS. All of them change what a GIS team can do in a week."

GIS People

03

AI Moves In: The New Co-Pilot

If you remember one chapter, make it this one. AI is not a feature on the side of GIS anymore. It is becoming the way many people use GIS.

Assistants inside the tools

The most visible change is the chat box in the corner of the screen. In ArcGIS Pro, the assistant (in beta) can run common actions, answer ArcGIS questions and generate ArcPy scripts, SQL query layers and graph queries. Similar assistants now help write Arcade expressions, troubleshoot Python in notebooks and convert PDFs into draft StoryMaps.

Open source users have taken a do-it-yourself route: general-purpose AI coding tools paired with PyQGIS, GDAL, PostGIS and DuckDB. Less polished, more flexible, and you choose the model.

Foundation models for the planet

Earth foundation models are pre-trained on huge archives of satellite imagery. Instead of training a land cover model from scratch with thousands of labelled samples, you start from a model that already “understands” what fields, roofs, water and forest look like. Tasks that took months of labelling can now start with a few hundred examples.

There is an Australian angle too. Researchers from Adelaide University and the SmartSat Cooperative Research Centre, working with ESA’s Φ-lab and Thales Alenia Space, ran the Prithvi model on platforms in orbit, described as the first geospatial foundation model deployed in space. Analysing imagery before it is even downlinked is a big deal for bushfire, flood and maritime monitoring.

Agents that plan the analysis

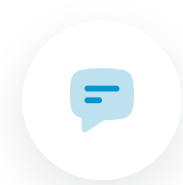
The next step is agentic AI: systems that take a question such as “which suburbs are most exposed to flooding and have the oldest housing stock?”, plan the steps, fetch the data, run the analysis and show their working. Google’s Geospatial Reasoning agent is an early example. It is experimental, but it signals where the industry is heading.

What AI is genuinely good at



Writing and explaining code

Python, ArcPy, PyQGIS, SQL and Arcade.



Plain-English questions

Turning plain-English questions into queries and workflows.



Feature extraction

Extracting features from imagery and scanned maps at scale.



Documentation

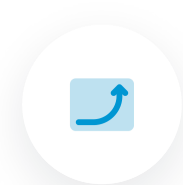
Drafting metadata, documentation and alt text that nobody enjoys writing.



Translating between platforms

For example, an ArcPy script into PyQGIS.

Where it still trips over



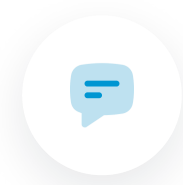
Coordinate systems and datums

A confident answer in the wrong projection is still wrong.



Topology and dirty data

Edge cases trip it up. AI is fast at producing results that look right.



Context

It does not know that a road was realigned last year or that a parcel is under dispute.



Accountability

A model cannot sign off a flood map or a development approval. A person has to.

The data question nobody can skip

Before pointing an AI tool at spatial data, ask where that data goes. Location data about people, assets and critical infrastructure is sensitive. Many organisations, including government agencies, now require approved tools, Australian data residency or anonymised inputs before AI can be used. At GIS People we use AI for code and documents with anonymised data, and raw client data is never uploaded to AI tools. Boring? Yes. Essential? Also yes.



“Geography is the science of places and spaces. The insights it gives us into the world help us better understand our own place in it.”

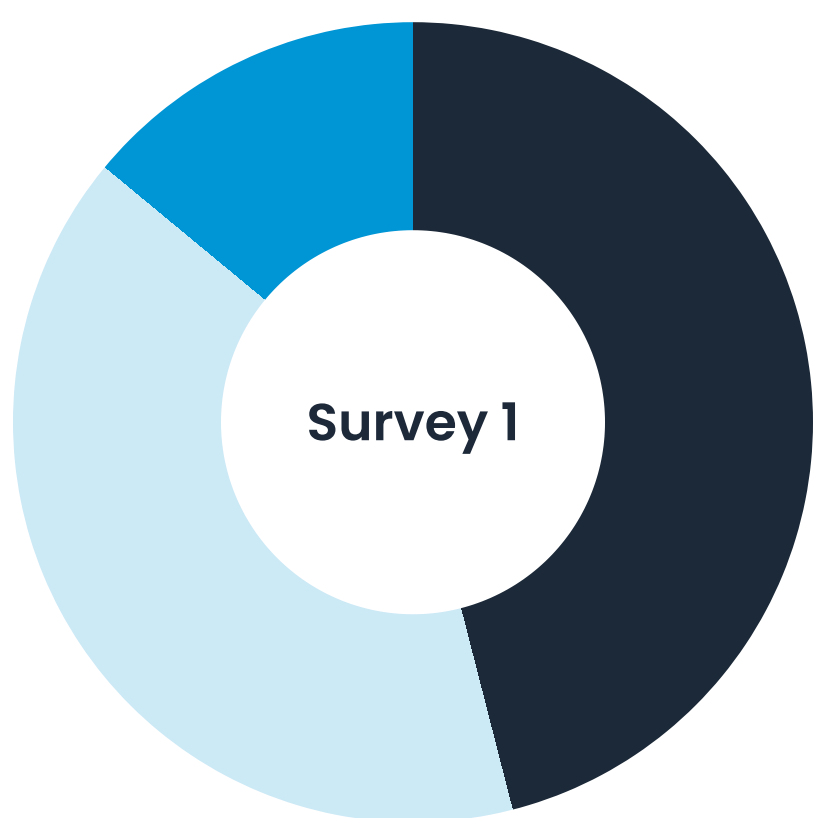
Michael Palin

04

Surveying the Landscape: 10 Questions for 2026

In 2023 we ran five polls with our community. This edition revisits those five and adds five new questions about AI, because that is where the conversation has moved.

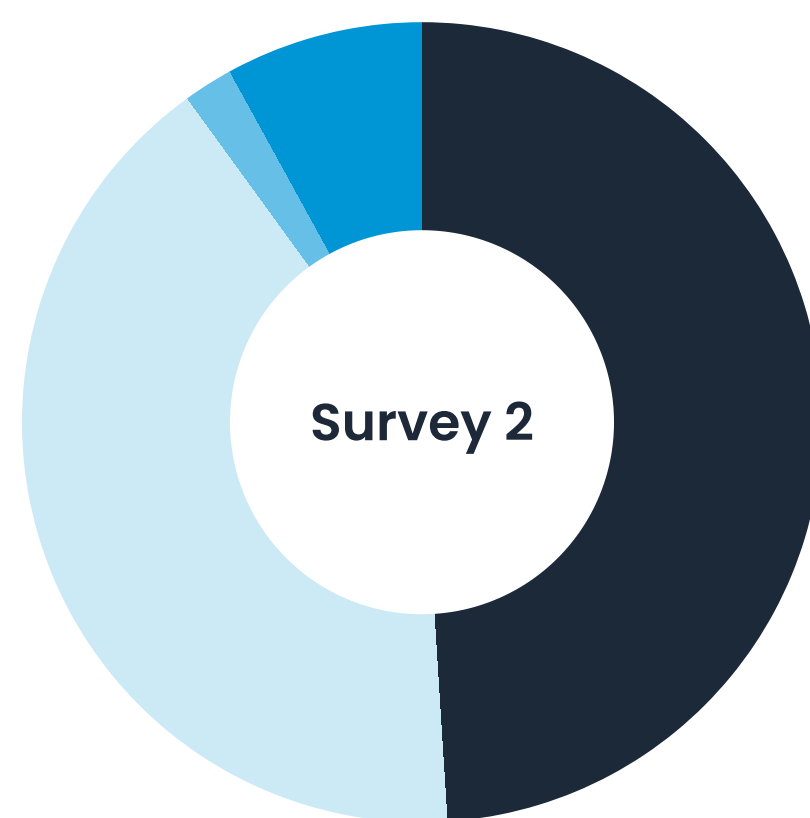
Part A: The 2023 questions, revisited



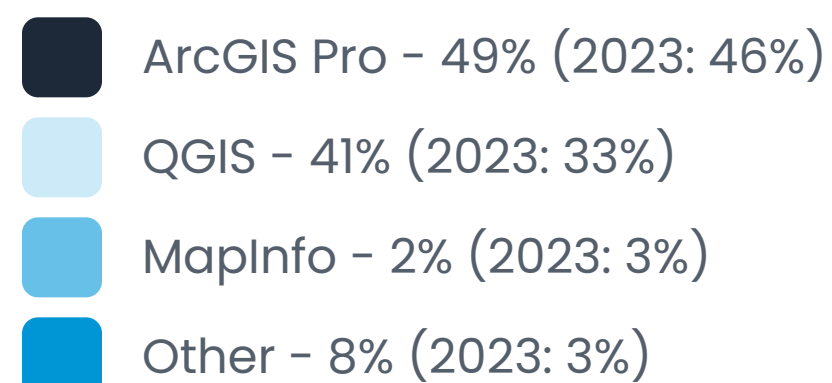
Which types of GIS do you use the most?



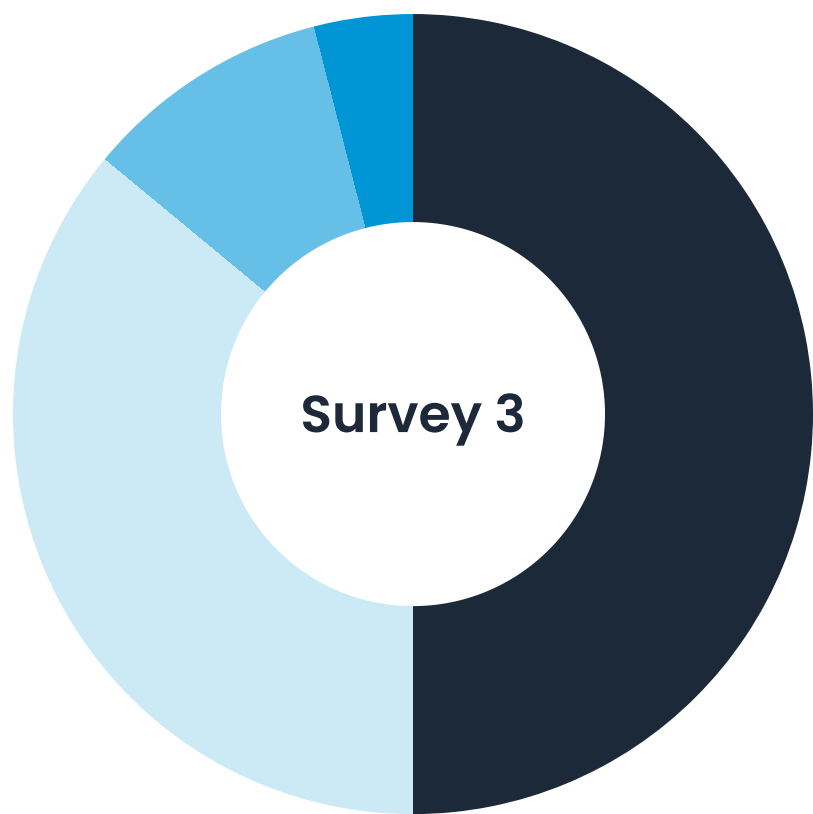
What it tells us: The real growth is in "both". We added the option because so many people told us the 2023 question forced a false choice.



Which desktop GIS client do you prefer for your GIS work?



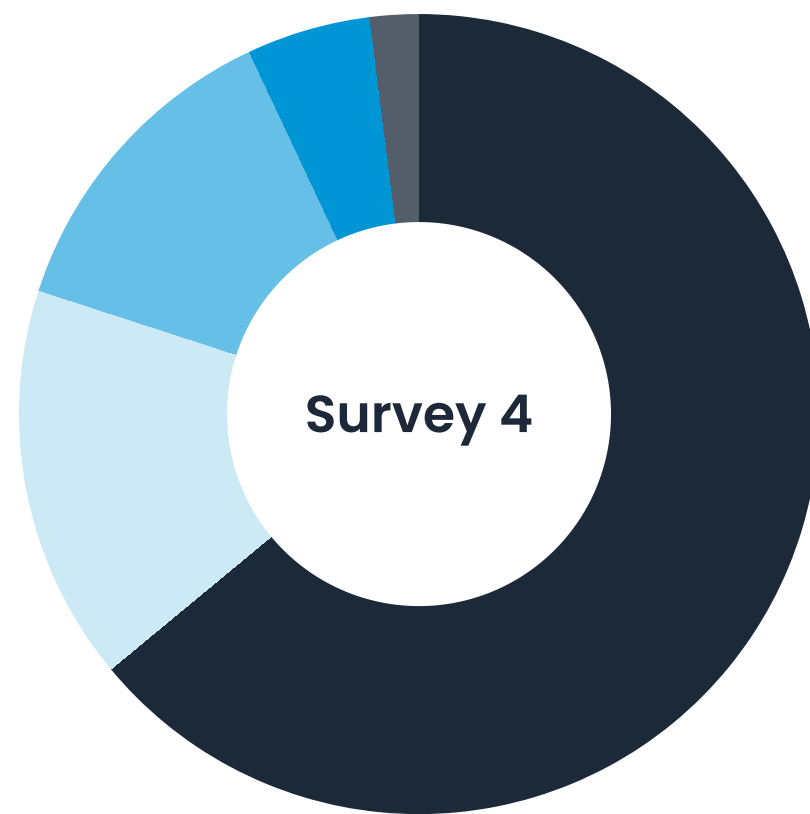
What it tells us: ArcGIS Pro holds the top spot, while QGIS 4.0 and AI-assisted scripting keep closing the gap. MapInfo continues its slow fade.



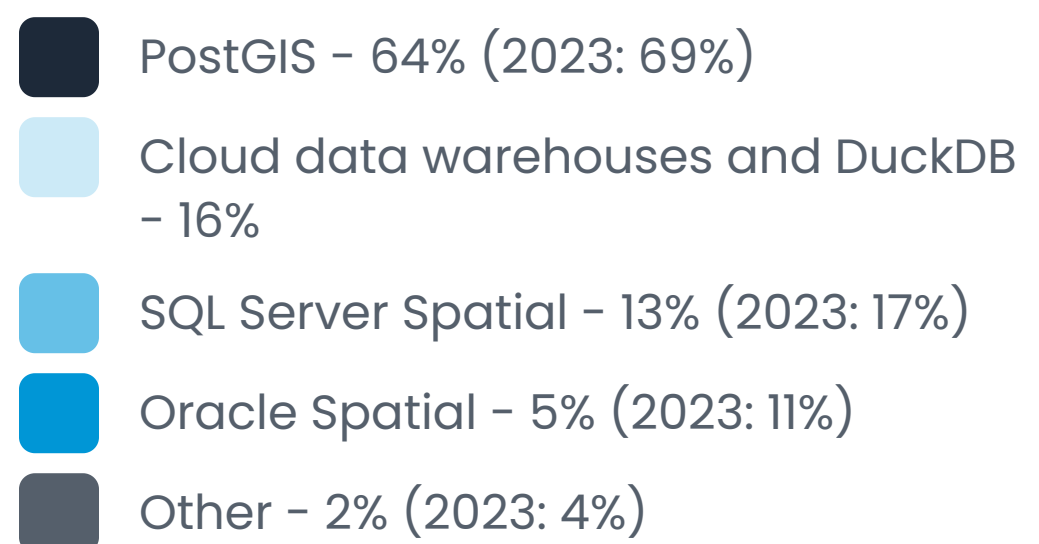
Which type of GIS web technology do you prefer for your mapping projects?



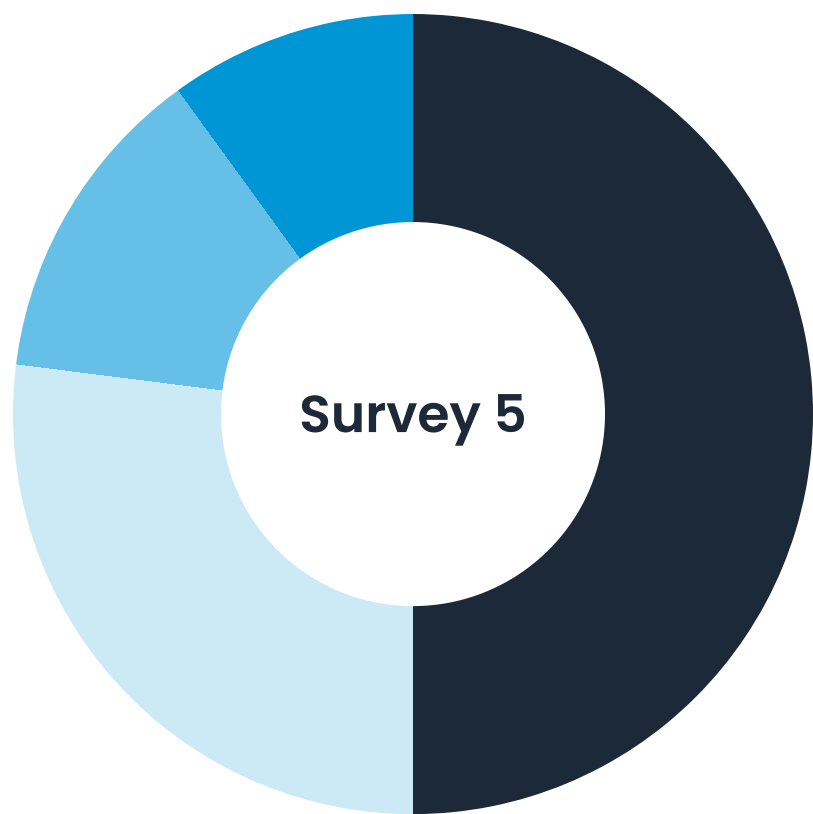
What it tells us: Fewer people are building their own stacks from scratch. Managed cloud services are taking a slice from both camps.



Which geospatial database do you prefer for storing and analysing spatial data?



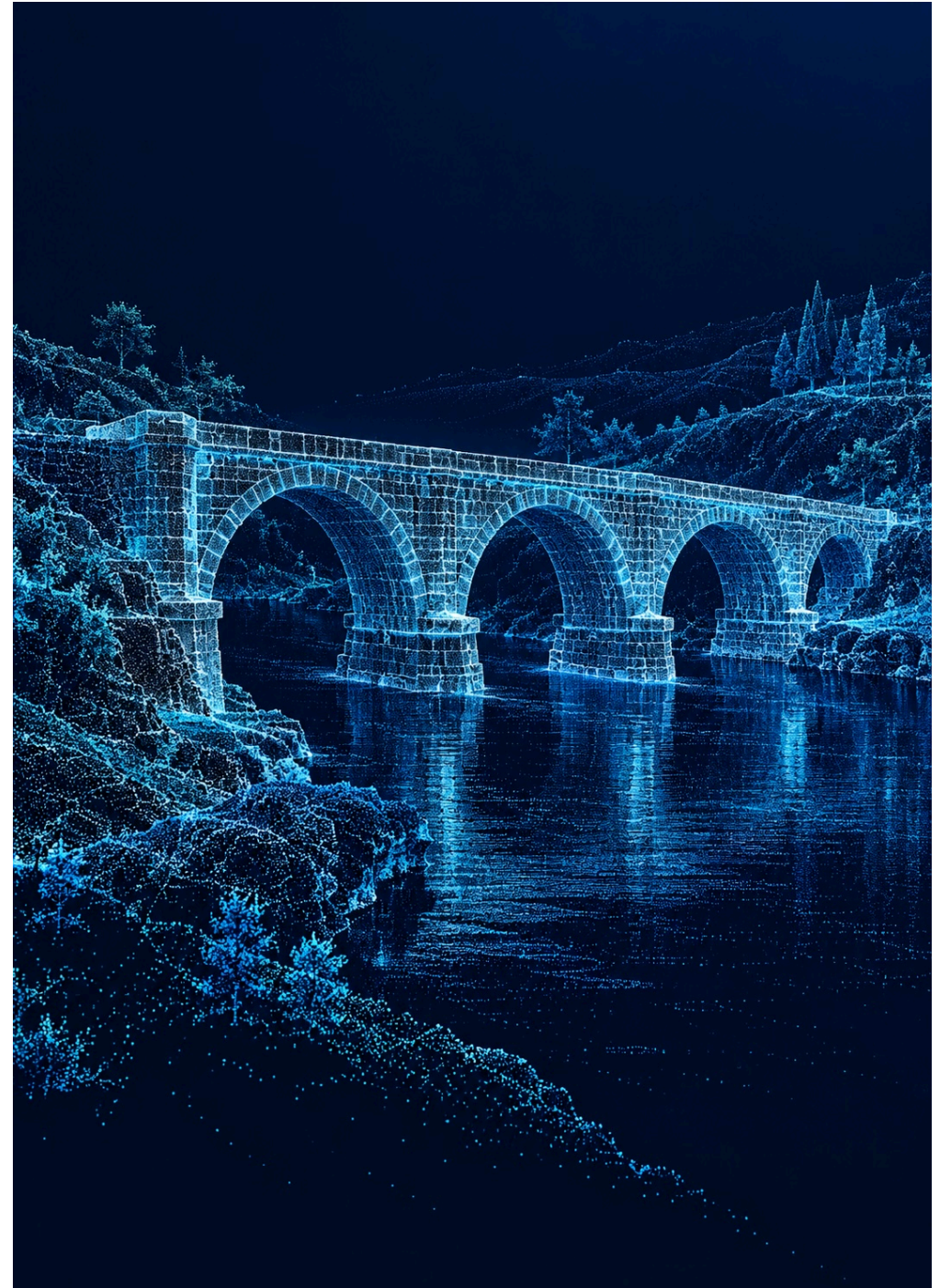
What it tells us: PostGIS remains the clear favourite. Cloud warehouses and DuckDB are the new kids, and they are mostly winning ground from Oracle and SQL Server.



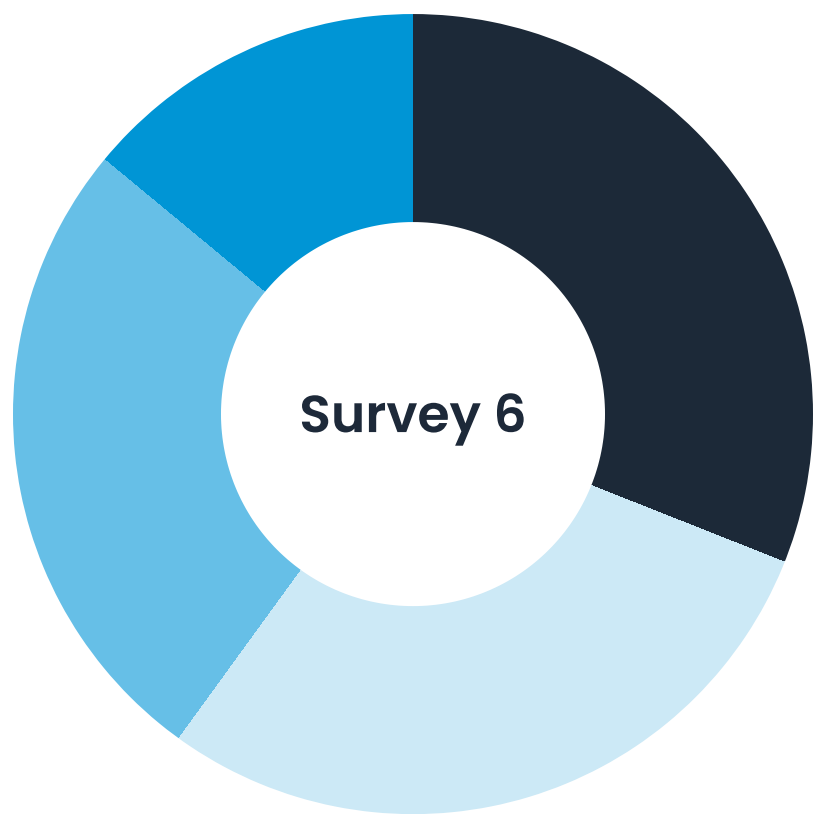
Which is your favourite LiDAR point cloud client application?

- ArcGIS Pro (Commercial) – 50% (2023: 54%)
- QGIS (Open Source) – 27% (2023: 23%)
- Global Mapper (Commercial) – 13% (2023: 15%)
- PDAL, LAStools, CloudCompare and other open tools – 10% (2023: 8% LAStools)

What it tells us: Point clouds are still a commercial stronghold, but QGIS's native point cloud support keeps winning converts.



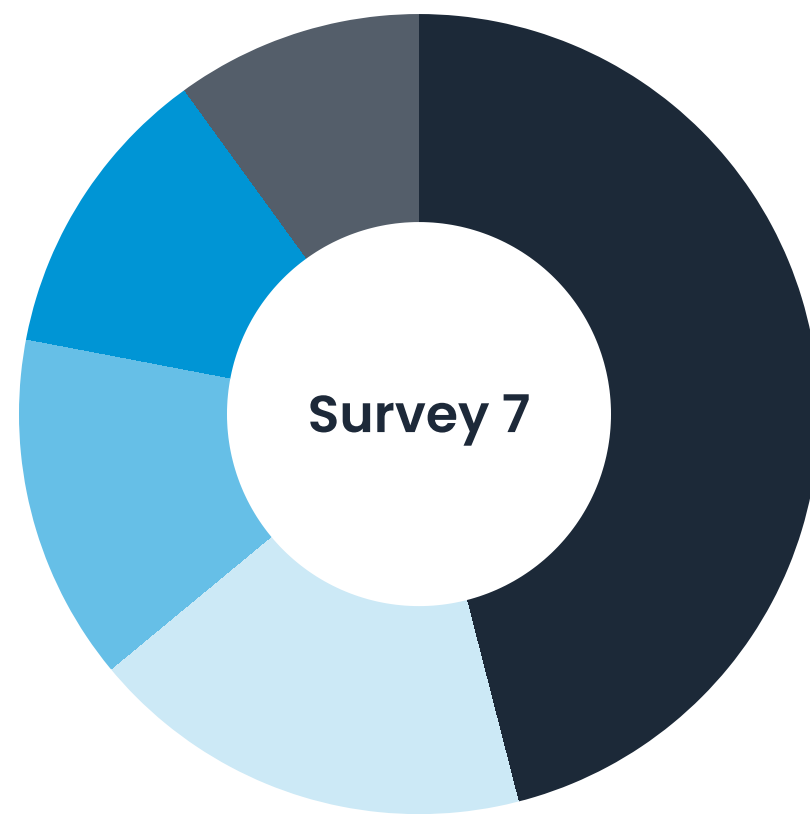
Part B: Five new questions about AI



How often do you use AI tools in your GIS work?

- Daily - 31%
- Weekly - 29%
- Occasionally - 26%
- Never - 14%

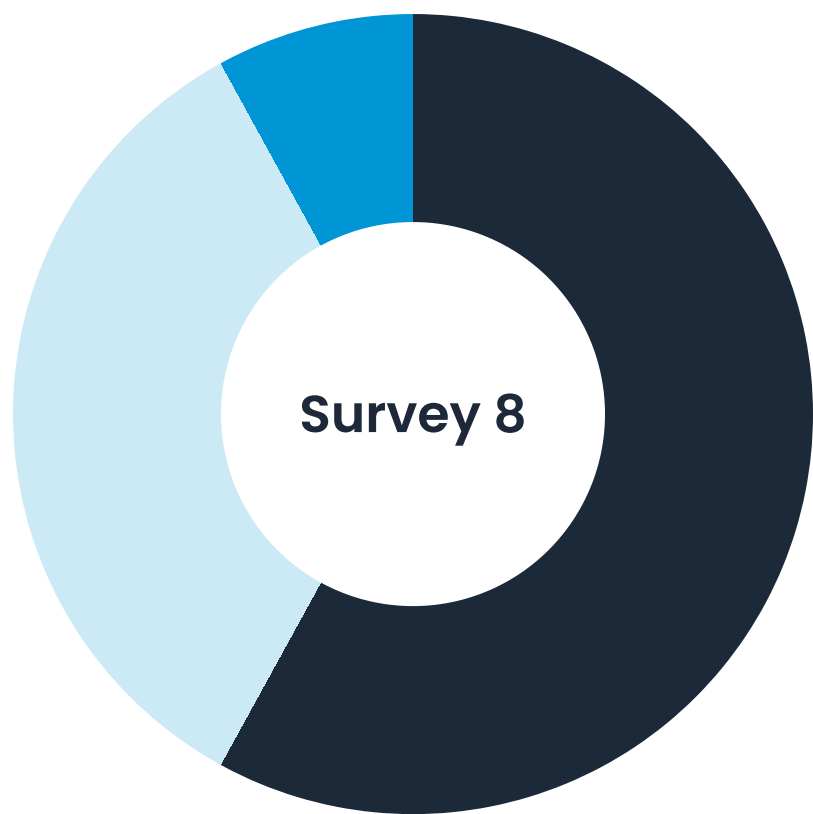
What it tells us: AI use is now mainstream. The interesting group is the 14% who never use it: often in organisations where AI tools are not yet approved.



What do you use AI for most in your GIS work?

- Writing or fixing code and scripts (Python, SQL, Arcade) - 46%
- Feature extraction from imagery - 18%
- Documentation and metadata - 14%
- Data cleaning and QA - 12%
- Asking analysis questions in plain English - 10%

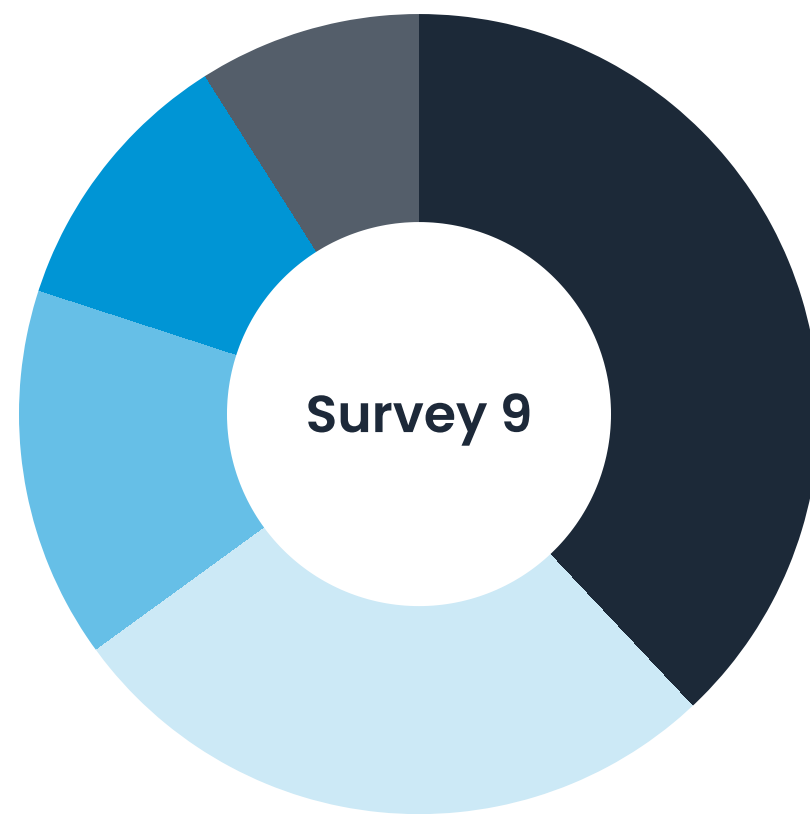
What it tells us: Code wins by a mile. AI's first big job in GIS is being the colleague who actually remembers the syntax.



Would you use AI-generated spatial analysis without checking it?

- Never – 58%
- Only for low-stakes work – 34%
- Yes, mostly – 8%

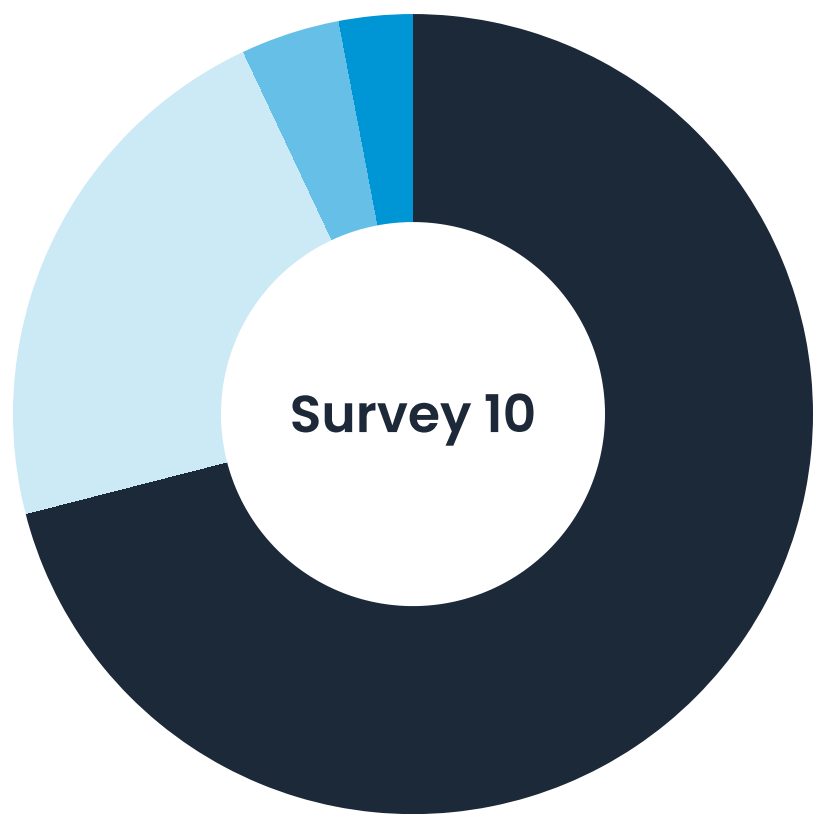
What it tells us: Healthy scepticism rules. The 8% should probably read Chapter 03 again.



What is the biggest barrier to AI adoption in your organisation?

- Data privacy and security – 38%
- Accuracy and hallucinations – 27%
- Skills and training – 15%
- Cost and licensing – 11%
- No policy or approval yet – 9%

What it tells us: The blocker is not the technology. It is trust, governance and where the data goes.

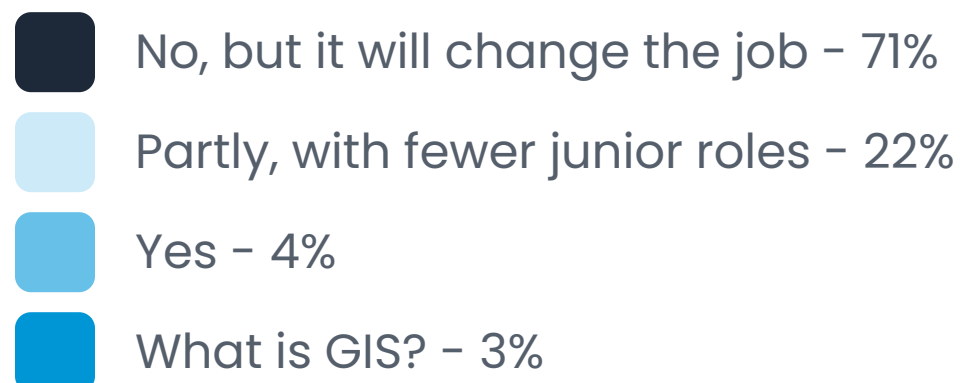


The headline numbers

90%

ArcGIS Pro and QGIS together cover 90% of desktop preference.

In five years, will AI replace GIS analysts?

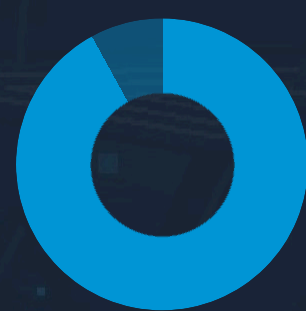


What it tells us: Most people expect the role to shift from doing every step to designing, checking and explaining. And yes, the “What is GIS?” crowd is still with us.



86%

use AI in their GIS work at least occasionally



92%

would not use AI-generated analysis without checking it, at least for anything important

Open Source GIS: Underdog with a Punch

Open Source GIS is built on open standards and community-driven development. In 2026 it has two new advantages: AI that lowers the learning curve, and open AI models that fit naturally into open workflows.

Advantages



Cost

Software is usually free to use. Your budget goes to people, data and compute instead of licences.



Customisation

Open code means you can tailor tools to your exact needs, and AI assistants make that faster than ever.



Community support

A large global community drives continuous improvement and quick bug fixes.



No vendor lock-in

You can switch tools, and AI models, without rebuilding everything.



Open AI models

Foundation models such as Prithvi and Clay are released under open licences and slot straight into Python workflows.

Limitations



Learning curve (shrinking)

Still steeper than point-and-click commercial tools, though AI coding help narrows the gap.



DIY AI integration

There is no single built-in assistant. Teams choose, connect and govern their own AI tools.



Support options

Community support is strong, but dedicated support usually means paying a specialist partner.



Governance burden

Security patching, approvals and AI data controls are your responsibility.

06

Commercial GIS: Feature-Rich, Costly and Now AI-Powered

Commercial GIS offers polished, tested and supported platforms. In 2026 the big story is AI built straight into the products people already use.

Advantages



Integrated AI assistants

Help appears inside the tools, with no extra setup for supported features.



Advanced features

Deep analysis, utility network, imagery and 3D capability out of the box.



Stability and reliability

Predictable release cycles, such as Esri's twice-yearly ArcGIS Pro updates.



Customer support

Vendor support, training and documentation when things go wrong.



Integrations

Strong links with enterprise systems such as asset management, ERP and Microsoft 365.

Limitations



Cost

Licences, maintenance and usage-based credits add up, and AI features can add new cost lines.



Vendor lock-in, now with AI

Workflows, data models and AI prompts can all become tied to one ecosystem.



Beta reality

Several AI assistants are still in beta, so check what is production-ready before building on it.



Less flexibility

You use the AI models and features the vendor chooses.

07

The Middle Ground: Hybrid, with AI as the Glue

In 2023 our market intelligence said hybrid takes the lead. In 2026 it is not even close. Most organisations we work with run ArcGIS and open source side by side, and AI has made that easier. An assistant that can turn an ArcPy script into PyQGIS, or a FileGDB workflow into PostGIS SQL, removes much of the friction between camps.

A practical hybrid playbook for 2026

- 01** Standardise on open formats and standards (GeoPackage, GeoParquet, OGC services) so data moves freely.
- 02** Write an AI use policy before your staff write one for you: approved tools, data rules and where data is stored.
- 03** Keep a human in the loop for anything that drives a decision, a payment or a public map.
- 04** Invest in skills: Python, SQL and prompt literacy are now core GIS skills.
- 05** Review your architecture every year. Licences, AI features and cloud costs move faster than most strategies.

08

What This Means for Your Organisation

Strip away the hype and five questions remain. Answer them honestly and your GIS strategy mostly writes itself.

- 01** Where does our spatial data live, and which AI tools are allowed to touch it?
- 02** Which tasks are repetitive enough for AI to speed up, and which need expert judgement?
- 03** Are we paying for licences, AI credits or cloud services we no longer need?
- 04** Do our people have the Python, SQL and data skills to supervise AI properly?
- 05** If our main vendor changed its pricing tomorrow, how hard would it be to move?

If the answers make you uncomfortable, good. That is usually where the value is.



Conclusion

So, back to the question from the start: is proprietary GIS dead yet? Still a definite no. Is GIS the same as it was in 2023? Also no.

Open Source GIS keeps getting stronger, cheaper to adopt and easier to learn. Commercial GIS keeps adding polish, integration and, now, AI built into the tools. The hybrid approach still takes the lead, and AI has become the layer that sits across both.

The winners over the next few years will not be the organisations with the most AI. They will be the ones that use AI for speed, open standards for freedom, commercial platforms where they genuinely add value, and skilled people to check the result. AI can draw the map. Someone still needs to know whether it is right.

“GIS is not just for experts; it’s for everyone who cares about understanding the world and making a difference.”

Allen Carroll, Former Chief Cartographer at National Geographic Society

Sources

This book uses GIS People's own data together with the industry data from the sources listed below.

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Stack Overflow Developer Survey 2025, PostgreSQL results (analysis)

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beri.net

Prithvi geospatial foundation model deployed in orbit

feedbagel.com

Mapping with purpose

Schedule a time to speak to our team of spatial experts about your project goals.



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