Working Session 5

Unlocking National Value through Geospatial Insight

23 February 2025 at the House of Lords

> Publicly funded geospatial data, when made widely and responsibly accessible, can underpin innovation, improve public services and deliver benefits right across society.
>
> Merlin Hay, The Earl of Erroll

Executive summary

Bringing together leaders from government, industry, academia and the geospatial sector, this roundtable explored how geospatial insight can unlock national value, strengthen resilience and improve decision making across public and private sectors. The session opened with an introduction from Charles Kennelly, Chief Data Officer for the Esri Group, who set out how geospatial thinking underpins more resilient, interpretable and future-ready data systems, and argued that spatial insight should be treated as a core capability across data, technology and policy communities rather than a specialist discipline.

> **To unlock national value, geospatial expertise needs to become a standard part of every data and IT professional's toolkit, not a niche specialism.**
>
> Charles Kennelly, Esri

- Geospatial insight underpins many of the UK's most pressing challenges, from infrastructure resilience and climate adaptation to planning, land use and economic productivity. Despite this, geospatial capability remains under-recognised, inconsistently applied and poorly articulated at senior decision-making levels.
- Participants agreed that the greatest value of geospatial approaches lies not in the data itself but in the ability to relate disparate datasets through place, enabling more robust analysis, scenario modelling and evidence-led decisions.
- A persistent barrier is language. Terms such as geospatial, GIS and digital twin are often poorly understood outside specialist communities, limiting executive engagement and investment. Reframing geospatial capability in terms of business outcomes, risk reduction and return on investment is critical.
- Trust and stewardship emerged as foundational. Provenance, explainability and transparent governance are essential if geospatial data and AI-enabled insights are to be relied upon for high-stakes decisions.
- The roundtable highlighted the need to move beyond siloed datasets and duplicated investment towards shared, federated and governed approaches, particularly across regulated infrastructure sectors where the same data is repeatedly purchased and processed.

> **The UK will gain most by talking about geospatial in terms of outcomes like risk reduction, resilience and return on investment, rather than in terms of technologies or data types.**
>
> Steve Spittle, Satellite Applications Catapult
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> **Positioning this work as 'location intelligence' and linking it directly to business outcomes makes it far easier for leaders across the country to back and invest in it.**
>
> Ryan Ciesielski, National Grid

1. From specialist capability to national asset

The UK has deep expertise in geospatial science, surveying, satellite data and spatial analytics. Yet this capability is often confined to specialist teams, while wider data science and digital programmes overlook spatial relationships as a foundational organising principle.

Participants noted that many data systems remain fragile because they rely on identifiers rather than spatial relationships. When systems are connected through location, rather than purely through reference codes, they become more resilient, more interpretable and more adaptable to change.

> **Grounding concepts like digital twins in day-to-day decisions about land, assets and services is how we turn geospatial ideas into tangible economic and operational gains for the country.**
>
> Marcus Hanke, LANDCLAN

2. Communicating value to decision makers

A dominant theme was the challenge of communication. While geospatial professionals understand the power of spatial analysis intuitively, this understanding rarely translates at board or ministerial level.

This highlights the need to show geospatial value through clear and recognised use cases, and communicate through clear outcomes, not technical capability. Executives are interested in questions such as where to invest, how to reduce risk, how to improve resilience and how to meet regulatory obligations more efficiently.

> **Translating geospatial analysis into clear questions – from where critical infrastructure should be located to how people move through our cities – is central to unlocking its value for the UK.**
>
> Kirsty Garrett, The Crown Estate
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> **The challenge is not just technical capability but translation. We need professionals who can connect geospatial insight to business and policy decisions, and that requires a broader skills base than traditional GIS alone.**
>
> Ryan Ciesielski, National Grid

3. Trust, governance and stewardship

Trust emerged as a prerequisite for scaling geospatial insight across sectors. Decision makers must be confident not only in the accuracy of data but also in its provenance, governance and explainability.

Participants highlighted the growing importance of transparent data stewardship, particularly as AI and automated decision systems become more prevalent. Black box approaches were widely seen as unacceptable for critical infrastructure, legal or regulatory contexts.

> **Clear governance, data sovereignty and transparent licensing are essential foundations if we want geospatial data to be shared confidently across sectors and trusted at national scale.**
>
> Chris Jones, Connected Places Catapult
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> **By integrating multiple datasets into intuitive visual tools, we can turn complex geospatial information into clear, actionable insight that supports faster and better decisions in moments that matter.**
>
> Vickie White, Landmark and MapAction

4. Breaking silos and reducing duplication

The roundtable repeatedly returned to the issue of duplication. Infrastructure providers across water, energy and other sectors often purchase the same satellite imagery, commission similar surveys and build parallel analytical models, with costs ultimately passed to consumers.

Participants argued that smarter collaboration could significantly reduce this inefficiency, particularly in regulated sectors where incentives should align around public value.

> **“Shared, high-quality baseline geospatial data can act as common infrastructure for the UK economy, stimulating innovation, reducing duplication and helping new services to scale.**
>
> David Fox, Geospatial Insight
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> **Combining geospatial, environmental and operational data to build predictive models offers a major opportunity to prevent incidents, protect ecosystems and improve service reliability nationwide.**
>
> Michael Wingell, Anglian Water

5. Skills, education and cultural change

A recurring concern was the shortage of geospatial capability within organisations that depend heavily on spatial data. In many cases, small geospatial teams support large data science or analytics functions, limiting impact.

Participants also reflected on education and professional pathways. Geospatial thinking is often taught separately from mainstream data science, reinforcing its perception as a niche skill rather than a core analytical approach.

> **Geospatial capability should not sit in a small specialist team. Building national capacity means embedding spatial thinking across data science, engineering and policy roles so it becomes a core professional skill, not a niche one.**
>
> Alex Singleton, Geographic Data Service, University of Liverpool
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> **To realise the full potential of geospatial insight, we should convene around real-world missions – such as climate resilience, health or infrastructural resilience – then align data and tools to those goals.**
>
> Anna Angus-Smyth, NERC-UKRI
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> **If spatial thinking is taught only within geography, we limit its impact. To unlock national value, geospatial skills need to be woven into how we train data scientists, engineers and decision makers across the economy.**
>
> Charles Kennelly, Esri

6. Geospatial insight, resilience and the future

Resilience – to climate change, infrastructure failure and systemic shocks – was a unifying theme. Participants agreed that geospatial insight is essential for understanding cascading risks across interconnected systems.

The discussion also touched on the future role of AI. While automation may abstract away technical complexity, participants stressed that metadata, context and spatial understanding will become even more important to ensure systems deliver reliable and explainable outputs.

Alongside the need for trusted, resilient systems, participants also highlighted the importance of lowering barriers to adoption so that innovation is not confined to large organisations.

Making it easier and cheaper to design and deploy digital twins is critical to widening adoption, enabling SMEs across the UK to enter supply chains and contribute to national productivity.

Clara King, Digital Catapult

Resilience depends on understanding how systems interact across place. Geospatial insight allows us to anticipate cascading risks, test future scenarios and make better decisions across complex problems and systems.

Anna Angus-Smyth, NERC-UKRII

Starting with the outcome we want to achieve and then using geospatial and other data to explore 'what if' scenarios can strengthen planning, investment and resilience across the UK.

Akuvi Ahoomey-Zunu, BizzTech

Recommendations

> **Some of the most powerful national impacts come when a clear problem owner is paired with integrated geospatial data, creating evidence that supports major investment and policy decisions.**
>
> Alex Singleton, Geographic Data Service, University of Liverpool

1. Reframe geospatial value in terms of outcomes that matter to decision makers – resilience, efficiency, risk reduction and return on investment.
2. Embed geospatial thinking as a core component of data science, policy analysis and digital twin programmes rather than treating it as a specialist add-on.
3. Strengthen governance and stewardship, ensuring transparency, provenance and explainability are built into geospatial and AI-enabled systems from the outset.
4. Reduce duplication across sectors through shared, federated data approaches, particularly in regulated infrastructure where public value is paramount.
5. Invest in skills and education, focusing on problem-led, cross-disciplinary approaches that integrate spatial thinking into mainstream practice.
6. Use demonstrators and visual storytelling to build trust, communicate value and support adoption among non-technical audiences.

Next steps

- Develop place-based and sector-spanning demonstrators that show how geospatial insight delivers tangible outcomes.
- Engage regulators early to align innovation with future regulatory expectations.
- Share best practice across government, industry and academia to accelerate learning and adoption.
- Continue convening cross-sector leadership to maintain momentum and coherence.

Participants at the roundtable

Anglian Water
BizzTech
Connected Places Catapult
Digital Catapult
Esri Holdings
Geospatial Insight
LANDCLAN
Landmark Information Group
National Grid
NERC-UKRI
Satellite Applications Catapult
The Crown Estate
University of Liverpool

We would like to thank the roundtable host, Merlin Hay, The Earl of Erroll, for generously convening and hosting this discussion at the House of Lords. We also extend our thanks to all participants for sharing their time, insight and expertise so openly, and for contributing to a constructive and forward-looking discussion.

The Leading Voices series is hosted at The House of Lords by invitation of Merlin Hay, The Earl of Erroll, and facilitated by Connected Places Catapult and the Digital Twin Hub.