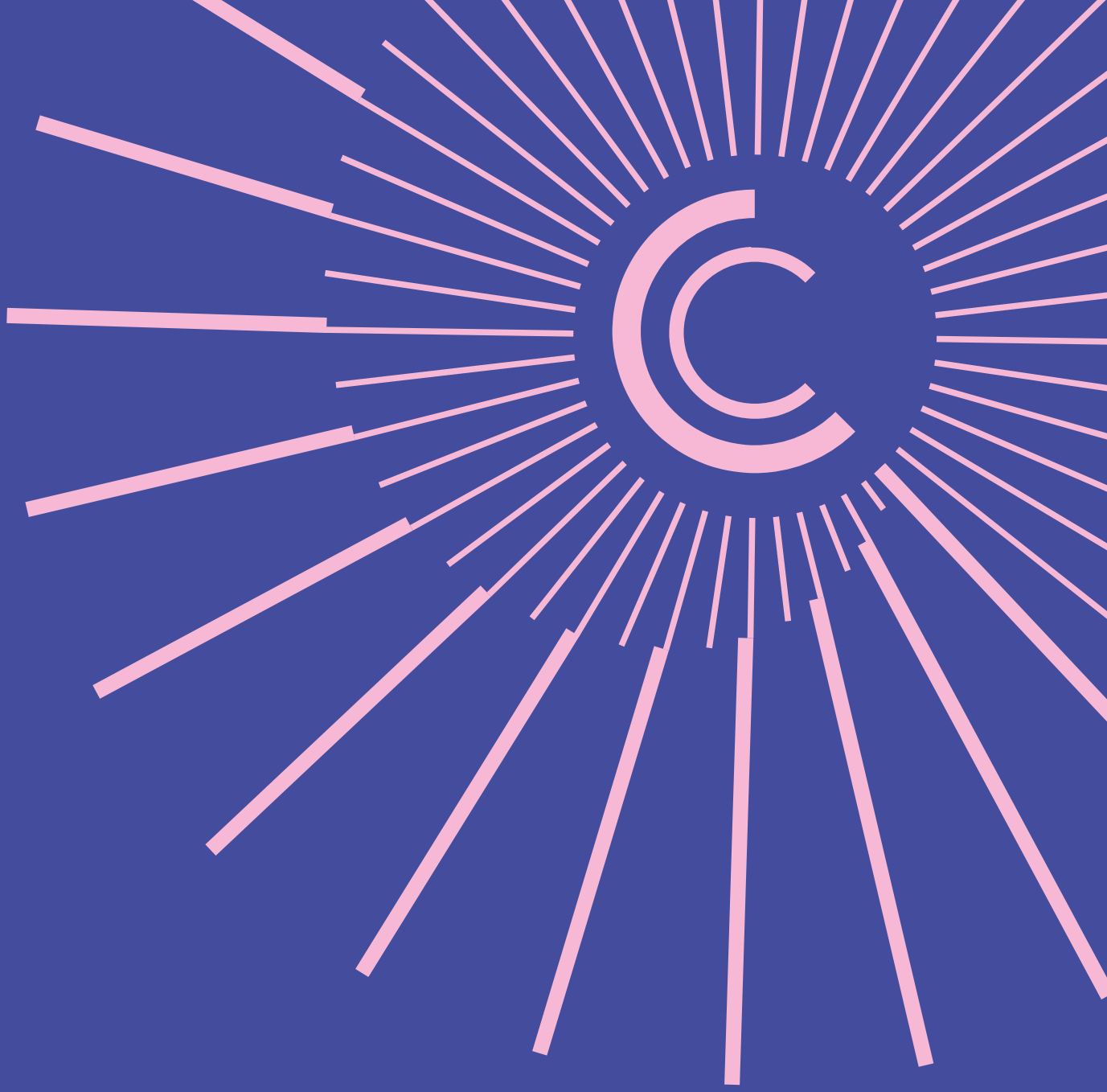

Cambridge
Conference **2025**

Reinventing the Map

The Cambridge Conference is a unique event in the international conference calendar. It is hosted by Ordnance Survey on behalf of the global community of national mapping and geospatial agencies.

The conference series was hosted for the first time in 1928 and has been constantly evolving to respond to and meet global needs. Throughout its history the conference has enabled leaders to share common challenges and opportunities through a mixture of lectures, papers, and more recently break-out sessions and informal discussions.

Over the years there have been many papers of interest. Computers were first mentioned in 1959. A discussion on world-wide triangulation using satellite photography took place in 1971. In 1995 the conference discussed the need for consistent core data sets for the entire world. In 2022 discussions focused on applying geospatial information tackle climate challenges.

The Cambridge Conference 2025 focused on ‘Reinventing the Map’. This theme explored the evolving role of maps – not just as navigational tools but as a dynamic platform for building services, driving innovation and supporting critical government decision making. Over a hundred delegates from 45 national mapping and geospatial agencies contributed to the conference.

This Conference Report has been developed as a summary of the conversations and has been developed to give an overview of the main topics and themes that were discussed.

As we look forward to the 100th anniversary of Cambridge Conference in 2028 we’re also thinking about reinventing Cambridge Conference to lead us forward over the next 100 years.

The definition of the map is changing.

Traditionally, national mapping agencies are trusted to provide the most accurate and authoritative information about location, often in the form of a physical map.

But the number of people, organisations, and complex digital ecosystems increasingly relying on location information requires us, as National Mapping and Geospatial Agencies (NMGAs) to think about how we collect, curate, and serve our geospatial information.

Discussions at the Cambridge Conference followed three themes:

- The changing global political and economic environment, and how that is reinvigorating the need for sovereign data infrastructure.
- Transforming our organisations to make the most of new technologies and data trends while holding on to our reputation as trusted experts.
- Understanding where and how our value chain needs to change, including how we can make our data easier to use.

Three key ideas were discussed:

- To unlock value, geospatial data must not be considered a separate discipline of data.
- Our community could consider collective actions focused on equipping the next generation of professionals with the necessary tools.
- We must invest in the technologies that make it easier for customers to engage with our data.

Responding to the changing global context

- We must recognise that geospatial data and the map is not the end-point.
- We must work in the open.
- The requirement for greater completeness, accuracy and near real-time flow of data will only increase.
- These are challenges, and we must work together as a community.

As our social, environmental and economic systems become increasingly complex and reliant on timely data, making infrastructure work across the interaction of human, physical and digital geographies will still require maps – but of a different kind.

We must recognise that geospatial data and the map is not the end-point. It is only through the combination of geospatial with other data sets that value is unlocked.

To unlock that value, geospatial data must not be considered a separate discipline of data. It cannot exist in a silo where specialist knowledge or software is required to make the most of its benefit. We must break down the walls around effective use of our data, while not being afraid to meet the challenges that brings head on.

We must work in the open. Transparency of process and confidence levels in our data, including how it is sourced, collated, and quality assured. This transparency encourages engagement and feedback from users to improve the data that is accessed.

With the future transformation from static mapping to functional digital infrastructure, customer expectations will change alongside. The requirement for greater completeness, accuracy and near real-time flow of data will only increase. NMGAs will need to continue to be prepared to support responses to disasters and emergencies as well as defence requirements. There may be increased focus on developing sovereign capabilities as reliance on other countries or agencies may no longer be an option. Greater flexibility to adapt to an evolving geopolitical landscape may be necessary.

Each use case will require us as creators of the 'map' to balance accuracy and richness of attribution versus how quickly we can capture change in the real world.

Technological change is a cornerstone of the fourth era, but not all organisations will transform at the same rate. The challenge of meeting the needs of customers still using older technology will affect how much resource we can provide to the development of the next generation.

These are challenges, and we must work together as a community. We must collaborate in developing our narratives and to innovate in a way that enables other organisations to advance how we communicate with our users, including by making better use of social media or working with local communities.

In the longer term, the demand for the whole geospatial ecosystem will be fundamentally different. Agentic AI is already completely reshaping how we view, collect and distribute geospatial data, and as a sector, we should share experience in how to put AI into practice in a trusted way.

Transforming our organisations

- It is our responsibility to use our understanding of the technology and our users' needs to continue to evolve the map.
- Technological change cannot come at the expense of the loss of trust.

It is our responsibility to use our understanding of the technology and our users' needs to continue to evolve the map. We need to anticipate their requirement to meet their future needs.

We must take a pragmatic approach to reshaping our capability. Data is everywhere: we must use multi-source methodologies, combined with better standards and a focus on interoperability, to leverage the individual strengths of the technology at our disposal.

Our role in traditional survey and capture is inexorably changing. Data refining and assurance will be increasingly core to our role, with automated processes for collection and capture easing the burden of integrating different data types. This work will still require robust quality management and transparency in order to maintain public trust.

Ensuring that the data we collect is enough to meet the requirements of the required use cases will keep us efficient and cost-effective. If we strive for accuracy and completeness past the point where the data is still useful, we will be overtaken by others.

Technological change cannot come at the expense of the loss of trust. We must create a chain of technical expertise and authority, so investment in institutional memory and contextual knowledge is as important as investment in the latest technologies.

As custodians of mapping expertise, we have a responsibility to ensure there is a robust pipeline of geospatial professionals ready to support our critical data infrastructure.

The skills that have traditionally been core to our success will not necessarily be the ones that will ensure our relevance tomorrow. This is seen in the changing demographics of university degrees, and we will need to find the right blend of traditional and non-traditional to deliver our vision of the future.

Opening up and engaging with organisations in adjacent professions, disciplines and industries will be an important part of broadening the attractiveness of geospatial as a destination for multidisciplinary skills.

Collective action could involve creating a consortium of geospatial agencies and educational institutions to share training programmes and resources. This could include creating specialised training modules and mentorship programmes to foster domain expertise and ensure that professionals are equipped to handle complex geospatial tasks.

Reimagining our value chain

- AI will inescapably change how we execute our role.

Foundation AI models and the emergence of Agentic AI are changing how we create and exploit our data – but we should mitigate against limiting the benefits to the automation of surveying and production processes. We must invest in the technologies that make it easier for customers to engage with our data – and to combine it with other data sets to derive insights.

Democratising insight is a fundamental part of our future relevance. Large language models and natural language processing will make it easier than ever to put our data in users' hands. But insight cannot be delivered by our data alone - the real strength of our data is in acting as a framework against which other geospatial and non-geospatial data can be combined and leveraged for greater collective impact.

About this document

This document represents a summary of discussions across three days at the Cambridge Conference 2025 in Pembroke College, Oxford.

Representatives of more than 45 national mapping and geospatial agencies participated in a Chatham House discussion regarding the trends that are shaping geospatial data and national mapping.

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