



Global Geodesy Supply Chain

Nicholas Brown

**Head of Office
United Nations Global
Geodetic Centre of Excellence**



Our Vision

All countries have strong support for geodesy which enables them to – together – accelerate the achievements of the Sustainable Development Goals and derive social, environmental and economic benefits.



Recognition of the risk from GNSS providers



“ICG members openly acknowledged the risks highlighted by the UN-GGCE and recognized strengthening the global geodesy supply chain should be prioritised to ensure GNSS services are more robust.”

-- 18th meeting of the International Committee on GNSS (2024)

Operating Critical Infrastructure

“15 of 18 critical infrastructure and key resources sectors relied on the Global Positioning System (GPS) including telecommunications, emergency services and financial exchanges.”

~ U.S. Department of Homeland Security



**United
Nations**

Global Geodetic Centre of Excellence

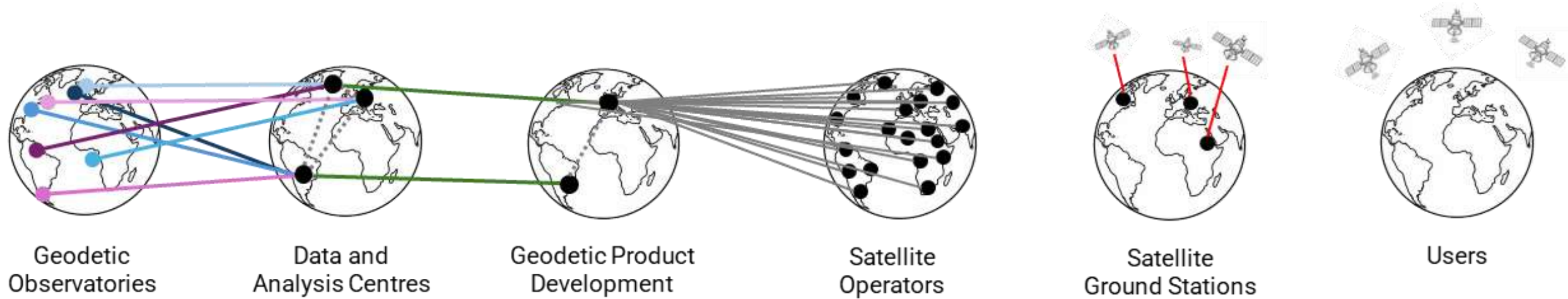
Statistics Division – Department of Social and Economic Affairs

“Over the next decade, revenue from GNSS, Earth Observation and satellite telecommunications (80% of the space industry market revenue) has growth rate of ~9%”

~ EUSPA Market Report and Euroconsult



Global geodesy supply chain



United Nations General Assembly resolution 69/266



UN General Assembly resolution (2015) "A global geodetic reference frame for sustainable development"



United Nations

Global Geodetic Centre of Excellence

Statistics Division – Department of Social and Economic Affairs

State of Geodesy 2026

A baseline maturity
assessment



EVIDENCE

AWARENESS

CAPACITY

GOVERNANCE

RESOURCES

State of Geodesy 2026

What we want

- Accurate and reliable satellite services.
- Satellite services required by governments and the private sector to support critical infrastructure operations, economic growth and societal needs.

How do we achieve that?

- You need an accurate and reliable global geodesy supply chain.

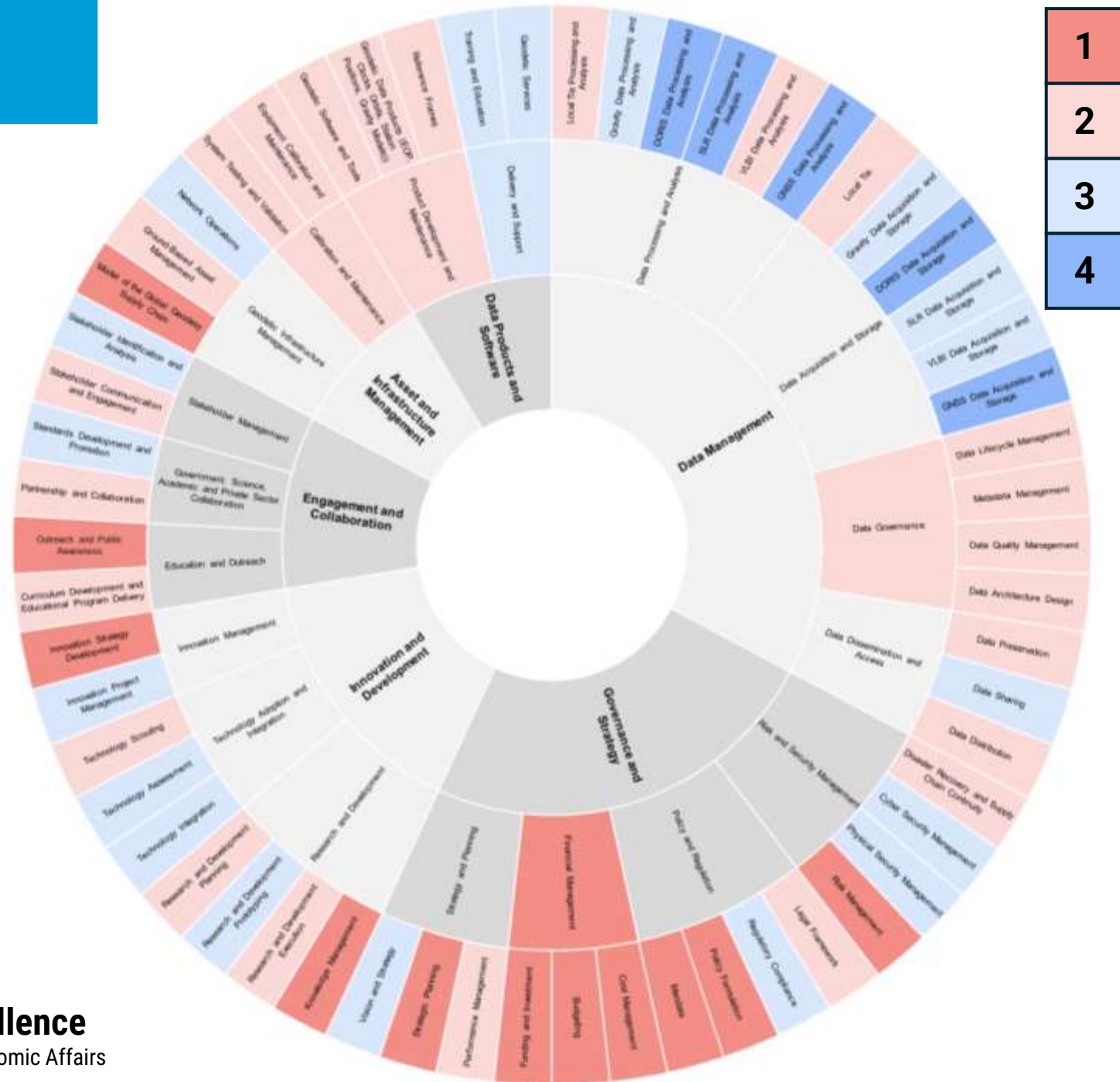
Is the global geodesy supply chain accurate and reliable?

- No.

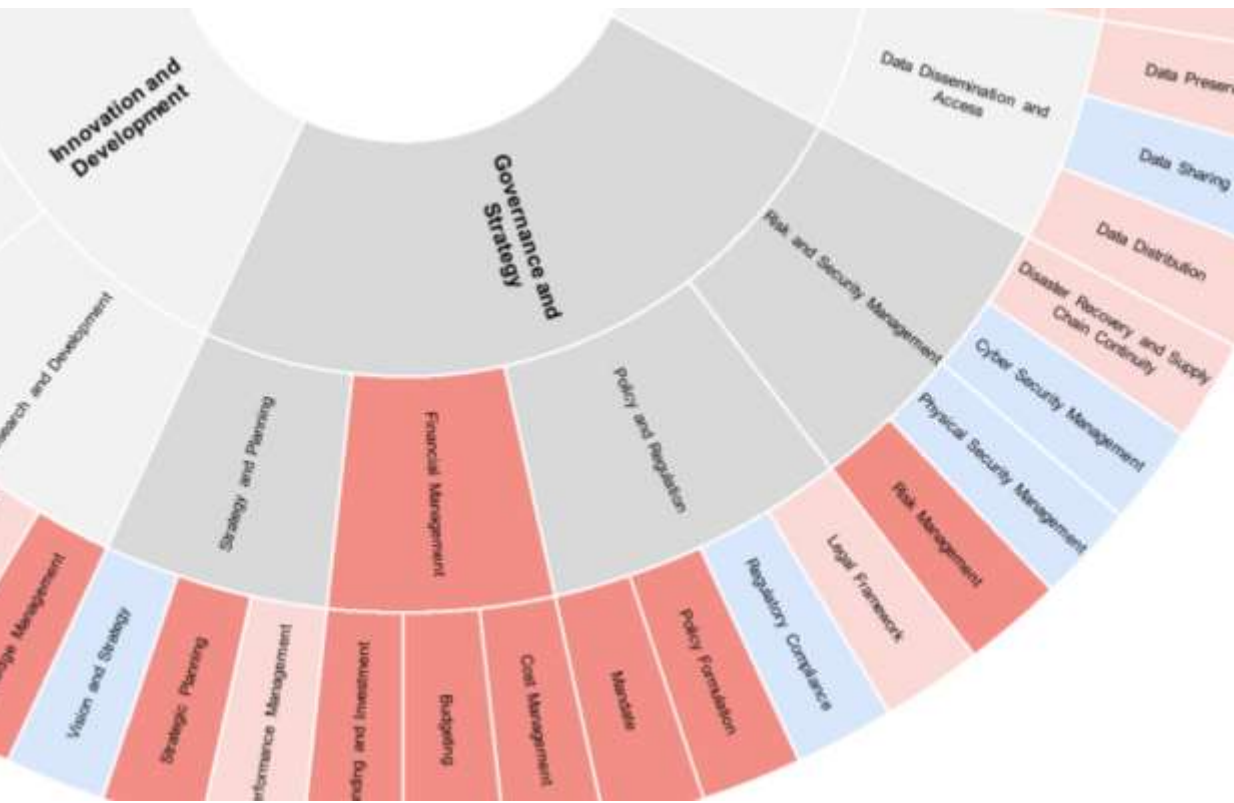
State of Geodesy 2026

Domains	Average Score
Data Management	2.7
Data Products and Software	2.3
Asset and Infrastructure Management	2.3
Engagement and Collaboration	2.2
Innovation and Development	2.1
Governance and Strategy	1.8

- The maturity assessment yielded an overall average score of 2.3 across 58 assessed capabilities.



Governance and Strategy (1.8/5)



- The **Governance and Strategy** domain received the lowest average score at 1.8, with multiple capabilities scoring at Level 1 including mandate development (1.0), policy formulation (1.0), strategic planning (1.0), and all three financial management capabilities—funding and investment (1.0), budgeting (1.0), and cost management (1.0).
- The Level 1 scores in these areas reflect the absence of an international governance structure with visibility, authority, and accountability across the GGSC.
- Risk management capabilities also scored at Level 1, indicating that no organization systematically identifies, assesses, and mitigates supply chain risks, despite acknowledged dependencies on small numbers of experts and single-jurisdiction control of critical components.



United Nations

Global Geodetic Centre of Excellence

Statistics Division – Department of Social and Economic Affairs

State of Geodesy 2026

Domains	Average Score
Data Management	2.7
Data Products and Software	2.3
Asset and Infrastructure Management	2.3
Engagement and Collaboration	2.2
Innovation and Development	2.1
Governance and Strategy	1.8

- The significant variation in scores across domains reveals that operational and technical capabilities (particularly in data management) function at moderate maturity levels, while strategic, governance, and coordination capabilities remain largely undeveloped.
- This pattern suggests a system that evolved organically through scientific collaboration, developing strong technical expertise and established operational practices within individual geodetic technique communities, but lacking the overarching governance, strategic planning, and coordination mechanisms that would typically characterise mature critical infrastructure systems.
- The concentration of Level 1 scores in foundational governance and financial management capabilities, combined with widespread reliance on voluntary contributions and in-kind support across multiple domains, indicates structural constraints that affect the long-term sustainability of even those capabilities that currently demonstrate adequate operational performance.



United Nations

Global Geodetic Centre of Excellence

Statistics Division – Department of Social and Economic Affairs

State of Geodesy 2026

Domains	Average Score
Data Management	2.7
Data Products and Software	2.3
Asset and Infrastructure Management	2.3
Engagement and Collaboration	2.2
Innovation and Development	2.1
Governance and Strategy	1.8

Critical Pattern: Governance as cross-cutting constraint

- **Governance and financial management capabilities** received the lowest level of maturity, indicating these functions are **largely absent or operate ad-hoc** without formal structures. Specifically:
 - Mandate development (1.0): No international organization has formal authority to develop, implement, or enforce policies for the GGSC.
 - Strategic planning (1.0): Plans exist but lack governmental authority for implementation.
 - Financial management (1.0): No coordinated mechanisms for assessing needs, developing investment strategies, or allocating resources across the supply chain.
 - Risk management (1.0): No systematic risk assessment or mitigation at supply chain level.
- The International Association of Geodesy (IAG) provides effective scientific and technical coordination within its scope. However, as a scientific membership organisation, the IAG operates without governmental authority to direct Member State actions, mandate resource contributions, or enforce operational requirements beyond its member institutions.
- At the intergovernmental level, UN General Assembly resolution 69/266 represents the strongest mandate for geodesy, but as a non-binding resolution, it encourages voluntary action without implementation mechanisms or accountability structures.



United Nations

Global Geodetic Centre of Excellence

Statistics Division – Department of Social and Economic Affairs

The gap cause problems

The governance gap creates four fundamental problems:

1. **No shared vision** among governments, satellite operators, space agencies, the scientific community, and the private sector about what constitutes a robust global geodesy supply chain.
2. **No agreement on roles and responsibilities** for maintaining infrastructure, sharing data, or supporting developing countries.
3. **No mechanisms to implement, coordinate, and oversee commitments**, resulting in fragmented decision-making and inconsistent investment.
4. **No sustainable funding model** leaving critical infrastructure dependent on research budgets that fluctuate with political cycles and compete with other priorities.



**United
Nations**

Global Geospatial Information Management

Statistics Division – Department of Social and Economic Affairs

International Governance of Geodesy Options Paper

1. Legally binding agreement
2. Expand an existing legally binding agreement
3. Non-binding framework with targets

The options are **not mutually exclusive**

Consultation

1. Review the State of Geodesy 2026 report and International Governance for Geodesy Options Paper and discuss the papers with colleagues.
2. Designate country and private sector focal points.
3. Write to the UN-GGCE (un-ggce@un.org) to request an invitation for focal points to the High-level meeting on International Governance for Geodesy in New York in August 2026.
4. Participate constructively in the High-level meeting to agree on the terms and pathway for international governance for geodesy.
5. Consider formally recognising the components of the global geodesy supply chain in your country as critical national infrastructure, unlocking appropriate funding and security frameworks.

