

XII Session UN-GGIM: Americas

Geospatial Leadership

Supported by
Knowledge and Innovation

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Building Tomorrow's Leaders Today

United Nations Global Geospatial Knowledge and Innovation Centre



UN-GGIM:Americas
REGIONAL COMMITTEE OF UNITED NATIONS
ON GLOBAL GEOSPATIAL INFORMATION
MANAGEMENT FOR THE AMERICAS



UNITED NATIONS

ECLAC

What is Leadership?

Leadership

Leadership is the ability **to influence, inspire, and guide** individuals, teams, or an organization toward achieving a common goal while fostering collaboration, trust, and innovation.

Key Elements of Leadership:

- **Vision**: Setting a clear direction and purpose.
- **Influence**: Inspiring others through communication and action.
- **Empowerment**: Encouraging team autonomy and growth.
- **Accountability**: Taking responsibility for outcomes.



Geospatial Leadership

- **Leading Innovation** and **design thinking** empowered by **Geospatial Information**.
- Identify the **key drivers for change** in the **Geospatial Sector**, such as technological advancements, policy changes, and societal needs, so leaders can anticipate and respond to these drivers.
- Managing change and **data value chain**.
- **Enacting Transformation**.

The Urgency: Why Now?

Digital Transformation

Geospatial data is foundational to government digitization worldwide.

SDG Deadline Pressure

2030 Agenda requires leaders with geospatial intelligence for evidence-based decisions.

Widening Capacity Gap

Growing disparity between advanced and developing nations threatens equitable development.

Emerging Technologies

AI, big data, and cloud computing are revolutionizing geospatial applications.

Crisis Response Needs

Climate, pandemics, and emergencies demand immediate geospatial leadership.

The window to act is now—delays compound inequalities

Strategic Importance for National Development

Economic Imperatives

- \$400+ billion global geospatial market
- National competitiveness depends on location intelligence
- Data-driven economy requires geospatial capacity

SDG Achievement

- SDGs require geospatial data and analysis
- Essential for evidence-based decision-making
- Fundamental to "leaving no one behind"

Decision-Making

- Government planning and policy formulation
- Private sector innovation and efficiency
- Community resilience and local development

Without geospatial leadership, countries cannot effectively track progress or compete globally

The Leadership Imperative

Geospatial leadership is about turning tech, data, tools and platforms into trusted, valued knowledge and **aligning it to real-world, cross-sector decisions.**

What's needed now?

Leaders with an effective engagement skill, and build on global success in, technology application, open data models and governance.

Leaders who ensure transformation is:

Ethical,
Insight-driven,
Impact-focused.

The Challenge

What do we need to do?

As leaders, How can we ensure geospatial data is not only available, but also accessible and actionable across diverse communities?

As leaders, How do we develop the strategies needed to build the human and institutional capacity to mainstream geospatial intelligence in climate policy and planning?

How do we all ensure **balance between innovation and ethical governance** to ensure geospatial technologies support just, inclusive, and sustainable outcomes?

The Urgent Need: Global Skills Gap Crisis

Critical Shortage

Significant shortage of skilled professionals and visionary leaders, particularly acute in developing countries where capacity is most needed

Speed of Change

Rapid advances in AI, cloud computing, and big data require continuous upskilling

Global Challenges

Climate crisis, SDG deadline (5 years left), disaster response demand immediate action

Current workforce cannot meet accelerating demands of digital transformation

Geospatial Trends

Stay ahead by understanding the **Latest Trends** shaping the future of **Geospatial Technologies**.

On-Demand **Geospatial Ecosystem**: Delve into the growing trend of cloud-based geospatial platforms that enable flexible, scalable access to data and analytics.

Open Data: Explore the role of open geospatial data in driving innovation, transparency, and collaboration across sectors.

Sustainable Development Goals (SDGs): Examine how geospatial data contributes to achieving the UN SDGs, providing actionable insights for sustainable growth and resilience.

Barriers to Geospatial Leadership

- **Data Integration and Interoperability:**

- Lack of harmonized data standards across sectors.
- Difficulty in integrating data from multiple sources due to siloed systems.

- **Ethical Concerns:**

- Bias in GeoAI algorithms leading to unfair or discriminatory outcomes.
- Failure to prioritize diversity, equity, and inclusion.
- Challenges in obtaining and maintaining social license for large-scale geospatial projects.

- **Knowledge Gaps:**

- Limited capacity to adopt global geospatial standards.
- Insufficient investment in geospatial education and human capital development.

Technical Skills Foundation

Core Competencies

- GIS design and management
- Remote sensing and earth observation
- Spatial data analysis and modeling
- Data integration from multiple sources

Emerging Technologies

- AI/ML for geospatial (GeoAI)
- Cloud platforms
- Big data analytics
- IoT and sensors

Data Management

- Spatial data infrastructure
- Data quality and metadata
- Interoperability standards (ISO, OGC)
- FAIR data principles

Advanced Applications

- 3D modeling and digital twins
- UAV/drone operations

Barriers to Geospatial Leadership

- **Policy and Governance Challenges:**

- Inadequate regulatory frameworks to guide **Geospatial** data use and innovation.
- Fragmentation in governance across **Geospatial** sectors, hindering collaboration.

- **Technological Limitations:**

- Unequal adoption of advanced technologies like AI and Big Data
- Lack of infrastructure to process and utilize both large and small datasets effectively.

- **Lack of Professional Skills:**

- Insufficient focus on multidisciplinary knowledge.
- Limited innovative thinking in **Leadership** roles.

The Time to Act is Now

Only 5 Years

Until 2030 SDG deadline

93+ Countries

Adopted UN-IGIF

\$400B Market

Global geospatial sector

Investment in geospatial leadership is not optional—it's a strategic imperative for sustainable development

Driving Innovation through Geospatial Leadership

Leadership is critical to:

- Inspire collaboration across government, academia, and industry.
- Build organizational capacity for technology adoption.
- Foster an innovation-led culture for long-term growth.

Leadership in Geospatial Technologies is about managing change and data value chain.

Cross-Cutting Competencies

Communication

- Translate technical concepts for non-technical audiences
- Data storytelling and visualization
- Policy briefing and executive communication

Governance and Policy

- Policy development and legal frameworks
- Ethics and responsible data use
- Privacy and security considerations

Collaboration

- Multi-stakeholder coordination
- Public-private partnerships
- Regional and international cooperation

Building business cases, demonstrating ROI, and fostering cross-cultural collaboration

Leadership and Management Skills

Strategic Leadership

- Vision-setting aligned with priorities
- Change management
- Stakeholder engagement
- Resource mobilization

Programme Management

- Strategic planning and budgeting
- Team building and HR development
- Risk management
- Monitoring and evaluation

Decision-Making

- Systems thinking
- Evidence-based frameworks
- Innovation and problem-solving
- Scenario planning

Leaders must combine technical expertise with strategic vision and people skills

UNGGKIC Leadership Development support

Leadership Training Programs

- Hybrid delivery: in-person + online
- Work-based projects
- Technical + strategic + leadership

Specific Programs

- Next-generation forums
- Innovation and entrepreneurship
- Pipeline of future leaders

Global Forums

Specialized Training

- GeoNow forum & Moganshan Talks
- Regional & Subregional leadership dialogues
- Support to global events (Congress, HLF)

UN-GGKIC Developing suite of resources

Global Support & Collaboration

UN system, global standards alignment, and international collaboration

Expert Network

Access to world-class practitioners and policymakers

Knowledge Resources

Best practices, toolkits, and cutting-edge research

Platform & Tools

Learning systems, collaboration platforms, and guidance materials

Global Community

Peer learning, mentorship, and communities of practice

Sustainable Impact

Train-the-trainer models, open resources, and long-term support

Questions for reflections for us to advance

1. What are your requirements in the context of developing leadership ?
2. How do you help to lead when building trust between agencies that have historically competed for resources?
3. How can leaders shift from sector-specific thinking to integrated data sharing?
4. How do we measure the return on investment of geospatial infrastructure?
5. How do we create geospatial leadership capacity development programs that produce lasting change?