



# 2021 ANNUAL REPORT

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# Values and Guiding Principles

## **RESPONSIBILITY**

Clearly communicate the industry's perspectives to internal and external stakeholders.

## **EXCELLENCE**

Commit to helping Member organizations excel and become recognized world leaders and innovators in offering geospatial technologies and services.

## **INTEGRITY**

Commit to delivering services reliably and ethically.

## **TRANSPARENCY**

Be a transparent organization that works with industry, government, and multilaterals - to build partnerships based on trust and mutual benefit.

## **DIVERSITY AND INCLUSION**

Always stand for non-discriminatory practices in its operations.

## **COLLABORATION**

Ensure that WGIC functions as the voice of the geospatial industry and excels as a platform for knowledge exchange and collaboration among all stakeholders.

## **EQUALITY**

Commit to providing an unbiased platform and an enabling environment that offers equal access to Members regardless of the size of the organization or country of origin.

## **FINANCIAL STABILITY**

Be a self-sufficient industry Council efficiently working on revenue from membership dues.

## **MEMBERSHIP**

Strive to increase the number of Members, as well as innovate continuously in order to create the most value for existing Members.

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*Jack Dangermond*  
*Chair, WGIC Patron Board*

## **It's going to take more effort to create a sustainable future**

Before The COP 26 UN Climate Change Conference, I had the unique privilege of delivering a TED talk as part of the TED Countdown Program. There, I advocated that, Sustainability requires that we see the world as one system, and that a geospatial system promises to be a platform for better understanding and managing our planet, a kind of nervous system for a more sustainable future.

I called for the global society – organizations, governments, and businesses around the world – to collectively embrace geospatial science and technologies as a means to make decisions, both as individuals and institutions. I informed the audience that if we embrace geospatial technologies just like other pervasive technologies, this geospatial nervous system will empower our collective response to understanding our planet and acting – not only for Climate but all the interrelated challenges that we are facing as a global society.

To enable global institutions and citizens alike, to adopt this geographic approach to thinking in critical areas such as Climate, organizations such as WGIC are making a difference, and need to be supported.

I am happy to inform you that, under the guidance of the Executive Board, WGIC

adopted Climate as an overarching and cross-cutting topic for its activities and programs. In this regard, I also congratulate WGIC for working with organizations such as former U.S. Vice President Albert Gore's Climate TRACE Initiative, and the intergovernmental Group on Earth Observations (GEO) to undertake the first-ever "Systematic assessment of space-based monitoring for climate" presented at COP 26. Assessments like this enable policy-makers to embrace geospatial data and technologies for climate action.

I am also pleased to inform you that one of the first private companies with an on-orbit mission for GHGs – GHGSat, a WGIC Member is partnering with my organization, Esri to increase their reach and applications. Relationships like this speak to the value-add that WGIC brings to the global geospatial industry.

WGIC and its 30+ Members demonstrate the value of partnerships and collaborative action both inside WGIC and externally with their Strategic Partners. With your continued support, WGIC will deliver on its promise to become a "force multiplier" for our industry, the global economy, and most importantly the citizens of this amazing Planet.



*Ken Mooyman*  
*President, WGIC*

## **Delivering Value for Members is pivotal for WGIC, and we are here to do that**

As you all know, I was elected President of WGIC in May of 2021, taking over from former President Ron Bisio, who ably and successfully led the organization for two years. I want to, once again, thank Ron and the other Officers for their time, energy, and contributions to this fine institution.

The newly elected Officers, John Renard – Secretary General, and Jim Van Rens – Treasurer, joined me and Barbara Ryan – Executive Director, in furthering the work on strategic Membership engagement and articulating the compelling value proposition for our Members.

As soon as we stepped into these positions, we started to better understand and assess the WGIC Programs, Partnerships, Marketing activities, and overall Member engagement. As you might expect, heretofore, we each had seen the organization through our own lenses, and it was particularly rewarding gaining more insights into the entire ecosystem.

During this time, and in partnership with the Executive Board, we helped streamline WGIC's Strategic Goals and Programs. The first was to adopt Climate as an overarching topic focusing on the thematic areas of Disaster Resilience, Energy Transition, and Sustainable Infrastructure. The second was to continue to support WGIC's focus on Policy Advocacy on issues of value and relevance to our industry (e.g., Public-Private Partnerships

and Spatial Digital Twins). Last, and by no means least was to advance the cross-cutting efforts on Diversity, Equity, and Inclusion (DEI) – to the best of my knowledge, a first for our sector, Industry/Academia Collaboration, and our efforts to build collaboration with regional geospatial associations.

To enable each of the above, I am happy to report that we focused on commitments and deliverables from our Committees and Working Groups, with responsibilities assigned to each of our talented Member representatives. In this regard, thank you for rising to this challenge, and supporting these efforts.

With this solid foundation and focus on WGIC programs, we then decided that WGIC's Marketing and Communications work needed further support. A Marketing Plan was therefore developed and approved by the Executive Committee. We look forward to your support and participation in the activities identified in this Plan. In doing so, your marketing efforts will be further multiplied, WGIC's value will be more broadly communicated, and new Members, an essential part of our future will be reached.

With the solid foundation, built over the last four years, and strengthened during 2021, I believe we will collectively demonstrate the value of WGIC for society at large, the global economy, and in turn, for our Members in 2022 and beyond.



*Barbara Ryan*  
*Executive Director, WGIC*

## **WGIC's Partnerships, Programs, and Members are front and center**

In 2021, WGIC entered its fourth year of operation, and I had the good fortune of assuming the Executive Director's position from our Founder and first Director, Sanjay Kumar. I would again like to thank Sanjay, the Officers, and the Executive Board for their support, and for their vision in creating this remarkable organization.

While there are several regional organizations with similar mandates – all of which we are communicating with to leverage our respective capabilities – WGIC is the only global trade association dedicated to the geospatial sector. Included in this sector is also all the work being done by the Earth observation community, and it is in this regard, that in 2021, we undertook a really unique partnership that delivered significant dividends for the organization.

At the end of 2020 in the lead-up to the Glasgow Climate Conference, we helped design a high-level dialogue, sponsored by the U.K. Climate Champion, Nigel Topping on Space Technologies for Climate Action. A key participant in this dialogue was former U.S. Vice President Albert Gore, speaking on behalf of his ClimateTRACE Initiative. An outgrowth of this invitation-only dialogue was the decision

to undertake, in partnership with ClimateTRACE, and my former organization, The Group on Earth Observations (GEO), the first systematic mapping of GHG monitoring capabilities from Space. While work had been done in this area by the public sector, there was no systematic mapping of these capabilities across the private sector.

This partnership delivered its successful outcomes, in a Report presented at the United Nations Framework Convention on Climate Change (UNFCCC) Earth Information Day held at the 2021 United Nations Conference of the Parties (COP 26). Leveraging WGIC's not-for-profit trade organization status, we were able to provide a voice for the private sector at this event. Key messages included the complementarity of private and/or hybrid missions (for GHG monitoring) to that already being done by public space agencies, the importance of future collaboration, and the need for additional financing in both the public and private sectors. In this regard, Seraphim Capital acknowledged and further communicated the work done by WGIC.

2021 also brought forward final reports for work initiated in 2020 – one on Geospatial Artificial Intelligence/ Machine Learning



(GeoAI) and the other on Public-Private Geospatial Collaborations (Geospatial PPPs). Products of the WGIC Policy Committee and PPP Committees, respectively, these reports have received positive responses from the community. In order to expand our reach on these topics, WGIC undertook various collaborative events with partners like the International Telecommunication Union (ITU), the United Nations Statistics Division's UN-GGIM, and numerous industry events and fora. These three reports were accessed by more than 3000+ policymakers, senior executives, academicians, and others in the public and private sectors. These combined efforts continue to help WGIC gain recognition as a thought-leader in the geospatial sector.

We also strengthened our partnerships in the thematic areas of Energy Transition with the International Energy Council, and Sustainable Infrastructure with the International Road Federation (IRF), and the Arctic Observing Summit (AOS). As

mentioned earlier, we are continuing to strengthen our engagement with regional geospatial associations such as the Association of Geospatial Industries, India (AGI India), the European Association of Remote Sensing Companies (EARSC) and the Management Association of Private Photogrammetrists and Surveyors (MAPPS). We formalized two new partnerships for expanded climate action and the U.N. Sustainable Development Goals (SDGs) with the Group on Earth Observations (GEO) and ConnectAID.

As always, none of this would be possible, without the collective vision, support, and action of our Members. Thank you. I also want to thank the WGIC Secretariat Staff – those people who wake up every day thinking about how best to make WGIC a world-class organization. Each and all of these extraordinary efforts are helping our industry collectively gain visibility in areas essential to society at large, and the global economy.





# 2021 UPDATES





# WGIC Board and Goals

## Newly Elected Board and Officers

As WGIC entered its fourth year of operations, WGIC welcomed new Members, a new Executive Board, Office Bearers, and Committee Chairs. The WGIC 2021 Annual General Meeting (AGM) was held on May 18, 2021, and the Council’s Executive Board Meeting (EBM) was held on May 19, 2021.

### ▶ WGIC Appoints a New Executive Board for 2021-2023

WGIC’s new Executive Board went into effect in May 2021 and will remain so through April 2023. The new Board consists of sixteen Members – eleven from Patron Members, three from Corporate Members, one from Associate Members, and one Honorary Member.



### ▶ The Executive Board elects new Office Bearers

The Executive Board elected three new Office Bearers – President, Secretary-General, and Treasurer.



## Messages from the Outgoing Officers



*I extend my sincere thanks to the past Executive Board and Member companies and their representatives for contributing to WGIC programs – your commitment is inspiring. I also welcome the new Board, Office Bearers, and the Committee Chairs, as they will lead the organization into the future. I am pleased to see the continued dedication and support from our industry leaders to WGIC, our sector, and, in turn, to society at large. ””*

~ **Ronald Bisio**, Outgoing President ~



*It has been an honor and privilege to have been part of the formative phase of WGIC. It would not have been possible without the enormous trust and confidence shown by geospatial leaders across the entire geospatial ecosystem, including commercial industry, government agencies, and the United Nations, that facilitated the inaugural launch ceremony of WGIC on August 1st, 2018, in its premises at the UN Headquarters.’ Sanjay further expressed his gratitude, especially to Jack Dangermond, Chair of the WGIC Patrons, who continues to provide inspirational leadership to its mission, and Ron Bisio, outgoing President, who laid the foundation of good governance, transparency, and inclusiveness while keeping objectivity at its core. Today, I take pride in welcoming the new leadership, enriched with wisdom, experience, and commitment, duly supported by the well-established Secretariat led by Ms. Barbara Ryan. ””*

~ **Sanjay Kumar**, Founder, Board Member, and Former CEO ~

## Messages from the Incoming Officers



“There is a growing recognition of geospatial value in addressing political, social, and environmental issues. WGIC Members’ work is imperative in articulating this value proposition and creating an enabling environment for harnessing the geospatial Industry’s commercial potential. I am honored and look forward to advocating on behalf of WGIC Members and the global geospatial Community. ”

~ **Ken Mooyman**, President ~



“With a growing and diverse membership in an industry that is rapidly evolving, the next couple of years promises to be an inspiring time for the WGIC. I feel very privileged to be part of the Executive Leadership, and I am committed to building on the ground-breaking work done by the founding team and helping the WGIC realize its full potential. ”

~ **John Renard**, Secretary-General ~



“It is my honor to serve as Treasurer for the WGIC. It is an exceptional opportunity to work alongside Ken Mooyman, John Renard, and Barbara Ryan as they continue to provide strong management continuity to WGIC. The WGIC Executive Board is well-positioned to move forward with great collaboration, ensuring the Geospatial Industry is met with the thought leadership necessary to enhance the potential for our Industry. ”

~ **Jim Van Rens**, Treasurer ~

## Strengthening the Focus of the Organization

The Executive Board, led by the Officers, and supported by the Secretariat, worked towards refining the strategic goals, and streamlining the WGIC Programs, as highlighted below.

### ► Strategic Goals and Objectives



**Strengthen the contributions of the geospatial industry to society, and the global economy**

- Demonstrate the use and value of geospatial technologies
- Provide opportunities for Members to engage with relevant stakeholders



**Advance global policy matters relevant to the geospatial sector**

- Showcase the thought-leadership of WGIC in global geospatial policy matters
- Engage with relevant policymakers



**Create business opportunities for the geospatial industry**

- Leverage WGIC programs crucial for advancing the sector
- Provide opportunities for Members that increase their visibility and aid in business development

### ► Implementing Goals through WGIC Programs and Committees



**Climate as an overarching theme**

- Focus on thematic topics of Disaster Resilience, Energy Transition and Sustainable Infrastructure



**Policy Advocacy**

- Public-Private-Partnership (PPP)
- Spatial Digital Twins
- Geospatial Artificial Intelligence/ Machine Learning (GeoAI)



**Cross-cutting Efforts**

- Diversity, Equity and Inclusion (DEI)
- Industry/Academia Collaboration, and
- Collaboration with regional/ local geospatial associations

# Outreach Activities through Events

In 2021, as the COVID outbreak continued to disrupt international travel, impacting many physical events, WGIC made efforts to ensure outreach activities were not affected. We leveraged our partnerships with global organizations to help us more effectively reach additional communities through their networks. These initiatives produced positive outcomes for both us and our partners.

Here are the glimpses from more than 25+ Events where WGIC participated, or organized during 2021.



## February 24-26: Geospatial Knowledge Infrastructure Summit (Virtual)

WGIC partnered with the Geospatial Knowledge Infrastructure (GKI) program jointly coordinated by Geospatial Media and the United Nations Statistics Division (UNSD). WGIC participated in the first GKI virtual summit and was represented by Barbara Ryan and Derek Clark.



## March 3: Engaging with the Blue Economy

The Ocean Exchange and the Marine Technology Society (MTS) organized the webinar series “Engaging with the Blue Economy,” focusing on all facets of the Blue Economy to recognize the importance of the ocean to our lives every day. WGIC Executive Director Barbara Ryan joined the kick-off at a session on March 3, 2021, and talked about the value of Geospatial Data for managing and protecting the world’s ocean resources.



## March 2: Introducing WGIC to CEOS

On March 2, 2021, WGIC Executive Director Barbara Ryan spoke at the Committee on Earth Observation Satellites (CEOS) - 10th Meeting of the Working Group on Capacity Building and Data Democracy. Here she took the opportunity to introduce WGIC, and our international work to showcase the industry to the CEOS community.

## REPORT LAUNCH



## April 13: WGIC GeoAI Report Launch and Panel

WGIC geared up for the Geospatial AI/ML (GeoAI) Report launch with the support of our partner organization, the International Telecommunication Union (ITU). ITU’s AI for Good platform played a perfect host for this virtual event. Policy Advocacy Committee Chair Arnout Desmet launched the report. Later, WGIC led a panel discussion on GeoAI Trends by experts from WGIC Members – Maxar International, Oracle, RIEGL International, and TomTom.





**April 23-30: Interacting with the Canadian Geospatial Community**

WGIC joined Geolgnite 2021, the Canadian geospatial community event, for the first time. On April 23, Barbara Ryan gave a keynote talk, emphasizing that the Earth observation and geospatial community must redouble our efforts to deliver economic and societal benefits globally. On April 30, Prashant Shukle and Barbara Ryan did a deeper dive into the WGIC policy advocacy initiatives for the Canadian geospatial community.



**June 15-16: Supporting the Earth Archive Initiative**

WGIC supported The Earth Archive Congress, an event organized by The Earth Archive – an emerging conservation initiative revolutionizing the fight against the climate crisis, by calling for LIDAR coverage of the globe. The event was joined by leading geospatial organizations, Associations, and WGIC Member Voxelmarts. WGIC’s Barbara Ryan joined the fireside chat on the importance of open data, LIDAR, and other Earth observations with leading experts from the geospatial industry

**June 17: Presenting the WGIC GeoAI Policy Report to OGC**

WGIC worked with our Partner Organization, the Open Geospatial Consortium (OGC) to present the WGIC GeoAI Report, and highlight the technology trends before the OGC’s Standards and Technology community. Harsha Madiraju, Associate Director, represented WGIC at this Event.

**July 6-8: Partnering with ISDE12 Event**

WGIC joined the ISDE12 - International Symposium on Digital Earth 2021 event, organized by the International Society for Digital Earth (ISDE). WGIC contributed to the geospatial policies discussion concerning artificial intelligence, data privacy, open data, and ethics.



**August 10 – Interacting with Australian Geospatial Professionals**

WGIC, in partnership with The Surveying and Spatial Sciences Institute (SSSI), Australia, organized a webinar to educate SSSI members on the GeoAI trends, value, and benefits. The event showcased WGIC Members – AAM, Cyient, e-GEOS, Maxar, and SI Analytics, where the Member representatives demonstrated their GeoAI offerings. On behalf of WGIC, Dr. Zaffar Sadiq Mohamed-Ghouse, WGIC Board Member, coordinated and moderated the session.



**August 19: WGIC Contributes to UNGGIM 11**

WGIC, in collaboration with the UN-GGIM Academic Network and the UN-GGIM Private Sector Network (PSN), presented a Virtual Webinar on Public-Private Partnerships. WGIC Board Member and Treasurer, Jim Van Rens, led the session, followed by a Panel discussion on “The influence of Policy and PPP Collaboration on the Geospatial Ecosystem.” WGIC Members Spatial Vision and Terra Analytics participated.



**September 22: Representing WGIC at the GEO Climate Policy and Finance Workshop**

The Group on Earth Observations (GEO) organized a Workshop on Climate Policy and Finance to present the results of the ongoing mapping of climate-related activities in the GEO Work Programme. Barbara Ryan got an opportunity to deliver on behalf of the private sector, Earth observation capabilities to support the global Stocktake.



**September 27-29: WGIC Invited to the UK Space Conference**

The UK Space Conference is well established as the most important and influential event for space in the UK. WGIC’s Barbara Ryan joined Public and Private sector representatives for a Plenary talk on Space to Observe and Sustain - Protecting People, Nature and Infrastructure and Greatest Environmental Challenges.



**October 5: Symposium on Geospatial Tech for Solving the Climate Crisis**

WGIC participated in a Regional Forum for the Asia Region, led by SERVIR-MEKONG, and supported by USAID, NASA, and the Asian Disaster Preparedness Center (ADPC). Barbara Ryan spoke on the need for better integration and coordination at various levels, emphasizing the need for collaboration with global organizations like WGIC.



**October 5-8: WGIC Goes to GeoInt 2021, St. Louis, USA**

WGIC Executive Director Barbara Ryan attended the GeoInt 2021 Symposium. The aim was to meet prospective new companies to join WGIC. Further, Barbara joined the main stage on October 8 with WGIC Member, Robbie Schingler, Planet, to discuss, “GEOINT Informing Climate Change Policies and Risk Management”. The key message was that there is a multitude of data and work to address climate change by many civilian and government organizations, but this data will only matter if it’s shared and communicated correctly to an audience that understands the actual crisis.



**FIRST PHYSICAL EVENT FOR WGIC IN 2021**

**October 20-22: WGIC Staff participates at Geospatial World Forum**

At the 2021 Geospatial World Forum (GWF) in Amsterdam, one of the first physical global Events for WGIC since 2020, the Council led several successful Workshops, Panel Discussions, Presentations, and Meetings.



WGIC's Workshop on Diversity, Equity, and Inclusion (DEI). From left to right: Monica Sebillio (EUROGI), Cyhana Williams (African Women in GIS), Blazenska Micevic (CLGE), Albert Momo (Trimble), Nicole Blake (TomTom), Kuhelee Chandel (WGIC) and Barbara Ryan (WGIC).



Jim Van Rens, Treasurer addressing Members at the WGIC Member Meeting



WGIC Members and invitees at the WGIC networking reception



**November 22-26: AfricaGIS Conference 2021**

WGIC participated in the AfricaGIS 2021 Conference organized by EIS-Africa. WGIC's Barbara Ryan delivered a virtual keynote talk, and WGIC's Dr. Derek Clarke, from the Region, was able to physically join the Event.



**November 1-11: UK Space & Geospatial Virtual Pavilion for COP26**

WGIC supported and participated in the virtual pavilion for COP26 organized by KTN UK. On November 2, WGIC, in partnership with GEO and Climate Trace, released the "GHG Monitoring from Space" Report.

**REPRESENTING THE PRIVATE SECTOR AT COP26**



**November 3: COP26 UNFCCC – Earth Information Day**

WGIC, on behalf of the private sector, attended and represented the geospatial sector at the United Nations Framework Convention on Climate Change (UNFCCC) Earth Information Day 2021. The Event provided dialogue for exchanging information on the state of the global climate system and developments in systematic observation.

For the first time, the private sector got collective representation at this Event. WGIC was able to present updates from the private sector on the efforts to monitor GHGs from space.

**December 2 – The Mirrored World – Role of Digital Twins in the Utilities Industry**

WGIC was asked by Member Company Voxelmarts to join this virtual event and moderate a panel discussion on Digital Twins in the Utility Industry. WGIC’s Barbara Ryan moderated the panel discussion joined by Matt Shellenberger – American Electric Power, Craig Stenberg – Southern California Edison (SCE), and Peter Atalla – Voxelmarts Inc.

**December 7-9 – Virtual United Nations/Austria World Space Forum 2021**

WGIC’s Barbara Ryan was invited to join a session on “Partnership, Coordination, and Cooperation.” This session demonstrated well-established examples of international partnerships and cooperation initiatives for leveraging the benefits of space technologies for climate action. These models can be leveraged for building further projects.

**ENGAGING WITH REGIONAL COMMUNITIES**



**December 7-9: GeoSmart India 2021 – AGI and WGIC Session on PPPs**

The Association of Geospatial Industries (AGI) India and the World Geospatial Industry Council (WGIC) came together to jointly organize a Workshop on Public-Private Partnerships (PPPs) at GeoSmart India 2021, December 8, 2021, in Hyderabad, India. This Workshop brought the concept of PPP business models to Indian geospatial leaders from both the Public and Private sectors.

This Workshop leveraging the WGIC Report published in 2021 titled “Public-Private Geospatial Collaborations: Exploring Potential Partnership Models” provided the necessary context and knowledge on PPPs to participants and created a discussion around the need for evolving policies, processes, and consensus that will favor the increased uptake of PPPs.

Agendra Kumar, Managing Director, Esri India, and President, AGI India, kicked off the PPPs Workshop India, and Sanjay Kumar, Founder and WGIC Board Member, moderated the discussions at this Event.



# COMMITTEE REPORTS





# Diversity, Equity & Inclusion (DEI)

## Formation of the DEI Committee

In 2020, the WGIC Executive Board formed an ad hoc Working Group on Diversity, Equity, and Inclusion (DEI). Recognizing the importance and urgency of DEI, the Board recommended that this ad hoc DEI effort be transferred to a formal WGIC Committee. As a result, the WGIC DEI Committee was formally established in May 2021. Dean Angelides (Esri) served as an advisor on the DEI Committee, which is chaired by Albert Momo (Trimble) and includes Valerie Grant (GeoTechVision) and Iulia Maier (Cyient Ltd). The Committee is staffed by Ms. Kuhelee Chandel of WGIC. This Committee's goals are to provide a foundational understanding of the core principles of diversity, equity, and inclusion, to develop and propose a DEI strategy for WGIC Members, and to propose metrics to measure DEI progress within WGIC.

## Draft Policy on DEI

Recognizing the importance and urgency of DEI, the Committee created a draft DEI Policy document. This document was later reviewed and approved by the Executive Board in September 2021, as part of the organization's DEI policy. This policy primarily states that the WGIC opposes all types of discrimination, harassment, and/or exclusion based on race, ethnicity, nationality, gender, sexual orientation, gender expression, language, age, spiritual and religious beliefs, handicap, marriage, and family status, social status, and/or political or other views.

## Initiatives

Today, the geospatial industry recognizes the enormous value of DEI activities, and encourages efforts for DEI becoming more popular and widespread.

The WGIC and its Members enthusiastically support several initiatives to increase DEI, including their participation in current and future WGIC activities, Committees, and programs. On the 21st of October 2021, WGIC held a Workshop at the Geospatial World Forum (GWF) 2021 as a breakthrough initiative to raise DEI awareness in the geospatial community. The goal of this WGIC initiative was to emphasize the value of Diversity, Equity, and Inclusion, with a focus on the benefits of diversity, biases that prevent inclusion, and action items to become more inclusive.

Outlined in a Panel led by Albert Momo (Trimble), the significance of addressing diversity, equity, and inclusion in the geospatial community was stressed. WGIC, in collaboration with its Member organizations, recognizes the importance of DEI and pledges to advance diversity, equity, and inclusion in the geospatial community in particular. WGIC will continue to promote and implement similar initiatives to raise awareness and affect progressive change.



## Way Forward

The DEI Committee intends to publish a White Paper titled "Diversity in Leadership: Geospatial Industry Perspective" in 2022. In addition, to continue the awareness-raising agenda, a DEI Workshop is planned for GWF in May 2022. Following this Event, the Committee intends to hold 4-5 Regional Workshops on DEI awareness and maturity. In addition, several blogs and articles aimed at raising awareness, encouraging, and appreciating DEI activities among Member organizations are planned as activities for 2022.

# Finance, Audit & Risk

## About the Committee:

The Finance Committee was established in 2018. Having reviewed the objectives and scope of the Committee, the name was changed to Finance, Audit and Risk Committee (FARC), in order to reinforce the importance of the Audit and Risk functions. The primary responsibility of FARC is to assist WGIC in ensuring that the organization functions effectively, efficiently, ethically, and legally. FARC sets the guidelines for reporting and monitoring. The Committee evaluates financial reporting quality, regulatory compliance, control management, financial and audit risks, with regular reporting to the Board, effective management of finances, investments, accounting, audits, banking relations, and general effectiveness of policies and procedures. FARC is chaired by James Vans Rens (*RIEGL* International), and Members includes Brian Nicholls (AAM Pty Ltd) and Zaffar Sadiq Mohamed Ghouse (Spatial Vision). The Committee is staffed by Ms. Aarti Iyer (WGIC Secretariat)

## Objectives for 2021 are shown below:

- Objective 1: Streamline Banking Operations;
- Objective 2: Introducing Risk Management;
- Objective 3: Ensure Financial Stability; and
- Objective 4: Create a strong working Committee.



## Initiatives & Tangible Deliverables:

### Streamline Banking Operations:

Wise is the internet bank currently used by WGIC. Despite a smooth operating environment, there is concern that resources may not be adequately protected during a financial crisis. We intend to establish a relationship with an insured, secure bank, create a proper banking system to protect our funds, and avoid danger to safeguard our funds and reduce risks. To minimize the organization’s financial risks, make it easier for the organization to run its business, and revise the Articles of Association to create more optimal guidelines for its successful operations.

### Introduce Risk Management Practices:

The Risk Management and Mitigation processes that will be evolved for the organization include checks and balances on the following aspects: Compliance with current Laws, Finance and Audits, Litigation and Claims, Fraud and Theft, Information Technology, and Security and Governance. An initial version of a WGIC Primary Risk Register has been created, and is undergoing the risk description buildout.

### Create a Strong Working Committee:

FARC will meet no less than three times a year in advance of each Board meeting. The Committee will review and assess any significant estimates and judgments in past financial reports and proposed future budgets.

### Plans for 2022:

- Establish a Proper Bank for WGIC;
- Risk Management: Refine, launch, and monitor; and
- Key Performance indicators to be developed.

# Industry/Academia Collaboration

The Industry-Academia Collaboration Committee is a relatively young Committee with the vision “to foster true collaboration between Industry and Academia by delivering outcomes to be utilized by the geospatial sector.” To further this vision during this reporting period, most of the time has been spent engaging with the academic sector to establish relationships between the geospatial industry and academia. This is being done with the purpose of promoting mutual benefit. A start has been made to establish a database of a representation of academic institutions, with geospatial information science programs, across the various countries globally. Taking this global approach will provide for the diversity that exists in the different regions. In particular, a relationship with the UN-GGIM: Academic Network has been established, and will form the basis for further collaborative efforts between the two parties. Further work on this database will be required.

During the year work started on the preparation of a White Paper on Education and Training for the Geospatial Sector. To start the process for this White Paper, and to provide a foundational framework a group, leaders in the geospatial sector, across both industry and academia, have been invited to participate in a ‘thought-leaders’

Session, that will be held early in 2022. The framework provided will lead to the next stage of engaging both the geospatial industry and academia for inputs which will contribute to the White Paper.

The structure and membership of the Committee was reviewed in the year, with the intention to make it more effective in serving the Members of WGIC, and the wider geospatial sector.

Active contributions from the WGIC membership is strongly encouraged to assist the Committee to achieve its vision and purpose.

## Aims for 2022

- Further the mechanisms for collaboration between the geospatial industry and academia, including the establishment of a database of academic institutions in the geospatial sector;
- Prepare a comprehensive education and training White Paper for the geospatial field; and
- Create a Panel of researchers from academic and research institutions, from which WGIC can rapidly select and appoint a researcher(s) for a specific research project.



# Partnerships & Industry Engagement (P&IE)

The year 2021 brought some significant changes to the work of the P&IE Committee. In March, it was announced that a Council-wide themed approach around Climate Change would be adopted and pursued along the axes of Disaster Resilience, Energy Transition, and Sustainable Infrastructure. As a result, WGIC's six Working Groups were restructured as three chaired respectively by Valrie Grant (GeoTechVision), Robert Hoddenbach (Fugro), and Arnout Desmet (TomTom).

The new Working Groups' focus was adding new members with relevant backgrounds from the WGIC Membership. The Disaster Resilience group considered the UN Office for Disaster Risk Reduction as a potential partner; the Energy Transition group intensified its interaction with the World Economic Council; and the Sustainable Infrastructure group decided on Road Transport as its next focus and reached out to the International Road Federation.

In November, the support of the Committee and Working groups was transitioned from Remco Takken to Hermen Westerbeeke, a senior strategy consultant with experience in the geospatial, energy, and sustainable development sectors. Appreciation is extended to Remco Takken for his early support and engagement to this Committee and its Working Groups.

## Strengthening Existing Partnerships



### **buildingSMART International (bSI)**

*Collaborative Themes: Cross-Sector Collaboration, Policy Advocacy (Spatial Digital Twins)*

In 2021, WGIC and bSI continued promoting each other's activities, though no significant initiatives in building, construction and/or infrastructure were undertaken. Partner contacts, stayed intact through various communication channels, and bSI agreed to partner on the 2022 launch of the WGIC Spatial Digital Twins Report.



### **European Union Agency for the Space Programme (EUSPA)**

*Collaborative Themes: Cross-Sector Collaboration*

On 12 May 2021, the European Agency for Global Navigation Satellite Systems (GSA) was replaced and succeeded by the European Union Agency for the Space Programme (EUSPA). This organizational change, which saw the remit of the GSA (i.e., the EU's satellite navigation systems) extended to Copernicus (the EU's Earth Observation Programme) and the Governmental Satellite Communication (GOVSATCOM) initiative, resulted in fewer discussions in 2021, but by October contacts were restored.



### **Group on Earth Observations (GEO)**

*Collaborative Themes: Cross-Sector Collaboration, Climate Change*

Through an informal partnership, WGIC and GEO collaborated on the research report for Monitoring GHGs from Space. GEO contributed to the research from the Public sector side, and WGIC coordinated inputs from the private sector. GEO provided full-time research staff to lead the research and prepare the report. GEO and WGIC participated in several events where this work was jointly presented.



WGIC was also accepted as a Group on Earth Observations (GEO) Participating Organization at the 56th GEO Executive Committee, on 22 November 2021. This led to the formalization of the partnership.



**International Standards Organization/Technical Commission 211 (ISO/TC 211)**

*Collaborative Themes: Cross-Sector Collaboration, Policy Advocacy (Spatial Digital Twins)*

WGIC continued to engage as a liaison in ISO/TC 211 during 2021. Notably, WGIC leveraged the TC 211 as an entry point to the broader ISO network as follows:

- **GeoAI report:** WGIC shared the information with TC 211 Chair for a wider reach in their network; and
- **Spatial Digital Twins study:** As part of the WGIC's study on standards on Digital Twins, TC 211 helped us reach the following groups within ISO: their ad hoc Group on Smart Cities, and ISO - ISO/IEC JTC 1/SC 41 - Internet of Things, Digital Twin, and related Working Groups.



**International Telecommunication Union (ITU)**

*Collaborative Themes: Policy Advocacy (GeoAI), UN Sustainable Development Goals (SDGs)*

ITU proved as a solid and engaged partner during 2021. WGIC initiated discussions in areas of collaboration, and ITU came forward, providing the necessary guidance and platforms needed to communicate our work within ITU's networks and communities. Here are key highlights:

- **GeoAI Report Launch:** On April 13, 2021, the GeoAI report launch took place at the "AI for Good" Virtual Event promoted and hosted by ITU. Member representatives who contributed to the study were part of a Panel discussion at this Event; and
- **Joint event on GeoAI:** ITU, OGC, the UN-GGIM Academic Network, and WGIC, came together to discuss plans for a series of events on GeoAI planned to begin in 2022. WGIC will bring subject matter experts from its Member and Partner networks to these events.
- **ITU Events:** WGIC also explored WGIC's participation in other international events organized by ITU, such as the World Summit on the Information Society Forum 2022.



**Open Geospatial Consortium (OGC)**

*Collaborative Themes: Cross-Sector Collaboration, Policy Advocacy (GeoAI, Spatial Digital Twins)*

WGIC extended collaboration with OGC in the areas of market research, events, and communications as follows:

- **Spatial Digital Twins study:** OGC assisted WGIC by supporting the study, where OGC promoted the Survey within its Member network;
- **Events:** WGIC and OGC have come together to co-design and lead, in partnership with the UN Academic Network, the ITU GeoAI Series planned for 2022; and



- **Communications:** As part of the broader communications activities, WGIC promoted key, related activities of OGC throughout the WGIC network, website, and social media.



### **United Nations Statistics Division (UNSD)**

*Collaborative Themes: Cross-Sector Collaboration, UN Sustainable Development Goals (SDGs)*

WGIC contributed to the 11th Session of United Nations Initiative on Global Geospatial Information Management (UN-GGIM) in August, held virtually, by organizing and hosting a highly successful Side-Event on Effective Geospatial Information Management and Services through Public-Private-Partnerships which drew 60 participants. WGIC also provided written comments on several of the 11th Session's Meeting Documents.

During the year the WGIC Secretariat provided the UN-GGIM Secretariat with a resource to assist African countries in preparation of their National Action Plans to implement the UN-GGIM Integrated Geospatial Information Framework. This involved engaging with 15 selected African countries across the different sub-regions of Africa and, together with the Executive Committee of UN-GGIM: Africa, and the UN Economic Commission for Africa, selected the initial group of countries that should begin preparing their national action plans.

WGIC, on behalf of WGIC Members, also contributed to the UN-GGIM Private Sector Network (PSN) by providing Secretariat support to the PSN, for the effective running of the Network.

WGIC also continued supporting Phase 1 of the Geospatial Knowledge Infrastructure (GKI), which included contributing to the international training session on GKI held in Amsterdam, The Netherlands, in October, in advance of the Geospatial World Forum (GWF).



### **World Federation of Engineering Organizations (WFEO)**

*Theme: Sustainable Infrastructure, UN Sustainable Development Goals (SDGs)*

In September the WGIC Executive Director had a first introductory meeting with the WFEO Secretariat. In early December a working meeting between the two Secretariats discussed WFEO's support to our Spatial Digital Twins project and report launch, as well as the potential for a joint event linked to the 2022 World Engineering Day for Sustainable Development, scheduled for 4 March 2022.

## Building New Partnerships



### **Association of Geospatial Industries (AGI) India**

*Collaborative Themes: Cross-Sector Collaboration*

AGI India is a regional association of private sector geospatial companies in India. WGIC, as part of its global-to-regional reach, initiated a discussion with AGI during September 2021, intending to enable an exchange of knowledge; invite input to WGIC research reports, and collaborate on selected events. While historically, both organizations have had much contact, these discussions formalized a more streamlined collaboration.

Highlights of the collaboration include:

- **Policy Discussions:** AGI Invited WGIC to contribute to the Industry Exchange Forum on Geospatial Policy Guidelines, hosted by Geospatial Media and Communications and AGI. Harsha Madiraju represented WGIC at a discussion held in Hyderabad, India, and contributed to this Industry Exchange;
- **Reports:** AGI contributed to WGIC's policy reports. AGI shared the GeoAI report, and shared the Spatial Digital Twins questionnaire within their network; and
- **Events:** WGIC and AGI jointly organized a Seminar on the value and relevance of Public-Private Partnerships (PPPs) for the Indian geospatial industry at GeoSmart India 2021 on December 8, 2021.



### **Climate TRACE**

*Collaborative Themes: Climate Change*

Our partnership with Climate TRACE emerged from the 2020 event led by former U.S. Vice President Albert Gore, and the U.K.'s High-Level Climate Champion, Nigel Topping. In 2021 we worked with Climate Trace and GEO on the following:

- **GHG Report:** WattTime part of the Climate TRACE network supported the Monitoring GHGs from Space report in partnership with GEO and WGIC, Their contributions to designing and completing the database contributed significantly to the success of the report;
- **Joint Event:** We jointly organized and participated in the Space and Geospatial Virtual Event held on the sidelines of COP26 for the soft launch of the GHG report; and
- **WGIC Events:** We continued to collaborate with Climate TRACE and WattTime for other events that we organize on climate.



### **European Association of Aerial Surveying Industries (EAASI)**

*Collaborative Themes: Cross-Sector Collaboration*

During 2021, WGIC and EAASI engaged in discussions around areas of collaboration. EAASI President Simon Musaeus is also VP Business Development, Geospatial Content Solutions at Hexagon Geosystems, a WGIC Member. This opportunity resulted in a natural collaboration in WGIC policy work in the areas

of Public-Private Partnerships (PPPs) and Spatial Digital Twins. WGIC was also invited to attend the EAASI Partner Summit 2021, where Barbara Ryan presented a talk virtually.



### **European Association of Remote Sensing Companies (EARSC)**

*Collaborative Themes: Cross-Sector Collaboration*

The European Association of Remote Sensing Companies (EARSC) is a membership-based, not-for-profit organization created to promote the European Earth Observation industry and represent the industry's position to European policy makers, and on the international stage. Through WGIC's Hermen Westerbeeke, a new contact between WGIC and EARSC was made in January, and led to a meeting of WGIC's Executive Director and EARSC's Secretary General in June. Potential areas of cooperation were discussed, and it was agreed to meet periodically as opportunities arise.



### **Global Covenant of Mayors for Climate and Energy (GCoM)**

*Collaborative Themes: Climate Change*

Considering our focus on Climate as an overarching topic, and sustainable infrastructure (cities) as a Working Group, WGIC initiated discussions with GCoM during March 2021. The aim was to better understand GCoM and their needs, and to identify potential opportunities for collaboration. Outcomes were as follows:

- **Data and technology needs of GCoM:** They are working on geospatial technologies with companies like Google for their programs. Their needs are to get more data on cities, climate, and transportation for the global south. These discussions had led to a round table with WGIC Members;
- **Climate Change:** WGIC found that Climate Mitigation is a focus area for GCoM that aligns with our GHG Mapping activity. GCoM was interested in gaining access to the GHG satellite database, which was shared with them after the report was published; and
- **Next steps:** We need to discuss a collaborative Workshop on Climate and Cities with our Members and GCoM's Member network. GWF 2022 may provide an opportunity for advancing this idea.



### **International Energy Agency (IEA)**

*Collaborative Themes: Energy Transition*

In July, WGIC's Energy Transition Working Group initiated contact with the International Energy Agency (IEA). The IEA is an autonomous intergovernmental organization established in 1974, in the wake of the 1973 Oil Crisis, and is best known for the publication of its annual World Energy Outlook. WGIC was invited to review a paper on the Data-Driven Electrification in Africa project by IEA and Power Africa, scheduled for release in 2022.



### **Management Association of Private Photogrammetrists and Surveyors (MAPPs)**

*Collaborative Themes: Cross-Sector Collaboration*

Through the virtual introductions provided by Jim Van Rens, Treasurer, WGIC, and a Member of MAPPs, WGIC explored areas of mutual interest and collaboration. In 2021, WGIC had interactions with incoming MAPPs President, Robert Hanson. WGIC provided updates on WGIC's key activities, research studies and report launches to the MAPPs Secretariat. During 2022, both organizations aim to establish a liaison who can further activate strong collaboration.



### **World Energy Council (WEC)**

*Collaborative Themes: Energy Transition*

The World Energy Council (WEC) was established in 1924 as a platform to discuss current and future energy issues. It has grown into an UN-accredited global energy body, representing the entire energy spectrum, with more than 3,000 member organizations located in over 90 countries, drawn from governments, private and state corporations, academia, NGOs, and energy-related stakeholders. WEC hosts the triennial World Energy Congress and publishes Insights Briefs on current energy topics, and its annual World Energy Trilemma Index, which compares energy security, equity, and environmental sustainability on a country-by-country basis.

Building on contacts made previously, WGIC's Energy Transition Working Group had several meetings with the WEC Secretariat's Insights Team which in December culminated in the decision to organize a joint Workshop to both explore how geospatial solutions contribute to humanizing energy, and to discuss opportunities for growth and future collaboration.



# Policy Development & Advocacy

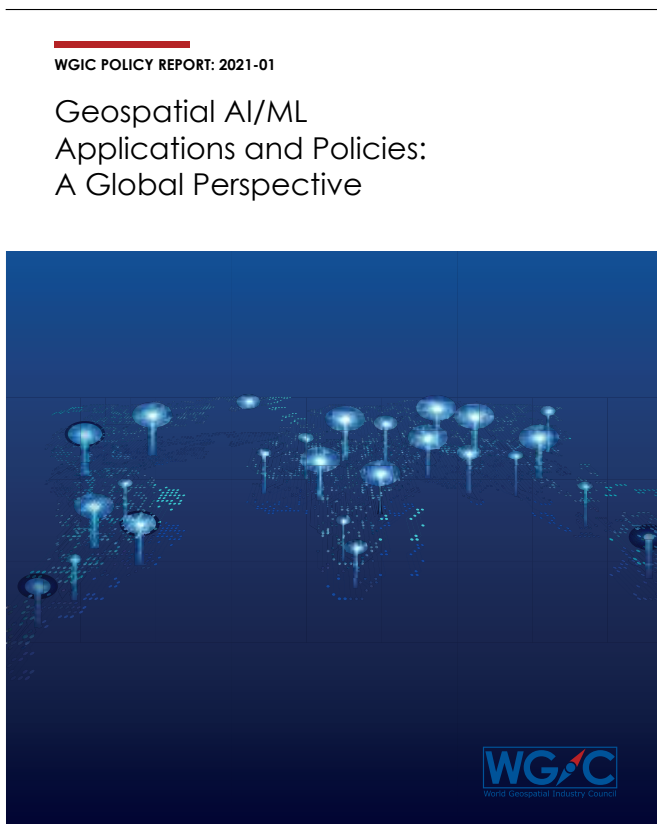
## 2021 Progress

The Policy Committee, through the active engagement of its members including, Arnout Desmet, TomTom (Chair), Kumar Navulur (Maxar), Jim Steiner and Jayant Sharma (Oracle), Irene Benito (Planet), Jim Van Rens (RIEGL International), and Zaffar Mohamed Ghouse (Spatial Vision) continued its strong contribution to implementing WGIC's Policy Advocacy objective.

In 2021, the Policy Committee completed the first global analysis of Geospatial Artificial Intelligence and Machine Learning (GeoAI) in the report titled, "Geospatial AI/ML – Applications and Policies: A Global Perspective." Dr. Lokendra Chauhan, Founder of Qen Labs, and associated with Dr. Shashi Shekhar of the University of Minnesota, was the lead researcher and author of the report. As part of the report preparation, WGIC Member companies were interviewed for their views on, and case studies in, AI/ML; a global scan of regulations and legislation pertaining to AI and GeoAI was conducted; and recommendations and best practices for both industry and governments were compiled.

The report was launched in partnership with the International Telecommunication Union (ITU) as part of ITU's "AI for Good" Webinar Series. The report has been well-received, and got 900 downloads, and has served as a basis for several other webinars on the same topic, thereby increasing exposure and visibility into this important topic. The WGIC Policy Report 2021-01, released in April 2021 is available at: <https://go.wgicouncil.org/geoai-21>

Following the launch of the GeoAI Report, the Policy Committee began discussions on the next topic of interest to be undertaken, and ultimately decided upon Spatial Digital Twins. As with the previous policy studies, draft Terms of Reference (ToRs) were prepared for the work effort, shared with potential researchers and consultants, and ultimately funded. In the case of Spatial Digital Twins, Thomas Werner, Professional Services and Strategy at Integris Group Services Pty, Ltd, in Melbourne, Australia, and formerly a senior consultant on Strategy and Operations at Deloitte was selected to lead the effort. The research effort followed the same or a similar model for all the previous WGIC Policy Reports – interviewing WGIC Members on their work (including case studies) in Digital Twins, supplementing these interviews with input from other technical experts in the field, a global scan of related regulations and/or legislation covering the topic, and compiling



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best practices and recommendations for both the industry and governments around the world. The report will be released in April 2022.

The WGIC Secretariat continued to prepare and issue, a newsletter titled, *Policy Watch*, that focuses on geospatial and related technology policies, programs, and initiatives that are being undertaken by governments around the world. While primarily intended for WGIC Members, these newsletters are also released to the public in hopes of furthering the exchange of information within the global geospatial ecosystem.

## Events

As described above, the report, “Geospatial AI/ML – Applications and Policies: A Global Perspective” was released, in partnership with ITU on April 13, 2021, as part of ITU’s “AI for Good” Webinar Series.

## Value proposition and alignment of programs with mission of WGIC:

As we look to the goals and strategic objectives of WGIC (below), the work of the Policy Committee in 2021 delivered on each one of these endeavors.

- Strengthen the contributions of the geospatial industry to society, and the global economy;
- Advance global policy matters relevant to the geospatial sector; and
- Create business opportunities for the geospatial industry.

The WGIC Policy Reports not only present insights and case studies from WGIC Members, thereby creating additional business opportunities, but significantly advance the global debate and discussion on these important topics.



# Public-Private Partnerships

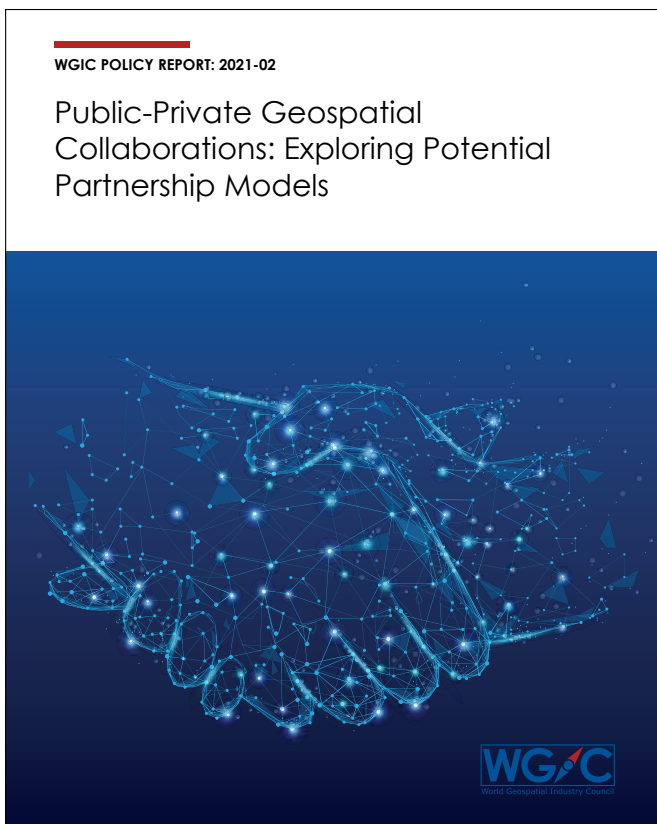
In 2021, the Committee on Private-Public Partnerships (PPPs) produced a report “Public-Private Geospatial Collaborations: Exploring Potential Partnership Models”. The Committee members throughout 2021 included Willy Govender, Terra Analytics (Committee Chair); Brian Nicholls, AAM, Australia; Albert Momo, Trimble, USA; Robert Hoyler, TomTom, USA and Nadine Alameh, Open Geospatial Consortium (Partner).

All Committee members played an active role in helping to shape the content of the report, providing guidance in structuring the research directions of the report, and establishing linkages to critical bodies such as the United Nations, the United States National Geospatial Advisory Committee, and World Bank.

The report was developed after an extensive set of engagements in 2020, which included four regional roundtables organized and led by the WGIC Secretariat: extensive bilateral meetings and research with the United Nations, the US National Geospatial Advisory Committee, and the World Bank. These inputs combined with the results of questionnaires developed by the WGIC Secretariat and circulated to WGIC Member organizations led to the critical content dimensions of the Report on Public-Private Partnerships.

The report was introduced at a series of international events such as GeoIgnite, Canada’s national geospatial conference in April 2021; a meeting of the United Nations Private Sector Network (PSN) in August 2021; and the Group on Earth Observations (GEO) in November 2021. An earlier attempt to showcase the report with the Survey of India in March of 2021 was hampered due to technical difficulties, although there was a strong sentiment echoed in the Survey of India meeting that public-private partnerships were an essential building block for future geospatial activities in India, as well as in a broader global context.

Subsequently, in November and December of 2021, the WGIC PPP Committee welcomed new members Simon Musaeus, Hexagon and Irene Benito, Planet to the Committee. A phase 2 Roadmap was endorsed, with a strong recommendation to explore potential PPP opportunities in some of the emerging areas of WGIC study and research such as Digital Twins and/or Geo-AI.

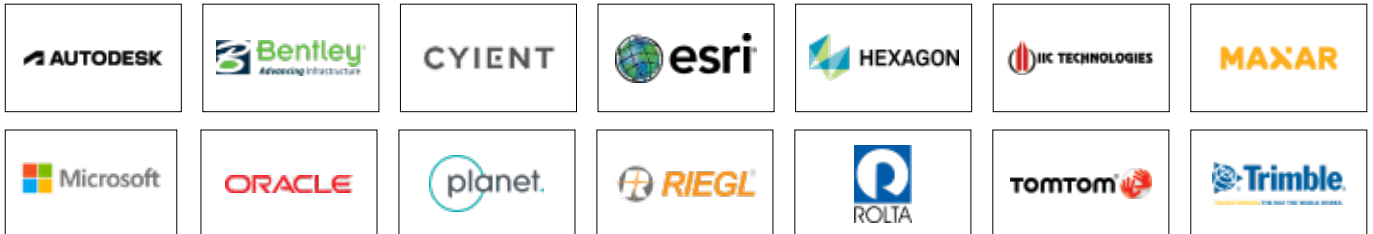


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# Member Companies

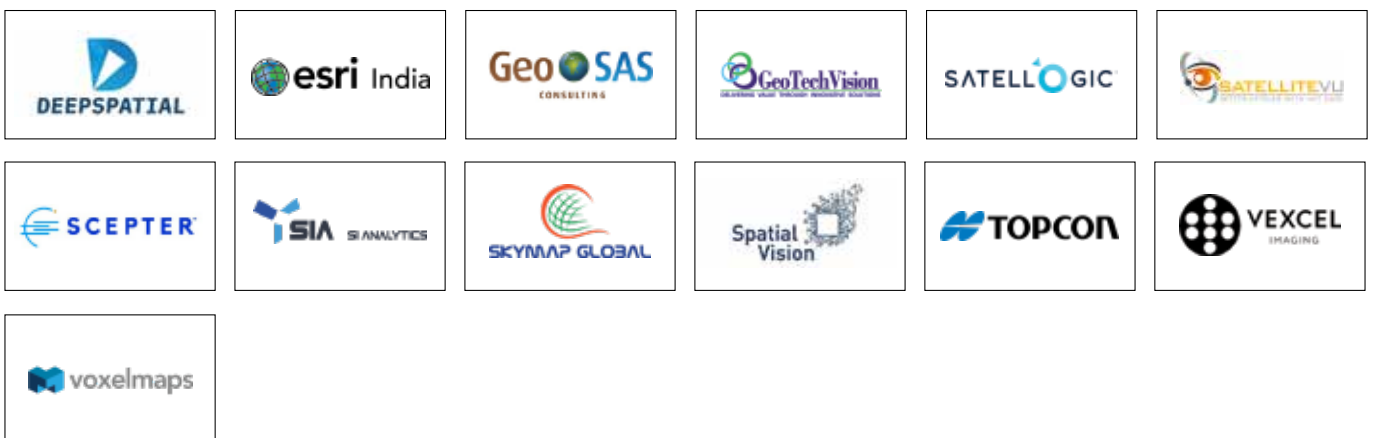
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The WGIC Secretariat extends its sincere gratitude to the Patrons, and the Board. We also thank each of the Chairs and Members of the Committees and Working groups for their contributions to the various programs and activities of WGIC.

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\*Point of Contact



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Cyient

#### Elena Francioni

Business/Solutions Development &  
Tech. Sales  
e-GEOS

#### Josiah Burkett

GIS Analyst/Geologist  
GeoTechVision

#### Valrie Grant

Founder & Managing Director  
GeoTechVision

#### Simone Lloyd

Senior GIS Manager and Trainer at  
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Ministry of Housing, Urban Renewal,  
Environment and Climate Change  
West Indies

#### Nadine Alameh

CEO  
Open Geospatial Consortium

#### Brittany Zajic

Business Development Manager  
Planet Labs

#### Eldrige de Melo

Director, Business Development EMEA  
Satellogic

#### Rhiannan Mundana

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Spatial Vision

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Geospatial Business Development  
Cyient

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Head of Geo Content Innovation  
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GHGSat

#### Andy Waddington

VP Bathymetric Services  
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#### Simon Tucker

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#### Eldrige de Melo

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Business Development EMEA  
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#### Thomas VanMatre

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Development  
Satellogic

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Vice President – Maps  
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Strategy & Marketing  
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#### Marta Bouchard

AEC Sustainability Lead  
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#### Elena Francioni

Business/Solutions Development &  
Tech. Sales  
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#### Christian Luttenberger

Vice President BEI  
Hexagon Geosystems

#### Guillermo Gutierrez

GIS Technical Manager  
IIC Technologies

#### Eldrige de Melo

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Business Development EMEA  
Satellogic

#### Shashi Vijayanthi Rangarajan

VP, Technical Program Management  
TomTom

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Strategic Business Development  
Maxar Technologies

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Senior Director  
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Open Geospatial Consortium

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#### Robert C. Hoyler

Sr Partnership Development Manager  
Sourcing Operations  
TomTom

#### Albert Anoubon Momo

Vice President and Executive Director  
Emerging Markets and Funded Projects  
Trimble

## WGIC Secretariat



**Barbara Ryan**  
Executive Director

[barbara.ryan@WGICouncil.org](mailto:barbara.ryan@WGICouncil.org)



**Harsha Madiraju**  
Associate Director

[harsha.madiraju@WGICouncil.org](mailto:harsha.madiraju@WGICouncil.org)



**Aarti Iyer**  
Executive Assistant

[aarti.iyer@WGICouncil.org](mailto:aarti.iyer@WGICouncil.org)



**Kuhelee Chandel**  
Advisor  
DEI Committee & UN-GGIM-PSN

[kuhelee.chandel@WGICouncil.org](mailto:kuhelee.chandel@WGICouncil.org)



**Dr. Derek Clarke**  
Advisor – UN Entities &  
Industry/ Academia

[derek.clarke@WGICouncil.org](mailto:derek.clarke@WGICouncil.org)



**Prashant Shukle**  
Editor-Policy Watch

[prashant.shukle@WGICouncil.org](mailto:prashant.shukle@WGICouncil.org)



**Hermen Westerbeeke**  
Advisor - Partnerships and  
Industry Engagement

[hermen.westerbeeke@WGICouncil.org](mailto:hermen.westerbeeke@WGICouncil.org)



**World Geospatial Industry Council**

Fluwelen Burgwal 58,

2511 CJ Hague

The Netherlands

**Email:** [info@WGICouncil.org](mailto:info@WGICouncil.org)

**Website:** [www.WGICouncil.org](http://www.WGICouncil.org)

