GWF
GEOSPATIAL WORLD FORUM

13-16 May 2024, Rotterdam, The Netherlands

CONFERENCE
REPORT

A Great Success!

The Geospatial World Forum, held from May 13-16, 2024, at Postillion WTC Rotterdam, was a resounding success with nearly 1,000 delegates from 89+ countries. The event featured 54 exhibitors, including government agencies, private companies, academic institutions, and development organizations. Over 350+ speakers from across the geospatial industry discussed 70+ topics. Senior executives from national mapping, technology innovators, public policy makers, and end-user enterprises engaged in this unique event, themed Geospatial Transition: "Powering the World Economy." GWF 2024 showcased the increasing relevance and value of the geospatial industry, making it an impactful and valuable week.
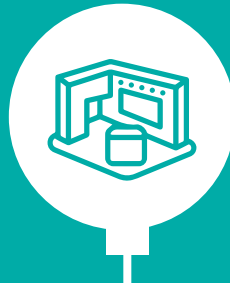
Facts

983 Delegates

450+ Organizations

41 Sponsors & Partners

89+ Countries

54 Exhibitors

350+ Speakers

Speakers Profile
By Geography

Americas
18%

Europe
60%

Middle East
5%

Africa
2%

Asia Pacific
16%

Academia & Research	11%
Association/NGO	8%
Consultancy Firm	12%
Government	25%
Multilateral or Regional Agencies/Associations	5%
Private User	10%
Technology and Data Provider	29%
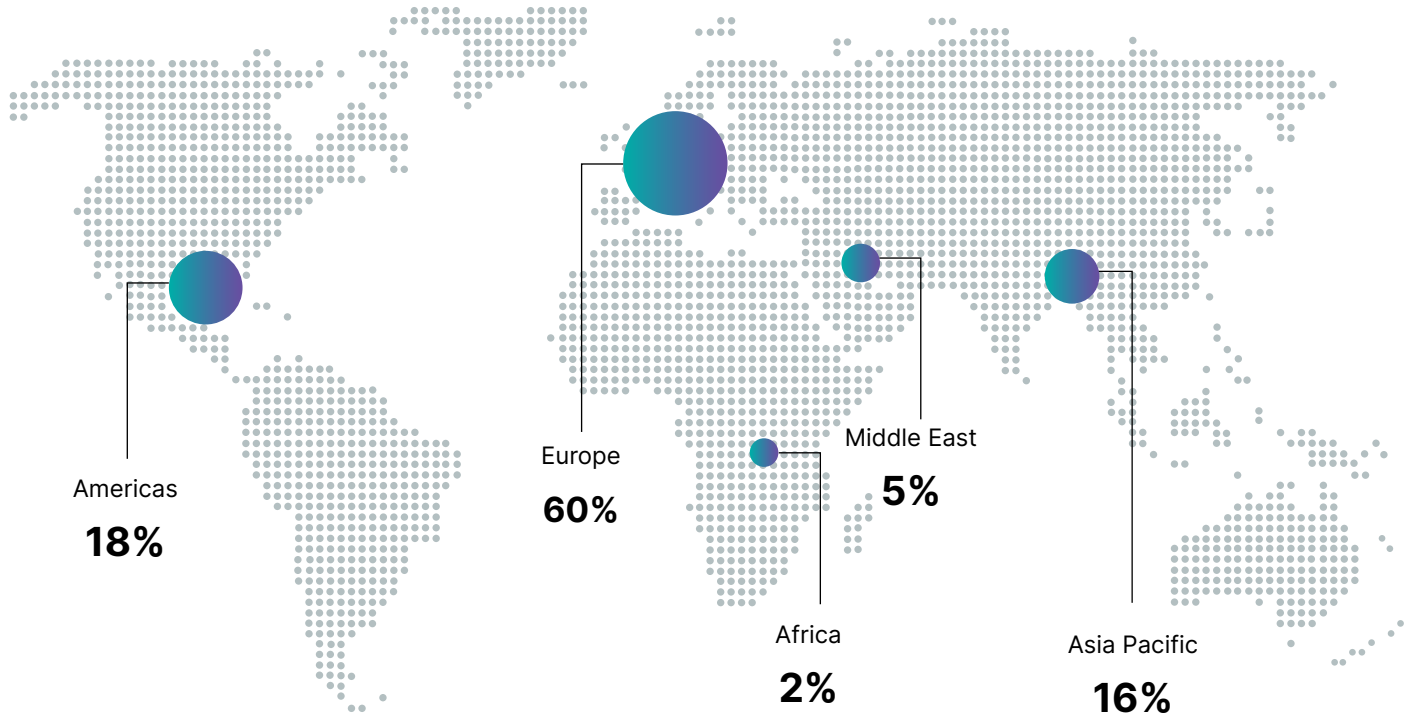
Delegates Profile
By Geography

Americas
15%

Europe
56%

Africa
2%

Middle East
8%

Asia Pacific
19%

By Profile

Profile	%
Academia & Research	9%
Association/NGO	7%
Consultancy Firm	8%
Government	24%
Multilateral or Regional Agencies/Associations	1%
Private User	9%
Technology and Data Provider	42%
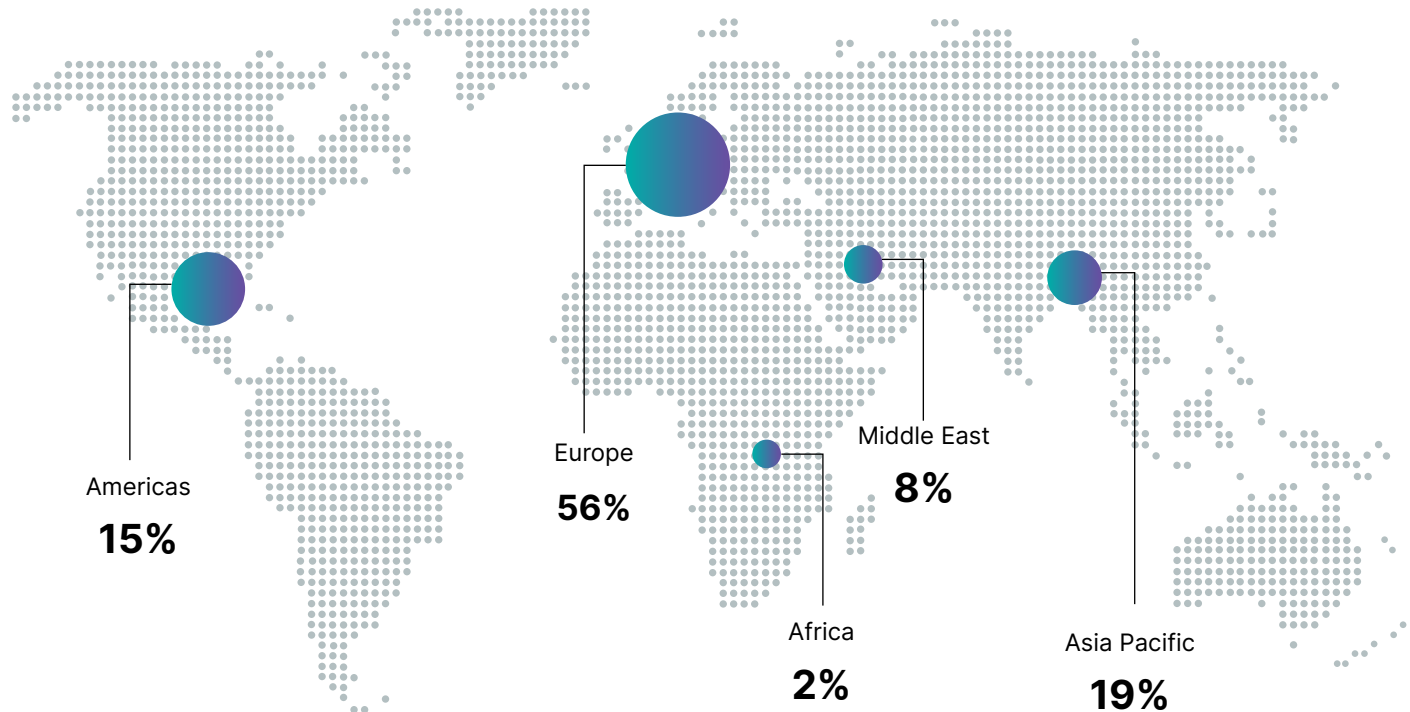
Exhibitor Profile
By Geography

Americas

19%

Europe

55%

Middle East

10%

Asia Pacific

17%

By Profile

Profile	Percentage
Academia & Research	10%
Consultancy Firm	14%
Government	10%
Private User	7%
Technology and Data Provider	60%
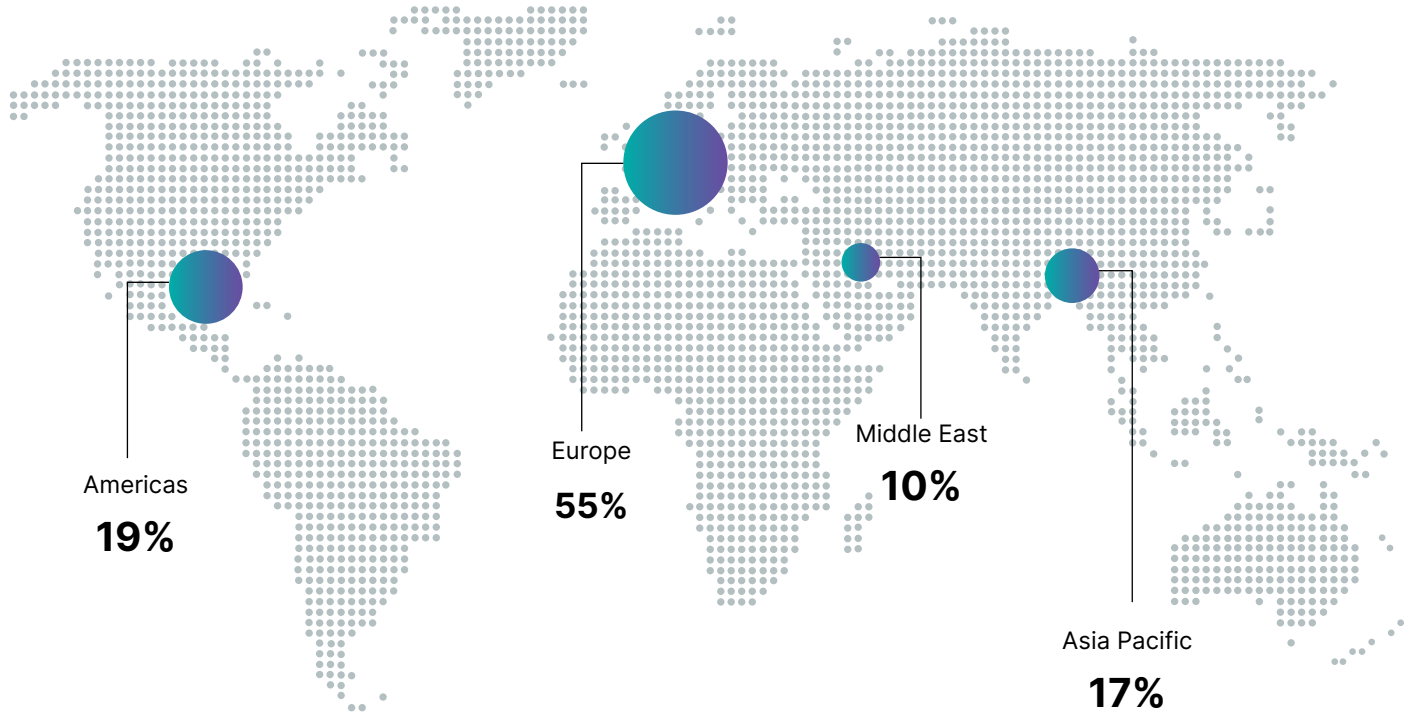
Main Stage Program

GWF 2024 featured 11 impactful plenary sessions that captivated the audience with their diverse and engaging content. These sessions brought together 51 plenary speakers, consisting of industry veterans, end-user experts, thought leaders and young professionals from various fields, who shared insights that fostered meaningful discussions with the audience.

Opening Plenary & Sessions

Opening Plenary
Geospatial Industry and World Economy through Strategic Partnerships

Geospatial Transition: Powering World Economy

Geospatial Transition Driving Economic Value for the User Industries

Geospatial Infrastructure and Digital Twins: Advancing Resilient Infrastructure and Digital Cities

Space Infrastructure and Geospatial Analytics: Economic Value through Downstream Applications

Hydrospatial Infrastructure and Blue Economy

Frontier Technologies: Amplifying Geospatial Value Impact

Location Analytics: Enhancing Consumer Experience and Business Solutions

Keynote & Conversation

Fireside Chat
Technology Innovation and Sustainability of Everything

Image Intelligence and Geospatial Solutions: Powering ESG and Next Generation Economy

Bridging Generations: Engaging Gen-Z in Geospatial Practice - Insights from Millennials

Parallel Tracks

User Focus

- Defence and Intelligence
- Infrastructure
- ESG & Climate Resilience
- Banking, Financial Services & Insurance
- Retail & Commerce
- Utilities

Data & Economy

- National Mapping
- Hydrospatial Infrastructure & Blue Economy
- Downstream Space

Technology Sessions

- Generative AI
- PNT & GNSS
- Data Science
- HD Mapping
- Lidar

Special Sessions

- DE&I for Greater Good
- Geospatial World 50 Rising Stars 2024

Side Programs

WORKSHOPS

Digital Twin

Workshop

Workshop on Maximizing Geospatial ROI

TRAINING PROGRAM

GKI Training Program

SUMMITS & SEMINARS

Business Summit: India-Europe Space and Geospatial Business Summit

US Summit

Seminar

GKI Training Program

The three-day training program on "Geospatial Knowledge Infrastructure for National Development" successfully addressed critical questions regarding the evolution of geospatial knowledge. Participants explored the transformative impact of new-age technologies such as AI, Big Data Analytics, Cloud Computing, Robotics, and Drones on various user segments. Emphasizing the crucial shift from data to knowledge, the program highlighted its significance in driving national development.

With over 10 expert trainers and more than 30 enthusiastic trainees, the event provided an immersive learning experience. Attendees gained valuable insights into the growth trajectory of geospatial knowledge and the efficiency of Geospatial Knowledge Infrastructure (GKI) in harnessing information for global, national, and individual progress. The program effectively demonstrated that focusing solely on data is insufficient, and advancing up the value chain to knowledge is imperative for impactful development. This comprehensive training equipped participants with the expertise to leverage GKI for strategic advancements.

Indo-Europe Space and Geospatial Business Summit

The day one of the most awaited GWF 2024 started with India-Europe Space and Geospatial Business Summit where speakers from both India and Europe's space as well as Geospatial industry participated to discuss and provide a direction on how both the countries can use each other's strength to grow in this sector. Around 20+ speakers shared their valuable insights about the same.

The opening session of "Indo-Europe Space and Geospatial Business Summit" started with Sanjay Kumar, CEO, Geospatial World emphasizing on the Geospatial market as a consumer of space technology and how crucial it is; however, bridging the gap between these two communities remains a challenge. Our vision was to host a Space and Geospatial Business Summit, fostering greater engagement between these sectors and enhancing collaboration.

"All the global financial institutions have an extremely positive estimates for the Indian economy. Since independence, Indian political leadership has been betting high on leadership. Technology is directly leading to prosperity in the country. An important element of technology story in India is the readiness of people to embrace technological change. Financial technologies are a big example of this."

Gince Kuruvilla Mattam
Deputy Chief of Mission, Embassy of India, The Netherlands

"Public and private investment in space for strategic reasons coupled with disruptive technologies and innovations is a key factor for growth."

Pacome Revillon
CEO, Novaspace

"India's decadal plan outlines roadmap for economic growth and enhancing collaboration in sunrise sectors. There are non-restrictive policies for investments and setting up start-ups."

Rajeev Jyoti,
Director Technical
IN-SPACe, India

US Summit

Universities, government, non-profit organisations, and the private sector are enabling cutting edge advancements in Geospatial information and technology that are revolutionizing decision-making and societal benefits across the United States. 15+ renowned speakers from these sectors participated in the sessions scheduled at the US Summit which covered forward-thinking policies, groundbreaking research, collaborative initiatives, practical applications, and Geospatial innovation that is changing the use of information in United States.


ESRI Seminar

This seminar brought together thought leaders from the public, private and voluntary sectors who shared global examples of economic benefit from geospatial innovations which are increasing resilience, driving sustainability, and enabling collaboration, as well as the perspectives on the future. The presentations and discussions revolved around how the industry can expand further to support economic growth.

Two Days of Inspiring and Engaging Plenary Sessions

Sanjay Kumar, Founder & CEO, Geospatial World, Inaugurates the plenary, stressing on four pivotal words: productivity, efficiency, transparency, and compliance. He asserts that sustainability encompasses more than just climate, advocating for inclusivity, diversity, and active participation across the ecosystem. Geospatial tools aid in measuring, modeling, managing, and monitoring these aspects.
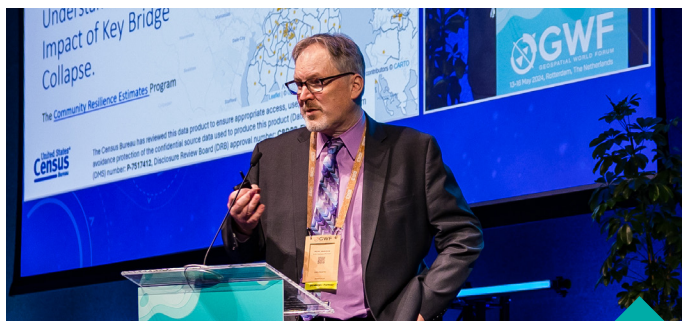
"How crucial is it to collaborate with official statistics as we offer authoritative data. By integrating public and restricted-use data, we generate insights that bridge the gap between the two sources."

**Ron Jarmin
Deputy Director and Chief Operating Officer, U.S. Census Bureau, USA**

"Sustainability stems from recognizing the world as a unified ecosystem, where everything is interconnected. We're exceeding our limits in various aspects, but we possess the agency to collaborate and act collectively."

**Dean Angelides
Corporate Director
Esri, USA**

"We prioritize forging enduring partnerships with nations and international bodies to exchange geospatial insights. Collaborating with The World Bank, we analyze the economic impact of geospatial data in Saudi Arabia, vital for informed decision-making amid economic growth. Our national geospatial infrastructure aligns with international standards, focusing on agile strategy, sustainable governance, enduring technology, and evolving capacity building."

Mohammed Yahya Alsayel
President, General Authority for Survey and Geospatial Information (GEOSA), Saudi Arabia

"Geospatial Information is absolutely critical at the local level and plays an increasing role for the industry in volume, investment, and transition."

Stefan Schweinfest
Director, United Nations Statistics Division, USA

"The convergence of hardware, software, and data, it's noteworthy that in 2022, 14% of the global economy centred around the construction industry. This presents an incredible opportunity to leverage this convergence for applied data solutions."

Ronald Bisio
SVP, Trimble Inc., USA

"UP42 endeavours to remove technical and commercial barriers in the geospatial data industry, prioritizing accessibility to earth observation, satellite, and aerial imagery. We aim to simplify data access, management, and processing for our customers."

**Sean Wiid
CEO, UP42,
Germany**

"The need for extensive and high-quality data to support hybrid sensors and distributed measurement devices, catering to diverse stakeholder needs. Flexibility in licensing and access to open data is essential to satisfy geographically dispersed stakeholders."

**Adina Gilliespie
VP-Strategic Initiatives - Geospatial Content,
Hexagon, USA**

"OGC is well positioned to build on the incredible 30 year legacy by responding to the ever-increasing rate of change seen in technology and society alike. Opportunities and challenges have never been more apparent and I see tremendous potential for growth in new markets around the globe. This is the time of geospatial."

**Peter Rabley
CEO, The Open Geospatial Consortium (OGC), USA**

"The importance of leveraging diverse data sources, including crowdsourced, governmental, and AI-generated data, to ensure market-grade quality and validation. This process involves conflation, deduplication, and validation to achieve stability and compatibility with linkable formats such as data schema and GERS."

**Marc Prioleau
Executive Director, Overture Maps Foundation, USA**

"At the United Nations, efforts are underway to make satellite data more affordable and accessible to countries facing financial constraints. This involves negotiating agreements with vendors and implementing multi-agency, multi-user license agreements to facilitate easier data sharing post-purchase."

Lóránt Czárán Scientific Affairs Officer, United Nations Office for Outer Space Affairs (UNOOSA), Austria

"Two main Digital Twin Challengers: Data and Time. The focus shifts from Big Data to Smart Data, prioritizing real-time over historical data. Data integrity and quality are key, whether AI-driven or integrated into workflows. User input and citizen involvement are crucial for managing public spaces and validating data. While 3D models are admired, not all use cases require full 3D visualization."

**Geert De Coensel
CEO, Merkator, Belgium**
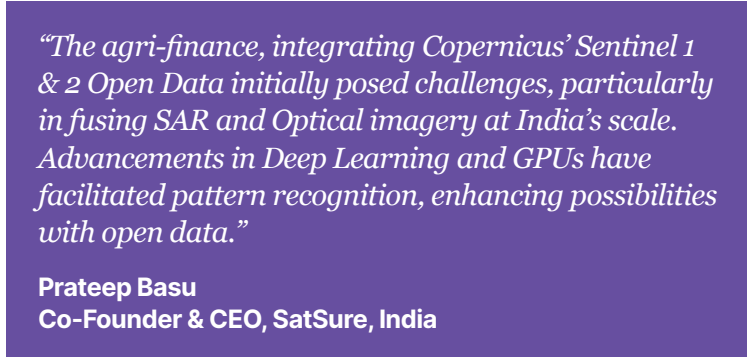
"The agri-finance, integrating Copernicus' Sentinel 1 & 2 Open Data initially posed challenges, particularly in fusing SAR and Optical imagery at India's scale. Advancements in Deep Learning and GPUs have facilitated pattern recognition, enhancing possibilities with open data."

**Prateep Basu
Co-Founder & CEO, SatSure, India**

"Satellite miniaturization was a past trend, reducing costs but limiting usage. Now, focus shifts to larger satellites for enhanced data fusion. Learning from past and present satellites, a middle ground emerges, enabling onboard processing for richer data."

**Juan Tomas Hernani
CEO, Satlantis, Spain**
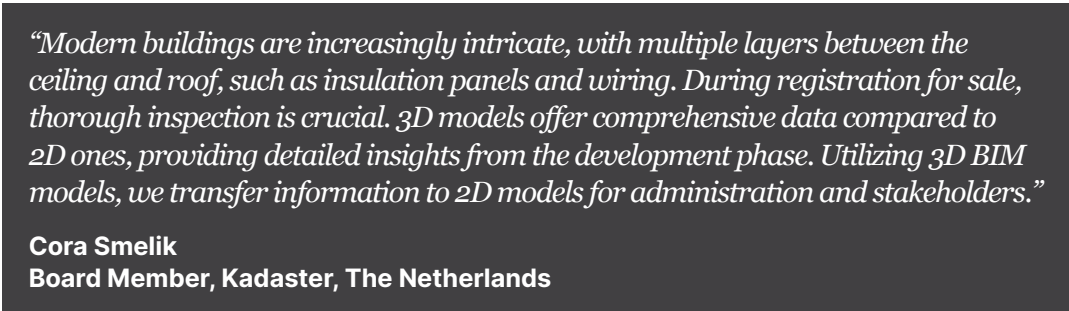
"Modern buildings are increasingly intricate, with multiple layers between the ceiling and roof, such as insulation panels and wiring. During registration for sale, thorough inspection is crucial. 3D models offer comprehensive data compared to 2D ones, providing detailed insights from the development phase. Utilizing 3D BIM models, we transfer information to 2D models for administration and stakeholders."

**Cora Smelik
Board Member, Kadaster, The Netherlands**

"Location intelligence, it primarily entails a GIS-oriented system rather than a business system. Therefore, to utilize the location intelligence system effectively, one must be trained in GIS capabilities."

Siva Ravada
VP- Development, Oracle, USA

"Location analytics plays a very important role on how we can bring this real time data updates to the users, enlightening us with the ways of how can we do it using the sensor information."

Ramakrishna Mulukutla, AVP, GIS and LBS, Cognizant, India

"Location intelligence at Techmahindra across all domains involves three key aspects: acquiring data, analyzing it, and advising specific customers on their use cases."

Dhananjay Deshmukh VP, Tech Mahindra, India

Women in Geospatial Industry

"Four things that are very important, Collaboration, Integration, Innovation, and the fourth is Trust. Today as we look at artificial intelligence, machine learning and ChatGPT, for these three characteristics always remain the same, Rigorous training for the datasets, Reliable sources as well as open and transparent technology."

Ronda Schrenk
CEO, United States Geospatial Intelligence Foundation (USGIF), USA

"We collaborate with military and defence agencies to integrate AI into workflows, enhancing target fidelity and geolocation accuracy. Leading with a focus on national security, we also address humanitarian and civil missions. AI aids in mapping food, water resources, and population migration, identifying climate-vulnerable areas."

Sandra Auchter
Director, National Geospatial-Intelligence Agencyments Bank, India

"In recent years, AI's growth is notable, notably in defence and rescue ops for target recognition. Data security, secrecy, and accuracy are interconnected. Important for urban planning and disaster management, highlighting the importance of location in all endeavors. Data and information are paramount; understanding where and when events occur is essential. Location is central to everything."

Marryam Chaudhry
CEO, XR2LEAD, USA

"Having roots in IT within the geospatial field, I've witnessed IT's increasing role in geospatial endeavors. Data-centric trends, coupled with AI and ML, empower users to derive meaningful insights. Skilled individuals are indispensable for technology development, model training, and effective utilization."

Deborah Davis
Board Member, United States Geospatial Intelligence Foundation (USGIF) and The Open Geospatial Consortium (OGC), USA

"Saudi Arabia is leveraging geospatial technologies like BIM, Digital Twins, IoT, and 3D modeling for its giga projects. GeoSA plays a crucial role by implementing regulations and facilitating access to geospatial data through a national platform. Notably, the Digital Twin of Riyadh on GeoSA's platform is a proud ongoing endeavour."

Fatma Fahad
Spokes Person & Media consultant, GEOSA- General Authority for Survey and Geospatial Information

"Businesses have and receive ample data. Verifying its reliability is crucial for informed decision-making, particularly in initiatives aiding farmers or combating deforestation and child labour. Impressive technology and systems are futile without trustworthy data. Authenticating data quality is imperative."

Beatrice Moulianitaki
Chief Commercial Officer, Meridia, The Netherlands

"We aim for innovation while upholding responsibility. Modernizing tech, apps, and domains is vital, but so is accountability measured through ESG."

Nadine Alameh
Executive Director, Taylor Geospatial Institute, USA

"I collaborate with Gen Z at YouthMappers, leveraging mapping tools to address real-world community challenges. Their innovative and collaborative approach drives impactful solutions."

Feye Andal
Geospatial Analyst/Project Manager, YouthMappers, Philippines

Social Media Buzz!

"Opportunity" was the most frequently used word at the GWF 2024, as per our post-event survey reports. Opportunity to connect, network and collaborate with the people in the Geospatial Industry.

Infrastructure Summit

"Digitalization is all about the way we plan, design, construct, maintenance and deliver along with customer management. building from scratch to whole new value chain."

David Tan
Assistant CEO, JTC Development Group, Singapore

"The integration of reality mapping & BIM with GIS empowers construction projects with improved planning, streamlined design, enhanced construction monitoring & comprehensive documentation leading to increased efficiency and cost saving."

Hesham Gamal Gaafar
Digital Twin, AEC development Manager, ESRI, Saudi Arabia

"The interaction between where you are and what you need is important, Data standards are like parachute, and they need to be open."

Christian Veldhuis – Advisor, Rotterdam Municipality, The Netherlands

"Digital construction is defined as utilizing digital technologies to construct more efficiently with higher quality."

Marianna Kopsida
Market Development Manager, Trimble, UK

Key takeaways/Findings/Recommendations

- Digitalization is all about the way we plan, design,construct, maintain and deliver along with customer management. Building from scratch to whole new value chain.

- In a collaborative economy, fostering connections among people and their cities is essential for creating a sense of community and belonging.

- The seamless connection between location and necessity underscores the importance of open data standards, akin to parachutes, essential for effective functionality.

- Our Interaction with the environment demands a digital twin solution that can provide accurate real time and precise ways to understand our changing planet.

- A system is resilient if it can adjust its functioning prior to, during, or following events, and thereby sustain required operations under both expected and unexpected conditions.

- Digital construction is defined as utilizing digital technologies to construct more efficiently with higher quality.

- When Integrated BIM takes centre stage in facility management, it's more than just a tool. It's a transformative approach to facility management that empowers us to achieve new levels of efficiency, collaboration, and sustainability.

- Subsurface Utility Mapping (SUM) can be done using non-destructive Geophysical methods like Electro-Magnetic Locator (EML) and Multi-Channel Ground Penetrating Radar (MCGPR).

- Converting reality data into actionable geospatial information, leading to data-driven infrastructure design, construction, and maintenance, reducing waste and improving overall infrastructure and safety.

- The notion of GeoSmart Digital Twins for infrastructure solution(s) in organizations relies on strong visions, comprehensive implementation strategies, complemented by adequate deployment & rollout of key solutions' architecture components.

- The integration of reality mapping & BIM with GIS empowers construction projects with improved planning, streamlined design, enhanced construction monitoring & comprehensive documentation leading to increased efficiency and cost saving.

- Digital Twin helps Explore innovative solutions for urban planning activities in a controlled environment that mimics the real city.

ESG & Climate Resilience Summit

"Disasters will take place in the future, however preparing for them is necessary. From risk assessment, prevention, response to long-term recovery must be ensured. A rapid and resilient crisis response should include EO and in situ data, integrated into a user ready platform – a smart network. These interfaces and applications are key and much required today to be developed."

Prof. Grzegorz
President, Polish Space Agency, Poland

"A new right of Open data can favour Climate resilience. Governments have to support open data as it helps understand climate change and create new services to reduce pollution.

Fortunately we have a good regulation within the European Union to favouring free circulation of the data. The issue is now to implement it, and to get the governmental support for it."

William Gilles
President, IMODEV, France

Key takeaways/Findings/Recommendations

- Dr. Marc Serres, from the Luxembourg Space Agency, highlighted the Luxembourg government's long-term goal and commitment to space, which is supported by a clear, sustainable vision and strategy, aiming to diversify the economy with commercial space at its core.

- As the impact of climate change is growing around the world, the message that greenhouse gas emissions must be reduced is clear. Satellite data and deep learning offer a new solution when faced with the limits of top-down analysis of greenhouse emission measurement. A carbon concentration data and a visualization map of global carbon concentration on a regional scale for the government, businesses, and the public, impressively helps keeping tabs on emissions.

- Strategically placing street trees in vulnerable neighbourhoods can help combat rising temperatures, promoting shade equity by allocating benefits based on need and creating cooler microclimates. Enlisting nature's services is essential in building circular economies, and community engagement is crucial to inform research and design solutions that overcome space constraints, prioritizing areas and specific zones that require tree plantations to reduce city temperatures.

- European environmental compliance regulations are a game-changer for the geospatial industry. They've founded a research group to address CSRD and EURD, emphasizing integrated workflows, supply chains, and legal information.

- Addressing climate change requires understandable data and shared knowledge across all sectors and regions. The geographic approach, empowered by GIS, provides an effective system for managing, sharing, and applying geographic information to tackle environmental challenges. Embracing open data fosters new initiatives and federating systems builds widespread awareness.

- Extreme weather is altering the environment and changing people's patterns of location and living. Culture significantly influences how individuals respond to these environmental shifts, serving as a lens through which they observe, discover, and act. Teaching about ESG requires understanding the people and their cultural patterns, as local communities hold the best on-the-ground knowledge of their regional environments and resources.

- The emergence of the process of opening public data is closely related to climate issues. There is a significant relationship between transparency in information and environmental concerns. The need for sufficient data to better manage climate issues has indeed favoured the emergence of open data. Open data promotes transparency, freedom of access to information, and the right to know.

- Early forest conservation interventions are crucial. Prediction and early detection models enable timely actions, enhancing conservation efforts and cutting short the deforestation chain.

National Mapping Summit

"How spatial is special, where everything occurs somewhere at some point of time with dimensionality, scale, proximity, semantics and ethics."

**Alejandro Guinea de Salas
President, EUROGI, UK**

"The available technology and data are constantly evolving, necessitating our ability to adapt and seize opportunities for progress."

**Chris Williams
Head of Digital Mapping, British Geological Survey, UK**

"Real-time data is crucial, necessitating the constant updating of our maps. Scalability is vital for service industries like ours to collaborate effectively with national mapping agencies."

**Vikrant Nashine,
Global Delivery Head – GIS, Tech Mahindra, India**

"Keeping pace with fast evolving geospatial markets we're developing deep market understanding by harnessing UK Expertise, convening facilitated market discussions and market reviews as we conduct reviews of the remote sensing and population movement data markets this year."

**Síle Martin
Senior Policy Adviser, UK Geospatial Commission, UK**

Key takeaways/Findings/Recommendations

- The continued fundamental role of a Geospatial Agency is to collect trusted authoritative data, however, as user needs, requirements and priorities change Geospatial Agencies have to adapt their role and mandate.

- Geospatial Agencies are moving into developing solutions to address emerging priorities such as climate change; to do this alongside data collection, they have to leverage new technology such as AI to do it efficiently and within the resources available.

- Collaboration is key, there are many providers of geospatial data, not just the traditional Geospatial Agencies so collaboration is essential, promoting innovations to meet new priorities. Geospatial Agencies may also be seen as a regulator in this new field of many data provider, ensuing data quality standards are maintained and or as a data broker, managing the information of others due to the skills of resources within the Geospatial Agencies.

- It is extremely important that awareness and visibility of geodesy is raised and it's benefits are understandable to society because without the correct investment into global geodetic network, modern society will be unable to function.

- There is great value to linking or integrating sensor assets to improve utility of NMA digital information to create knowledge / insights.

- In many cases, geodata collected for a particular purpose has a time stamp of relevance– must be processed and available in expected time required by users.

- Web-based applications developed for use by non-GIS users / mobile devices can maximize utility.

- Must be mindful of the major gaps in internet connectivity that continue to exist. The digital transformation must accommodate those without connectivity.

- Digital Twins have a broad range of public and private sector benefits, which are expanded further when combined with complimentary technologies such as gaming engines, and AR/VR.

- Public / private partnerships are key – GKI must enable competitive environment for private sector investment.

- Piloting with industry, academia on new sources, workflows is a useful way to evaluate and scale new capabilities.

- Higher resolution collection / EO needed to support a range of evolving and demanding applications like autonomous operations.

- Increasing demand for automated processing and tailoring of information / knowledge to support verticals and deal with the explosion of geospatial sources.

- NMAs need to understand how best to leverage the variety of new sources to most effectively support growth necessary to meet community needs.

Downstream Space Summit

> *"The downstream space sector's growth, driven by newcomers adapting to the digital world, emphasizes the need for value-added data production with precision and rapid delivery for end users."*

Ali Al Shehhi
Director, NSSTC The National Space Science and Technology Center, UAE

> *"What is unique about Copernicus constellation is that it provides a unified system through which all this data is fed into a range of thematic information services which are used in supporting the green deal and address climate change issues such as wildfires, iceberg tracking, biomass mapping, air pollution, cyclone tracking etc."*

Gulin Dede
Copernicus Space Segment Engineering Coordinator, European Space Agency (ESA), The Netherlands

Key takeaways/Findings/Recommendations

- UP42 shared how they empower geospatial teams and data/analytics providers by removing technical and commercial barriers around geospatial data.
- Global Trust shared the vision how they are helping organisations and governments to transition from self-disclosure of sustainability metrics to providing independent verification using space data.
- Innovations in Earth Observation, Satellite Communications, and PNT are driving new space-based solutions for image intelligence.
- The integration of advanced technologies is enhancing the downstream space-tech ecosystem, enabling innovative applications.

- Space agencies are crucial in developing national and regional downstream space ecosystems through collaboration and policy development.
- National Mapping Agencies provide foundational geospatial data critical for developing robust image intelligence solutions.
- Overcoming challenges in adopting image intelligence in various user domains is necessary for maximizing the downstream space segment's impact.
- There are many strategies, agencies can take to support and encourage the expansion of the downstream sector which can drive innovation and economic growth within the industry.

Hydrospatial Infrastructure & Blue Economy

"Two thirds of the marine-based climate change economy hinges on ocean observation data."

Robert Hoddenbach
Global Director, Climate & Nature Markets, Fugro, The Netherlands

"The sustainability of digital ocean services will only come if they are led by demand, and inclusive in their approaches. To realize the full potential of the blue economy, we must also address the challenges of climate change, including ocean warming, acidification, and deoxygenation. Investing in ocean observation, data sharing, and collaborative research will be crucial to understanding and mitigating these threats. The ocean holds immense promise as the next great economic frontier, but only if we can harness its resources in a way that safeguards its long-term health and vitality."

Tina Silovic
Market Development Officer, Mercator Ocean International, France

Key takeaways/Findings/Recommendations

- Hydrospatial sciences denote data, information and knowledge that is associated with a particular location and time of the earth's waters and their contiguous zones.

- Hydrographic agencies are evolving from authoritative bathymetric data and navigation service providers to marine geo data coordinator, developing and building a geospatial data infrastructure for the marine domain.

- Standards are crucial for effective collection and sharing of hydrospatial data, and the adoption of S-100 data framework developed by the International Hydrographic Organization results in economic efficiency, increased safety, reduced environmental impact, automated navigation, cyber security, etc.

- The rise of marine autonomous systems, surface and subsurface, aids in gathering ocean data from hard-to-reach places, often at a lower cost than a traditional survey vessel.

- Satellite, aircraft & drone-derived bathymetry is much faster and more affordable, despite limited max depth, and inability to see through ice or turbid conditions, but still provides useful data that is more accurate than legacy maps.

- Due to the abundance of hydrospatial knowledge users and areas of use, there is a crucial need for common and updated knowledge database which combines data that is ready to be analysed, and provides a joint situational picture across sectors and areas of use.

- Integration of terrestrial and marine geospatial data can lead to the development of seamless elevation data that links terrestrial and ocean mapping, and is key for decision making especially in the coastal zone for coastal resilience and flood risk, economic growth investments, infrastructure planning, emergency management, etc.

- Ocean industries will benefit from collaboration with sectoral users to create synergies and economies of scale, especially with increased involvement of sectoral users in data collection through use of infrastructure like ships, fishing boats, oil platforms, aquaculture farms etc., as hosts for data collection.

- Forging key partnerships to improve private-public data sharing and interoperability are crucial for the development of mature, operational marine data infrastructures, and interoperable marine data spaces needed to deliver the Digital Twin of the Ocean and the Digital Ocean Knowledge System.

- Multi-stakeholder engagement with enhanced focus on funding (philanthropic funds, government grants, private sector contribution), is crucial for developing sustained market mechanisms in the Hydrospatial domain.

Utilities Summit

"Centralize your data and thus creating more insight. Identify repetitive ticketing and establish the most effective maintenance action and Lower energy consumption by sensoring distribution boards."

Jasper Habermehl
Manager Data & IoT, Allinq, The Netherlands

"A pipe that is poorly mapped is a Liability, not an Asset, Reduct turns Liabilities into Assets."

Otto Ballintijn
MD, Reduct NV, The Netherlands

Key takeaways/Findings/Recommendations

- Verizon Business mentioned that their ESG strategy is built upon four pillars: governance, integration, engagement and reporting. Each of these pillars dynamically supports the others, providing them with a foundation for informed decision making, transparent communication and effective governance over and accountability for Verizon's most impactful ESG risks and opportunities.

- There are 2 levels of digital twin to be considered: One The electrical / hydraulically features with their role in the asset system – determined by design and the other one is the equipment fulfilling a role in the asset system – determined by construction.

- Experts from various countries shared how GIS and frontier technologies are revolutionizing renewable energy, emphasizing a global perspective.

- Industry leaders explored how geospatial technology is pivotal in transitioning the utilities sector towards more sustainable practices.

- How corporates are leading geospatial innovation, contributing to advancements in asset management and geoinformation technology.

Business Intelligence Summit

"Sustainability-Linked Risks, forge connections between environmental responsibility and location intelligence."

Kevin Bourne
Head of Markets, Climate, Sustainability & Financial Markets, Vyzrd, UK

"Embark on a journey to Humanize Retail, emphasizing the fusion of data analytics and consumer empathy."

Elsa Pedro do Souto
Senior Manager, Data & Analytics, Mars, Denmark

Key takeaways/Findings/Recommendations

- How Satellite and Terrestrial Integration can enhance indoor positioning and real-time mapping for BFSI and retail sectors.

- With AI, ML, and IoT empowerment businesses can harnesses location data for improved customer experiences and operational efficiency.

- How Business Intelligence Integration could enable detailed customer analysis and targeted marketing strategies through location analytics.

- Revolutionizes accurate high-res mapping and spatial analysis with satellite imagery.

- How businesses can do data-driven site selection and omnichannel personalization to boost engagement and elevate customer experience.

- Sustainable Finance and Risk Management

- initiatives guide businesses more on green investments and assesses ecological impact using location intelligence.

- With correct Supply Chain methods and Optimization, Businesses can contribute to reduce carbon emissions and enhances efficiency with strategic use of location data.

- Businesses can improve asset protection and operational resilience through location analytics and mitigate risks.

- With real-time spatial analytics, businesses can take agile decisions.

- Businesses can drive digital transformation and new applications in various industries with the use of Geospatial Technology.

Defence & Intelligence Summit

"Messy, massive and mutual, The evolution of data and its management in security domains."

Nigel Clifford, Former CEO, Ordnance Survey, UK

"Counterterrorism Strategies with GIS" is a topic that explores how Geographic Information Systems (GIS) technology is employed in the field of counterterrorism. It involves the use of GIS tools and techniques to track, analyze, and visualize terrorism-related data, mapping extremist networks, identifying geographical hotspots of terrorist activities, and creating dynamic visualizations of threat landscapes."

Rajanikanth Muppalla
Delivery Head, Tech Mahindra, India

Key takeaways/Findings/Recommendations

- **Technological Adaptation and Device Quality:** Adapting to the rapid pace of technological changes while ensuring device quality is challenging. Fast, good, and affordable devices are difficult to find, impacting the effectiveness of countermeasures.

- **Data Confidentiality:** Ensuring data confidentiality in the digital age is a significant challenge, especially with the increasing amount of confidential data being handled.

- **Digitization and Operational Strategies:** Heavy digitization blurs the lines between strategic, tactical, and operational strategies, requiring rapid data capture, analysis, and operations.

- **Space-Based Earth Observation:** While effective for border security and external objectives, space-based observation is less effective within the country compared to drones and aerial imagery.

- **Geo Intelligence in Modern Warfare:** Critical elements include geomatics, aeronautical safety, topographic feature production, human and political geography, maritime safety, and a compatible user interface for defence forces.

- **Emerging Security Concerns:** The changing security environment in Europe includes climate security, environmental security, energy security, health security, resource scarcity, and geopolitical challenges, with a need for advanced approaches like a Digital Twin of the Earth to address these comprehensively.

- **Geospatial Technologies in Counter Terrorism:** GIS tools and techniques are crucial in counter-terrorism operations for tracking, analyzing, and visualizing terrorism-related data. Applications include mapping extremist networks, identifying geographical hotspots of terrorist activities, and creating dynamic visualizations of threat landscapes.

- **European Open Data Policy and Security Concerns:** Europe's INSPIRE directive supports the data economy by publishing reusable data collected and created through public funding. However, the war in Ukraine has highlighted risks related to the misuse of open data, raising concerns about its potential to harm societies and critical infrastructure.

- **Risks of Open Data:** Even if critical infrastructure data isn't openly accessible, information such as land cover, transport networks, elevation, orthoimagery, soil, and production facilities is available on open-source platforms. Malicious actors can exploit this data for planning attacks.

- **Balancing Benefits and Risks of Open Data:** Maintaining the functionality of open data and APIs is essential for digital societies, requiring a continuous balance of benefits and risks. The geospatial industry must understand how these datasets and APIs are used to ensure sustainable publication without compromising security.

- **Cyber Threats to Emerging Technologies:** Emerging technologies like AI, robotics, UAVs, cloud computing, the metaverse, and domed cities are heavily reliant on cyber systems and are prone to cyber threats. The complexity of attacks and the increasing degree of cross-linking complicate understanding system architectures.

DE&I For Greater Good

Adopting a comprehensive DE&I (Diversity, Equity, and Inclusion) policy is not just a moral imperative but a strategic business advantage. Companies that foster diversity across race, ethnicity, ability, gender, sexual orientation, neurodiversity, and beyond consistently outperform their peers in the marketplace. At our recent DE&I special program, industry leaders from five countries shared their insights on successfully implementing DE&I frameworks. Despite widespread acknowledgment of the benefits, many organizations still face challenges in translating DE&I policies into actionable strategies. Our speakers highlighted the need for a systematic, coherent approach to DE&I. By learning from these global experts, the organizations can avoid common pitfalls and leverage DE&I to drive innovation, enhance employee engagement, and improve overall business performance.

"We conduct workshops for raising awareness towards people from different cultures, aiming for inclusivity of diversity, we start from white men."

Maaike Verbeek
Adviseur Environment Social Governance, Kadaster, The Netherlands

"The Space field is predominantly white and male white, the major contributors. And even when beyond these contributors are women, women of colour, their work and contributions acknowledgement and awareness are suppressed, because either, of unconscious bias or even unintentionally."

Clinton G. Johnson
Racial Equity and Social Justice, Esri, USA

"Female scientists and leaders in the geospatial community are not acknowledged enough. From academicians perspective, ingraining fair appreciation towards the contributions made by the women community, is a way to start within the learning groups."

Elnaz Neinavaz
Assistant professor, ITC, University of Twente, The Netherlands

Workshops

At GWF 2024, three transformative workshops were organized by leading organizations: **Overture Maps Foundation, Geonovum, and NCTech.**

The Overture Maps Foundation workshop, led by Marc Prioleau and Dr. Amy Rose, introduced a new model for spatial data integration. This model emphasizes open-source base layers with unique, persistent identifiers, aiming to standardize data conflation and eliminate inefficiencies. Practical applications were showcased by partners from AddressCloud, Esri, and TomTom, highlighting the Global Entity Reference System (GERS) and its potential to revolutionize geospatial projects.

Geonovum's workshop focused on the development of a national Digital Twin strategy. Emphasizing collaboration between government and private sectors, it explored how a national Digital Twin can enhance decision-making across various domains. The session underscored the importance of a comprehensive strategy aligned with the Geospatial Knowledge Infrastructure (GKI) framework to drive Digital Twin maturity and impact.

NCTech's workshop, "Maximizing Geospatial RoI – Strategies for Accelerated Geospatial Industry Growth," highlighted the strategic benefits of geospatial technologies. The discussion centred on communicating the return on investment in terms of revenue generation, cost savings, and risk management. The goal was to shift from competitive market-taking to market-making strategies, fostering wider adoption and industry growth through clear communication of geospatial technology benefits.

GEOSPATIAL WORLD LEADERSHIP AWARDS

JURY MEMBERS

Nadine Alameh

Executive Director
Taylor Geospatial Institute
(TGI)
USA

Sallie Payne Snell

Secretary General and
Executive Director
Eurogeographics
Belgium

Saad Alhamlan

President
GEOSA
Saudi Arabia

JURY CHAIR

Greg Scott

Executive Director
SDG Data Alliance
PVBLIC Foundation
USA

Rajesh Alla

CMD
IIC Technologies
INDIA

Paloma Merodio Gómez

Vice President
INEGI
Mexico

Willy Govender

CEO
Terra Analytics
South Africa

Hall of Fame Awards

Josef Aschbacher

Director General
European Space Agency

Ola Rollen

Chairman
Greenbridge

GEOSPATIAL WORLD LEADERSHIP AWARD

Geospatial Innovator of the Year
NUVIEW

Research, Science & Technology Institution of the Year
ITC: University of Twente

Startup Company of the Year
Space4good

Solution Company of the year
Fugro

Public Policy: Enabling Industry Development
Indian National Space Promotion and Authorisation Center- IN-SPACe

Geospatial Knowledge Infrastructure
National Oceanic and Atmospheric Administration (NOAA)

Geospatial Diversity Champion of the Year
Albert H. Anoubon Momo

Geospatial Ambassador of the Year
Asim Ibrahim AlGhamdi

Business Leader of the Year
Claire Milverton

Lifetime Achievement Award
Nigel Clifford

GEOSPATIAL WORLD EXCELLENCE AWARD

Excellence in Defense & Intelligence
CRIMARIO II

Excellence in National Mapping for Financial Services
Norwegian Mapping Authority

Excellence in Telecommunications
Geospatial and Data Management Division, (MCMC)

Excellence in Maritime Services
Indian National Centre for Ocean Information Services (INCOIS)

Technology Innovation Awards

Innovation in Data Science
Carto

Innovation in LiDAR
XenomatiX

Innovation in AI
Whereobots

**Innovation in PNT & GNSS**
Pozyx

Rising Stars

The geospatial industry has been craving a vibrant infusion of youthful talent, particularly from Millennial and Generation Z voices. These young professionals embody bright and innovative minds that play a pivotal role in reimagining geospatial dynamics within a complex digital landscape. They are the emerging leaders who will shape the future of our industry. Launched in 2021, the Geospatial World Rising Stars initiative aims to showcase the remarkable achievements of individuals under the age of 40. These individuals are proactive and passionate about demonstrating the value of geospatial technology to society, the environment, and the economy. The initiative is committed to global representation, with a strong emphasis on fostering diversity, quality, and inclusivity.
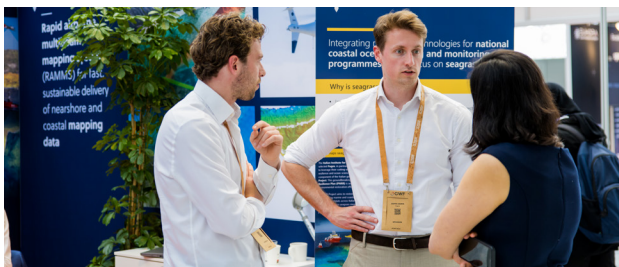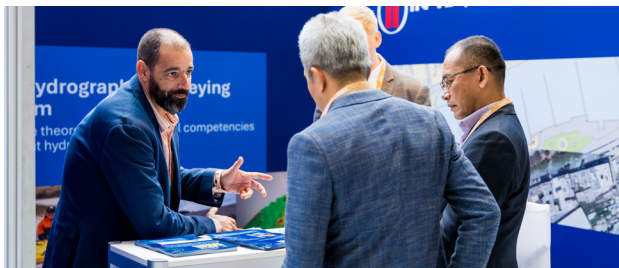
USA Pavilion

India Pavilion
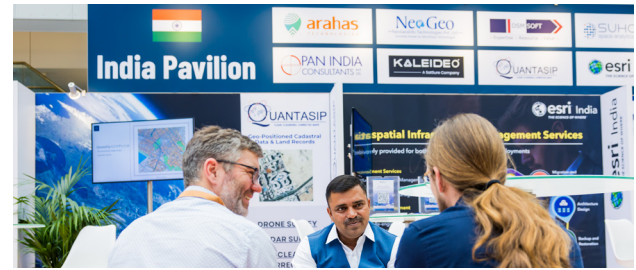
Dutch Pavilion

Kingdom of Saudi Arabia

Our Exhibitors

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cognizant | Dewberry | DSM GEODATA > Expertise > Resource > Value > | esri THE SCIENCE OF WHERE | esri India | FUGRO | FlyPix AI

GAF AG | GEOCAT | GEOSA General Authority for Survey and Geospatial Information | GEOSPATIAL WORLD ADVANCING KNOWLEDGE FOR SUSTAINABILITY | Google | GPCGIS GeoSmart Solutions That Matter | GREATER ST. LOUIS INC.

HEXAGON | IIC TECHNOLOGIES | ITC | Kadaster | Merkator | MipMap TECHNOLOGIES | NeoGeo NeoGeoInfo Technologies Pvt. Ltd. Formerly known as Geoinfosys Technologies

NSSTC National Space Science & Technology Center | N|V|5 | ORACLE | PAN INDIA CONSULTANTS PVT. LTD. | POINTLY | pozyx | QUANTASIP CLEAN, CLEANSED, CORRECTED MAPS

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UNIVERSITY OF MINNESOTA Driven to Discover | USC University of Southern California | USGS science for a changing world | WOOLPERT | XenomatiX True solid state lidar

Testimonials from our exhibitors!

Very interesting! Mixing between the academia, government entities, and industry (private sector) of the domain.

"The National Space Science and Technology Center (NSSTC) had an outstanding experience at the Geospatial World Forum 2024 in Rotterdam. Our booth was a hive of activity, showcasing our latest programs and engaging with a broad audience. We were thrilled to sign an MOU with the organizers during the opening day, underscoring our commitment to collaborative growth. The sessions provided rich insights and the chance to contribute to crucial discussions. Moreover, we met a diverse range of exhibitors and delegates who are equally passionate about advancing the geospatial industry. GWF2024 has truly been a pivotal event for us, fostering collaborations and driving innovation in space science and technology."

Ali Al Shehhi
Director, The National Space Science
and Technology Center

"GWF was an interesting and educational experience for us. This year we mainly used the conference to be present as Allinq Digital on an international platform where potential new customers and partners are present and where we could present ourselves to these target groups. We have achieved this goal sufficiently that we will certainly consider participating in other events in the future. Next time, we at Allinq Digital want to make more use of other options such as organizing one or more meetings, seminars or workshops."

Allinq Digital

"From the perspective of an exhibitor the conference was well organized, with a suitable location. The dialogue with other companies that use our point cloud data is highly beneficial and provides valuable insights. Geospatial World Forum is a perfect place to promote the brand. So sponsoring is something that will be of interest for us."

RIEGL

"I think it was a very good conference, well organized and very wide-ranging subject-wise."

Topodot

"The event had a remarkable turnout of C-level executives, leading to numerous high-level interactions. The attendance was incredible, creating excellent opportunities for engaging conversations among exhibitors."

Tualcom

Speaker Testimonials!

"An event which pulls all the sectors in the GI industry together and provides an excellent opportunity for meetings and networking with colleagues, old and new."

Geert De Coensel
CEO, Merkator

"Really grateful to have been a part of the summit and engaging with so many talented professionals."

Elsa Pedro do Souto
Senior Manager, Data & Analytics, Mars, Denmark

"Great to have the opportunity to speak at this session and thanks to all of the other panel members. Lots of common themes coming through in this session and others, from trusted data being at the root of all onward development as well as the vital function that system maintenance provides and therefore its need for sufficient and onward funding."

Chris Williams
Head of Digital Mapping, British Geological Survey, UK

"It was an opportunity to share Digital Flanders' Geospatial Ecosystems as solution for the future. Grateful!"

Geradline Nolf,
Product Owner Metadata, Data Publicatie & Teamcoach Data management, Digitaal Vlaanderen, Belgium

"It was an honor and pleasure to participate as a panelist in the US Summit on the National Geospatial Ecosystem. Thank you, Geospatial World Forum (GWF), for the opportunity!"

Katherine Kraft
VP, Teren, USA

"Without any exaggeration, it was a great pleasure and delight to moderate the session at the GWF 2024 and have the opportunity to connect with all the brilliant people and fantastic companies."

Parya Pasha Zadeh, Director and Co-Founder, Marmoris, The Netherlands

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EARSC — European Association of Remote Sensing Companies   LSA LUXEMBOURG SPACE AGENCY   NSSTC — National Space Science & Technology Center   USGIF — United States Geospatial Intelligence Foundation

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EVONA   GEOCHICAS   NorthStar of GIS   African Women in GIS

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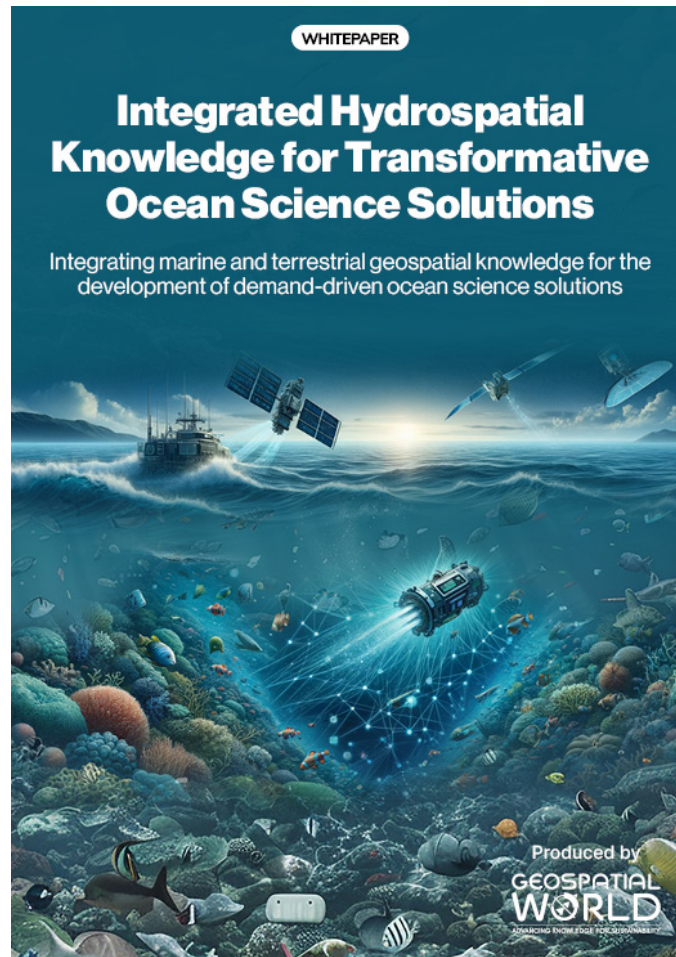kadaster

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www.geospatialworldforum.org

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