

Eleventh Session of UN-GGIM: Side Event

Effective Geospatial Information Management and Services through Public-Private-Partnerships

August 19, 2021

8 AM – 9:30 AM (EDT – New York)

HOSTED BY



UN-GGIM
ACADEMIC NETWORK



UN-GGIM
PRIVATE SECTOR NETWORK





Enabling Effective Collaboration through PPPs

Jim Van Rens

Senior Vice President – RIEGL
International;
Treasurer – WGIC



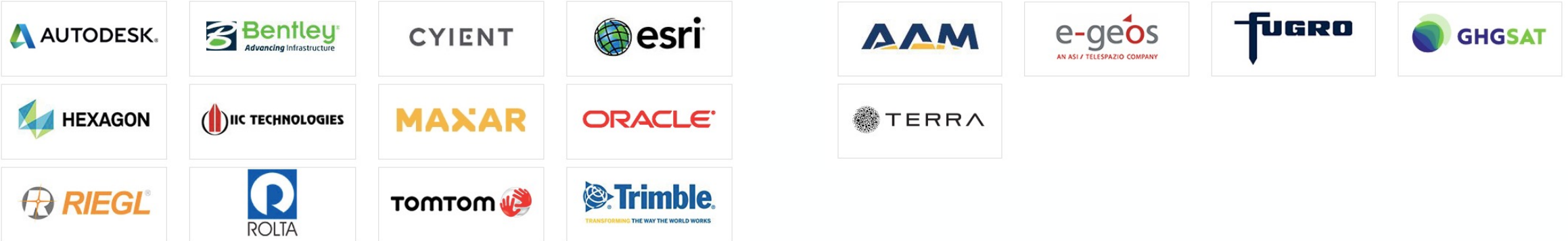


A Global not-for-profit
Trade Association of
Private Sector
Companies working in
the geospatial
ecosystem.



Patron Members

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WGIC Partner Organizations



**buildingSMART
International**



European GNSS Agency



ISO/TC 211



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Telecommunication
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**Open Geospatial
Consortium**



**United Nations Statistics
Division**



**World Federation of
Engineering
Organizations**

WGIC Reports

Building Knowledge for the Global Geospatial Industry

WGIC POLICY REPORT: 2020-01

Geospatial Information and Privacy:
Policy Perspectives and Imperatives
for the Geospatial Industry



WGIC POLICY REPORT: 2021-01

Geospatial AI/ML
Applications and Policies:
A Global Perspective



WGIC POLICY REPORT: 2021-02

Public-Private Geospatial
Collaborations: Exploring Potential
Partnership Models



Elements for effective Public-Private Partnerships

Common
goals/objectives

Openness, trust
and transparency

Clear roles,
responsibilities
and limitations

Contracts and
agreements

Intellectual
property

Risk management

Dispute resolution
mechanisms

Looking forward to the discussions

Please reach us at:
info@wgicouncil.org

Education and research for informed policy formulation for innovation in the geospatial ecosystem

Strengthening Geospatial Information Management

UN-GGIM 11th Session Side Event

Webinar on Enabling Policies for Effective Geospatial Information Management and Services through Public-Private-Partnership Collaborative Approaches

Prof. Maria Antonia Brovelli

Chair of the UN-GGIM Academic Network



UN-GGIM | ACADEMIC NETWORK

unggim.academicnetwork.org

UN-GGIM Academic Network

- Academic Network is a Strategic Knowledge, Research and Training Arm of UN-GGIM.
- The Network is a coalition of recognized universities, research and education centers or equivalent involved in the research, development and training on geospatial and land information and related matters.



UN-GGIM Academic Network

- Promote and foster collaboration between universities and research groups;
- Encouraging members to undertake work that is able to contribute to the Sustainable Development Goals of the UN.
- Forum of geospatial academics and researchers with the objective to advance competencies and qualifications needed for the GGIM;
- Communication platform for member countries to bring to the attention of the Network key problems, needs, and areas of research;
- Capacity building and developing an inventory of international education programs open to and recommended for UN-GGIM actors;



2021 Highlights

- New Executive Team:

Executive Team



Chair

Maria Antonia Brovelli
Politecnico di Milano
(Italy)



Deputy Chair

Songnian Li
Ryerson University
(Canada)



Secretary

Ivana Ivánová
Curtin University
(Australia)

Advisory Board



Abbas Rajabifard (Past Chair)
University of Melbourne
(Australia)



Cheryl Desha
Griffith University
(Australia)



Georg Gartner
Vienna University of Technology (TU
Wien)
(Austria)



Menno-Jan Kraak
University of Twente
(Netherlands)



Jonathan Li
University of Waterloo
(Canada)



Michael Starek
Texas A&M University-Corpus Christi
(USA)



Huayi Wu
Wuhan University
(China)

Regional Representatives



Africa

Serena Coetzee
University of Pretoria
(South Africa)



Americas

Rosario Casanova
Lincoln Institute of Land Policy
(Uruguay)



Asia-Pacific

Huayi Wu
Wuhan University
(China)



Europe

Joep Crompvoets
Katholieke Universiteit Leuven
(Belgium)



2021 Highlights

- New Executive Team – term 2021-2022:
 - Increase the coordination of the network;
 - Actively increase membership in underrepresented regions (Arabic Countries, Africa);
 - Establish a pathway towards a UN GGIM online Educational Catalogue/Repository;



2021 Highlights

- New Executive Team – term 2021-2022
- Revised of Terms of Reference:
 - Members & **Associate Members**;
 - Membership based on Expression of Interest and Letter of Commitment;
 - Voting by all members;
 - Meetings online;
 - Members participate at other UN GGIM bodies.



2021 Highlights

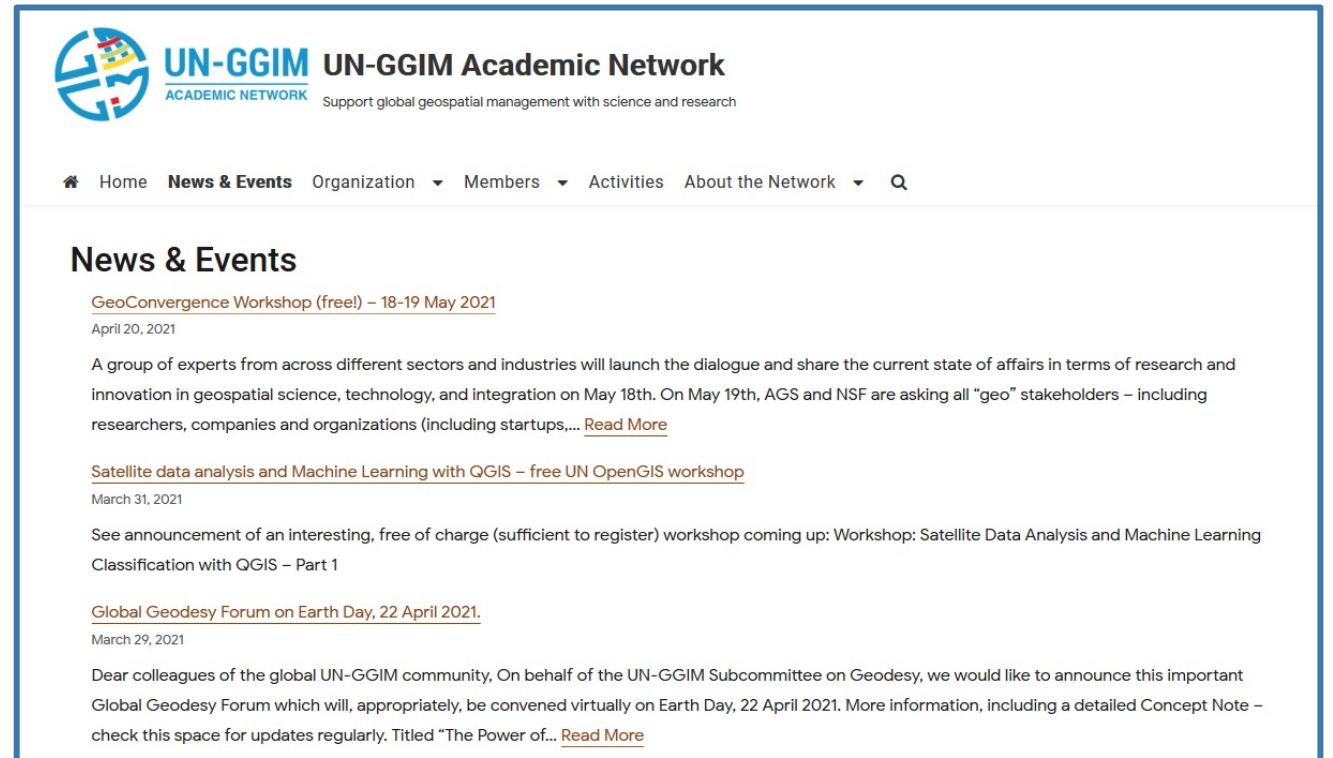
- The **Associate Members** are internationally recognized, non-academic/research entities(*), who wish to participate in and/or contribute to the Network and whose business or operation is relevant to the aspects of education and research in the areas of interest of the UN-GGIM, with an established track record.
- Associate members **participate fully in the discussions and activities of the Network** but do not have the right to vote and are not eligible for any position of the Executive Committee and the Advisory Board.

(*) for example, academic publishers and education divisions/centers of companies



2021 Highlights

- New Executive Team – term 2021-2022
- Revision of ToR
- Update of the website:



2021 Highlights

- New Executive Team – term 2021-2022
- Revision of ToR
- Update of the website
- **Members' participation in other UN GGIM bodies:**
 - Survey sent out to all members – 2 UN GGIM AN representatives in each UN GGIM body



2021 Highlights

AN Delegates within the UN-GGIM Private Sector Network

Cheryl Desha	Griffith University	c.desha@griffith.edu.au
Fraser Taylor	Geomatics and Cartographic Research Centre , Carleton University , Ottawa ,Canada	fraser.taylor@carleton.ca
Bui	FIMO Center, Vietnam National University of Engineering and Technology, Hanoi, Vietnam	hungbq@fimo.edu.vn



2021 Highlights

- New Executive Team – term 2021-2022
- Revision of ToR
- Update of the website
- Members' participation in other UN GGIM bodies
- First discussions towards developing UN GGIM Educational online Catalogue/Repository



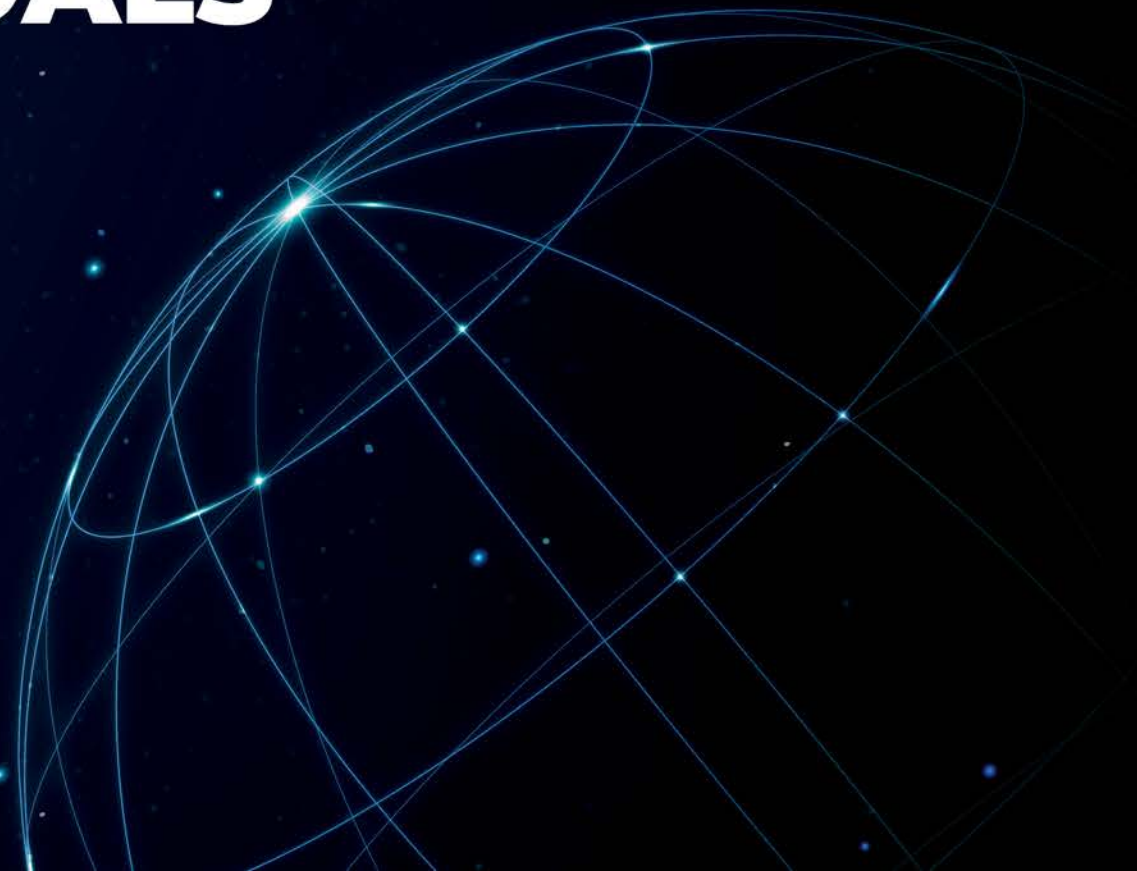
GEOSPATIAL INDUSTRY ADVANCING SUSTAINABLE DEVELOPMENT GOALS

Sanjay Kumar
Chair, UN-GGIM PSN

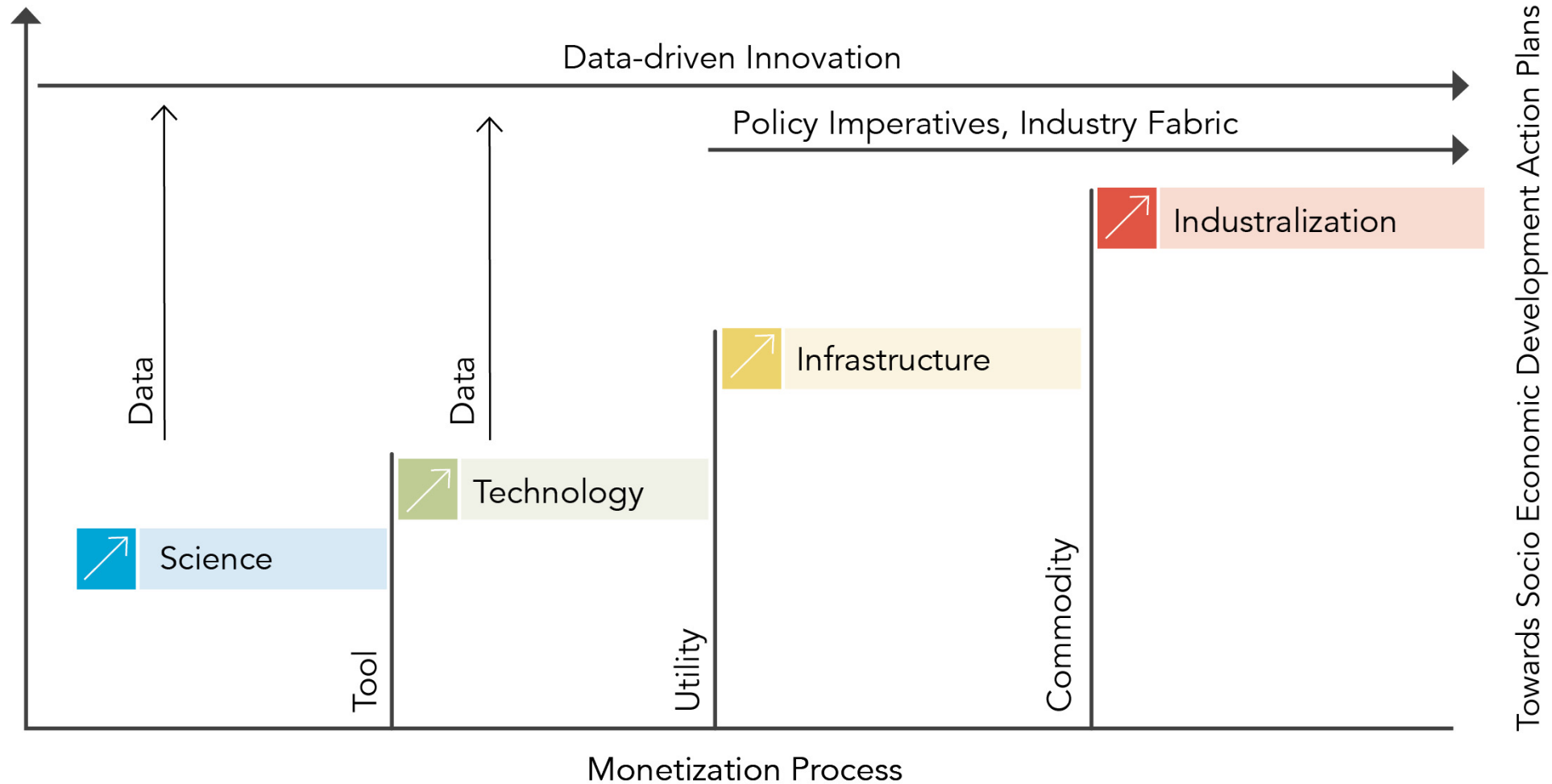
Produced by



UN-GGIM
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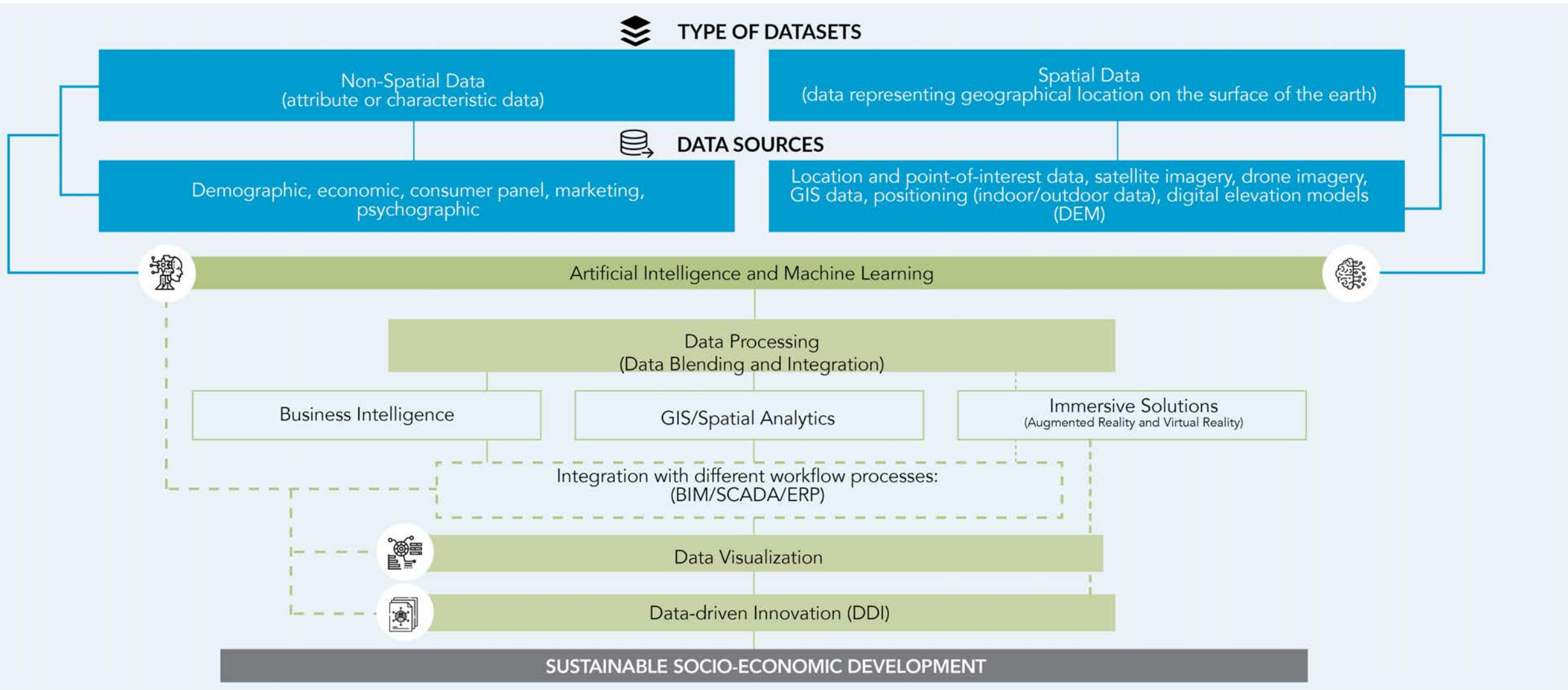


Industrialization and Commercialization of Geospatial Knowledge for Sustainable Development

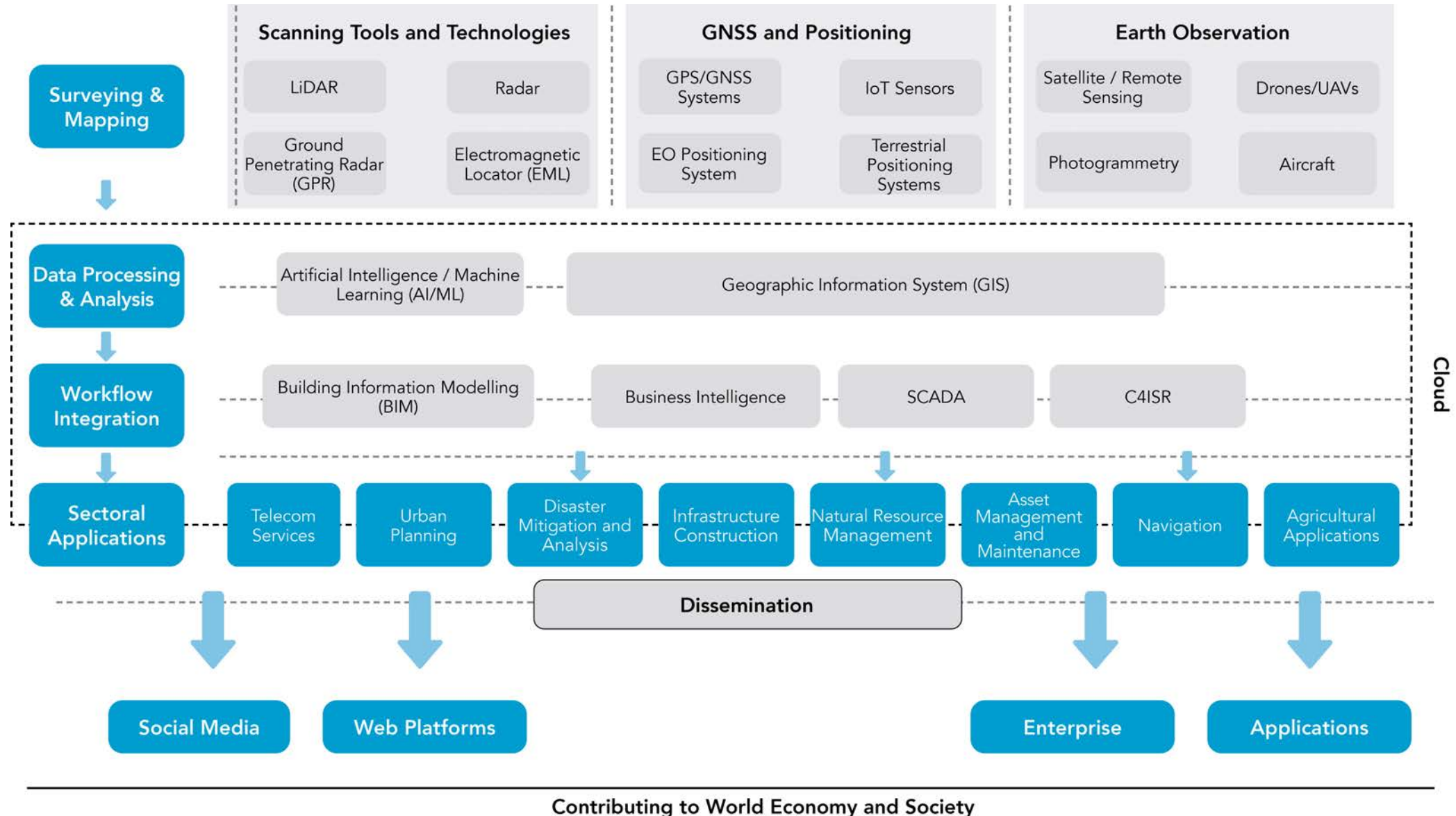


Source: Policy Imperatives for Data Economy Report, WGIC

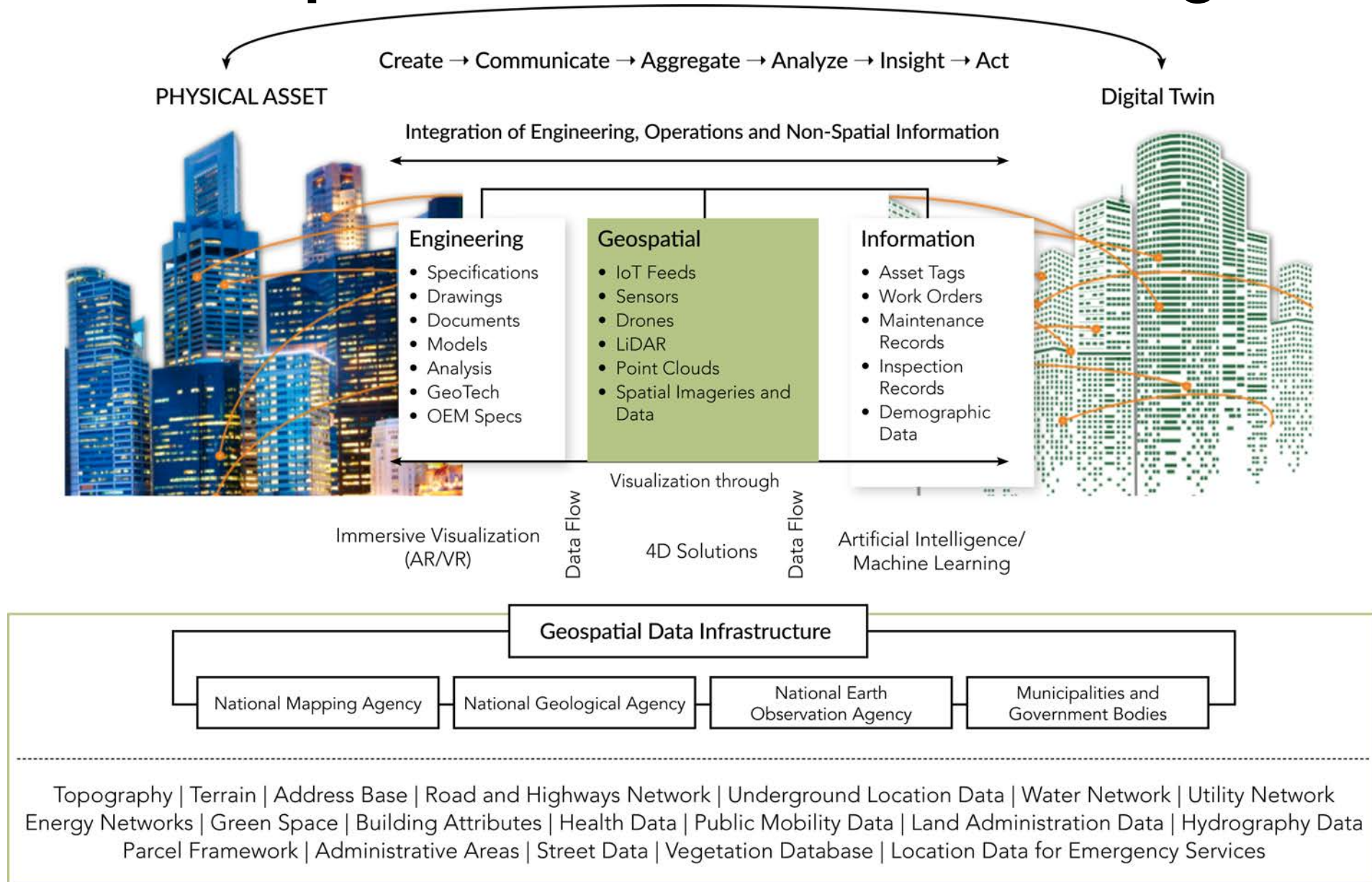
Data-Driven Innovation for Sustainable Socio-economic Development



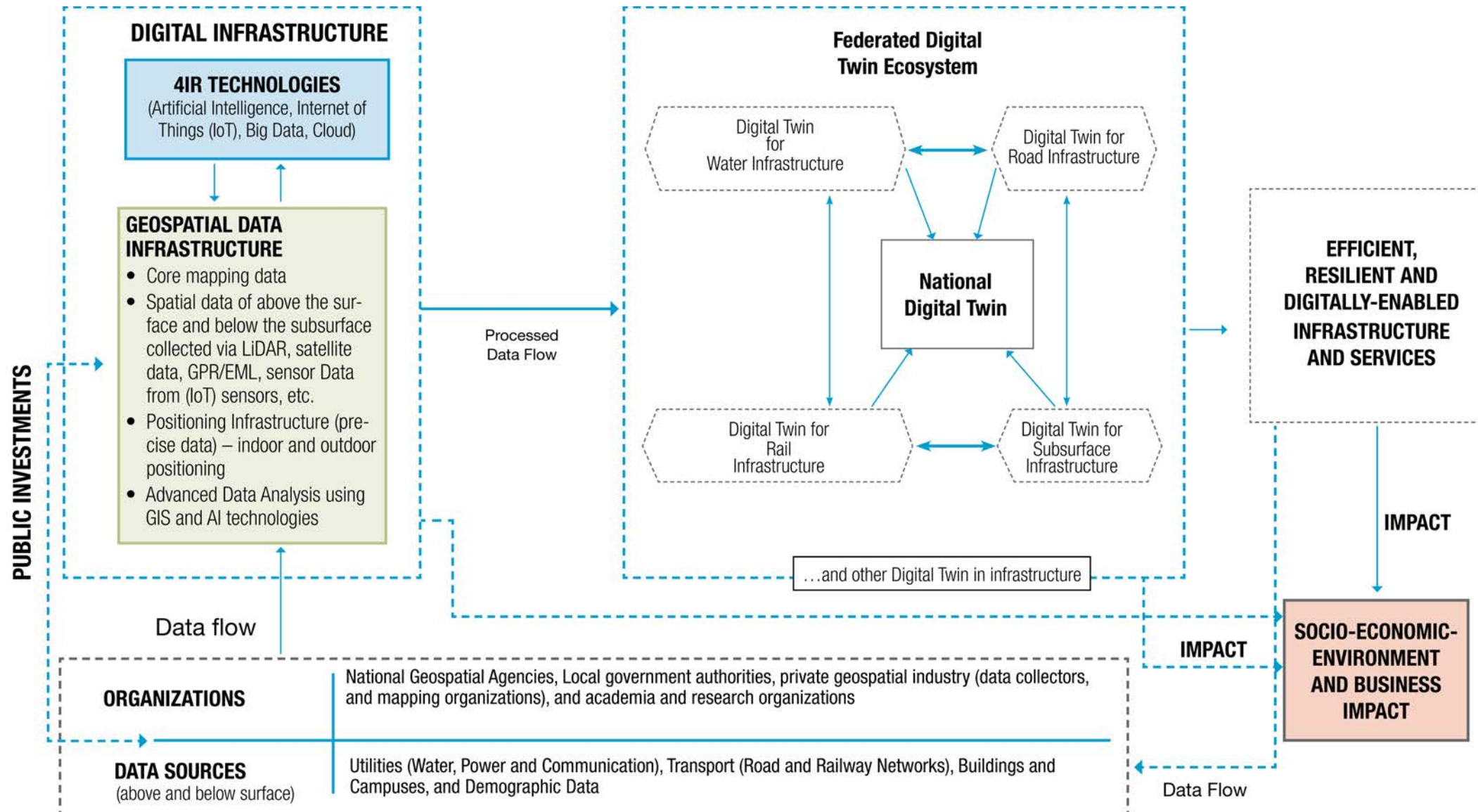
Geospatial Industry Value Chain



Role of Geospatial Data Infrastructure in Digital Twin

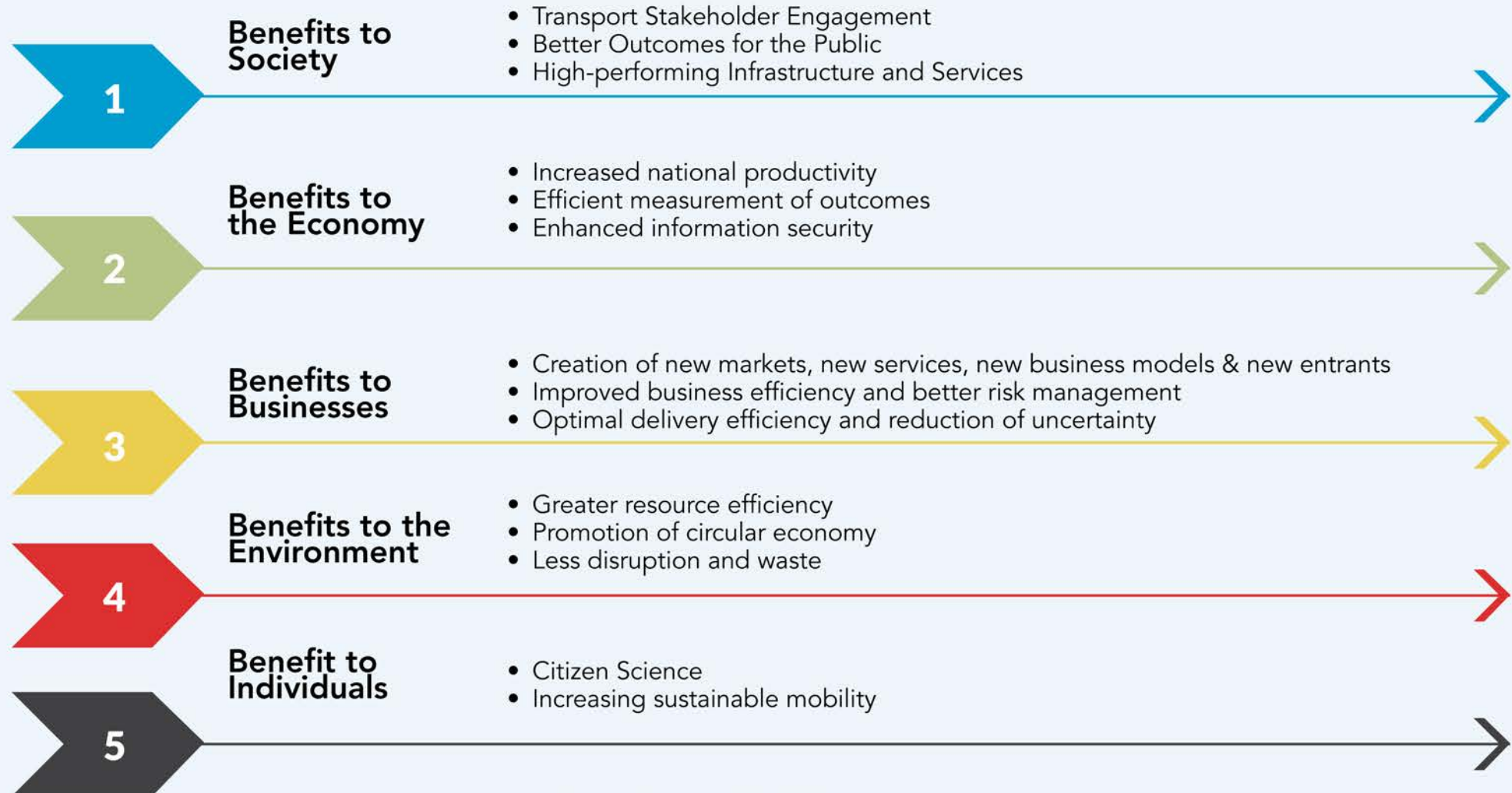


Building a National Digital Twin



Source: Netherlands Geolocation Economy Report: Geospatial World Analysis

Building a National Digital Twin



Source: Geospatial World Analysis



STRATEGIES AND RECOMMENDATIONS FOR ADVANCING GEOSPATIAL KNOWLEDGE FOR SUSTAINABLE DEVELOPMENT GOALS

Strengthening Geospatial Infrastructure

- **Strengthen Data Infrastructure** – Private sector has the latest technology knowhow to collect, process, analyze and disseminate geospatial data and information.. To strengthen the geospatial data infrastructure at community, national and global levels, high-resolution geospatial data can be sourced from private geospatial industry players (via PPP models).
- **Resilient Positioning Infrastructure** - GPS vulnerabilities have enhanced the role of the private sector in creating and operating contingency technology solutions, and layers for Positioning, Navigation and Timing (PNT). Today, many of the leading private companies are increasingly making strategic investments in developing resilient PNT systems – both terrestrial and earth-observation based; and are working with the federal governments to maintain the infrastructure and improve its capabilities.
- **Geospatial Knowledge Platforms and Services** - The private sector plays a defining role in providing innovative, autonomous, interactive and dynamic knowledge services to the government and the user sectors, thus, playing a leadership role in geospatial knowledge creation.
- **Setting up Geospatial Standards and Interoperability Frameworks** - The Private sector play a critical role in defining the standards and interoperability frameworks necessary to define how Geospatial technologies and standards are seamlessly integrated into web, business and government systems and enterprises.



Building Enabling Geospatial Regulatory Frameworks

- Government authorities should work in collaboration with the private sector and include private sector in developing technology mandates for the better use of smart technologies and open data sharing (real-time information) to optimize existing systems and reduce strain on the available and limited resources. This will help them prepare for worst-case scenarios, improve operational capabilities, and build capacities for sustainable development.
- The role of private sector in enhancing integration of geospatial data and technology in sectoral workflows private sector needs to co-develop enabling policies which facilitate the use of standards-based technologies which enable FAIR access to data.



Public-Private Partnership

- Long-term national geospatial agency contracts with industry geospatial data suppliers would encourage industry investment, and the government can benefit from downstream technology developments.
- Geospatial infrastructure organizations, i.e., national geospatial agencies, should consider partnerships with organizations capitalizing on 4IR advances instead of only focussing on traditional geospatial organizations.
- Industry seeks to build PPP models which shall share reward as well as risk. One without the other would not be beneficial for either of the parties.
- Government and national geospatial agencies should create an enabling environment for citizens to contribute to the national geospatial data via their smart phones and social media tools, whilst simultaneously ensuring personal data privacy.

Partnerships and Business Models New geospatial delivery models.

Presentation to the Private Sector Network
side meeting of the United Nations Global
Group on Geospatial Information
Management

Prashant Shukle, Chief Operating Officer,
KorrAI

And Senior Advisor, PPP, World Geospatial
Industry Council



PURPOSE

To share with UNGGIM participants:

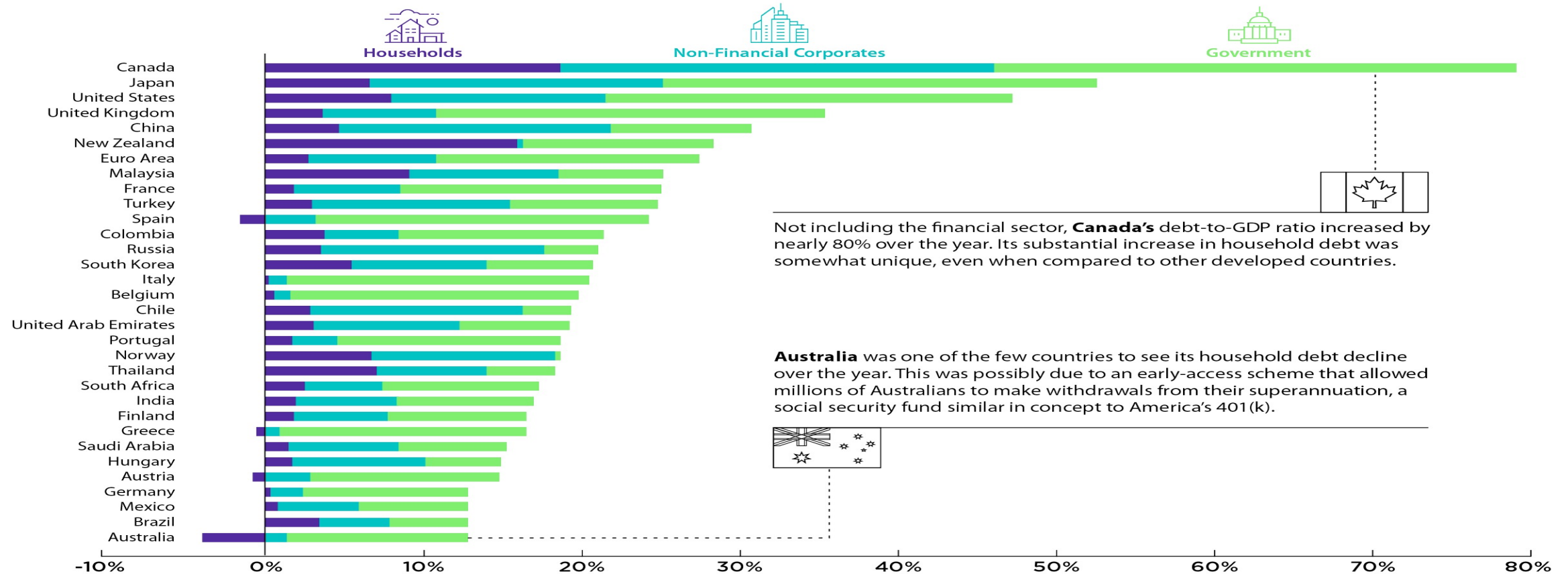
- WGIC member-driven work to understand private-public partnerships.
- begin to the process of integrating new business models that respond to a 21st century economy.

WHY NOW?

- Global attention on geospatial businesses and business models.
 - ✓ National level strategies and attention on the role of the private sector in the geospatial and earth observation business.
 - ✓ US Artemis Accords and National Space Policy; United Kingdom Geospatial Commission; India National Geospatial Data Strategy and new liberalized Geospatial Data Act; UK Space Strategy. New “place race” to launch GNSS satellites.
 - ✓ many are seeing investments in earth observation and geospatial as key elements to a 21st century economy (values).
- Geo is not limited to earth; the ‘second space age’ embraces economic opportunities beyond the moon and extends to Mars, for now....
- Many advanced “geo” enabled countries have head starts in the space data race.
 - ✓ Others are eager to catch up with private sector know-how and delivery reducing maturation times.
- Geospatial data, tools, and know-how are essential to meet the mammoth challenges of changing ecosystems, and their impacts.
 - ✓ it is all happening somewhere....

GLOBALLY, DEBT AND DEFICIT LEVELS ARE RISING...

CHANGE IN DEBT-TO-GDP (Q42019-Q32020)



Not including the financial sector, **Canada's** debt-to-GDP ratio increased by nearly 80% over the year. Its substantial increase in household debt was somewhat unique, even when compared to other developed countries.

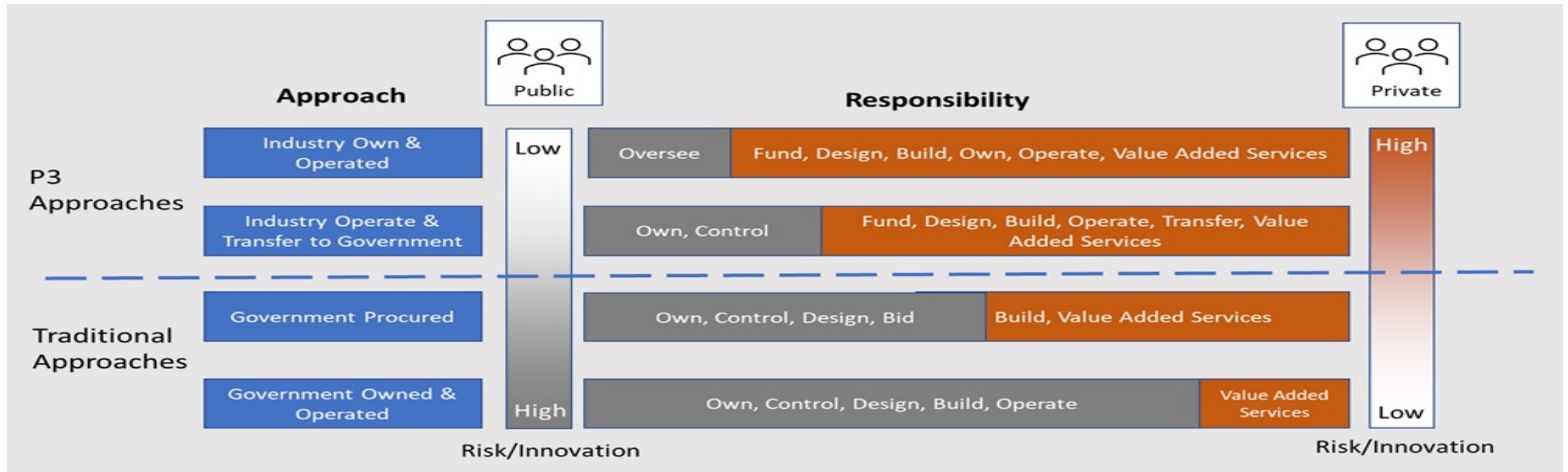
Australia was one of the few countries to see its household debt decline over the year. This was possibly due to an early-access scheme that allowed millions of Australians to make withdrawals from their superannuation, a social security fund similar in concept to America's 401(k).

DEBT COULD BE REDUCED THROUGH ECONOMIC GROWTH OR REDUCTIONS IN SPENDING...

- Either way, leading geospatial organisations may want to consider how to create long-term sustainability in an industry that is an essential provider of the “new oil” in modern economies.
- In new policy and technology environments, transformations are needed.
 - ✓ change takes time and requires internal investments.
- Revisiting models of public and private sector collaboration are essential...
 - ✓ to enable organizational investment in internal innovation.
 - ✓ to ensure a vibrant economy with highly capable private and public sectors.
- Canada has increasing expertise and experience with public-private partnerships.
 - ✓ Canadian Council for Public-Private Partnerships
 - ✓ food processing sector and the creation of “agro-industries clusters”.
 - ✓ transportation and electricity.
 - ✓ space and geospatial (Alberta Data Partnerships)

PUBLIC-PRIVATE PARTNERSHIPS ARE A SUBSET OF PUBLIC-PRIVATE COLLABORATIONS...

- And they generally fall into a continuum of fairly well-defined business models and long-term arrangements.

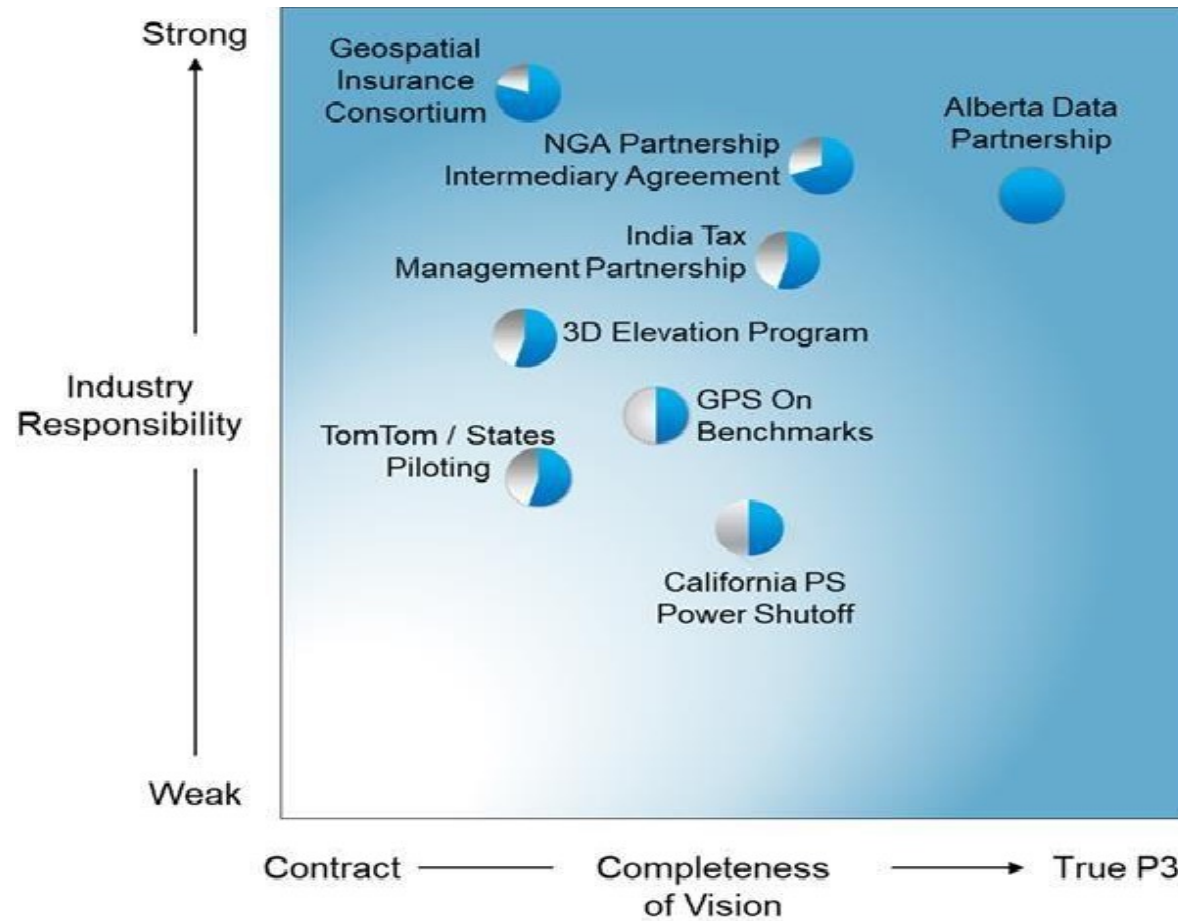


Adapted from "Visualizing Trends in Transportation Infrastructure public-Private Partnerships", <http://individual.utoronto.ca/siemiatycki/PPP%20Introduction.html>

Adapted from the US National Geospatial Advisory Sub-Committee Report on PPPs

Business Model	Description
Design and Build (DB)	Where the private sector designs and builds infrastructure to meet public sector performance specifications, often for a fixed price, or a turnkey basis, so the risk of cost overruns is transferred to the private sector. (Some do not consider DB's to be within the spectrum of PPPs and consider them as public works contracts.)
Operation and Upkeep Contract (O & M)	Where a private operator, under contract, operates a publicly owned asset for a specified term. Ownership of the asset remains with the public entity and the specific instrument often takes the form of a service contract.
Operating License	Where a private operator receives a license or rights to operate a public service, usually for a specified term. For the geospatial community, these types of arrangements are sometimes utilised to operate such governmental assets such as earth observation ground receiving stations, and to provide the opportunity for private sector providers to establish and develop their own ground stations.
Design-Build-Maintain (DBM)	In this category there are a series of variations on the model, which include extensions of responsibilities for operations (DBO) and operations and maintenance (DBMO). This family of P3 models allows for a private entity to design and build (and perhaps maintain and/or operate) a new facility under a long- term lease, with a clear operational ambit. At the end of the lease, the private entity usually transfers the facility to the public sector, ostensibly in a well-maintained state, while ensuring profitability from the nature of a stable long-term contract.
Build-Lease-Operate-Transfer (BLOT)	A private entity receives a franchise to finance, design, build and operate a leased facility (and to charge user fees) for a defined period (longer-term), against payment of a rent.
Buy-Build-Operate (BBO)	Transfer of a public asset to a private or quasi-public entity usually under contract that specifies the assets are to be upgraded and operated for a specified period of time. Public control is exercised through a contract at transfer. (e.g., transfer of government-owned lands for development)
Build-Operate-Transfer (BOT)	The private sector designs, finances and constructs a new facility under a long-term Concession Contract and operates the facility during the term of the Concession, after which ownership is transferred back to the public sector if not already transferred upon completion of the facility. In fact, such a form covers BOOT and BLOT with the sole difference being the ownership of the facility.
Build-Own-Operate-Transfer (BOOT)	A private entity receives a franchise to finance, design, build and operate a facility (and to charge user fees) for a specified period, after which ownership is transferred back to the public sector.
Build-Own-Operate (BOO)	The private sector finances, builds, owns, and operates a facility or service in perpetuity. The public constraints are stated in the original agreement and through on-going regulatory authority oversight function.
Rehabilitate-Operate Transfer (ROT)	Identical in structure to the BOT but instead the private-sector takes on the responsibility to rehabilitate, upgrade, or extend existing assets.
Concession	The concession model is generally used to permit the design, rehabilitation, extension, building, financing, or operations of a set of services to users. It is generally funded through a governmental subsidy; or in some cases a fee is paid to government; and user-pay almost always forms a critical element of the model.

SOME WORK HAS BEEN UNDERWAY TO IDENTIFY GEO-PPP EXEMPLARS AND GUIDANCE...



TO DEVELOP A GOOD PPP

1. PREPARE PROPERLY
2. CREATE A SHARED VISION
3. UNDERSTAND PARTNERS
4. ENSURE RISK AND REWARD CLARITY
5. ENCOURAGE CLEAR DECISION MAKING
6. EMPHASISE RESEARCH
7. PROVED CLEAR AND CONSISTENT LEADERSHIP
8. COMMUNICATE CLEARLY AND OFTEN
9. DEVELOP A DETAILED NEGOTIATION STRATEGY
10. BUILD TRUST

Adapted from the National Geospatial Advisory Sub Committee report on PPPs.

HOWEVER, NATIONAL AND ORGANIZATIONAL CULTURES MEAN EVERY PPP IS UNIQUE...

- Key Questions on the road to adjusting to a post Covid economy marked by a global technological revolution are:
 - Are we ready to transform from the inside or do we think governments can continue the task of building internal organizations and mandates...
 - Do we understand our own evolving business model, as well as what is required to implement any of the 10 PPP models listed before?
 - Which sectors globally are the ones with which the geospatial and space sectors should partner to influence government?

QUESTIONS

- For further support in developing establishing leading-edge geospatial public-private partnerships, please reach out to: organisation do not hesitate to contact

- Prashant Shukle, Senior Advisor
Public-Private Partnerships
prashant.shukle@wgicouncil.org

Barbara Ryan
Interim Executive Director
barbara.ryan@wgicouncil.org



Committee for Public Private Partnerships

Presentation to the Private Sector Network
side meeting of the United Nations Global
Group on Geospatial Information
Management

Willy Govender
Chair - WGIC PPP Committee



Purpose

- ✓ Report on the work of the WGIC Committee on Public-Private Partnerships.
- ✓ Share phase 2 deliberations and invite participation.

Work Completed

- ✓ The Committee was required to provide a report that addressed 8 elements.
- ✓ Work plan included:
 - engagement through:
 - 4 WGIC led regional roundtables.
 - liaising with United Nations and World Bank.
 - collaboration with National Geospatial Advisory Committee.
 - questionnaire and surveys
 - extensive academic and popular research.
- ✓ Interim report and draft delivered In January 2021, as required.

1. Defining Public Private Partnerships
2. Contextual relevance of PPP for geospatial industry
3. Identification and assessment of scope of public services to be covered through PPP
4. Develop emerging business models for Public-Private Partnerships
5. Maturity Model of PPP with reference to geospatial industry
6. Value Proposition of geospatial Knowledge delivery platforms through PPP. (larger good and amplifying value)
7. Success Factors and Challenges of PPP with reference to geospatial industry
8. Case Studies supporting above determinants specifically with regards to geospatial industry.

Key Findings

- ✓ The timing for public – private partnerships is strong.
 - high-deficits set contexts for future periods of governmental constraint.
 - 40 years of PPP implementation have led to ongoing refinement and improvement.
 - scope of global challenges requires far more collaborative approaches in delivering the public good.
 - The global geospatial community has been early adopters of innovative business models (e.g., Open Data)
- ✓ Public – Private Partnerships are specific and well-defined.
- ✓ Private sector expertise in project delivery, cost-effectiveness, new technology deployment, access to financial markets, and better responsiveness are seen as distinct strengths.
- ✓ Key Challenges include: uneven business environments around the world; procurement; length of term in contracting; changing political imperatives; unstable funding environments, and resistance to moving off traditional contracting.
- ✓ Potential areas for focus: e-services; land information systems; field surveys; space and earth observation; spatial data infrastructures. Significant investments in infrastructure, climate resilience, health and human security may yield geospatial co-partnering opportunities.

Recommendations

In Phase 2, that the WGIC support:

- ✓ development of a WGIC roadmap for PPPs tied to ongoing policy and research activities of the WGIC. Ongoing “socialization” efforts to broaden and deepen the understanding of PPPs.
- ✓ Complete scan/assessment of regulatory and legislative frameworks with the objective of developing advocacy materials to support member interaction with governmental agencies responsible for PPP implementation.
- ✓ Formalize linkages with the United Nations or the National Geospatial Advisory Committee – or other relevant institutional actors – to develop further research and work together on specific PPP implementation.
- ✓ Develop thought leadership document to identify areas of potential PPP implementation in such areas of work as Artificial Intelligence, Quantum Computing, Space or Earth Observation, Building Information Modelling, or other relevant areas as directed or proposed by WGIC members.

Questions?

PPP Committee Members

- ✓ Willy Govender, Terra Analytics (Committee Chair)
- ✓ Nadine Alameh, OGC, USA
- ✓ Albert Momo, Trimble, USA
- ✓ Brian Nicholls, AAM, Australia
- ✓ Robert Hoyler, TomTom, USA

WGIC Secretariat Support

- ✓ Harsha Madiraju, WGIC
- ✓ Kuhelee Chandel, WGIC
- ✓ Prashant Shukle, WGIC

For more information please contact: prashant.shukle@wgicouncil.org

