

Presented at the FIG e-Working Week 2021,
21-25 June 2021 in Virtually in the Netherlands

SMART SURVEYORS FOR LAND AND WATER MANAGEMENT CHALLENGES IN A NEW REALITY



eWORKING WEEK 2021
20-25 JUNE

Mikael Lilje (on behalf of Nicholas Brown (Australia))

How the United Nations Subcommittee on Geodesy Is Strengthening
Geodetic Foundations to Improve Decision Making

Tuesday 22 June, 17.30 – 19.00

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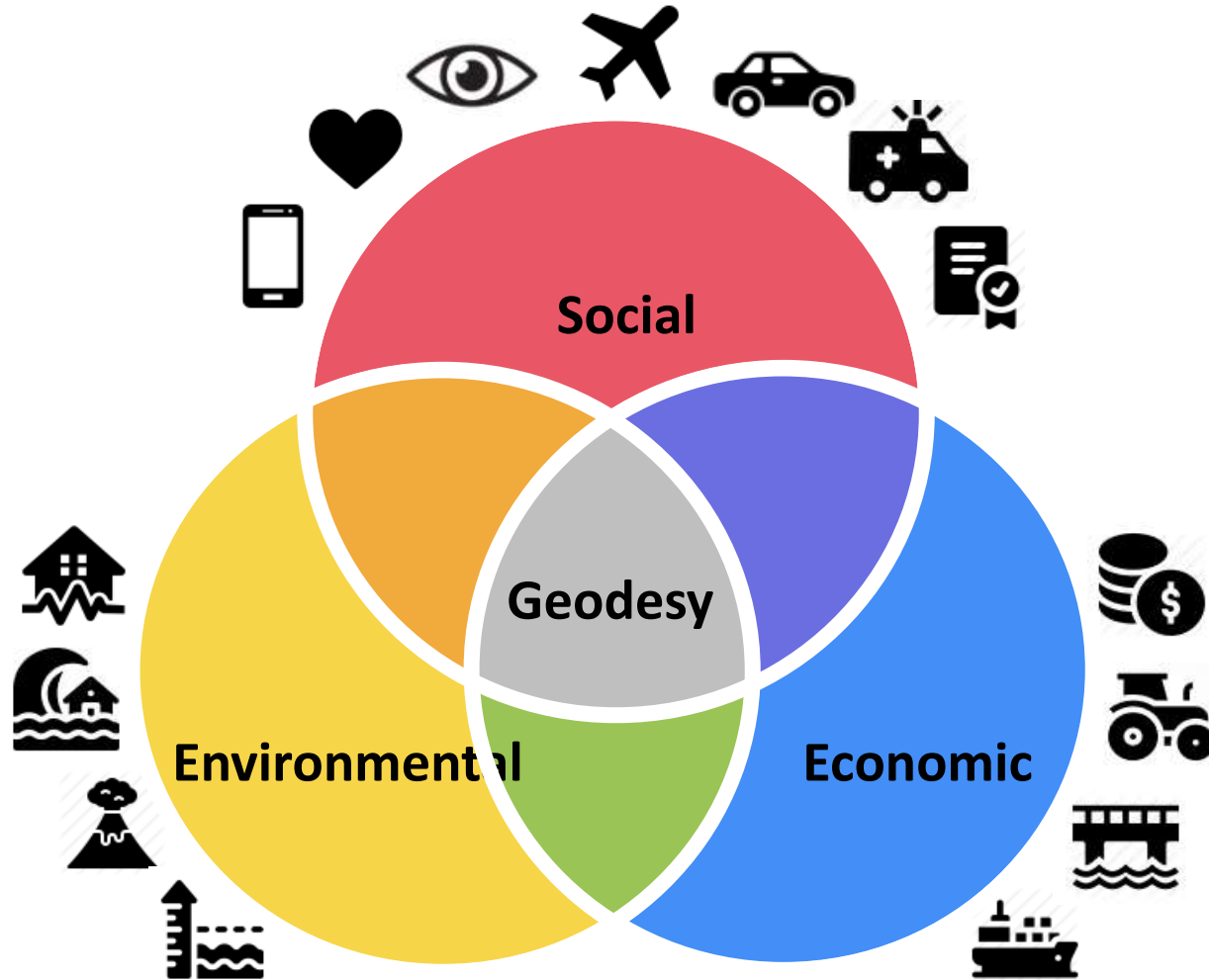
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The importance of Geodesy

“Science of measuring the **shape, orientation** and **gravity field** of the Earth and how it changes over **time**.”

Geodesy allows us to

- monitor our environment.
- Monitor the cause and the effect of climate change
- benefit from the almost 3 billion mobile applications that use positioning data.
- construct buildings, tunnels and bridges and more

Geodesy is also the foundation of land titling systems.

Geodesy is fundamental but unseen. As a result, it is often ignored, unappreciated and under-resourced.



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Flights

IL PAPIRO

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BURGERS

CHOCAMAMA

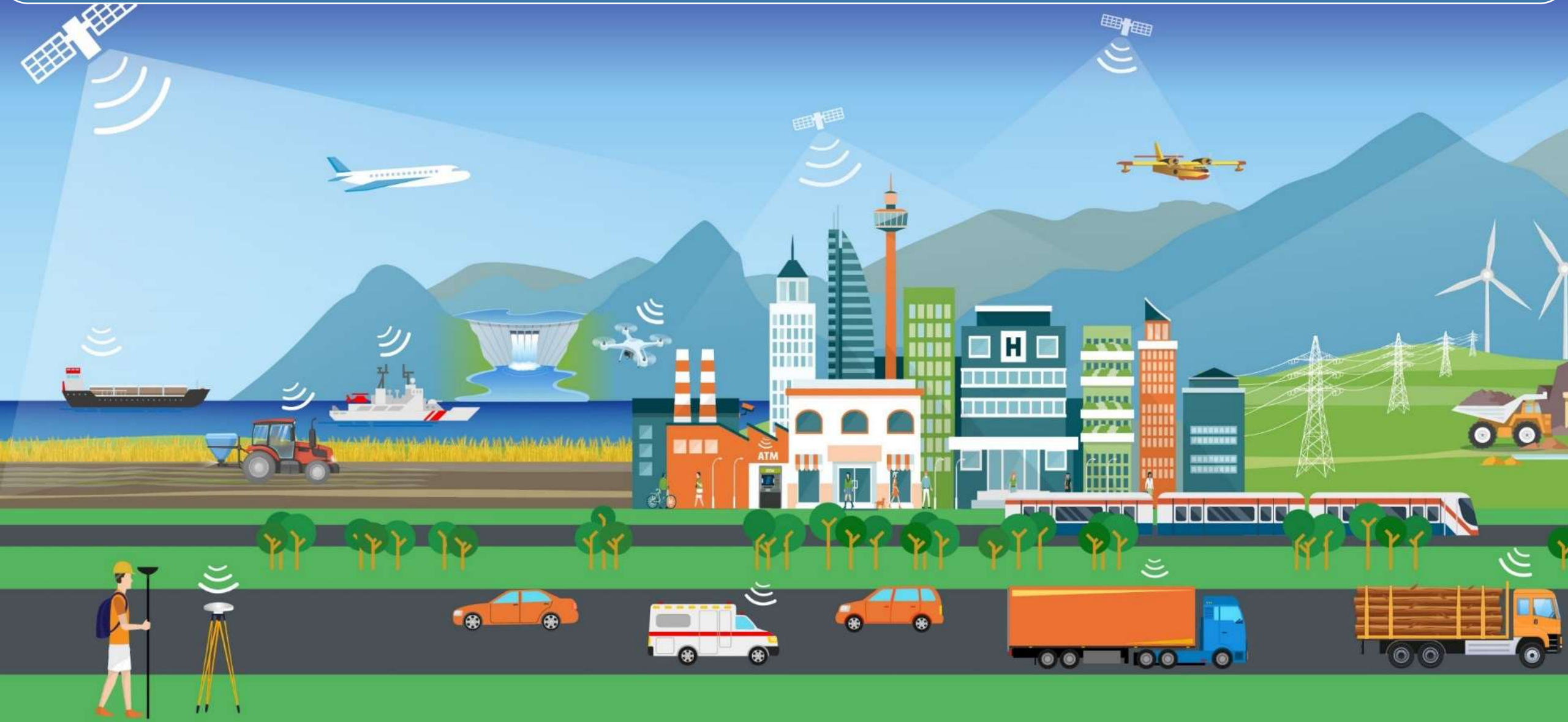
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CHOCAMAMA

CAFÉ
20m ahead



Our lifestyle is improved by geodesy

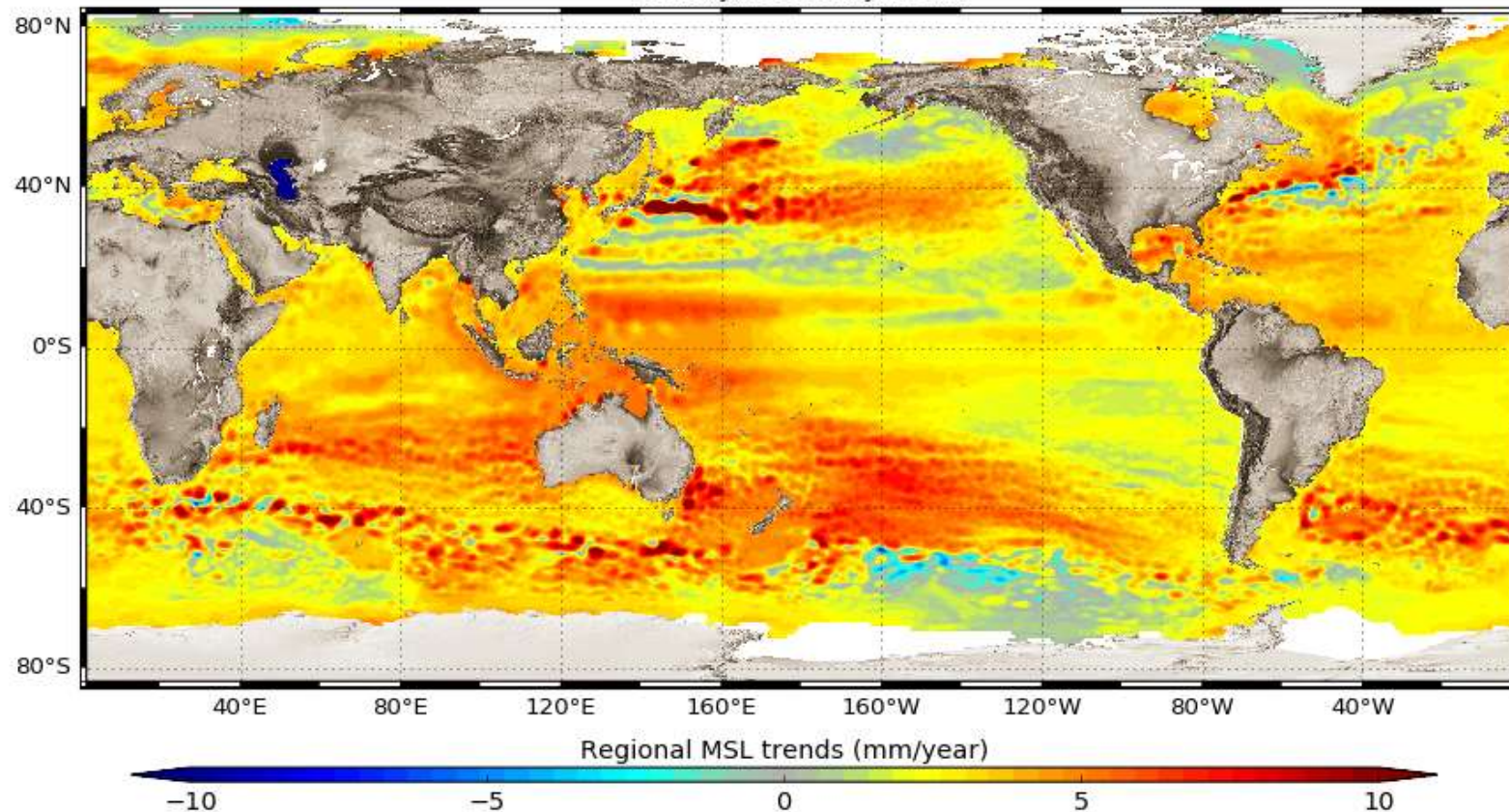




Safer, more resilient communities need geodesy

Multi-Mission Sea Level Trends

Period: Jan-1993 to Jan-2017



Geodesy allows us to measure both the cause and the effect of sea level rise.

Geodesy is providing us with the evidence of sea level rise and ice loss which we can use to inform climate policy and assist low lying countries with mitigation strategies.

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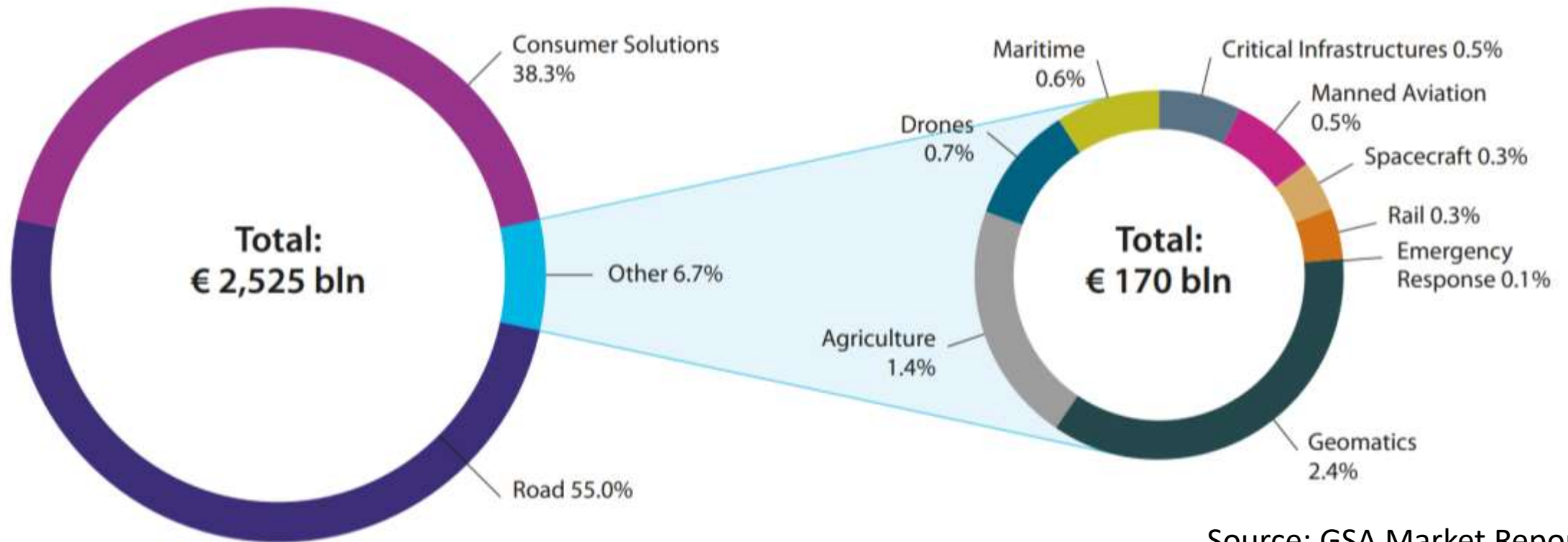
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Our dependence on geodesy is growing ... fast

Cumulative Revenue 2019-2029 by segment



Source: GSA Market Report 2019

Economic benefits from investment in geodesy

- The loss of GPS service would average a \$1 billion per-day impact to the United States alone.
- The economic impact to the UK from a loss of GNSS is **\$USD 6.7b every 5 days** across ten application domains: Road, Rail, Aviation, Maritime, Food, Emergency and Justice Services, Surveying, Location-Based Services (LBS), Other Infrastructure, and Other Applications.

June 2019

Economic Benefits of the Global Positioning System (GPS)

Source: [NIST, 2019](#)

Economic impact to the UK of a disruption to GNSS

Showcase Report

April 2017



Source: [London Economics, 2017](#)

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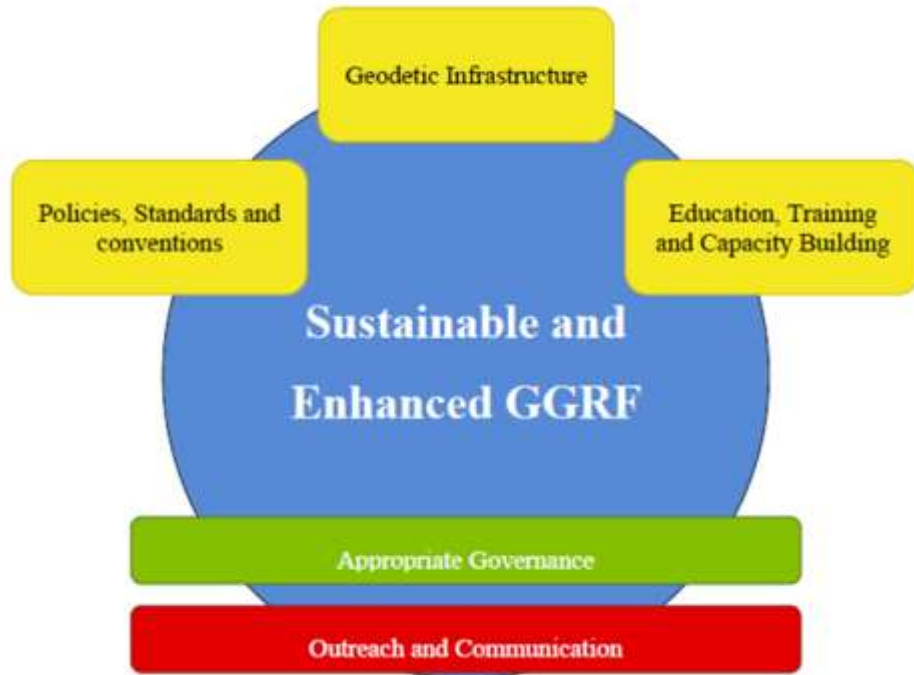
To ensure an accurate, sustainable and accessible Global Geodetic Reference Frame to support science and society



First ever Geospatial UN
General Assembly Resolution:

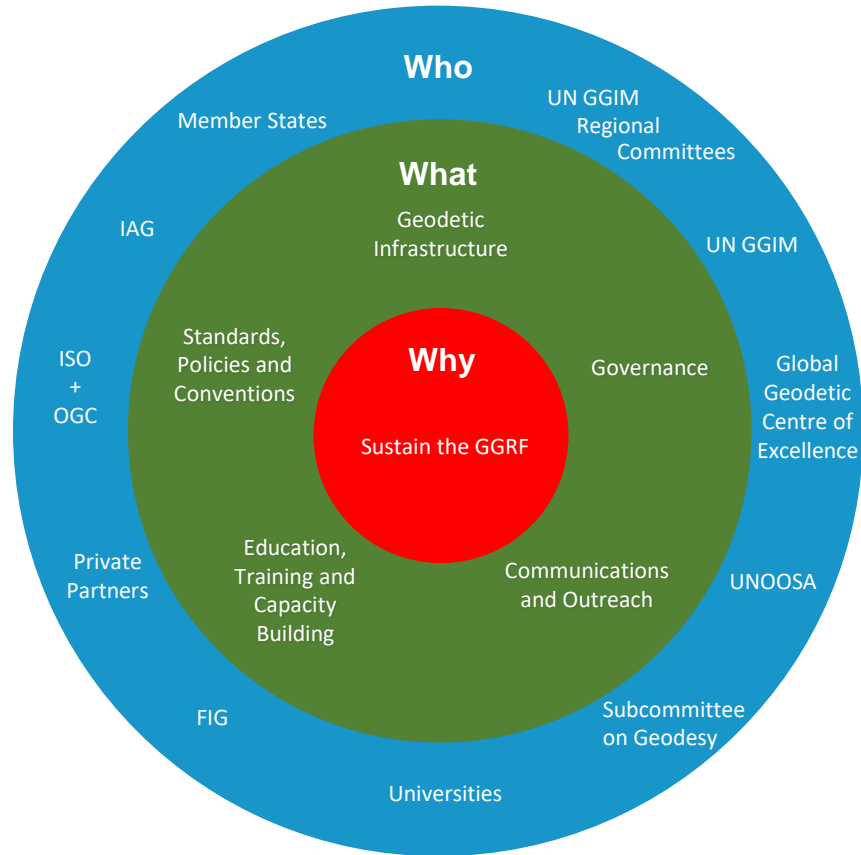
*“A Global Geodetic Reference
Frame for Sustainable
Development” (Feb 2015)*

Ambassador Peter Thomson from Fiji introducing the resolution to the UN General Assembly. Photo: Kyoung-Soo Eom.



UN-GGIM established the Subcommittee on Geodesy

VISION: An accurate, sustainable and accessible Global Geodetic Reference Frame to support science and society



Next step: UN-GGIM supports the establishment of a Global Geodetic Centre of Excellence

- At the 10th Session of the UN-GGIM Committee of Experts (August 2020), Germany announced its plans to host the Global Geodetic Centre of Excellence in Bonn.
- Germany has provided funding for an initial five year period
- The Global Geodetic Centre of Excellence is planned to start operating in 2021 or 2022.



How the United Nations Subcommittee on Geodesy Is Strengthening Geodetic Foundations to Improve Decision Making

Conclusions:

- UN-based means member state driven
- Step-by-step moving toward an UN-established body to secure sustainability regarding a global geodetic reference frame.
- Communication, communication, communication. Without geodetic infrastructure, where would the world be?
- Global Geodetic Centre of Excellence to be established.