

United Nations – Integrated Geospatial Information Framework (UN-IGIF)

Sustainable Funding Work Group

HLG-IGIF Fifth Plenary Meeting

February 2, 2025

Jeddah, Saudi Arabia

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1

Introduction



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Ms Odete Semiao Work Group Co-Lead	Agência Nacional de Desenvolvimento Geo-Espacial, Mozambique
Ms Maroale Chauke Previous Work Group Co-Lead	Department of Agriculture and Reform and Rural Development, South Africa
Ms Simone Lloyd Previous Work Group Co-Lead	Ministry of Economic Growth and Job Creation, Jamaica
Dr Zaffar Sadiq Mohamed-Ghouse Member	General Authority for Survey and Geospatial Information (GEOSA), Kingdom of Saudi Arabia
Mr Alan Smart Author	General Authority for Survey and Geospatial Information (GEOSA), Kingdom of Saudi Arabia
Mr Syed Nasrullah Zafarullah Member	General Authority for Survey and Geospatial Information (GEOSA), Kingdom of Saudi Arabia
Mr Nisar Ul Haq Syed Member	General Authority for Survey and Geospatial Information (GEOSA), Kingdom of Saudi Arabia
Ms Emily Carlson Member	U.S. Census Bureau, United States of America
Mr Andy Coote Member	ConsultingWhere, United Kingdom
Mr Johannes Ven Geerstom Member	Nationaal Geografisch Instituut, Belgium





Sustainable Funding Work Group: Delivering the Work Plan

Program of Work

- Work commenced in January 2023
 - Task 1: *“Help Member States to understand potential funding sources and modalities to foster and support implementation of the UN-IGIF.”* – [Jamaica](#)
 - Task 2: *“Provide guidance towards identifying available resources within Member States.”*– [South Africa](#)
 - Task 3: *“Provide guidance to help identify funding and estimate budget/investment for UN-IGIF Country-level Action Plan implementation in developing countries.”* – [Saudi Arabia](#)
- Saudi Arabia took on Tasks 1, 2 and 3 in December 2023



Program of Work



1

Literature search



Search of academic data bases using search terms related to benefit cost methodologies..
Four searches refining search terms at each iteration.
Additional search of grey literature for reports published by governments.

2

Consultations



Consultations with 10 representative member states /financial institution and donor.
Aim to establish status of investment requirements and investment criteria and procedures

3

Draft funding guide for Task 3[a]



Section of funding guide that helps Member States identify/target actions that need funding internally or by external sources

4

Draft funding guide for Task 3[b]



Section of the IGIF Funding Guide that highlights best practices, cost benefit analysis, benefits realised and positive impacts of investing.

4

Draft funding guide for Task 1&2



Section of the IGIF Funding Guide that highlights best practices, cost benefit analysis, benefits realised and positive impacts of investing.



Task [3] - Literature review

- Bibliographic data base search to capture academic literature for economic evaluation methodologies
- 165 reports reviewed
 - 40 highly relevant
 - 49 somewhat relevant
- Submitted to Work group September 2023.

Reference	ID	Title	Author(s)	Abstract	Key points	Relevance
1	Craglia (2020)	Manual of digital earth (Chapter 9)	Max Craglia & Katarzyna Pogorzelska A	In this chapter, we approach the economic value of Digital Earth with a broad definition of economic value, i.e., the measure of benefits from goods or services to an economic agent and the trade-offs the agent makes in view of scarce resources. The concept of Digital Earth has several components: data, models, technology and infrastructure. We focus on Earth Observation (EO) data because this component has been undergoing the most dramatic change since the beginning of this century. We review the available recent studies to assess the value of EO/geospatial/open data and related infrastructures and identify three main sets of approaches focusing on the value of information, the economic approach to the value of EO to the economy from both macro- and microeconomic perspectives, and a third set that aims to maximize value through infrastructure and policy. We conclude that the economic value of Digital Earth critically depends on the perspective: the value for whom, what purpose, and when. This multiplicity is not a bad thing: it acknowledges that Digital Earth is a global concept in which everyone can recognize their viewpoint and collaborate with others to increase the common good.	Chapter 19 of this book focusses on methodology to assess the economic value of digital earth. It argues that value should be derived from: - The value of information - The value to the economy both macro and micro - Value through infrastructure and policy	1 Highly relevant
2	Zwirowicz-Rutkowska (2013)	Economic Dimension Of Spatial Data Infrastructure - Overview Of Assessment Approaches And Methods	Agnieszka Zwirowicz-Rutkowska	One of the special interest matter of a spatial data infrastructure (SDI) life-cycle is the economic dimension estimation, taking both complex and multifaceted nature of infrastructures into consideration. The economic assessment, covering business nature of the spatial data infrastructure, plays an important role in the management tasks, including the set up and maintenance ones, but also the development of the SDI. There can be distinguished a few different approaches, which allow to assess the economic impact of the SDIs, and different valuation methods for the detailed assessment approach. The paper provides an overview what the economic dimension of the spatial data infrastructure means and how it can be measured. Furthermore, the analysis of the different spatial data infrastructure assessment approaches in relation to the economic dimension and indicators is presented.	Defines key terms, discusses assessment methods. (quite brief) Tabulates SDI assessment approaches in relation to the aspects of the SDI economics (p713)	1 Highly relevant
3	PwC (2016)	Study to examine the socioeconomic impact of Copernicus in the EU	Pricewaterhouse Coopers for EU	Following the assessment of the Copernicus programme's impacts on the upstream segment, this study aims at characterising the benefits of and the barriers to the Earth Observation (EO) downstream and end user markets in Europe, in order to identify the levers that can support the development of economic activity exploiting Copernicus. After a review of the existing literature, the EO downstream market is characterised by using the US Landsat programme as a benchmark, by the role of large ICT players, the flourishing of platforms and cloud computing, and the overall Big Data trend. The European market is then investigated in detail for 8 promising value chains through consultation with a wide panel of stakeholders, to characterise the current impact of Copernicus according to economic, social, environmental and strategic perspectives, and to forecast the evolution of its contribution to growth and employment up to 2020. Based on the identified strengths, weaknesses, opportunities and threats, recommendations are provided globally and specifically for each value chain, to foster market uptake by European companies. Though still rather low, the penetration of Copernicus data in the EO market is expected to grow in the future, with substantial benefits for both intermediate and end users.	Assessment of benefits of Copernicus EO, socioeconomic effects and future potential for the program.	1 Highly relevant
4	Cetl (2008)	Cost-benefit analysis of the improvement of spatial data infrastructure Case study Croatia	Vlado Cetl Mirodrag Roić Siniša Mastelić Ivić	The thesis upon which this paper is based is existence of a spatial data infrastructure in a specific form, at a specific moment and at a specific level, which is directly linked to the level of technological and social development. Establishing a spatial data infrastructure actually means improving the existing infrastructure and can be defined as a number of activities aiming at easier access to and dissemination of the existing spatial data, and easier and more efficient use of them. This paper considers improvement of the spatial data infrastructure in Croatia as a public project of permanent character and of special social interest. Taking into consideration a four-year improvement period, a cost-benefit analysis was made, the financial indicators of which show that the best efficiency is accomplished if the project initial time period is shorter.	This paper conducts a cost-benefit analysis of a hypothetical improvement to spatial data infrastructure in Croatia. The paper includes details of cost and benefit assessment, and calculation of financial indicators	1 Highly relevant



Findings from the literature review

- Different approaches to assessing the impact geospatial information management services, including:
 - Cost benefit analysis most common
 - Cost effectiveness analysis – not applicable to impact assessment
 - Input- output analysis – can give estimates of direct and indirect effects but can overestimate impacts as it assumes no resource constraints in the economy
 - Computable general equilibrium modelling – useful for economy wide impacts
 - Multicriteria analysis – is typically assessed on scoring, ranking and weighting the impacts rather than expressing the impact in monetary terms.



Consultations

Purpose

- To gather data on the current situation with financing activities under the UN-IGIF
- To learn of the current situation with respect to the use of geospatial information
- the investment requirements of governments
- the investment evaluation techniques that have been adopted for investment appraisal

Criteria for selection of Member States:

- Regional representation
- Availability of data and information
- Accessibility
- Financial institutions:
- Multilateral development bank
- Donor organisation



Consultations

Region	Country	Personnel
Americas	Chile	Ms Raffaella Anilio Olguin , Geospatial Analyst at La Infraestructura de Datos Geospaciales de Chile (IDE-Chile) within the Ministerio de Bienes Nacionales. Ms Pamela Castillo Retamales , Executive Secretary of the UN-GGIM Americas
Europe	Georgia	Ms Mari Khardziani , National Agency of Public Registry, Ministry of Justice of Georgia
Africa	Republic of Mozambique	Ms Odete Semião , General Manager, National Geospatial Agency (NGA) (Agência Nacional de Desenvolvimento Geo-Espacial)
Africa	Republic of South Africa	Ms Maroale Chauke , Director, National Spatial Information Framework Ms Karen Harrison , National Treasury
Asia Pacific	Fiji	Ms Meizyanne Hicks , Director of Geospatial Information Management, Ministry of Lands and Mineral Resources
Western Asia	United Arab Emirates	H.E. Eng. Hamed Khamis Al Kaabi , Director General, UAE Federal Geographic Information Centre
Western Asia	Kingdom of Saudi Arabia	Eng. Mohammad Almabrook , Executive Director for International Partnership and cooperation and Advisory, EGEOSA Eng. Khalid Abdullah AlMazroa , GEOSA, Assistant to President for Strategic Planning Dr Zaffar Sadiq Mohamed-Ghouse , Chief Advisor to H.E. The President, GEOSA Mr. Meshal Ali AlOtaibi , Finance, GEOSA Mr. Ali Abdullah AlZahrani , Finance, GEOSA Eng. Syed Nasrullah Zafrullah , Consultant, Office of the President, GEOSA
Asia	Republic of Indonesia	Dr Antonius Wijanarto , Deputy Director General, Badan Informasi Geospasial, Deputy Chair for Geospatial Information, Chair of UN-GGIM Asia Pacific Dr Dheny Trie Wahyu Sampurno , Integrating Geospatial Information and Statistics Dr. Tandang Yuliadi Dwi Putra , Mapping Surveyor, Center for Thematic Mapping and Integration, Geospatial Information Agency of Indonesia (BIG), Indonesia
Financial institution	World Bank PVLIC Foundation	Ms Kathrine Kelm , Senior Land Administration Specialist. Global Land and Geospatial Unit
Financial institution	World Bank PVLIC Foundation	Mr Stephen Keppel , PVLIC Foundation President





Financing investment is challenging

Financing investment in UN-IGIF activities an ongoing challenge
Budgets are tight in many countries

Key challenge for those organisations wishing to invest is making the economic case to decision makers and Departments of Finance or their equivalents.

Methodology for undertaking economic impact assessment needed in many cases.



Expenditure requirements vary widely

Capital requirements range from US\$5million to US\$40million depending on the level of income and geography of a country.

Operating costs are of the order of US\$1million to US\$5 million per year



Significant national and regional benefits

There are significant benefits from investing in the UN-IGIF.

Government:

- up to 70% savings through shared geospatial data management.
- Improved land management
- Improved policy formulation and government services
- Management of natural disasters and biosecurity
- Health and social services

Private sector

- agriculture
- mining
- transport
- construction
- finance and insurance

Society

- security
- land tenure
- time saved
- inclusion



Investment banks and donors require economic impact assessment

Multilateral investment banks and regional banks have funded some aspects of geospatial information. UN-IGIF provides the context for funding
There is a need for good economic impact assessments to support business cases and Country Action Plans.
Donors are aware of the UN-IGIF framework but are waiting to see how investment programs might be structured



3

The Funding Guide

Sustainable Funding Guide



UNITED NATIONS
INTEGRATED GEOSPATIAL
INFORMATION FRAMEWORK

FUNDING GUIDE

- The intended audience is any person or organization that is involved in developing geospatial information management strategies and Country Level Action Plans (CAPs) to support UN-IGIF implementation.

1	Introduction
2	Funding sources
2.1	Introduction.....
2.2	Funding from internal country resources.....
2.3	External funding sources
2.4	Conclusion
3	Budgeting – estimating costs and benefits
3.1	Introduction.....
3.2	Actions and activities for dedicated funding and investment needs
3.3	Aligning investment with sources of funding
3.4	Benefits from investing in UN-IGIF implementation
3.5	Summary.....
4	Cost benefit analysis
4.1	Socio-economic impact assessment.....
4.2	The steps in undertaking a cost benefit analysis.....
4.3	Identify and forecast benefits and costs
4.4	Valuing benefits and costs.....
4.5	Assessing the economic performance.....
4.6	Identify distribution and qualitative impacts
4.7	Assess risk and test sensitivities
4.8	Selecting the preferred option and reporting the key findings.....
5	Valuing benefits and costs
5.1	Introduction.....
5.2	Approaches to estimating value of geospatial data
5.3	Valuing tangible (market) benefits
5.4	Valuing intangible (non-market) benefits
5.5	Conclusion

Contents

- General arrangement:
 - Introduction
 - Funding sources
 - domestic and external
 - Budgeting
 - Actions requiring dedicated funding
 - Benefits from investing in UN-IGIF
 - Best practice cost-benefit analysis
 - Steps involved
 - Cash flows and discounting
 - Reporting results
 - Valuing benefits and costs
 - Market valuations
 - Non-market valuations.
 - Appendix – other methods of economic impact assessment

Introduction sets the scene

- The objective of the guide is to provide information to help any organization involved in implementing the UN-IGIF develop funding strategies and undertake economic impact assessments in support of developing business cases to this end.
- The guide discusses the potential funding sources, the types of investment that might be required, the benefits that they deliver and information on best practice approaches to undertaking cost benefit analysis.
- It provides information on cost benefit analysis and valuation techniques
 - provide users with sufficient background information to support engagement with economists, officials from Ministries of Finance (or equivalent) and funding agencies.
 - Noting the importance of sound cost benefit assessments to support business cases for implementation of the UN-IGIF



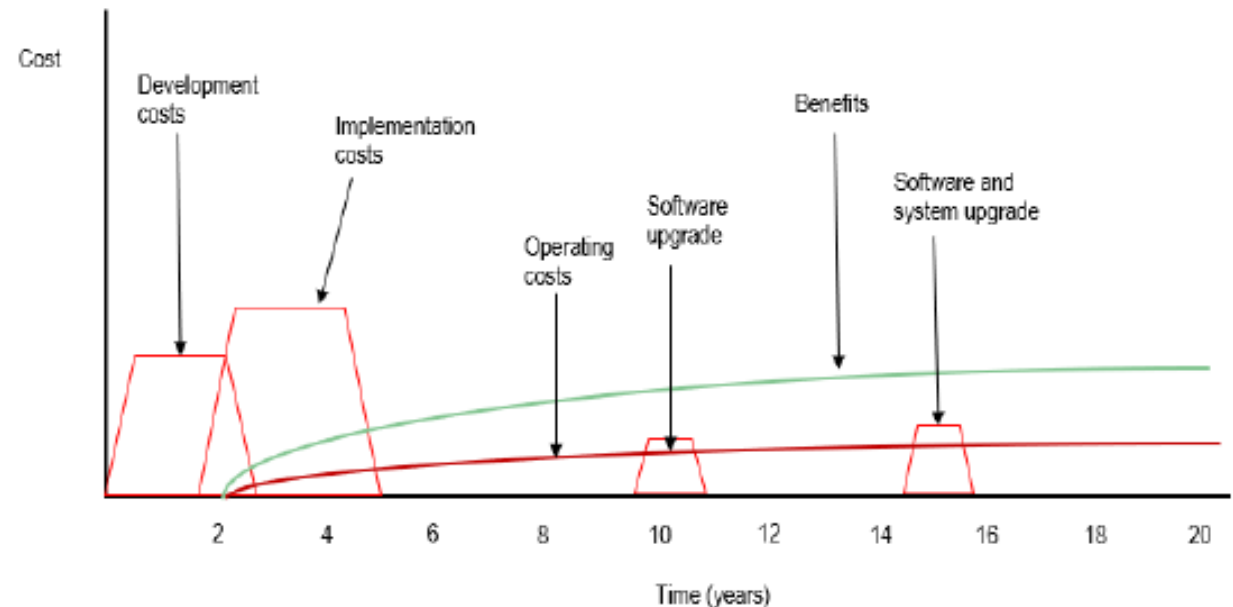
Chapter 2 – Funding sources

- In-country sources of funding
 - National/regional budgets
 - User charges
- External sources
 - Multi-lateral development banks
 - Official Development Assistance
 - Non-Government organisations
 - Partnerships
- Sustainable funding for implementing UN-IGIF is tight
- Importance of UN-IGIF recognised by many donors
- Need for sound economic case to support business cases



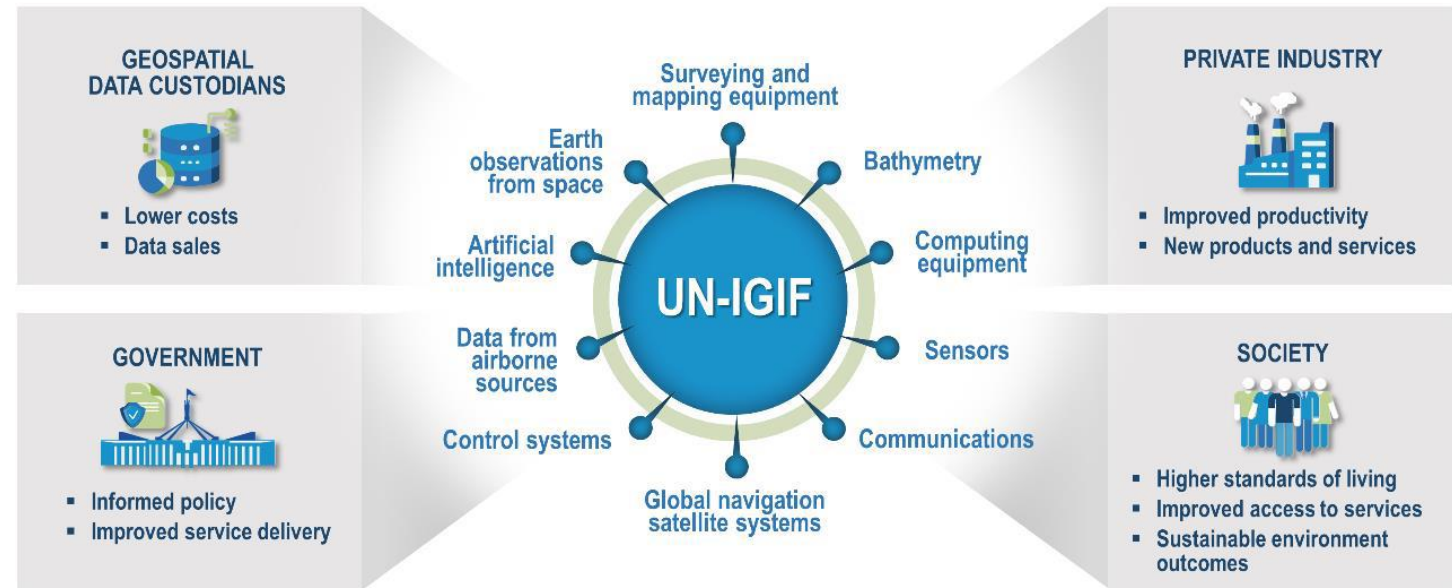
Chapter 3 – Budgeting – estimating costs

- Actions and activities requiring dedicated funding
 - Capital items
 - US\$5 million to US\$40 million depending on situation
 - Operating costs
 - US\$1 million to US\$5 million per year.
 - Policy and regulatory frameworks

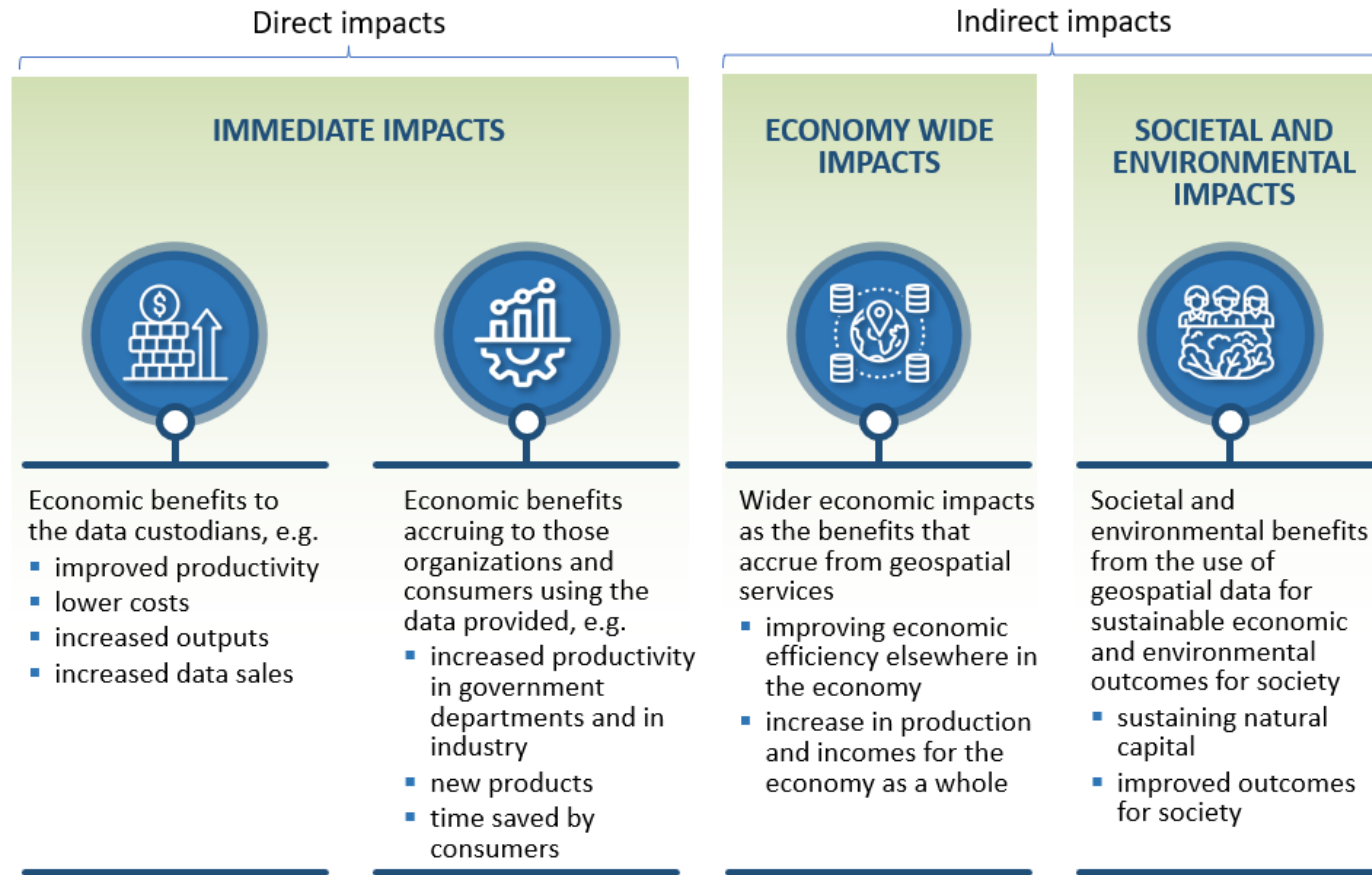


Chapter 3 – the benefits

- Benefits arise in many areas:
 - Data custodians in lower costs of geospatial data and infrastructure
 - Governments
 - informed policy
 - improved service delivery
 - Private sector
 - improved productivity
 - new products and services
 - Society
 - Higher standards of living
 - Improved access to services
 - Sustainable environmental outcomes



Chapter 3 - Economy wide benefits



Chapter 4 – best practice cost benefit analysis

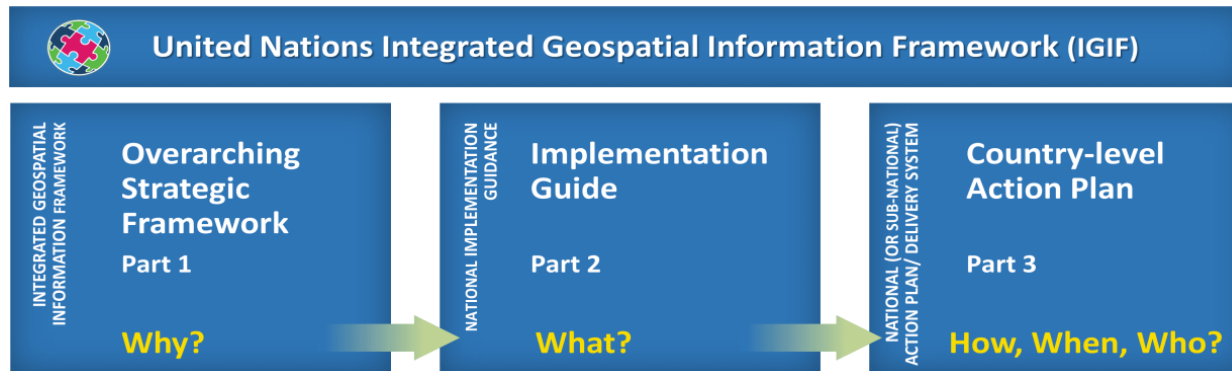
Steps in undertaking a cost benefit analysis

Steps in CBA analysis	Actions and activities	
1 Statement of objectives	Alignment with government policy goals	Intended outcomes of the initiative
2 Define evaluation case and base case	Define activities and, if appropriate, options to realise the intended outcomes	Define the base case scenario that would emerge if the initiative does not proceed.
3 Identify and forecast benefits and costs	Identify costs and benefits expected to accrue from the activities and options under evaluation	Prepare forecast of cost and benefits
4 Value benefits and costs	Value quantifiable benefits and costs for options being assessed	Prepare cash flow of benefits and costs over the evaluation period.
5 Assess the net benefits	Prepare financial model for each option being assessed	Calculate Net Present Value and Benefit Cost ratio for each option
6 Identify qualitative and distributional impacts	Provide qualitative description of environmental and social benefits	Identify major beneficiaries along the supply chain and among user groups
7 Assess risk and test sensitivities	Outline risks associated with each option	Prepare sensitivity tests
8 Select preferred option and report key findings	Select the preferred option considering economic parameters, qualitative and distributional impacts.	Outline the preferred option stating how it meets the economic and social objectives



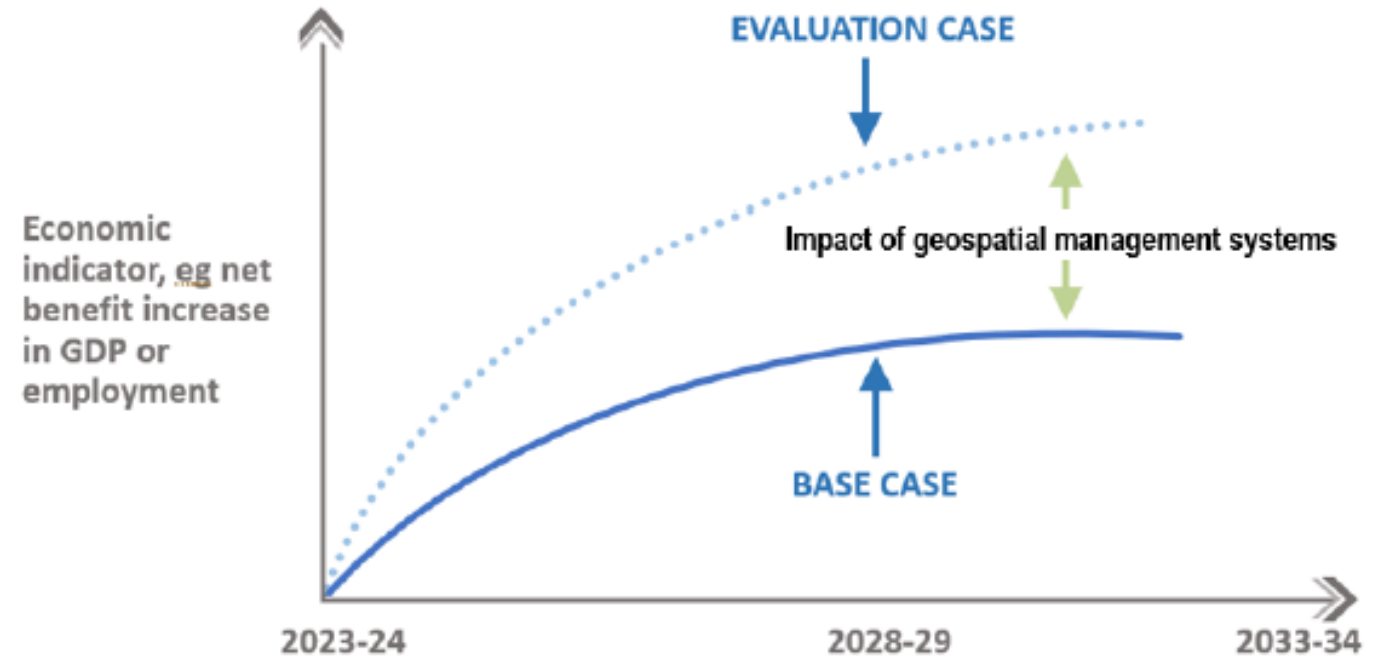
Chapter 4 – Statement of objectives

- Aim is establishing Country Level Action Plan
- Need good Business Case to establish the benefits and costs of doing so
- Sound socio-economic benefit required for this.



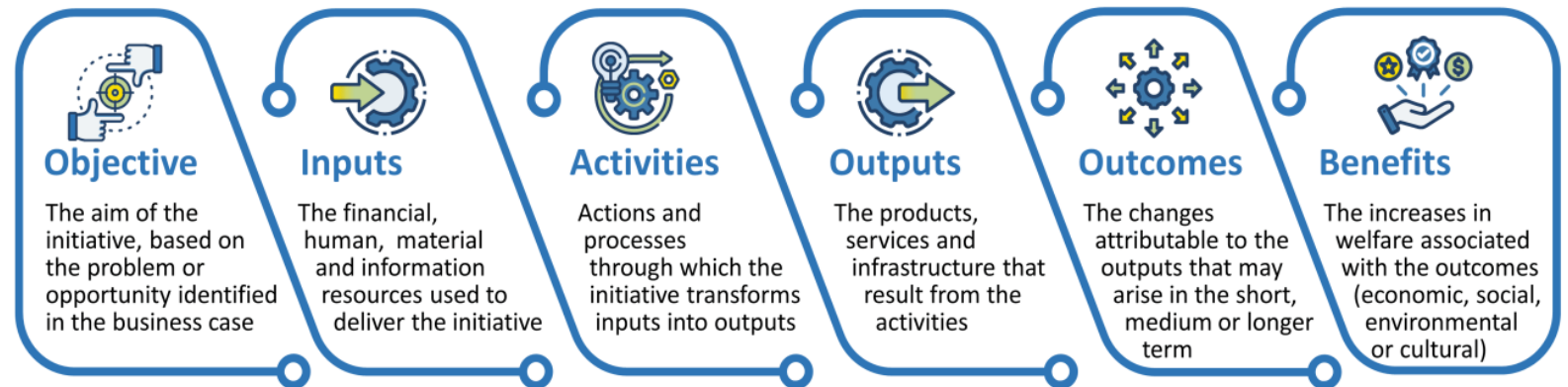
Chapter 4 – Evaluation and base case scenarios

Define the evaluation case and the base case



Chapter 4 - Identifying costs and benefits

- Identify
 - Inputs
 - Activities
 - Outputs
 - Outcomes
 - Benefits



Chapter 4 - Develop the cash flows

Year number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Year	Currency	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	
Benefits (net of user costs)																	
Savings from data sharing	Dom						0.25	0.20	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	
Productivity benefits to other Ministries	Dom								0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
Productivity benefits to industry	Dom							0.05	0.06	0.04	0.05	0.05	0.05	0.05	0.05	0.05	
Case study 4	Dom																
Case study 5	Dom																
Case study 6	Dom																
Case study 7	Dom																
Case study 8	Dom																
Case study 9	Dom																
Case study 10	Dom																
Total net benefits	Dom	-	-	-	-	-	0.25	0.25	0.46	0.44	0.45	0.45	0.45	0.45	0.45	0.45	
Costs																	
Capital costs																	
Initial capital costs	Dom	0.01	0.04	0.40	0.40	0.10											
Capital replacement	Dom											0.10				0.10	
Total capital costs	Dom	0.01	0.04	0.40	0.40	0.10	-	-	-	-	-	0.10	-	-	-	0.10	
Recurrent costs																	
Operating costs	Dom						0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Leases and charges	Dom						0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	
Maintenance costs	Dom						0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.02	
Total recurrent costs	Dom	-	-	-	-	-	0.07	0.07	0.07	0.07	0.07	0.08	0.07	0.07	0.07	0.08	
Salvage value (+ or -)	Dom																0.10
Total costs	Dom	0.01	0.04	0.40	0.40	0.10	0.07	0.07	0.07	0.07	0.07	0.18	0.07	0.07	0.07	0.08	
Net cash flow	Dom	- 0.01	- 0.04	- 0.40	- 0.40	- 0.10	0.18	0.18	0.39	0.37	0.38	0.27	0.38	0.38	0.38	0.37	



Chapter 4 - Report the results

- Report the results
 - Economic impacts
 - Social impacts
 - Environmental impacts
- Test for sensitivity to assumptions
- Recommend course of action based on results.

Discount Rate	3%	7%	10%
NPV US\$ million	75.6	48.9	35.2
BCR	3.59	2.93	2.52

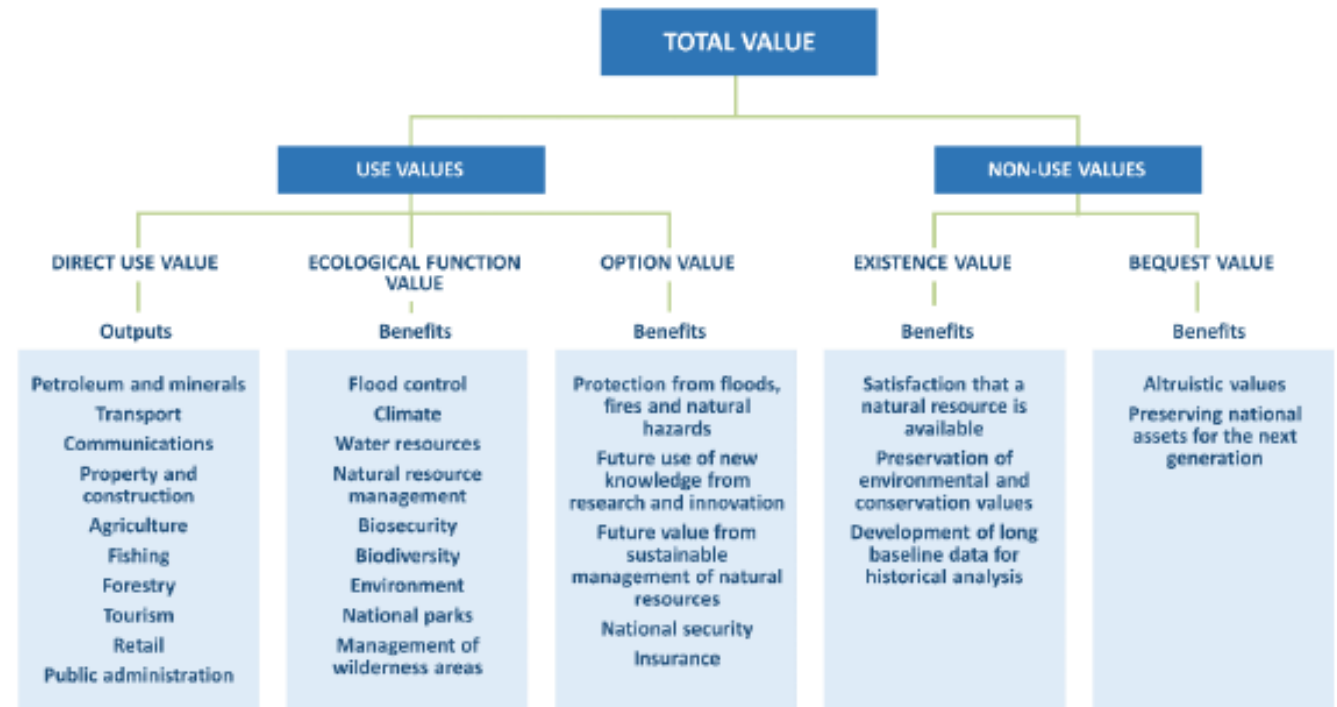
NPV = net present value

BCR = benefit cost ratio



Chapter 5 – Valuing benefits and costs

- Investment in UN_IGIF can produce market and no-market benefits
- Market impacts relatively easy to assess from observed prices and quantities
- Non-market impacts require specialist techniques



Chapter 5 – Valuing non-market impacts

- Revealed preference methods
 - Benefits transfer from other studies
 - Using travel costs as an indicator of value
 - Hedonic pricing by comparing differences in pricing for differences in environmental quality
 - Using control and treatment groups to compare impacts of non-market features such as better weather forecasts
- State preference methods
 - Contingent valuation asking people their willingness to pay for different options
 - Choice methods by surveying individuals to choose between alternative outcomes
- Examples of studies provided in the text.



HLG-IGIF Summary of Comments and Edits

The Sustainable Funding Guide was shared with the High-Level Group (HLG) on IGIF for their review and feedback on October 7, 2024, and their comments were subsequently received.

General Edits and Formatting	Content Revisions	Key Suggestions Addressed	Flyer-Specific Edits	Terminology Adjustments
<ul style="list-style-type: none"> Improved IGIF logo and text centering on the cover. Adjusted tables (compressed, aligned text) for clarity. Standardized bullet point formatting and spacing. Revised citations and charts for better presentation. 	<ul style="list-style-type: none"> Updated roles: "Co-Chairs" → "Co-Leads"; added Simone Lloyd acknowledgment. Clarified goals, funding sources, and delivery mechanisms. Enhanced benefits and methodologies for clear communication. 	<ul style="list-style-type: none"> Incorporated capacity building and national policy alignment. Revised diagrams to emphasize infrastructure and societal benefits. Improved methodologies for cost-benefit analysis. 	<ul style="list-style-type: none"> Streamlined for visual appeal; added a value stream infographic. Adjusted diagrams to highlight data uptake and societal contributions. 	<ul style="list-style-type: none"> Refined "collaboration" → "consultation" for consistency. Enhanced references to geospatial data and sustainability.

Certain suggestions necessitated significant redrafting, which exceeded the scope established by the Working Group earlier this year. However, should the document be maintained as a living resource, these recommendations could be revisited and incorporated in future updates.





The final version of the Funding Guide, along with the accompanying one-page flyer, was submitted to the HLG on January 1, 2025.





4

One page flyer



Unlocking opportunities with the UN-IGIF

WHAT IS THE UN-IGIF?

A Framework developed by the UN and the World Bank to help coordinate, develop, strengthen and modernize approaches to Geospatial Information Management.

DO WE NEED IT?

Geospatial infrastructure is a fundamental and important element of a modern economy as it underpins all planning and development. It is critical to meeting the United Nations sustainable development goals and national development priorities of your country. Geospatial information is underpinned by spatial data infrastructures established by governments.



WHAT ARE THE BENEFITS?

Government



Up to 70% savings in creating and sharing geospatial data. Better integration of government services.

Supporting the digital transformation in government
Protecting the nation from biosecurity and natural disaster risk
Improving delivery of government services, water, and energy, delivery of better health services.

Industry



Advancing productivity in agriculture, planning, land development, infrastructure, construction, mining ar resources, transport and logistics, maritime operatio commerce, financial services, and insurance.

Society



Access to accurate property and mapping data, savings in travel times, locating access to services, collaboration with governments on planning and development options, locationally based search functions on devices and greater inclusivity for society.

Environment and sustainability



Remote sensing for monitoring physical features, emissions of greenhouse gases, water resources, coastal environments, land cover and land use.

WHAT DOES IT COST?

Capital costs include investment in hardware including IT, storage and communications, data acquisition, software including data storage protocols, data security and data sharing, physical assets including buildings, furniture, facilities, cooling systems and security systems, digitization of topographic and cadastral maps, and periodic upgrades of software and hardware. Capital requirements can range from US\$5 million to \$40 million.

Operating costs include wages and salaries, licence fees, professional services, rent and insurance, interest expense, taxes, licenses and royalties and overheads. Operating costs can range from US\$1 million to US\$3 million per year.

IS IT WORTH THE INVESTMENT?



The answer is yes. The collection, management, and effective utilization of location data can be a significant national investment, but it is proven to return substantial social, economic, and environmental value and benefits well in excess of this investment.

Recent socio-economic assessments in developing countries estimated a benefit cost ratio of between 3 and 4 to 1 for investment in spatial data infrastructure. These studies also showed that society and the environment were also significant beneficiaries.

WHO BENEFITS?

The UN-IGIF is a powerful framework that helps governments build geospatial capacities analyze data and images associated with specific geographical locations integrate all other data. to provide powerful insights, guide decision making, transform government, advance global and national priorities.

For governments	For industry
Emergency management - reduced damage from natural disasters	Improved productivity in agriculture
Biosecurity – reduced costs of incursions of pests and disease	More efficient mining operations
Asset management – major savings in managing government assets	Faster planning approvals and higher productivity in construction
Land management – improvements in planning approvals	More efficient delivery and management of infrastructure
Management of the coastal zone and marine environments.	Improved transport and logistics
Environmental and sustainable resource management	Better management of the blue economy
Managing water resources and water quality	Productivity in energy, water and telecommunications
Managing climate change	Efficiencies in road transport and asset management
Health care and social assistance	Safer skies and seas
National security	More efficient commerce
More efficient government and municipal services	For consumers and society
Provision of air and sea navigation services	Time saved from geocoded internet searches
Improved transport planning	Time saved in travel and commuting
More efficient traffic management and public transport	Easier and faster location of primary health care

HOW CAN WE FUND IT?

UN-IGIF has significant benefits across all sectors of government, funding is often shared across multiple agencies and because of its broad benefits across government, industry and society, funding for UN-IGIF can legitimately be a component of major national investments funded by governments and development assistance programs. It will reduce duplication in development assistance. But it will need funding from the international development assistance community and the private sector.





5

Geospatial Value Study Inventory (GeoVSI)

Agenda

- Purpose - What is the GeoVSI and why is it needed?
- Exemplar Studies – some examples of the type of existing studies
- What is included in the inventory?
 - Features and Functions
 - How to use it to help Member States justify investment in the IGIF
- Further development



Purpose

- Almost IGIF Country Action Plans require Investment to realise their outcomes, this maybe in data, human resources, equipment, services or training – all have associated **costs**.
- To convince decision makers to provide the finance, national mapping and cadastral agencies need to provide justification that explains the **benefits** of these investments.
- Although this may be possible by advocacy linked to key national priorities it is in our experience made easier by estimating the **value of both the costs and benefits**.
- A Socio-economic Impact Assessment (SEIA) is the generic term used to describe such value analysis.
- It answers a **need identified at UN-GGIM events and many other conferences**, for a resource to assist Member States to access existing studies.
- The GeoVSI provides **direct support to the objectives of the UN IGIF guide to Sustainable Finance** which is launched at the UN GGIM Arab States meeting.



Exemplar Studies

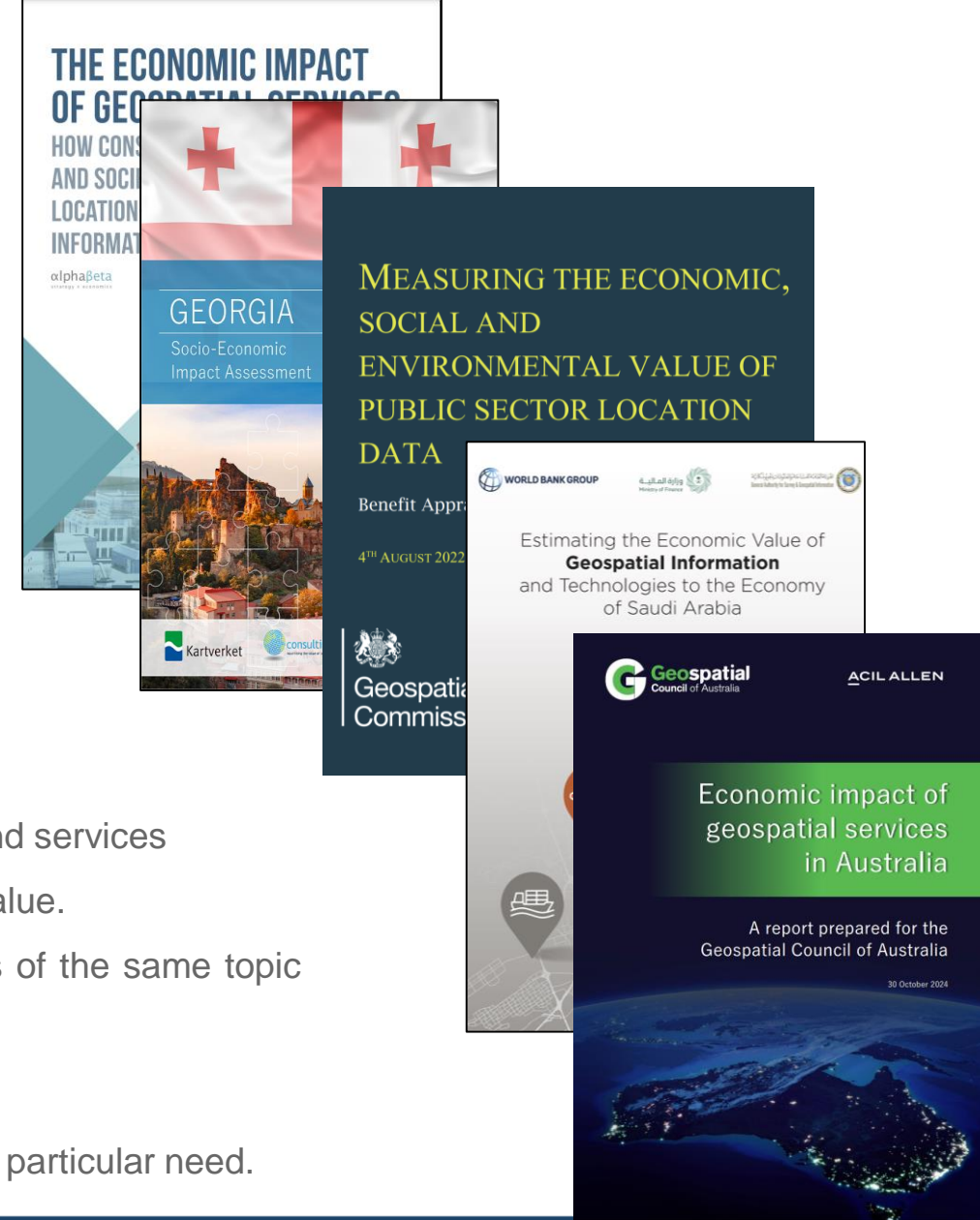
The following are amongst the studies currently included:

- Global - Google willingness to pay market size assessment
- Georgia – cost-benefit analysis of SDI investment
- UK – benefits appraisal and case studies
- Saudi Arabia – estimate of economic value
- Australia – economic impact study with 65 case studies

Some uses of the Inventory:

The inventory is designed to support users to:

- Quickly find relevant socio-economic impact values for geospatial products and services
- Identify studies to apply value transfer and generate defensible estimates of value.
- Compile information for meta-analysis - using data from independent studies of the same topic area to determine likely return on investment.
- Conduct literature reviews.
- Explore and compare valuation techniques to see what is most applicable to a particular need.



Access

A community resource – developed under direction of Sustainable Finance Working Group

Open and Free – no charge, simple email address registration to ensure legitimacy

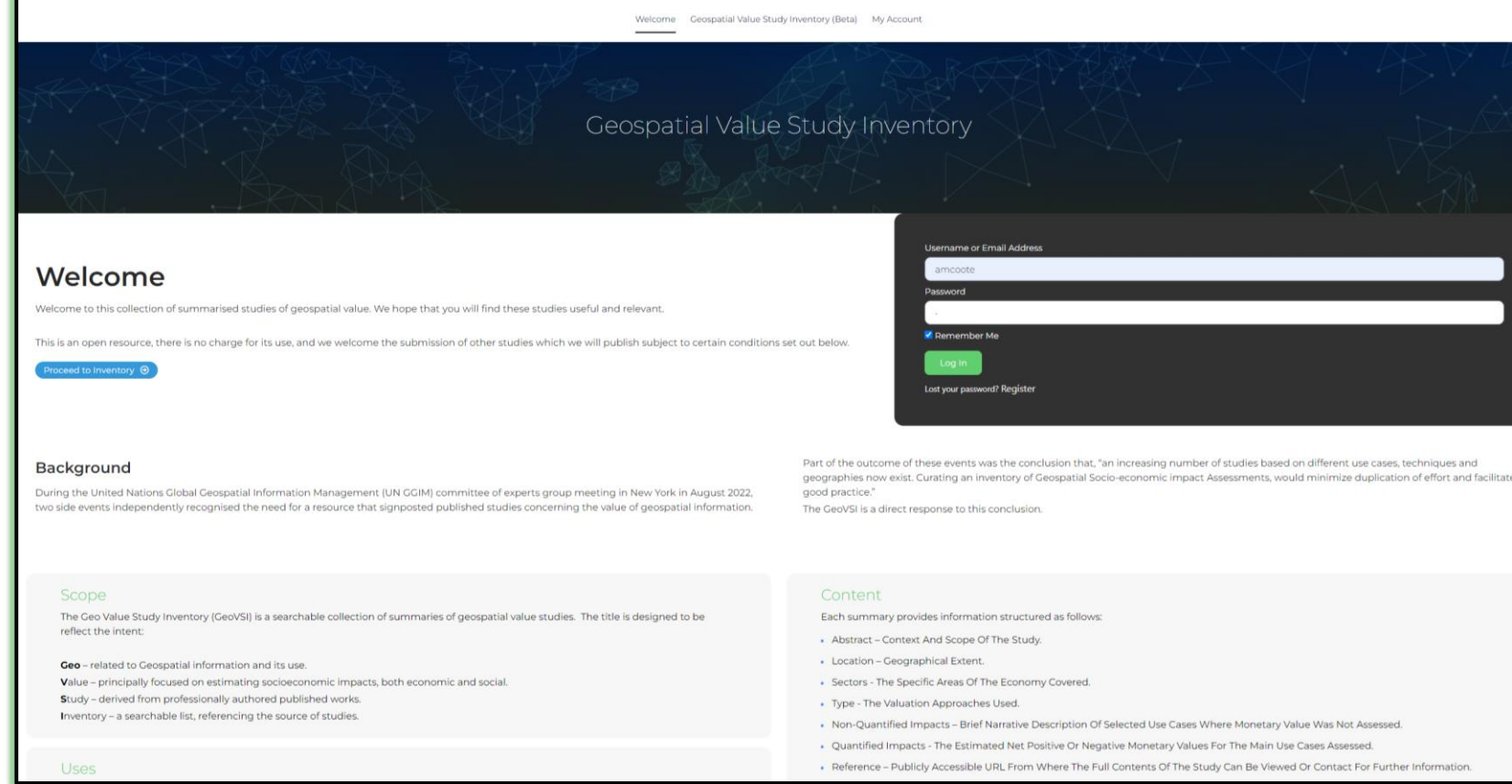
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Curated professionally, as contribution to the knowledge sharing, by ConsultingWhere

Content

Each entry contains:

- Overview – context and scope of the study
- Location – geographical extent
- Sectors - the specific areas of the economy covered.
- Type - the valuation approaches used.
- Socio-economic Impacts – summary of selected use cases where value was assessed in financial terms and others not quantified but with significant social value.
- Reference –publicly accessible URL where the full contents of the study can be viewed or provides a contact for further information.



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Search

The content can be filtered by:

- Free text e.g. enter the term “open data”
- Economic Sector e.g. central government
- Location – by country
- Study Type e.g. case studies, cost-benefit analysis, general equilibrium modelling

The assistance of Esri (South Africa) is gratefully acknowledged in the development of the map interface.



Sample content

Estimating the economic value of geospatial information and technologies to the economy of Saudi Arabia (2022)

Overview

The report aims to estimate the potential economic benefits that Geospatial Information and Technologies (GIT) could contribute to the economy of the Kingdom of Saudi Arabia (KSA). The General Authority for Survey and Geospatial Information (GASGI) has oversight of the geospatial sector in KSA and asked the World Bank to carry out the study.

KSA's economy is the largest in the Gulf Cooperation Council (GCC) with an estimated GDP of USD 782.5 billion in 2018. The Kingdom has the largest proven oil reserves globally and is the largest worldwide oil producer. However, in 2016, KSA announced Saudi Vision 2030—an ambitious plan and strategic blueprint to diversify the country's economy and transition away from its extractive industries.

The particular focus of the report is on how Geospatial Information (GI) will play a fundamental role in supporting the growth and development of key sectors identified by Vision 2030. These sectors include commerce (ports), infrastructure (roads), energy, health, education, public safety and security, and disaster risk management. The sectors are expected to enhance KSA's market, strengthen sustainable economic growth and help the country shift away from oil dependence.

KSA is a heavy user of geospatial data, especially across government and within the oil and gas, utilities and telecommunications sectors. The country's growing GIT sector provides a range of services including software and solutions development, consumer services, cartographic services and supports major multinational companies across the Kingdom's industries. Nevertheless, the business capacity of the geospatial sector in KSA is relatively limited and currently only comprises a small fraction of the local market. KSA is working towards the creation of a national strategy for the geospatial sector which will include the development of a Spatial Data Infrastructure (SDI) to support the Saudi Vision 2030 and prioritise investment needs.

A brief introduction of the Saudi Arabian context is given along with the main motives behind the study. The economics of geospatial information is discussed along with the role that government can play in its collection and distribution. The paper's methodology is then expanded upon followed by the estimates the authors make for the benefits of GIT to each of the identified economic sectors. The reports concluding remarks are provided with recommendations for future research.

Region

Saudi Arabia

Study type

Case studies, Market survey, Cost-benefit analysis

Economy sector

Education, Infrastructure (Transport), Infrastructure (Energy), Health, Public Safety and Security, Disaster Risk Management, Public Sector Local Government, Public Sector Central Government

Geographical scope

Saudi Arabia

Non-quantified impacts

Education – GIS tools will support plans to significantly grow KSA's education sector by offering the ability to reliably identify and analyse the state of the sector and measure progress towards the government's goals. Mapping data can help authorities make decisions regarding education infrastructure. Increasing school enrolment in KSA will require the expansion of school buildings, GIS enables applications that can bring more efficient information systems to support every stage of construction.

Infrastructure (roads) – despite KSA's significant investment in developing its large road network there is an estimated backlog of maintenance of roads due to insufficient fund allocation. The poor quality of roads is partially responsible for KSA's poor road safety record. GIT can provide crucial data on the precise location of assets within the context of the surrounding environment to transform every step of a road project lifecycle: planning, design, surveying, construction, operation and maintenance.

Disaster Risk Management – Saudi Arabia is vulnerable to various types of natural hazards such as coastal and flash flooding, extreme heat, water scarcity, dust storms, earthquakes and volcanoes. KSA is increasing efforts to develop a comprehensive Disaster Risk Management (DRM) system. GI-based systems can significantly improve DRM efforts at every stage of the disaster response life cycle. For example, emergency preparedness tools can be improved and adapted to incorporate GIS-enabled

Quantifiable impacts

The table below summarises the range of estimated benefits that GI and technologies might be expected to deliver to KSA. These benefits were estimated by using data provided directly by KSA government ministries and agencies, adapting certain assumptions and are subject to limitations and caveats detailed in the report.

Summary of estimated benefits from GI by sector use case

SECTOR	US\$ PER YEAR
 DISASTER RISK MANAGEMENT	3.8 million - 47.8 million
 EDUCATION	63 million - 239 million
 ENERGY	564 million
 COMMERCE	56.2 - 122 million
 PUBLIC SAFETY	2.1 billion - 3.9 billion
 PUBLIC HEALTH	1.6 billion - 3.2 billion
 INFRASTRUCTURE	1.5 billion - 2.6 billion

Reference

Find this article at:

https://gasgi.gov.sa/Documents/Maps/2022/March/KSA_GEOSPATIAL_ECONOMIC_IMPACT_STUDY.pdf

Statistics

As at 01 January 2025:

- Studies included: **90**
- Geographical coverage: **Global**
- Registered users: **86** (from 25 countries)
- Updates (software & data): **Weekly**
- Spam attacks Detected: **250 per month**



Finally, a call to Action:

The Sustainable Finance Working Group need your help to be able to help you!

We need more studies, particularly covering:

- Latin America and the Caribbean
- Africa

It is easy to submit:

email info@geovsi.org with study access details and we will do the rest.



Disclaimer Statement

A Community Resource

The value study inventory is designed to be an open resource for use by the community of professionals engaged in establishing the value of geospatial data, its management and analysis.

There is no charge for its use, however, to protect the integrity of the resource, users are required to register. Personal information will only be used for the express purpose of administering the inventory and will be subject to the requirements of GDPR.

GeoVSI is not designed to replace necessary research to establish the value of geospatial in a country or sector but to make it easier for users to find relevant information.

As such, the editors welcome the submission of new studies that enhance the depth and width of coverage, for inclusion in the inventory.

Suggestions on how to improve the structure or other aspects of the inventory are also welcome.

Please submit all feedback and additional studies to: info@geovsi.org

Editorial Control

The editors of GeoVSI reserve the right to exclude material if it is viewed to be of limited relevance or beyond the inventory's intended scope.



Thank you!

