IIC TECHNOLOGIES

UN-GGIM

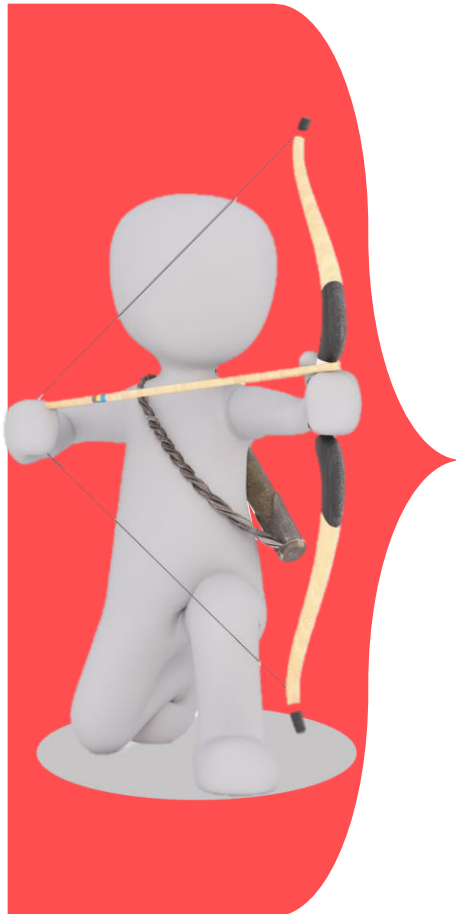# Geospatial Research & Innovations

3D Model created by IIC

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29 Nov 2017
Mexico City

Session 3

1

Theme & Objectives

Scaling up geospatial research and innovation to meet the needs of the SDGs

Scale up research to realize 17 SDGs

Meet Agenda 2030

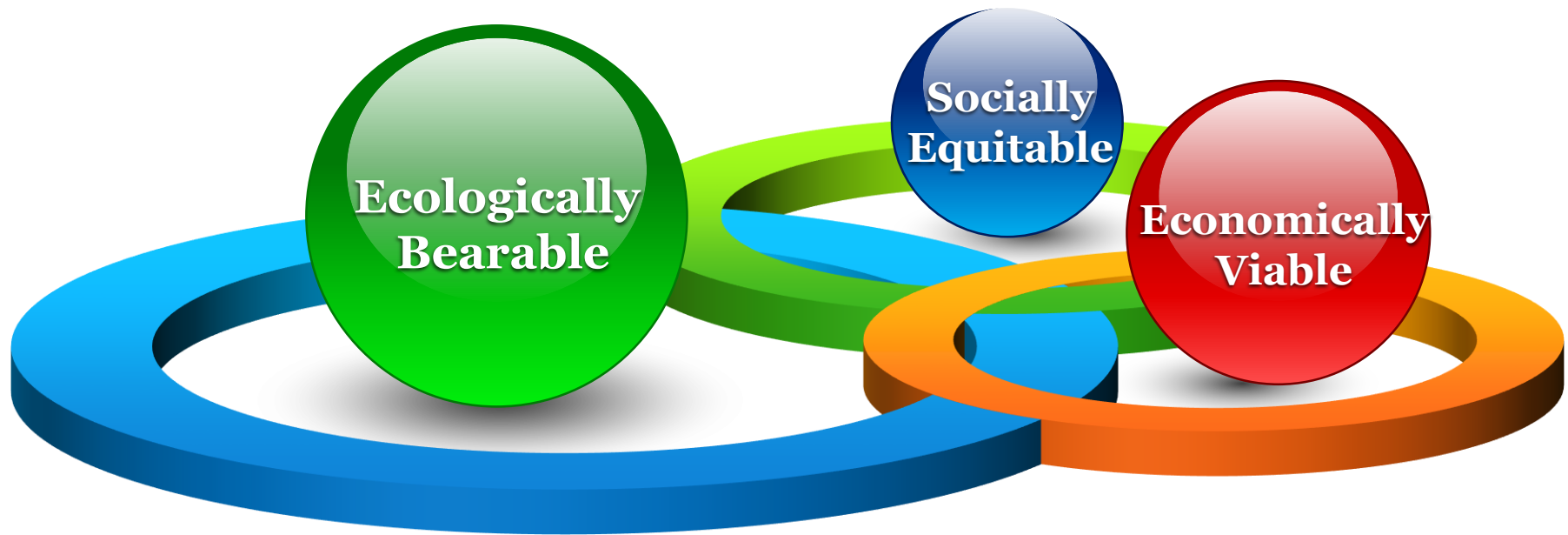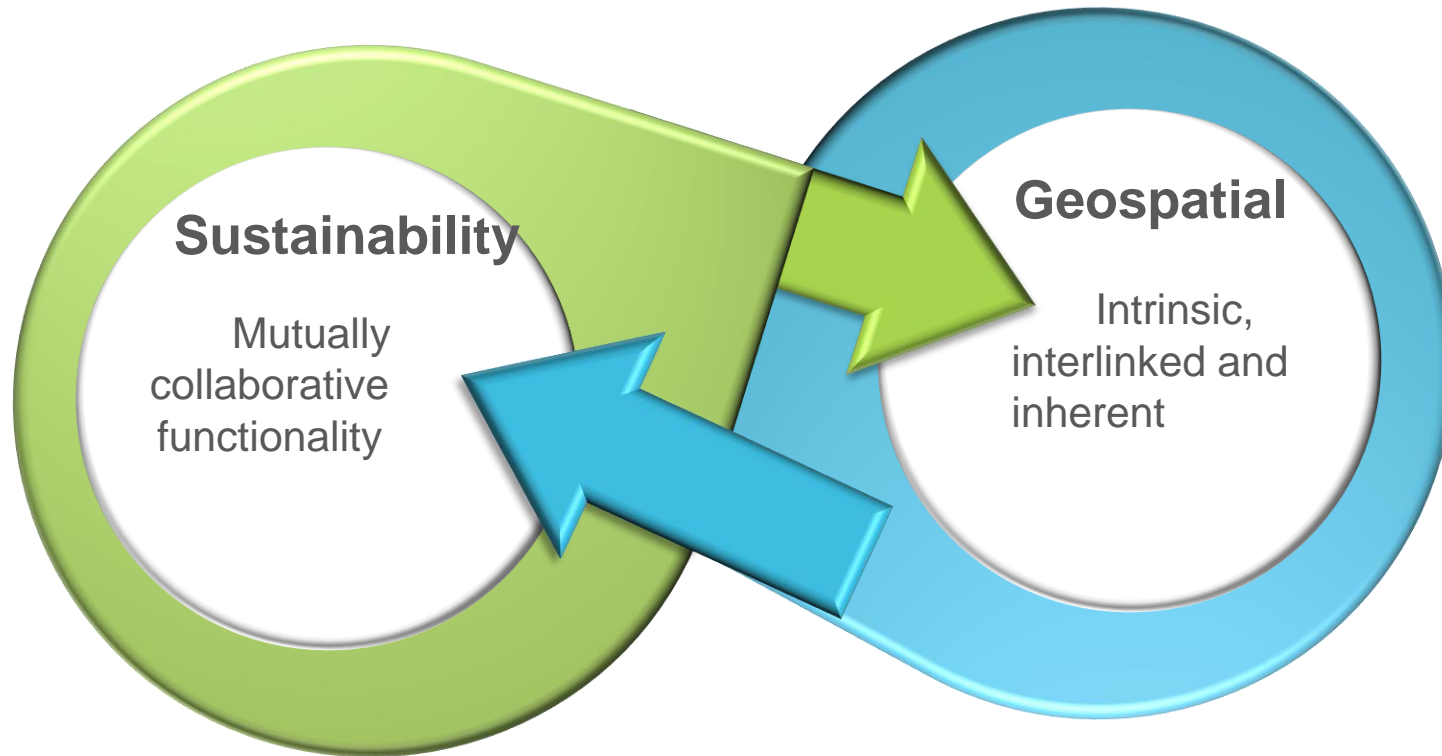Proliferate Best Practices
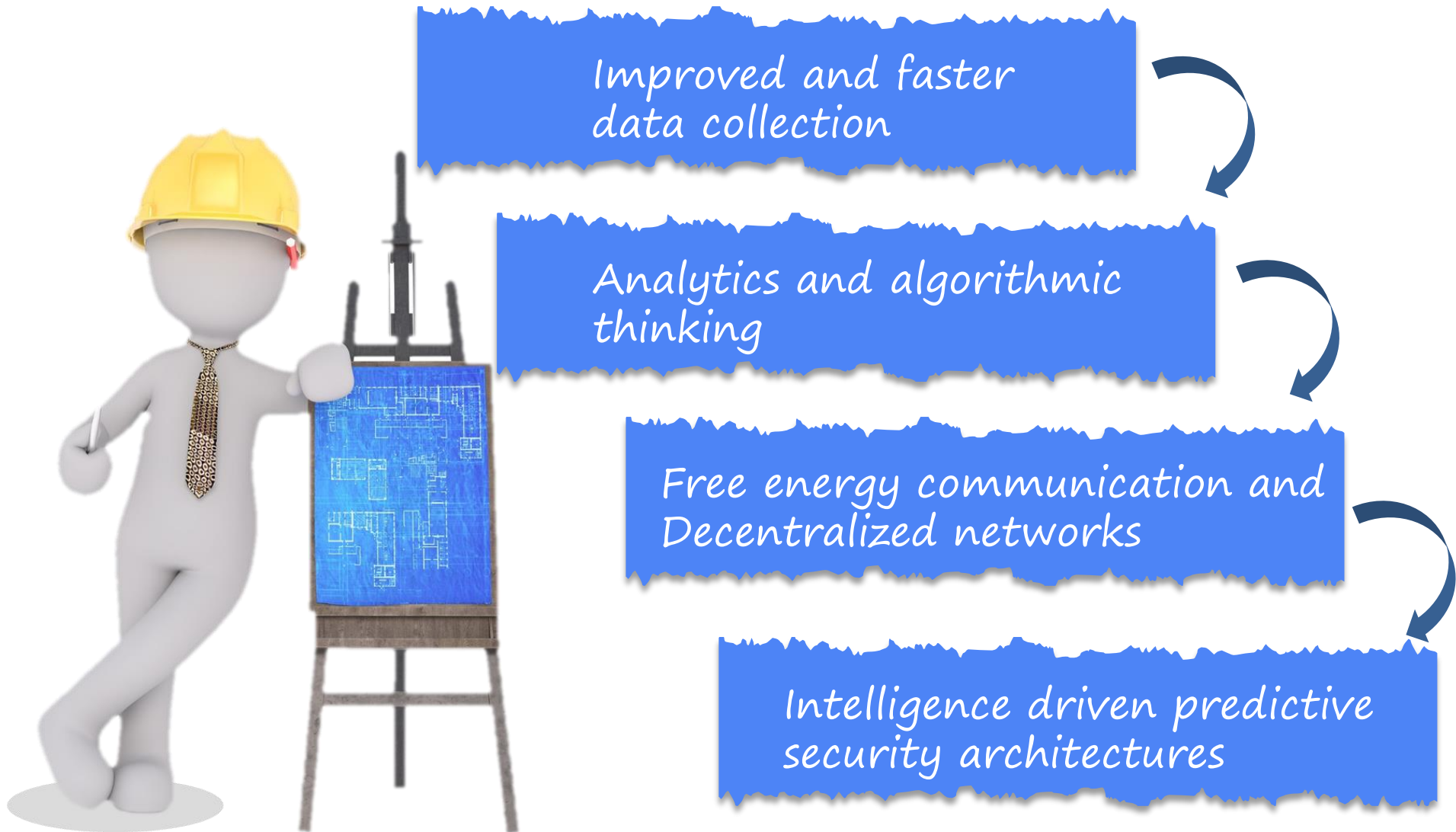
Sustainable Development

Sustainable Development in its current definition revolves around "Humans"

Sustainability and Geospatial

Sustainability

Mutually collaborative functionality

Geospatial

Intrinsic, interlinked and inherent

Drivers for Maximum Impact

Improved and faster data collection

Analytics and algorithmic thinking

Free energy communication and Decentralized networks

Intelligence driven predictive security architectures

Research in Medical GIS
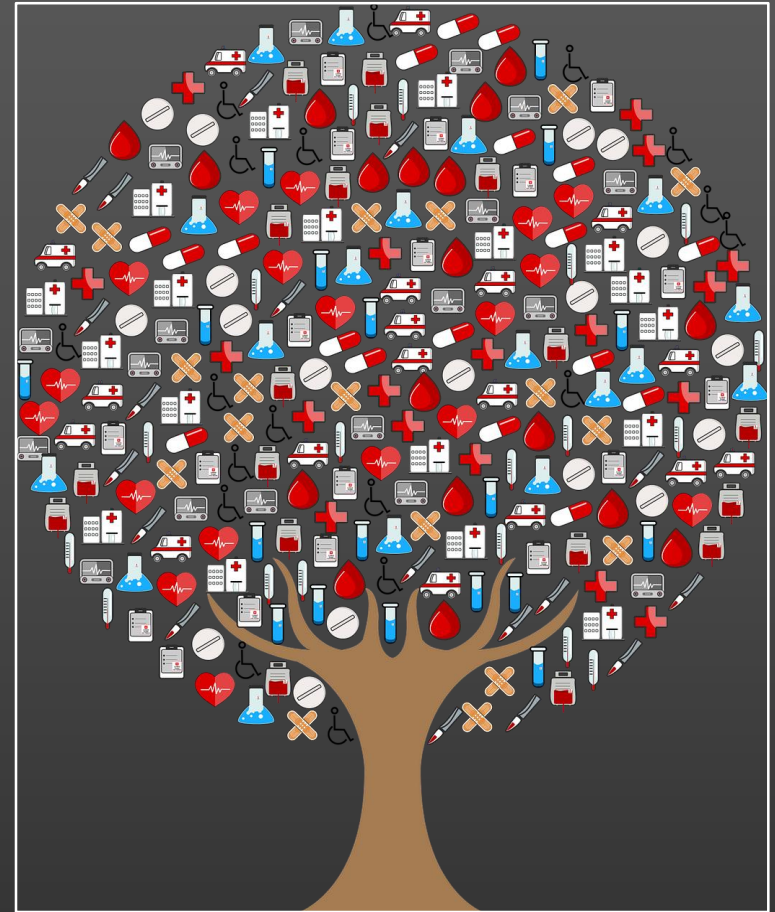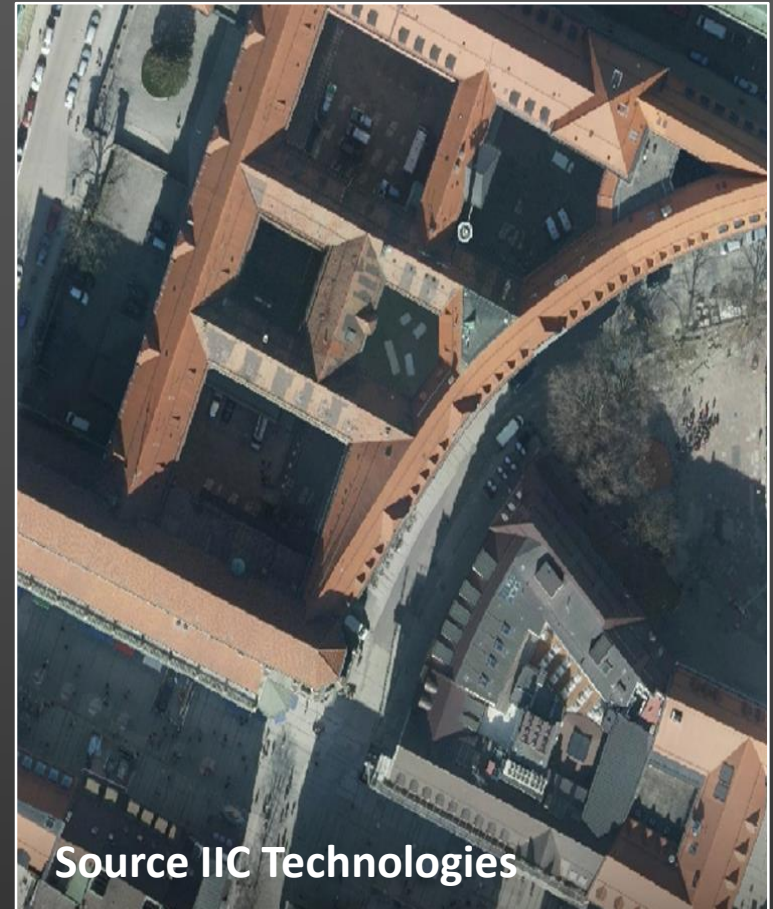
- Identifying similarities and differences in population health across the globe.

- Deployment of GIS to significantly enhance our capability to identify diseases, their movement pattern, and trends across geographies, proactively addressing remedial measures to ensure good health and well-being for all.
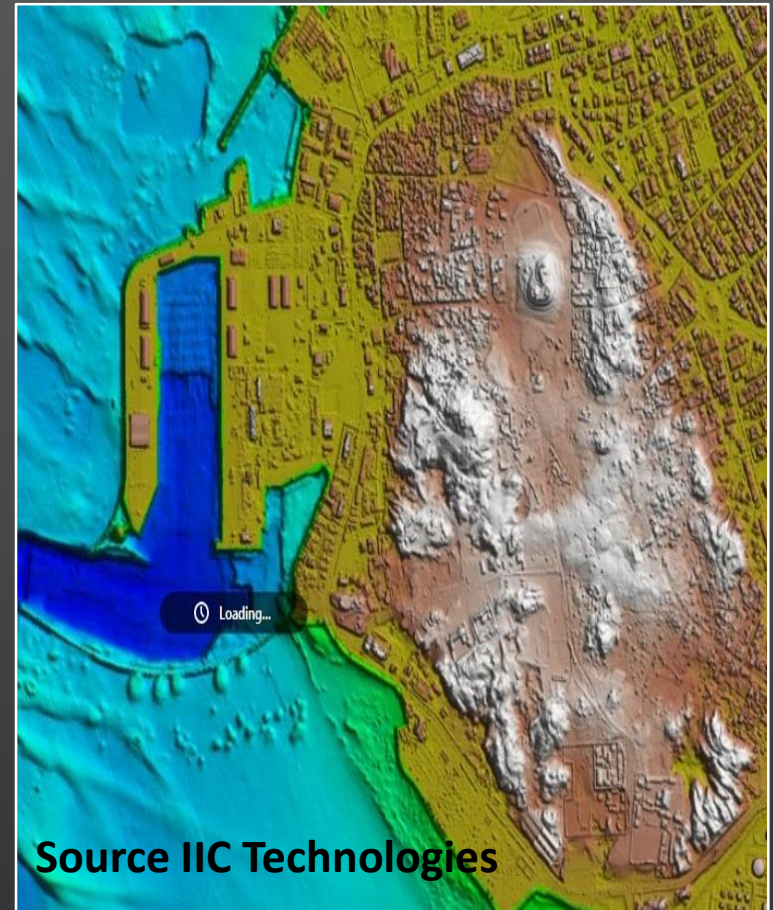
Planning Sustainable Cities

- acquisition of spatio-temporal data in real time;
- deploying mobile geospatial sensor platforms;
- managing dynamic big-datasets;
- interpretation of big-data analytics;
- privacy and data security;
- ethical challenges in dealing with geospatial data.

Source IIC Technologies

Ocean & Climate Change Studies

- diverse data sources;
- spatial and temporal components and their correlations over time;
- multiple dimensions of data – collected from physical, chemical, and biological oceanography; marine environment and economy;
- specific attributes such as, water temperature, salinity, pH, density, and velocity
- data validity;
- privacy and confidentiality.
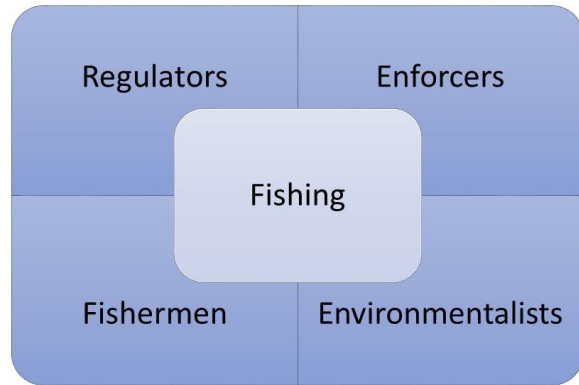

Source IIC Technologies

Clean Energy

- choice of optimal location for producing energy using multi-factor analysis;
- terrain analysis;
- population-density analysis;
- analytics to identify vulnerabilities before failure, monitor with real-time data weather conditions, power demand, and outages;
- improve efficiencies with predictive analysis of risks, equipment and system conditions and possible outages

Clean Water

- identify location-based details of water contamination;
- prepare water-quality maps with overlay of sanitation data to identify areas for water treatment and monitor drinking water quality;
- Research remote sensing technologies to identify potential sources of clean water (both above ground and under ground; aquifer mapping)
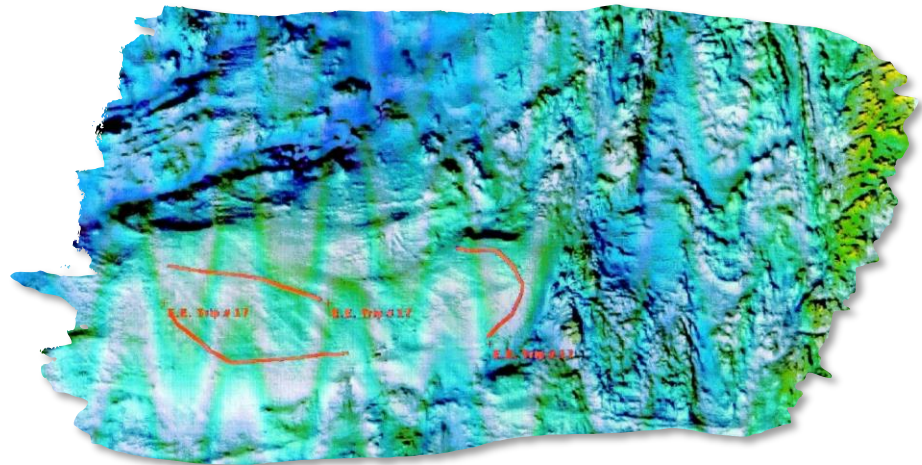
Fusion of thematic datasets in Fishing – NaAvic an IIC initiative

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Regulators	Enforcers
	Fishing	
Fishermen	Environmentalists

- Fuse hydrographic chart data with enhanced seabed depiction in known fishing areas
- Increase efficiency and revenue from fishing efforts
- Addresses the needs of stakeholders of the fishing industry

- NaAvic app will provide rich data sets for safe navigation and 3D view of seabed suitable for identifying optimal fishing areas
- App will allow easy sharing of info through crowdsourcing on-the-go
- Improved and safe navigation guidance

Technology Integration Imperatives for Urban / Smart City Planning

- Digitize city objects into spatial, thematic, and physical property layers;
- Extensive and efficient deployment of survey and imaging devices;
- Use of open-source standards to assure spatial interoperability.

- Apply big data analytics to derive information to aid improved safety, efficient use of natural resources, protection of environment, and facilitate smart and responsible citizenry;
- Dynamic resource modeling;
- Improved decision making at people level

Challenges to address

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Facilitate seamless sharing of trustworthy data **01**	Security and authorization of data **02**
Miniaturization of technologies **03**	Portability and ease of using data collecting devices **04**
Interoperability of systems, devices, and data **05**	Capacity building with multidisciplinary orientation **06**
IPR issues **07**	An open-mindset **08**

Game Changers

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Algorithmic thinking and deep machine learning **01**	Managing heterogeneous Big Datasets **02**
Cloud computing and holographic memories **03**	Open-air free-energy communications **04**
Decentralized and loosely coupled networks **05**	Multi-factor and dynamic fraud detection **06**
Big-data and smart-data analytics **07**	Visualization and data modeling **08**

Thank you

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