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Interoperability between GEOSS, INSPIRE and GMES: Setting the scene

Caroline Heylen, GIM/OGC

George Percivall, OGC

Johannes Brauner, TU Dresden

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GIGAS Objective

- GIGAS promotes the coherent and interoperable development of the GMES, INSPIRE and GEOSS initiatives through their concerted adoption of standards, protocols, and open architectures.
- How does this help users?

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User Scenarios set the scene

- Two user-oriented scenarios suitable to demonstrate interoperability across the initiatives of GIGAS.

- Biodiversity - Cross-Initiative Scenario
  - Predict how biodiversity will change with climate
  - Use of services and data to research change in species distribution
- Disaster Response - Cross-Initiative Scenario
  - Disaster management, meteorology, hydrology, and emergency response agencies
  - Use of services to respond to an response to a flooding event

- Identify how users can utilise resources from the initiatives

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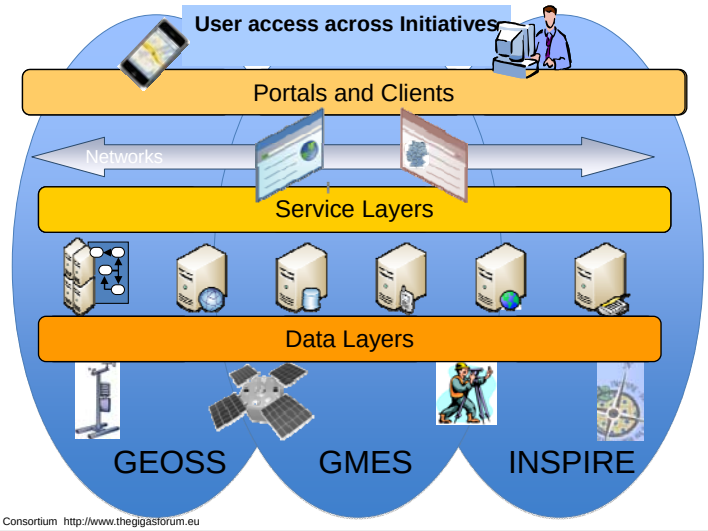
GIGAS Initiative approaches are similar



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Biodiversity Scenario Data Products

INSPIRE	Geoland-2	GEOSS
III-19. Species distribution		Biodiversity data e.g., GBIF
III-7. Environmental monitoring facilities		GEO BON biodiversity observations
		Tailored climate products
III-17. Bio-geographical regions III-18. Habitats and biotopes	Biogeophysical Parameters (BioPar):	
II-2. Land cover, III-4. Land use III- 3. Soil	Seasonal & Annual Change Monitoring (SATChMo): CIS Spatial Planning:	Global Land Cover
I-9. Protected sites III-11. Area management/…		
I-3. Geographical names, I-4. Administrative units II-3. Orthoimagery		

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Disaster Management Scenario Data Products

INSPIRE	G-MOSAIC	SAFER	GEOSS
I-3. Geographical names, I-4. Administrative units I-8. Hydrography II-2. Land cover II-3. Orthoimagery		**Reference map**.	
III-12. risk zones III-10. Population III-8. facilities	**Crisis Preparedness and Planning** 13. Contingency plan preparation		Tailored climate products
	Crisis management 14. Terrain analysis and mobility assessment 15. Logistic and deployment operations	**Assessment maps:** Generated and delivered in rush	
		Thematic maps: Plain flood RM service Flash flood RM service	EFAS GFAS-Streamflow HEPEX International Charter
III-2. Buildings; III-3. Soil; III-4. Land use III-9. Agricultural and aquaculture facilities III-18. Habitats and biotopes; III-20. Energy resources; III-21. Mineral resources	**Damage Assessment and Reconstruction** 16. Post-conflict Damage assessment 17. Support to post-conflict reconstruction		
II-1. Elevation			Global DEM
III-14. Meteorological			Chinese Met.

Comparison of Services

INSPIRE	GEOSS	geoland-2 SDI
Registry Service	Catalog/Registry Service	Discovery Service
Discovery Service	Catalog/Registry Service	Discovery Service
View Service	Portrayal and Display Services	View Services: WMS
Download Service	Data Access	Download Services: WFS, WCS, FTP Push/Pull, satellite multicast
Transformation Service	Data Transformation Services	(anticipated)
Invoke SD Services	Service Chaining and Workflow	(anticipated)
	Sensor Web services	
	Event Handling	
(Download Service)	Ordering Services	Ordering Services
	(anticipated)	User Management Services

- Service Taxonomies not yet defined for SAFER and G-MOSAIC

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GIGAS Comparative analysis leads to greater interoperability across initiatives

- Alignment of Service taxonomies across initiatives will enable higher reuse of services across initiatives.
- Data availability increases with access across initiatives
  - Not all data themes are present in each initiative
  - Differences in terminology degrades interoperability.
- Commonality of engineering components supports reuse
- Implement Cross-Initiative Scenarios in GIGAS Persistent Testbed
  - Analysis without implementation does not provide benefits

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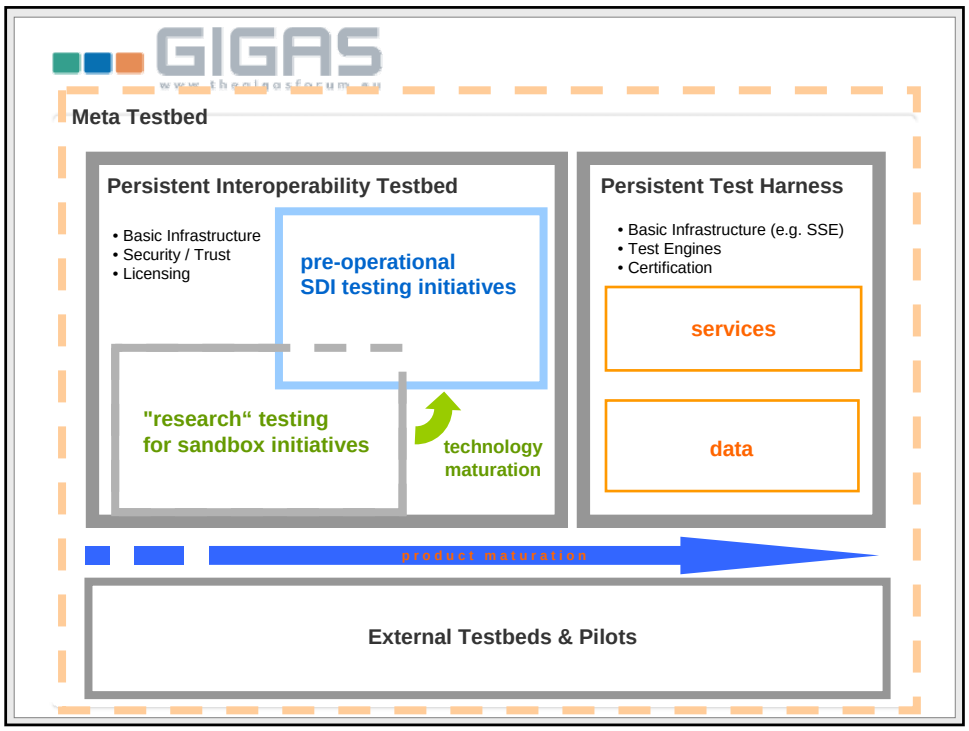

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User Scenario's conclusions

- User scenarios benefit from interoperability across initiatives.
  - Access to additional data
  - Basic SoA approaches are similar
  - Initiatives could benefit from adopting similar approaches
- Differences between initiatives impedes interoperability and usability
  - Difference in data themes; service types; component types
  - Difference in current state of development: Design's rapidly changing
  - Uniform architecture of INSPIRE and GEOSS aids development
- Scenarios are defined sufficient for implementation planning
  - Need to link with Business Plan and Testbed Plan for implementation

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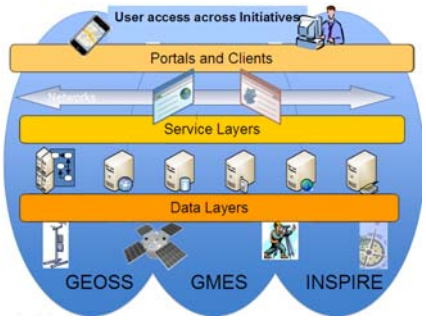
How does this help users?

- Portals search resources over different initiatives
- Transparant and interoperabe access to additional data
- Better reuse of services among different initiatives
- Development of user applications using resources from different initatives



GIGAS Approach

- Technology Watch & Comparative Analysis
- Concensus process and Shaping activities