



The GEO User Requirements Approach to Achieving Societal Benefits

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Terms of Reference- GEO User Interface Committee

Goal

- **To engage users** in the development and implementation of a sustained GEOSS that **provides the data and information** required within and among the nine societal benefit areas **as specified by user groups** on national, regional and global scales

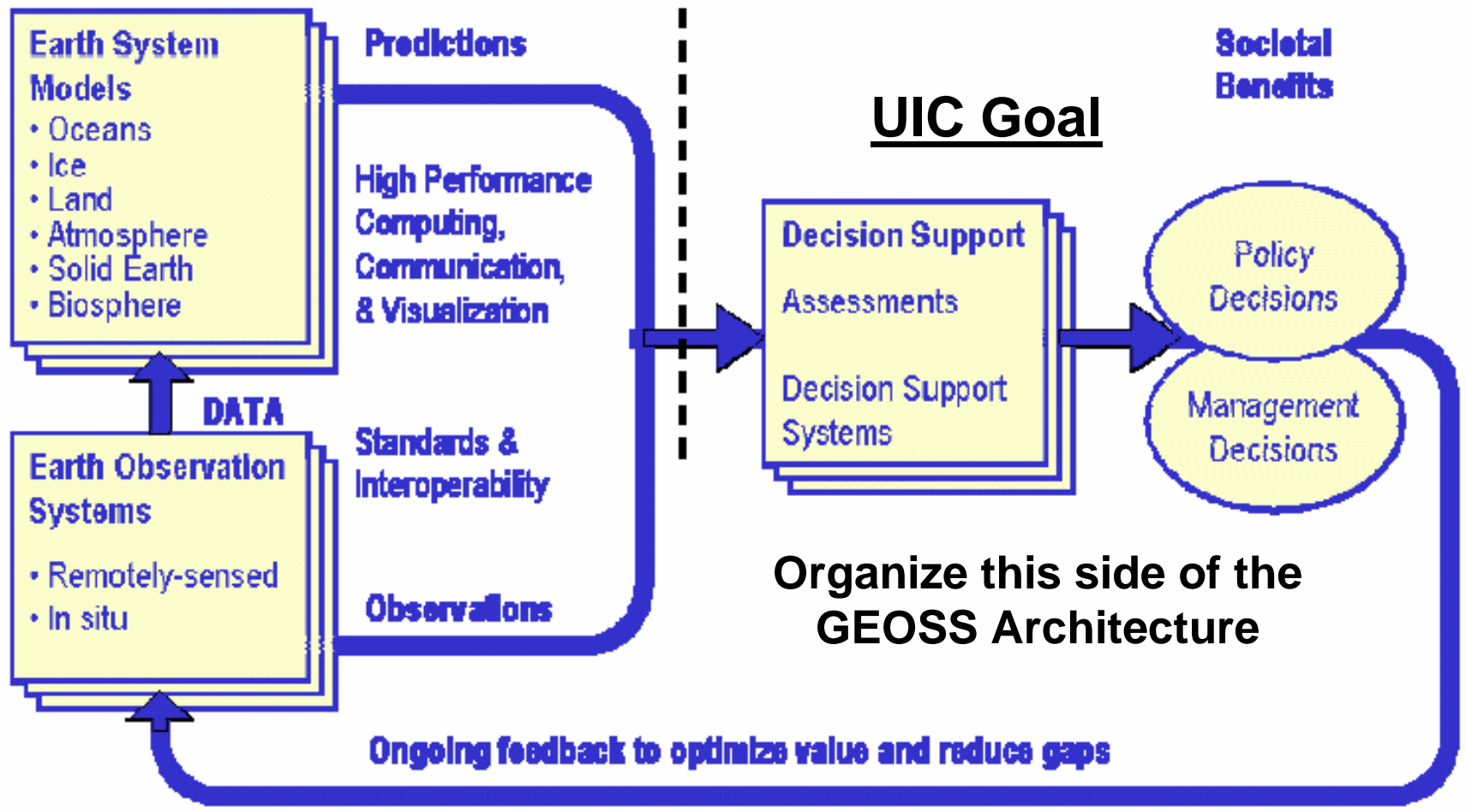
*Also a specific goal to address cross-cutting issues and oversee the **Communities of Practice (CPs)**, ensuring continuity & avoiding duplication.*



The GEOSS Architecture



Users and Scientific Communities Served By
GEOSS Common Approaches Systems within their Mandates





GEO TASK US-06-01

Establish a GEO process for identifying critical Earth observation priorities common to many GEOSS societal benefit areas, involving scientific and technical experts, taking account of socio-economic factors, and building on the results of existing systems' requirements development processes.



UIC Meeting August, 2007

A Process for TASK US-06-01



The User Requirements Gathering Processes

- **Presentation by Dr. Lawrence Friedl**

User Needs and System Performance Utility (UNSPU) Proposed Functional Specifications

- **Presentation by Dr. Hans-Peter Plag**



The User Requirements Gathering Processes



- **A 2-year timeline of US-06-01 activities .**
- **How an “Advisory Group” and an “Analyst” will work together to develop the priorities within each SBA. The analyst will be the primary coordinator and organizer of the activity to meet the schedules, and will interact with and utilize the Advisory Group for each SBA.**
- **UIC’s Refined Process in nine steps.**
- **Explanation that the process “harvests” observation needs expressed in existing documents.**



The Nine Steps for US-06-01

- 1: For each SBA, UIC Members identify Advisory Groups & Analysts who identify/develop the following
- 2: Scope of topics for the current priority-setting activity
- 3: Existing documents on observation priorities
- 4: Analytic methods and priority-setting criteria
- 5: Priority observational needs from documents & interviews
- 6: Combine the information & develop a preliminary priorities report
- 7: Gather feedback on the preliminary report
- 8: Perform any additional analysis
- 9: Complete the report on Earth observation priorities



"WHAT?"

A User-focused Architecture

Earth system

- Quantities

User Requirements:

- Users
- Applications
- Requirements
- User <--> Applications
- Applications <--> Requirements

<--> = linkages

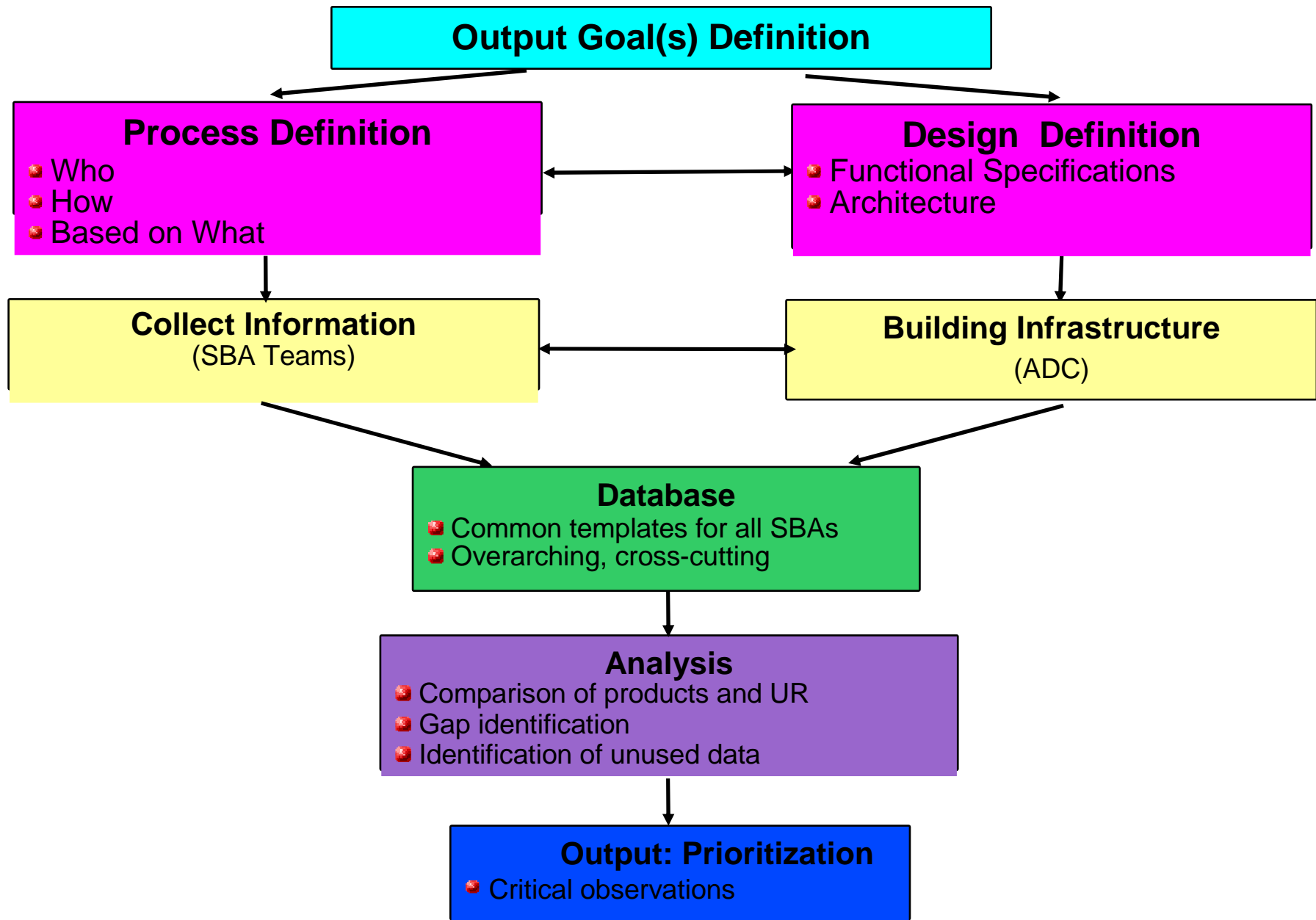
System Performance:

- Techniques
- Observations
- Products

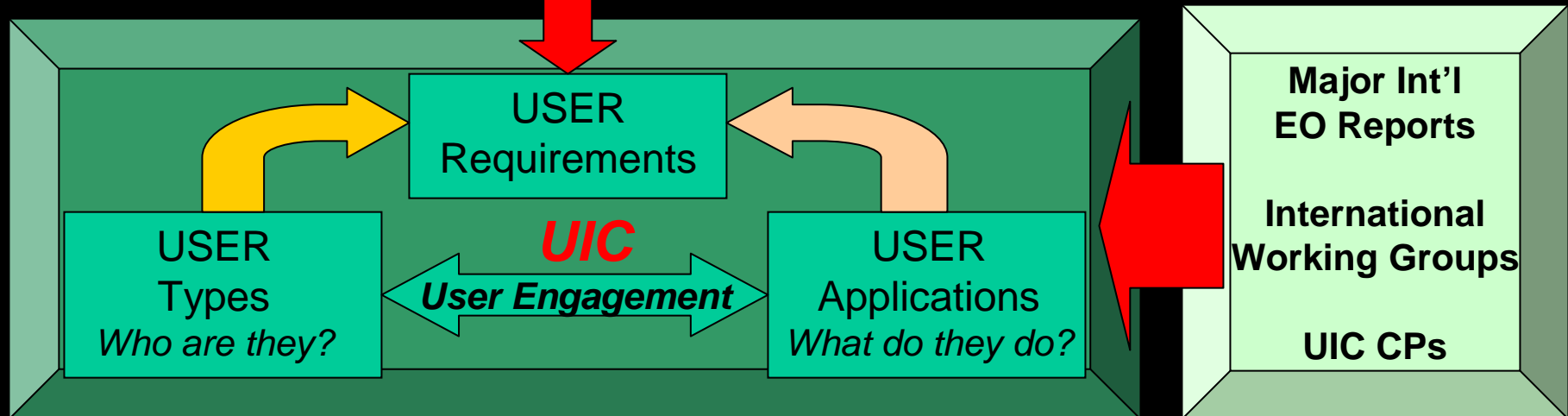
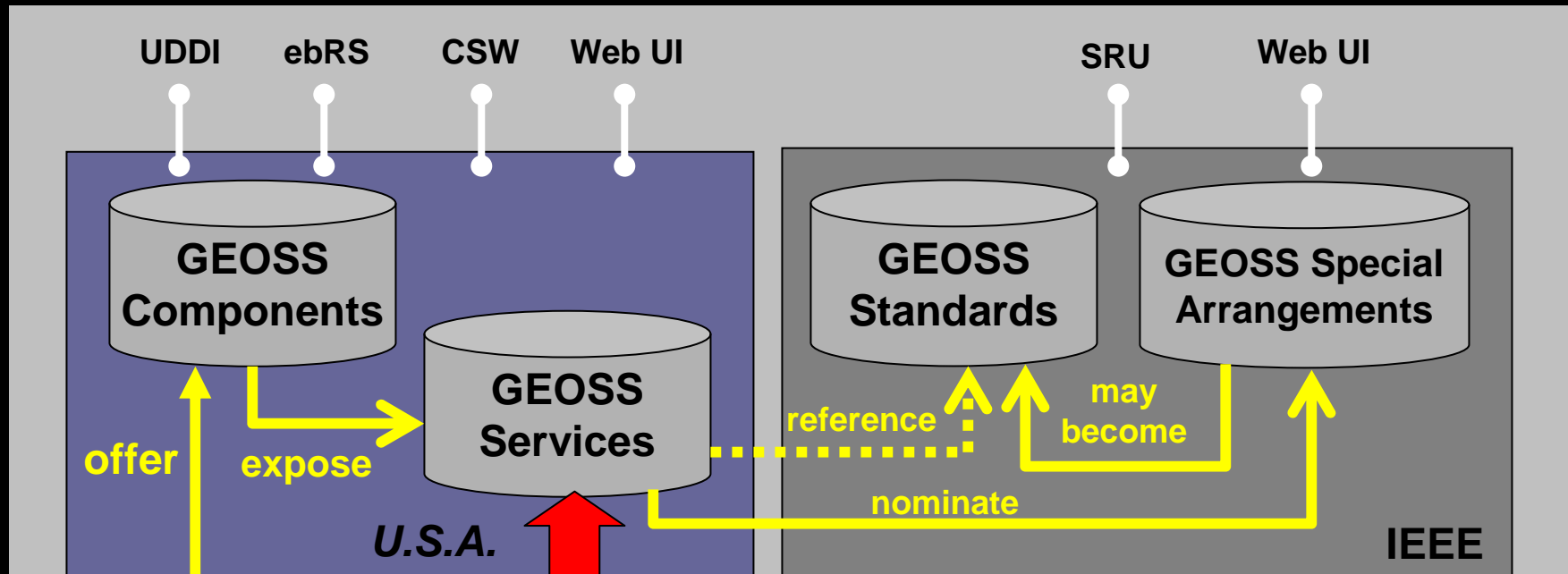
Links:

- Observations, Products, and Requirements are linked through Quantities

User Requirements in Support of System Design



GEOSS Registries





UIC Objectives

- Enable GEO to address in a systematic, targeted, focused and comprehensive way the needs and concerns of **a broad range of user communities** in developing and developed countries, across issues and trans-disciplinary needs, with a particular focus on fostering new or less organized communities.
- Enable GEO, in the implementation of GEOSS, to engage **a continuum of users**, from producers to the final beneficiaries of the data and information
- Facilitate linkages and partnerships between established **CPs** and **new user groups or organizations** interested in collaborating.



THE SPECTRUM OF USERS



From observations

Earth observations & earth system models

Data-to-Information archiving & services

Decision support tool development

Decision making

Assessment of benefits

To societal benefits

Requirements well known

Earth system scientists and modelers

Earth system service providers

Environmental process modelers & researchers

Policy Makers & Environmental managers

Public officials, advocacy groups and the Public

Not aware that observational Requirements are even needed



How to Approach Users in the Lower Half of the Spectrum



- **What do they do** in their occupation and what does their organization do? Is there a web-site?
- How would they describe **their more important activities**? What are those of their organization?
- What **decision-making are they involved in**, either **directly or indirectly** by providing research or decision support tool development?
- What **impact/benefits result** or might potentially result **from this decision-making**, including the expected timeframe of the impact/benefits? Does the organization measure the impacts/benefits?



How to Approach Users in the Lower Half of the Spectrum



- **Does your organization** operate a system or systems that **collect observational data**, either in-situ or remotely sensed? Describe these systems. Are they part of a larger system?
- What **observational data**, **geographical data**, **socio-economic data** and/or **models/forecasts**, if any, **are used in the decision-making** or the indirect support to the decision-making
- **What** are the needs for additional information that **could improve the decision-making** or the indirect support to the decision-making?
- What regional or international working groups are you a member of or on the mailing list of?



Communities of Practice

A user-led community of stakeholders, from providers to the final beneficiaries of Earth observation data and information, with a common interest in specific aspects of societal benefits to be realized by GEOSS implementation.

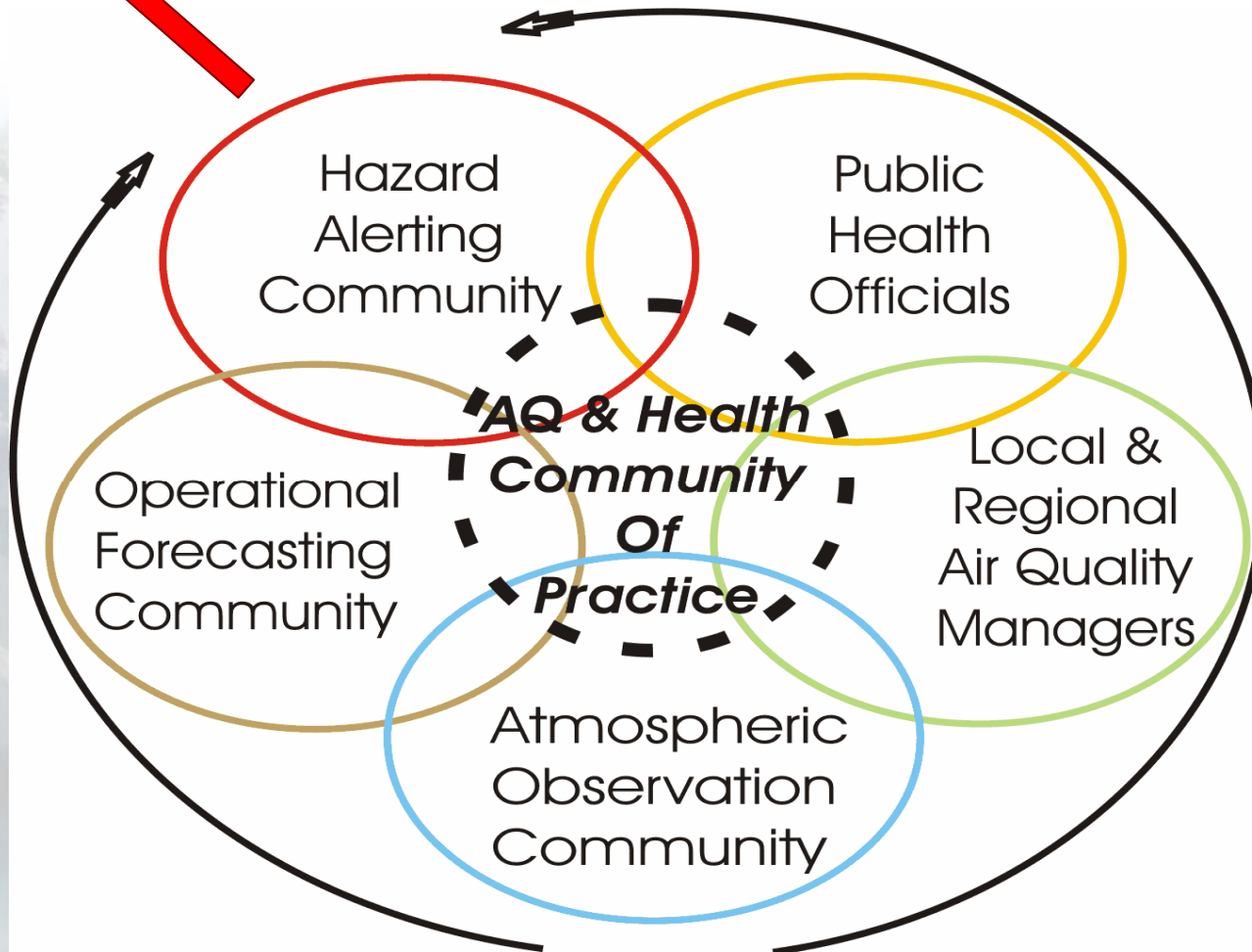
The Communities of Practice will be self organized and will include stakeholders required to achieve benefits.



An Example Community of Practice

Air Quality & Health

The Public





Registering User Types

Air & Health CP *Examples*

The Air Quality Managers

- Air Quality Index operations
- Air Quality monitoring and regulatory officials
- Regulated industrial groups
- Traffic planning & highway management groups
- Forest & agricultural fire management officials
- AQ researchers
- AQ management decision support tool developers

- The Public Health Officials
- Public Health outcome officials
- Hospital & Emergency Room management groups
- Epidemiologists
- Medical Practitioners treating sensitive sub-populations
- Asthma, birth defect and cardiovascular disease researchers



Registering User Applications Air & Health CP *Examples*

- Global NO₂ monitoring by SCIAMACHY and ROSE model
- Air Quality Indices
- PREV'AIR air quality forecasts
- PROMOTE applications
- SMOG alerts for AQ episodes, EnviroFlash and APNEE TU
- Fusion of AOD with ground-based data to provide better PM_{2.5} information to AQ and health researchers
- The Public Health Air Surveillance Evaluation (PHASE) Project
- A Health-based AQ index
- Long-range Smoke alerts



What's Next

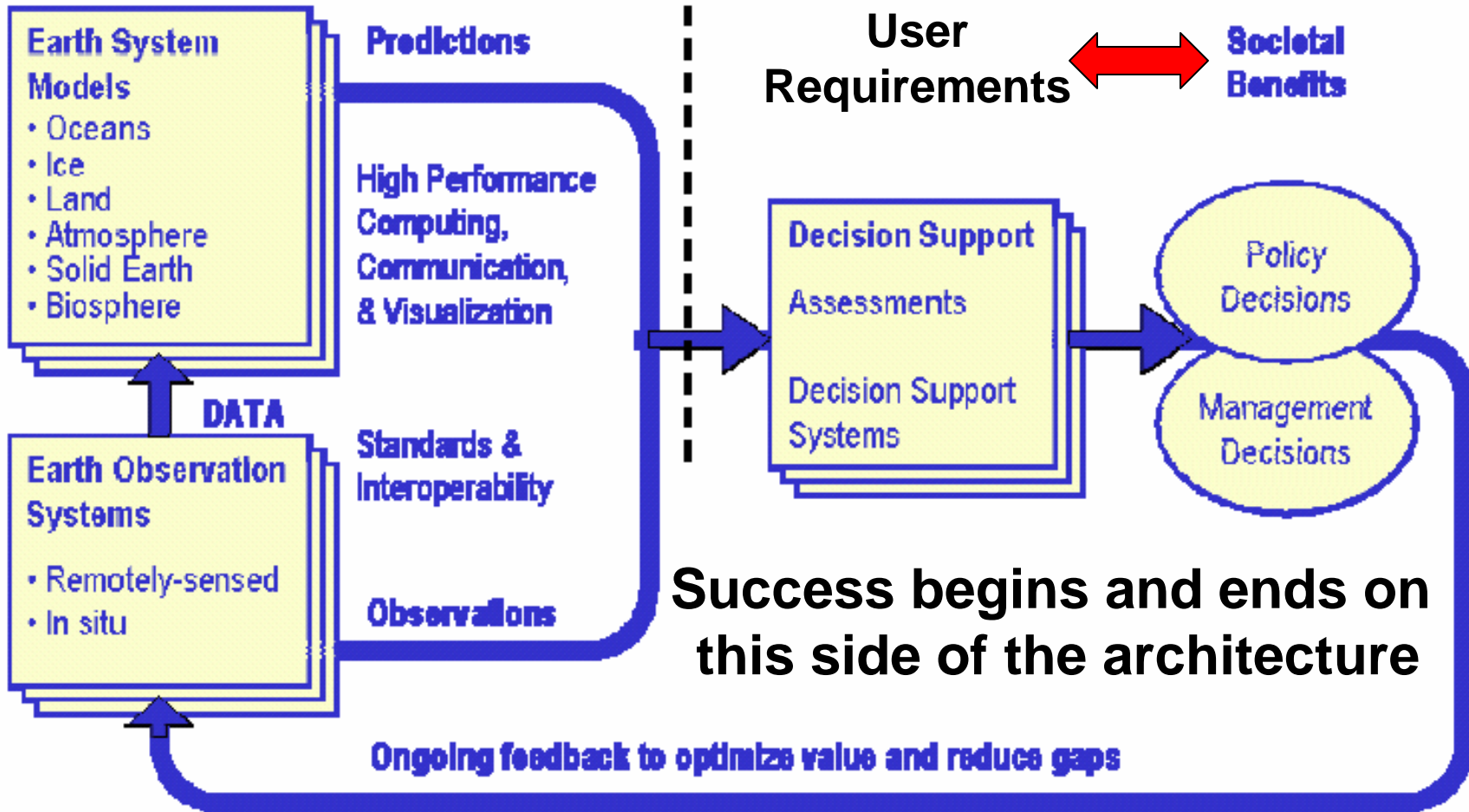
- **Completion of the first round of user requirements gathering by September 2008.**
- **With the UNUSP databases/registries filled in.**
- **Next meetings of the UIC**
 - **Boulder, Colorado, September, 2008, Co-located with ADC and C4 meetings**



The GEOSS Architecture



Users and Scientific Communities Served By
GEOSS Common Approaches Systems within their Mandates



Canada Centre for Remote Sensing

