IAP user pull strategy

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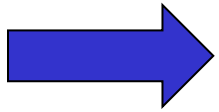
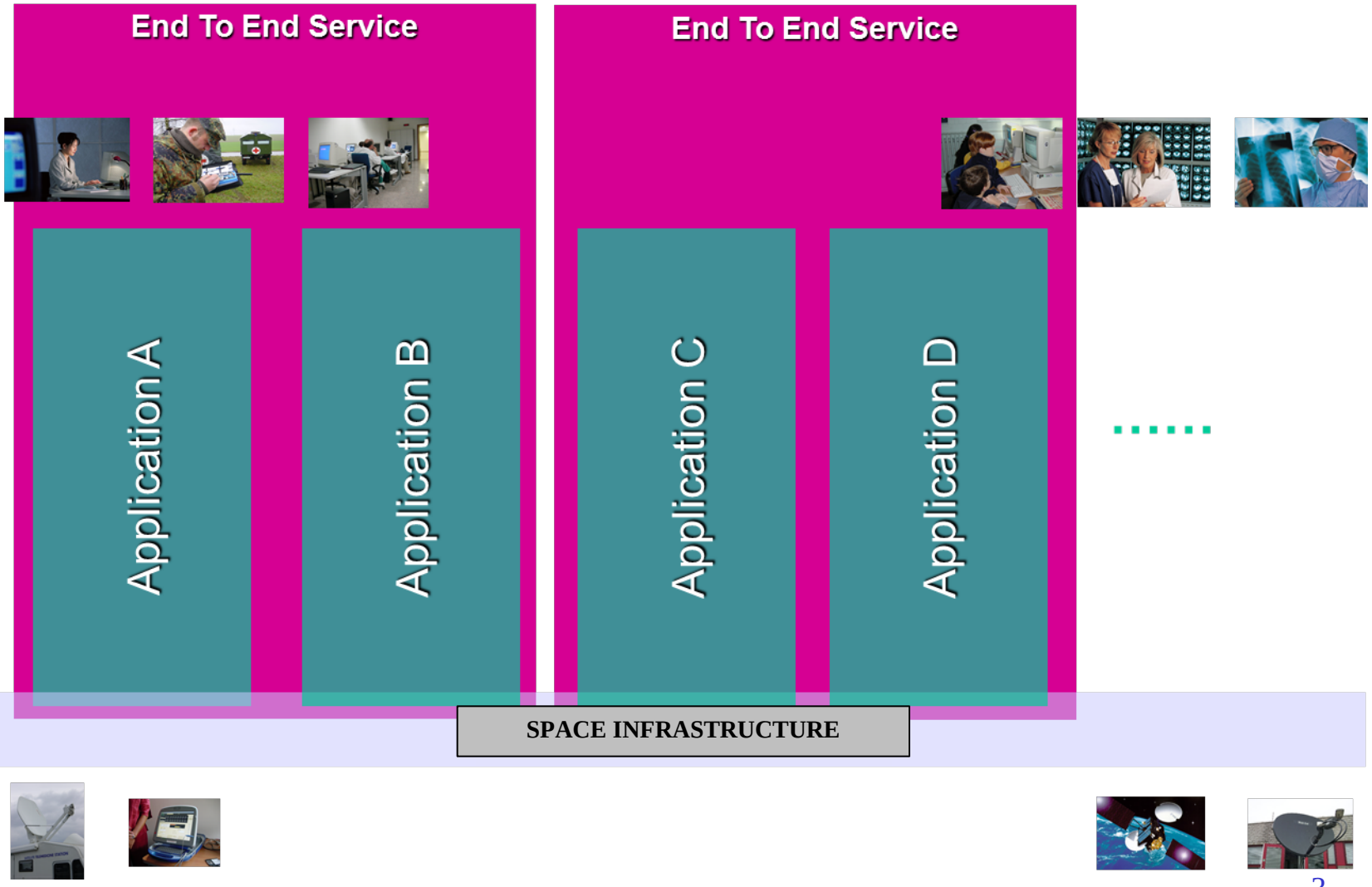
Applications are the bridge between the World of the End Users and the World of Technology

Applications represent the ultimate good for which the End Users are willing to pay the bill

END USER  **CUSTOMER**


End To End Service
End To End Service
Application A
Application B
Application C
Application D
SPACE INFRASTRUCTURE

Typically an application is the result of the availability of different components in addition to the space assets, examples:

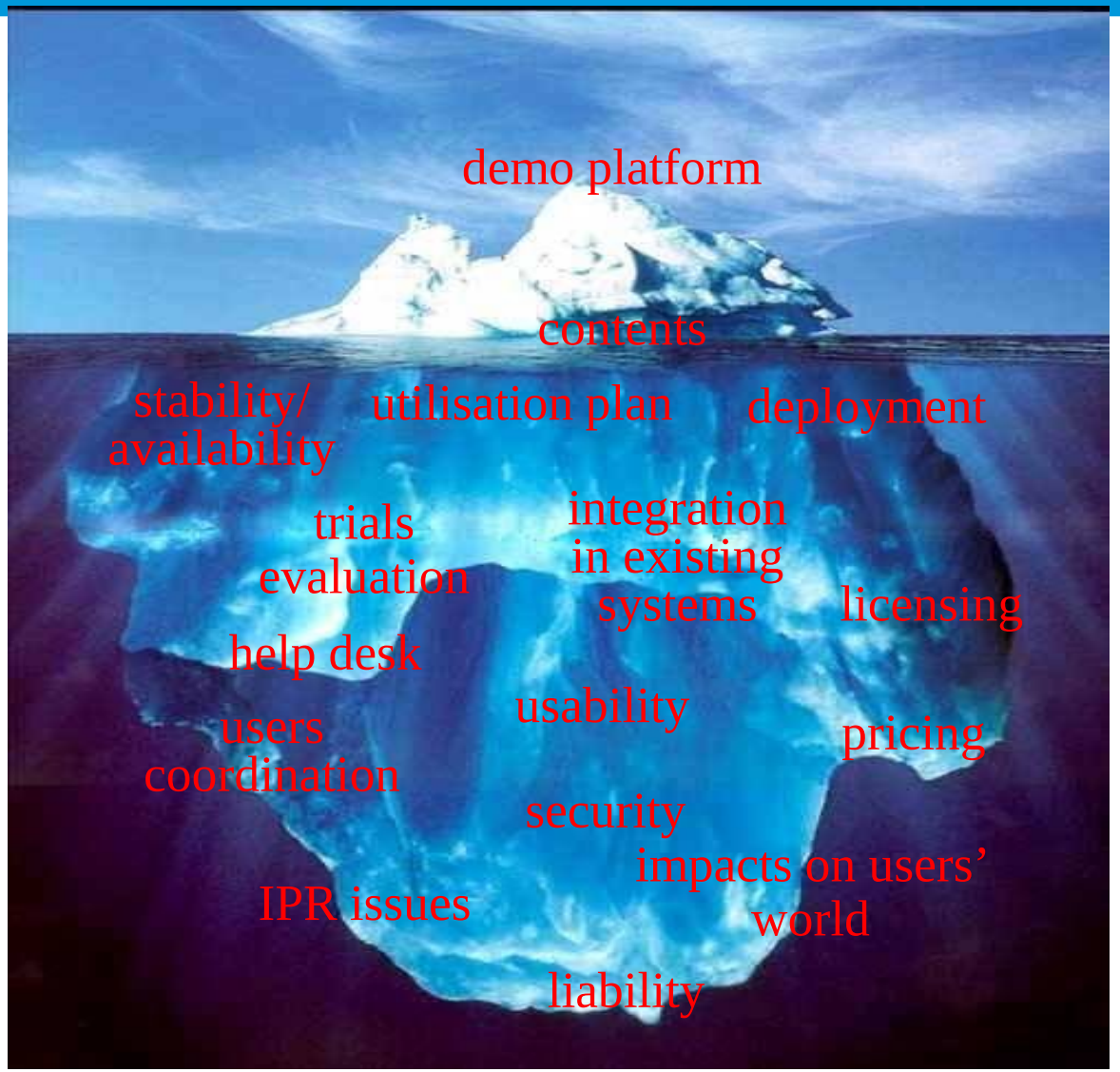
- User Terminal
- Additional functions at User level
- Application software and Man Machine Interface
- Local Elements (wireless communications, indoor navigation, etc.)
- Maps and GIS data
- Added values data depending by the specific application (i.e. Meteo)
- Certification and/or regulatory frame

Exploring Feasibility:

Look, it works!

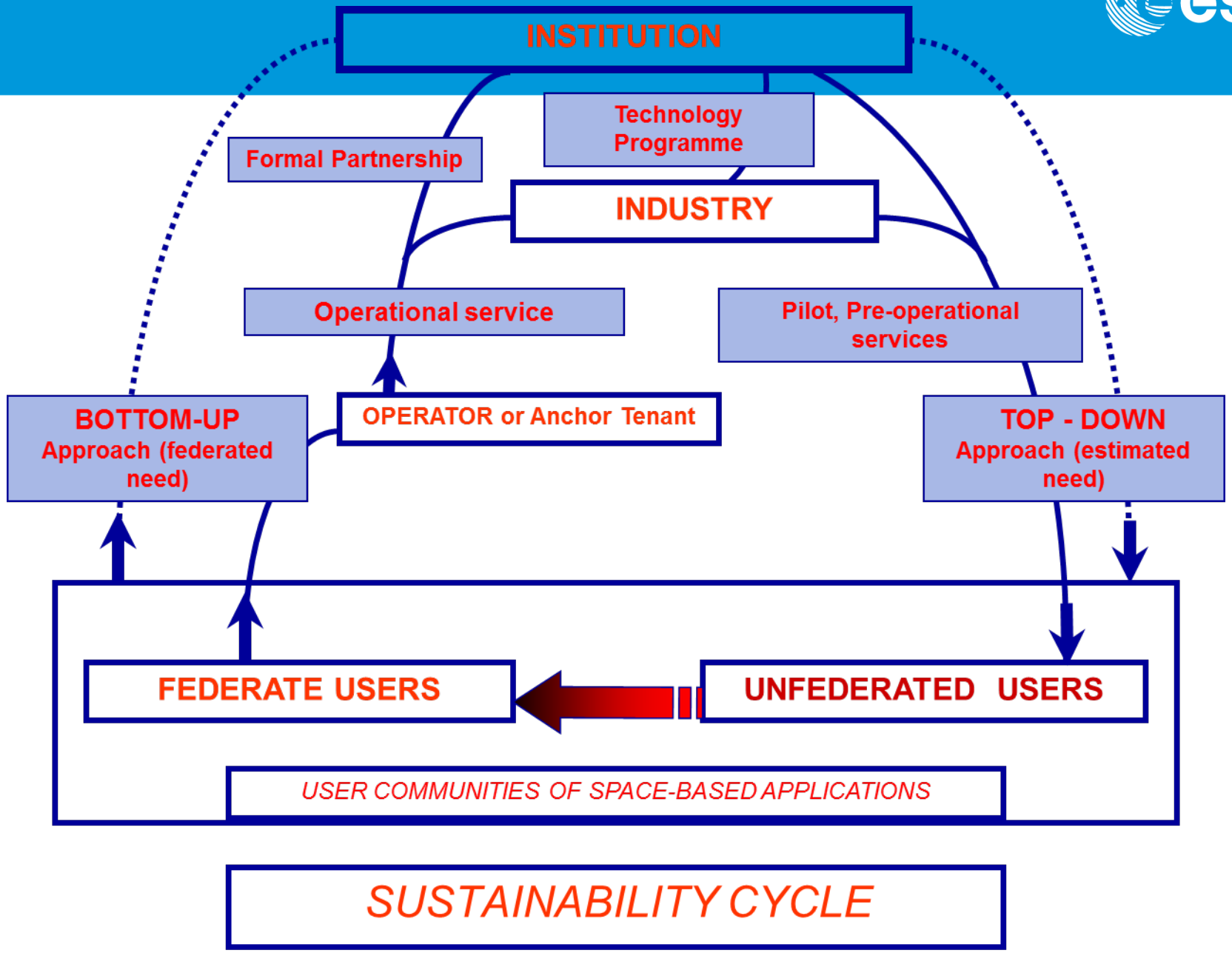
Exploring Sustainability:

Get it, it's worthwhile!



IAP programme key goals

- Identifying User Communities and their Needs
- Identifying Space Capabilities
- Informing and Educating Potential Users
- Influencing Decision Makers and Facilitating Cooperation
- Fostering and Organizing User Demand (Capacity Building)
- Paving the way for partnership agreements


INSTITUTION
Technology Programme
Formal Partnership
INDUSTRY
Operational service
Pilot, Pre-operational services
BOTTOM-UP Approach (federated need)
OPERATOR or Anchor Tenant
TOP - DOWN Approach (estimated need)
FEDERATE USERS
UNFEDERATED USERS
USER COMMUNITIES OF SPACE-BASED APPLICATIONS
SUSTAINABILITY CYCLE

Vision for realizing the goals

Prerequisite to achieving a successful IAP programme is a successful awareness programme!

Realizing the goals for IAP awareness is based on:

1. Expert opinion from the IAP Advisory Committee (IAPAC)
2. A web portal gateway to IAP
3. A network of ambassador platforms across Europe
4. Forums, Call for ideas, thematic Workshops, etc..

What is a Space capacity ?

- Access to a coherent set of know how, Industrial capacity, and Infrastructures
  - Advanced Technology
  - Development of capacity validated through “real” programmes and in flight demonstration
  - Enabling Infrastructures
    - A launcher system and its launch base
    - An operational infrastructure and a distributed network of stations
    - Production and test facilities
- Maintenance and continuous improvement of this competitive technical infrastructure

Specificity of this European capacity

- A European asset
  - High level of Integration in building up the European capacity
  - Europe in Space at the forefront of the European Integration, space as a European symbol
- Based on civilian public efforts
  - ESA as a major source of funding, very limited effort in the military field but…repartition of efforts very inhomogeneous among States
- Still vulnerable
  - Reduction of public support in major Member states
  - Industry very dependant on the commercial environment (on the contrary of the US scenario)
  - Technological dependence in some areas (subject to ITAR rules)

European Space industry is:

- around 5 Billion Euro of CA
- 30000 employs
- a large variety of equipment manufacturers and SMI involved in advanced technology rather dispersed on the European territory
- lack of critical dimension in several technology field (vulnerability)

Development of space based applications

- Design, development and operation of space based applications are fully dependant on the availability of this European capacity
  - There is only one Space industry
  - Technology is very often dual
  - Launchers and space platforms are common assets for both civil and defence actors to a large extent

ESA background for IAP Arctic applications

- Space Communications and Data Relay
- Earth Observation, including Meteorology, Oceanography, 2D and 3D Cartography, and extending to advanced remote sensing techniques
- Positioning and Navigation Aid
- Scientific knowledge and data on earth physical parameters

Key space asset features:

- Excellent positioning for communicating and observing
- Not constrained by sovereignty
- Resilient
- Limited human engagement
- Complementary to other assets

ESA dedication to IAP Arctic applications

The combination of several space-based systems provides an outstanding capacity to manage number of situations as already experienced in the following domains:

- Search and Rescue
- Positioning and Navigation Control
- Disaster warning and management support
- Natural risks assessment and monitoring
- Humanitarian survey and remote assistance

ESA has the skills and many in-orbit capacities to demonstrate the viability and efficiency of new services in a pre-operational manner, thereby addressing all technical and user requirements of planned operational systems.

CONCLUSIONS

- The development of IAP applications presents a considerable opportunity for increasing the market pull of existing space infrastructures

- Today's event has the ambition of strongly enhancing the awareness action in the **Arctic** region

- ESA IAP team will facilitate tangible user driven projects of direct interest for the Arctic user community