COPERNICUS CONFERENCE - Bucharest - October – 2016; GEO-CRADLE Conference- Sofia – March - 2017
The future of Copernicus: extension and expansion
ASDE – ECOREGIONS & Bulgarian Office for Earth Observation-COPERNICUS presentation

HOW TO BENEFIT FROM COPERNICUS IN A GLOBALISED WORLD?

d. arch. Kristian Milenov - CEO of ASDE;
Secretary of IMWG/R-94/20.04.2015

To the attention of the EP, EC, CER, ESA, EEA, DTP …. And all FP, INTERREG and HORISON 2020 projects , declaring support to the CURRENT AVAILABLE knowledge based management and user-oriented operational capacity.

Note: Due to the importance of the proposed actions this presentation will be presented to other high-level international workshops, having as a priority cooperation in integrated risk, territory and data management;
Big Data and Cloud Computing – obviously;

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COPERNICUS CONFERENCE - Bucharest - October – 2016
The future of Copernicus: extension and expansion
ASDE – ECOREGIONS & Bulgarian Office for Earth Observation-COPERNICUS presentation

A. MACRO-REGIONAL STRATEGIES OPERATIONAL CAPACITY ON REGULAR MONITORING OF LC/LU FOR INTEGRATED RISK AND TERRITORY MANAGEMENT, using integrated SDB – remote (images from COPERNICUS) and in-situ data;

B. USING HARMONISED (EU DIR.–INSPIRE) AND ISO 19144-2 BASED SMARTCOVER INTEGRATED SDB + HIGH PERFORMANCE COMPUTING AND BIG DATA ENABLED APPLICATIONS (based on the IPCEI-HPC-BDA initiative capacity ; inlc. the JRC EARTH OBSERVATION DATA AND PROCESSING PLATFORM)

d. arch. Kristian Milenov - CEO of ASDE; Secretary of IMWG/R-94/20.04.2015

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TARGET 1: Strengthening EU macro-regional resilience in a globalized world – EU regional integrated risk&territory centers network– proposal from IMWG/BIOG/ASDE-Bulgaria

THE FIRST PAN-EUROPEAN TRANS-BORDER RESILIENCE RING/NET – maximizing COPERNICUS impact - SOUTH EAST EUROPEAN RISK AND TERRITORY REFERENCE DATA AND SERVICES INFRASTRUCTURE (INTEGRATED BIG DATA, HIGH PERFORMANCE COMPUTING, PREVENTION ANALYSIS/GAMIFICATION AND REGULAR MONITORING) – currently Trans-border reference SDB and SmartCover Architecture geo-portal for Bulgaria and Romania; next step – Bulgaria-Macedonia, Bulgaria-Serbia, Bulgaria-Greece and Bulgaria-Turkey); Possibility to include also Moldova and Ukraine; Third step –Danube region countries; Forth step ......

Improving governance and getting stakeholders more involved in accordance with the Smart Specialization Strategy of the EU

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TARGET2: Possibilities for EU-CHINA cooperation on EARTH OBSERVATION integrating COPERNICUS data with GlobeLand project
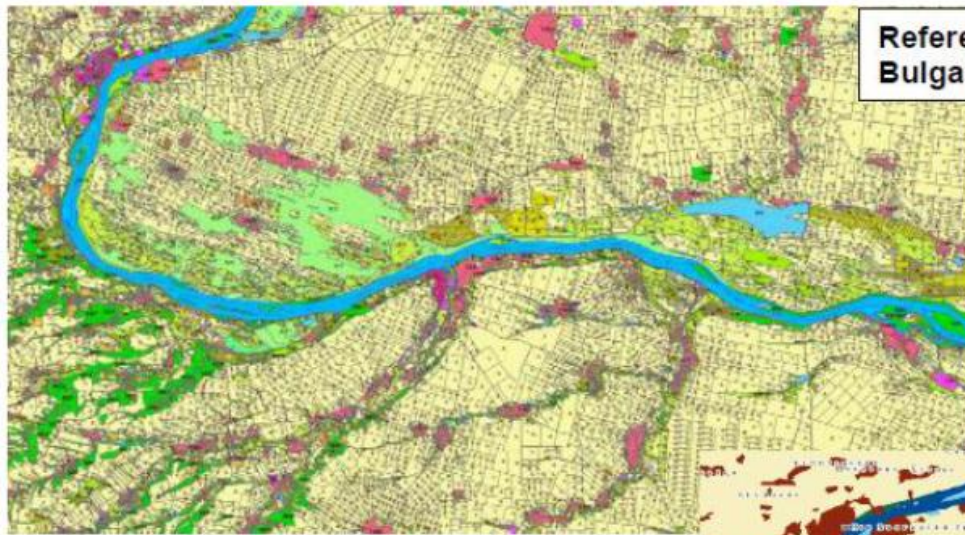
Reference Land Cover - CBC project SPATIAL – Bulgaria –Romania –Danube region-Europa

• China created a land cover dataset for the whole world based on Landsat data – GlobeLand 30 project – global SDB
• ASDE elaborated reference land cover dataset for the cross-border area of Bulgaria and Romania – CBC project SPATIAL – detailed SDB

Project GlobeLand 30-China
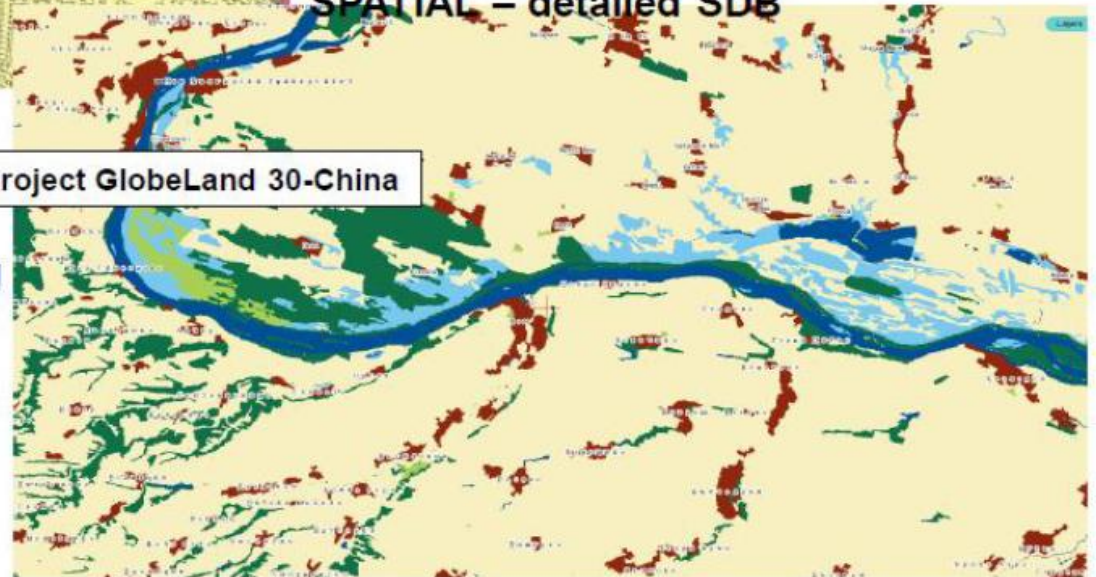
• Product comparison undergoing
• Initial discussions conducted with the National Geomatics Center of China and ISPRS Secretariat

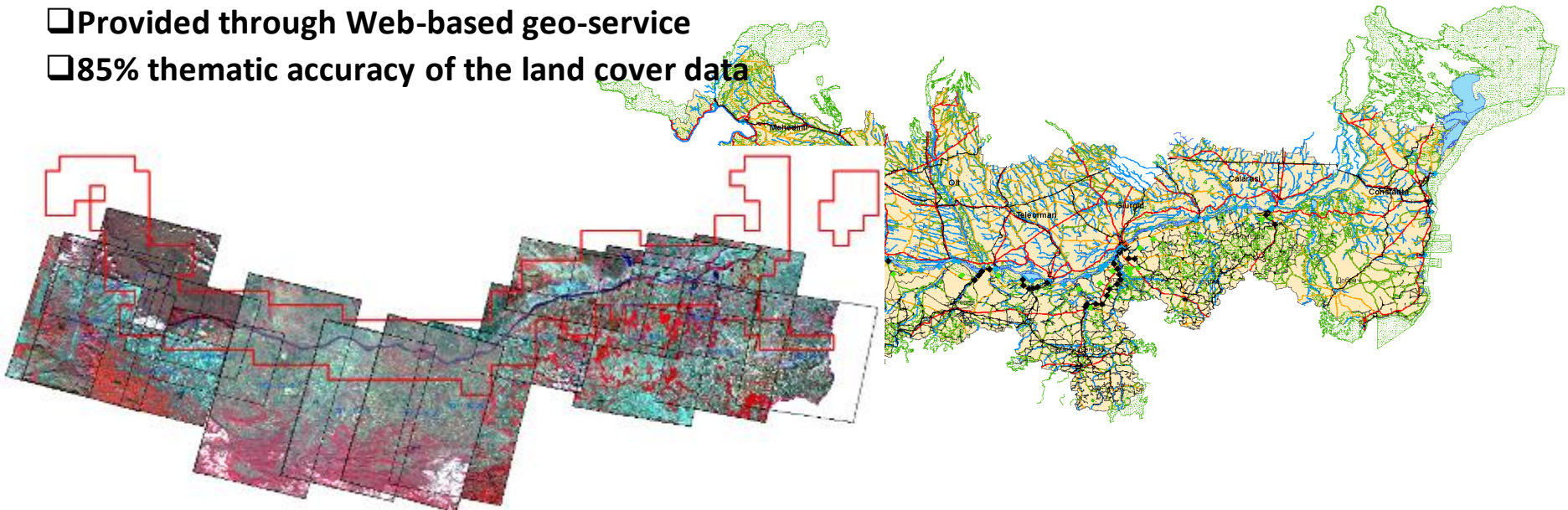Bucharest, Romania; Palace of the Parliament; Sofia, Bulgaria; BAS

A.1 Operational capacity ON regular monitoring oF LC/LU for integrated risk and territory management, using integrated SDB – remote (images from COPERNICUS) and in-situ data;

EXISTING SMART INNOVATIVE TOOLS AND OPERATIONAL CAPACITY

Proposal for enlargement of the Common Strategy - BG-RO for the Danube region

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A.2. Operational capacity ON regular monitoring oF LC/LU for integrated risk and territory management, using integrated SDB – remote (images from COPERNICUS) and in-situ data;

SPATIAL flagship project deliverables:

Two adjacent spatial datasets for the Bulgarian and Romanian part of the cross-border cooperation (CBC) project area

❑**Both national SDB various thematic layers fully interoperable following the INSPIRE principles**

❑**Reference LC/LU layer based on ISO 19144-2 and COPERNICUS satellite images (ESA contribution) , for the needs of regular monitoring of changes**

❑**Common specification ensuring efficient cross-border analysis and reporting**

❑**Classification coherence ensured by the use of standardized semantic language**

❑**Provided through Web-based geo-service**

❑**85% thematic accuracy of the land cover data**
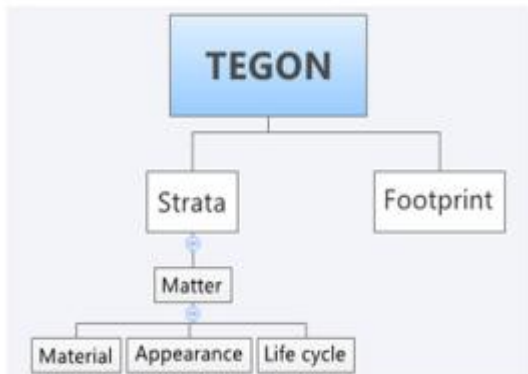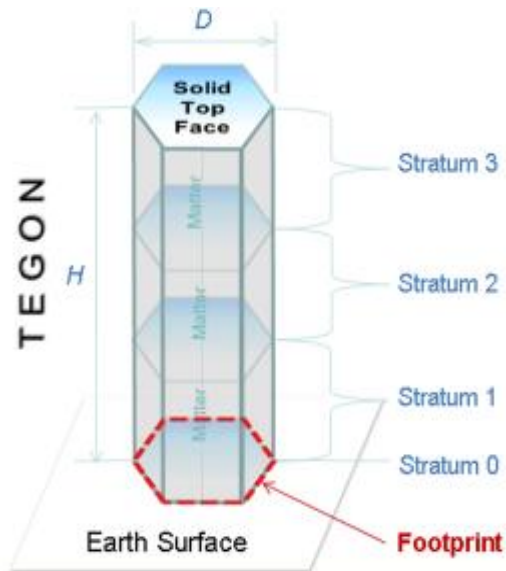

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A.3. Operational capacity ON regular monitoring oF LC/LU for integrated risk and territory management, using integrated SDB – remote (images from COPERNICUS) and in-situ data;

TWO UNIQUE BASIC ELEMENTS, INTERPRETING FUNCTIONAL & CARTOGRAPHIC MIX

TEGON CONCEPT – JRC-IES-MARS UNIT

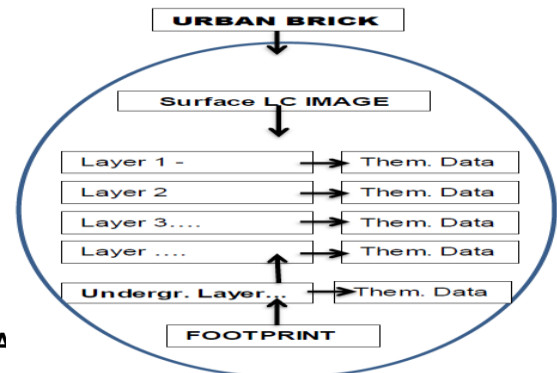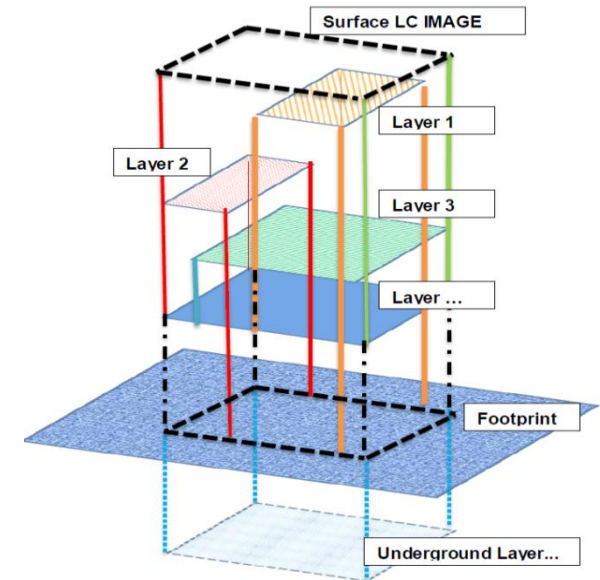### URBAN BRICK DRAFT CONCEPT – ASDE

COMMON BASIC IDEA:

1. Import LCCS Class from FAO Legend

2. Decompose the LCCS class using TEGON or URBAN-BRICK concept:
   - Analyze the presence of cartographic or functional mix
   - Filter out land use descriptors

3. Design of LC type with LCML

4. Convert relevant spatial data to the new LC type

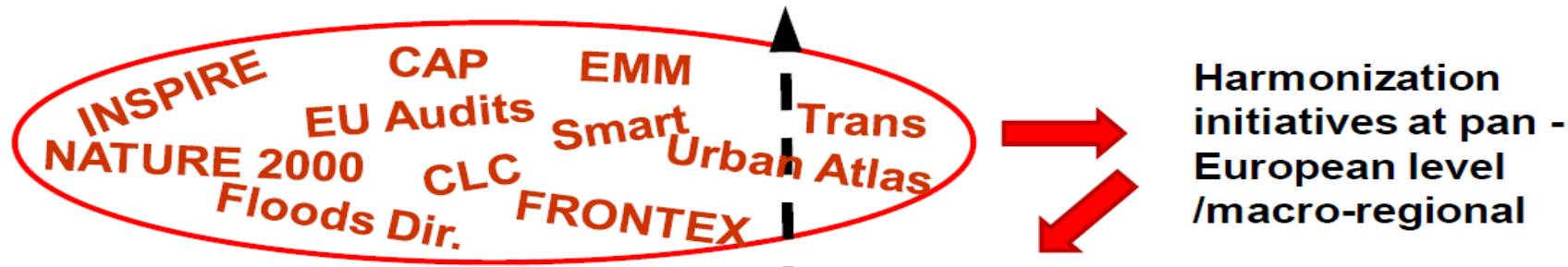mania; Palace of the Parliament; Sofia, Bulgaria; BA

A.4. Operational capacity ON regular monitoring oF LC/LU for integrated risk and territory management, using integrated SDB – remote (images from COPERNICUS) and in-situ data;

A key for Pan-European data harmonization macro-regional, national and local stakeholders needs

Harmonized and referred pan-European data for reporting, statistical analysis, risk prevention (incl. migration policy), territory management, efficient use of funds needed for local and EC services – till now not always useful for regional, national and local users

INSPIRE CAP EMM
EU Audits Smart
NATURE 2000 Trans
CLC Urban Atlas
Floods Dir. FRONTEX

Harmonization initiatives at pan - European level /macro-regional

COPERNICUS INPUT/SENTINEL IMAGES

National data Country A

Specific methodologies required for trans-border macro-regions

National data Country B

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A.5. Operational capacity ON regular monitoring oF LC/LU for integrated risk and territory management, using integrated SDB – remote (images from COPERNICUS) and in-situ data;

A user-oriented position in front of some Pan-EU observatories – ESPON, URBAN ATLAS , etc – "garbage in-garbage out"
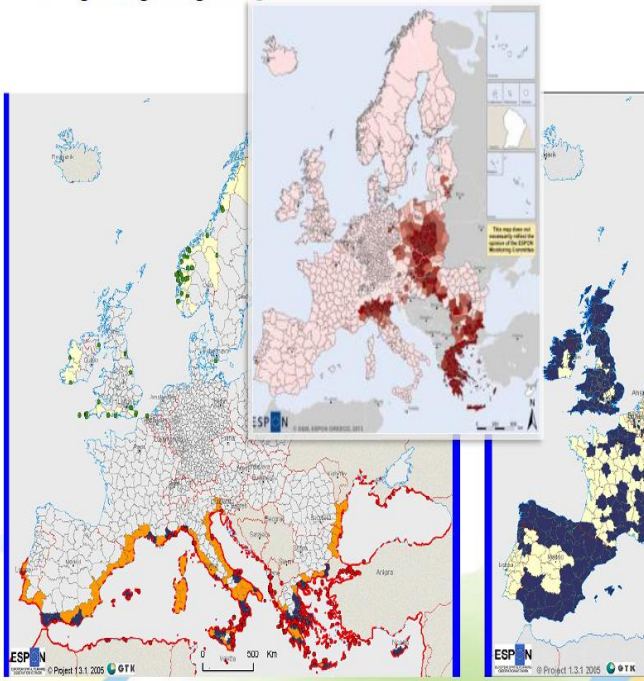

Benefits from Smartcover

- Harmonized spatial land-related databases and services for integrated risk and territorial analysis, development of common strategy and joint implementation of sectoral projects; Including **integration of COPERNICUS data, images, services**;

- Geodata container for the elaboration of comprehensive set of indicators at macro-regional level, as well as the level of NUTS 3, 2 and LAU (local administration unit).

- 'Detailed characterisation' of rural, nature and urban areas and the transitional urban/rural zones for monitoring of land, resources and infrastructure changes – **SmartCover is already used for the validation of the high-resolution layer of grassland developed in the scope of GIO!**

- Reliable Tool for impact assessment of **sectorial policy interventions and effects of EU funds expenditures**;

- System capable to provide information on future **Ecological Focused Areas (EFAs)** as part of **the EU CAP greening**, as well as **pan-European large-scale pilots**, **macro-regional policies** and even **FRONTEX** trans-border monitoring needs;

- Data support for **simulation modelling of : climate change , risk prevention of nature and anthropogenic challenges, "data mining", impact assessment of mitigation and adaptation measures**

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B. 1. Harmonised (EU DIR.–INSPIRE) and ISO 19144-2 based SMARTCOVER integrated SDB + High Performance Computing and Big Data Enabled Applications

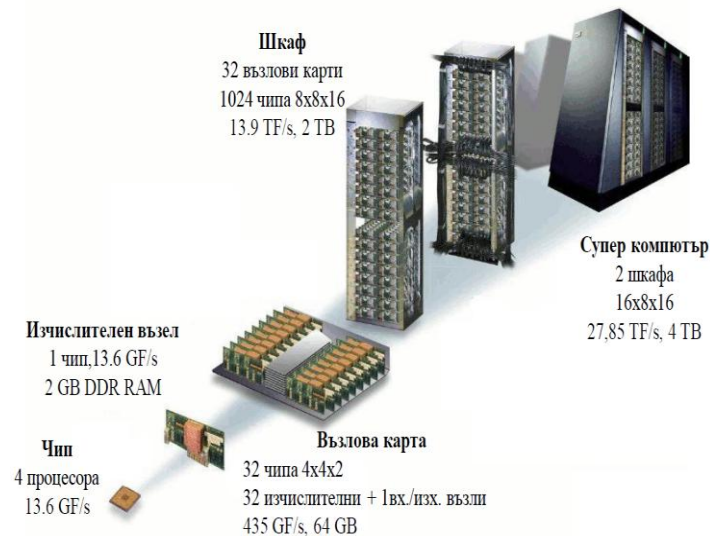Bucharest, Romania; Palace of the Parliament; Sofia, Bulgaria; BAS
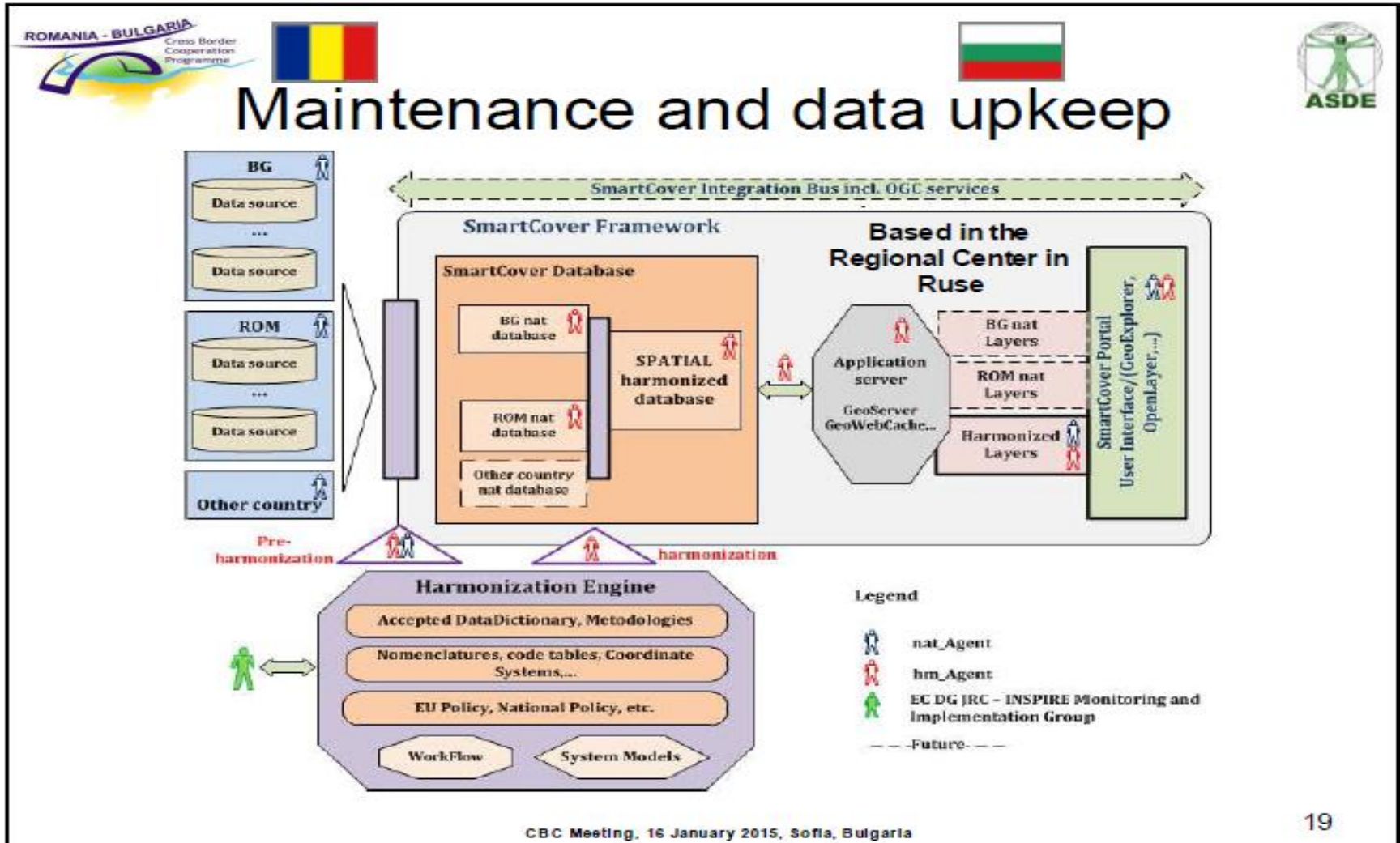
B. 2. USING HARMONISED (EU DIR.–INSPIRE) AND ISO 19144-2 BASED SMARTCOVER INTEGRATED SDB + HIGH PERFORMANCE COMPUTING AND BIG DATA ENABLED APPLICATIONS

INTEGRATED INFRASTRUCTURE – 7 SUPERCOMPUTERS – IPCEI-HPC-BDA will build on the base, established by the Partnership for Advanced Computing in Europe (PRACE) with six supercomputers in four hosting countries (France, Germany, Italy and Spain) + our proposal one supercomputer in Bulgaria.

IPCEI-HPC-BDA

PRACE

CONFIGURATION OF IBM BLUE GENE/P – Bulgaria (2008)

Шкаф
32 възлови карти
1024 чипа 8x8x16
13.9 TF/s, 2 TB

Супер компютър
2 шкафа
16x8x16
27,85 TF/s, 4 TB

Изчислителен възел
1 чип,13.6 GF/s
2 GB DDR RAM

Чип
4 процесора
13.6 GF/s

Възлова карта
32 чипа 4x4x2
32 изчислителни + 1вх./изх. възли
435 GF/s, 64 GB

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B. 3. USING HARMONISED (EU DIR.–INSPIRE) AND ISO 19144-2 BASED SMARTCOVER INTEGRATED SDB + HIGH PERFORMANCE COMPUTING AND BIG DATA ENABLED APPLICATIONS

A JOINT PROJECT - ?

Not to forget - THE ORIGINES OF EUROPE ARE THE BALKANS

Thank you!
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