THE CONTRIBUTION OF EUREF TO INSPIRE

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BACKGROUND

INSPIRE

INfrastructure for SPatial InfoRmation in Europe

LEGAL ASPECTS:

- ***Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing INSPIRE was published in the official Journal on the 25th April 2007***

- ***The INSPIRE Directive entered into force on the 15th May 2007 (http://inspire.jrc.it/directive/l_10820070425en00010014.pdf)***

TERMINOLOGY

- *infrastructure for spatial information*
  - *metadata,spatial data sets and spatial data services*
  - *network services and technologies*
  - *agreements on sharing, access and use*
  - *coordination and monitoring mechanisms, processes and procedures, established, operated or made available in accordance with this Directive*
- *spatial data*
  - *any data with a direct or indirect reference to a specific location or geographical area*

GUIDING PRINCIPLES OF INSPIRE

- *the infrastructures for spatial information in the Member States should be designed to ensure that spatial data are stored, made available and maintained at the most appropriate level*
- *it is possible to combine spatial data from different sources across the Community in a consistent way and share them between several users and applications*
- *it is possible for spatial data collected at one level of public authority to be shared between all the different levels of public authorities*
- *spatial data are made available under conditions that do not restrict their extensive use*
- *it is easy to discover available spatial data, to evaluate their fitness for purpose and to know the conditions applicable to their use*

HOW EUREF, ETRS89 AND EVRS APPEAR IN THE PRESENT INSPIRE DOCUMENTS

From Drafting Team "Data Specifications" - deliverable D2.3:

- ***The ETRS89 is an example for a coordinate reference system in Europe, which has been adopted by the European Commission (ref COGI action decision 2003 - F/GIS/69/EN).***

  It is today realised through a network of more than 200 permanent operating GNSS observing stations of the EUREF organization. This realisation not only provides static, but furthermore kinematic information of spatial referencing. This geodetic reference is widely used in continental Europe.

  Furthermore the increasing use of GPS networks incline countries to use the European system.

HOW EUREF, ETRS89 AND EVRS APPEAR IN THE PRESENT INSPIRE DOCUMENTS

- *ETRS89 and EVRS could be implemented in a spatial information system following the ISO 19111 standards with the above mentioned restrictions concerning kinematic aspects.*

- *Many national reference frames are distorted. Therefore, coordinates can only be transformed to the ETRS89 system with decimeter to meter accuracies.*

- *An example of Coordinate operations in the scope of ISO 19111 is realised through the "Information and Service for European Coordinate Reference Systems (CRS)" at http://crs.bkg.bund.de, which was established by BKG, EuroGeographics and EUREF.*

INTERACTION OF INSPIRE TEAM AND EUREF

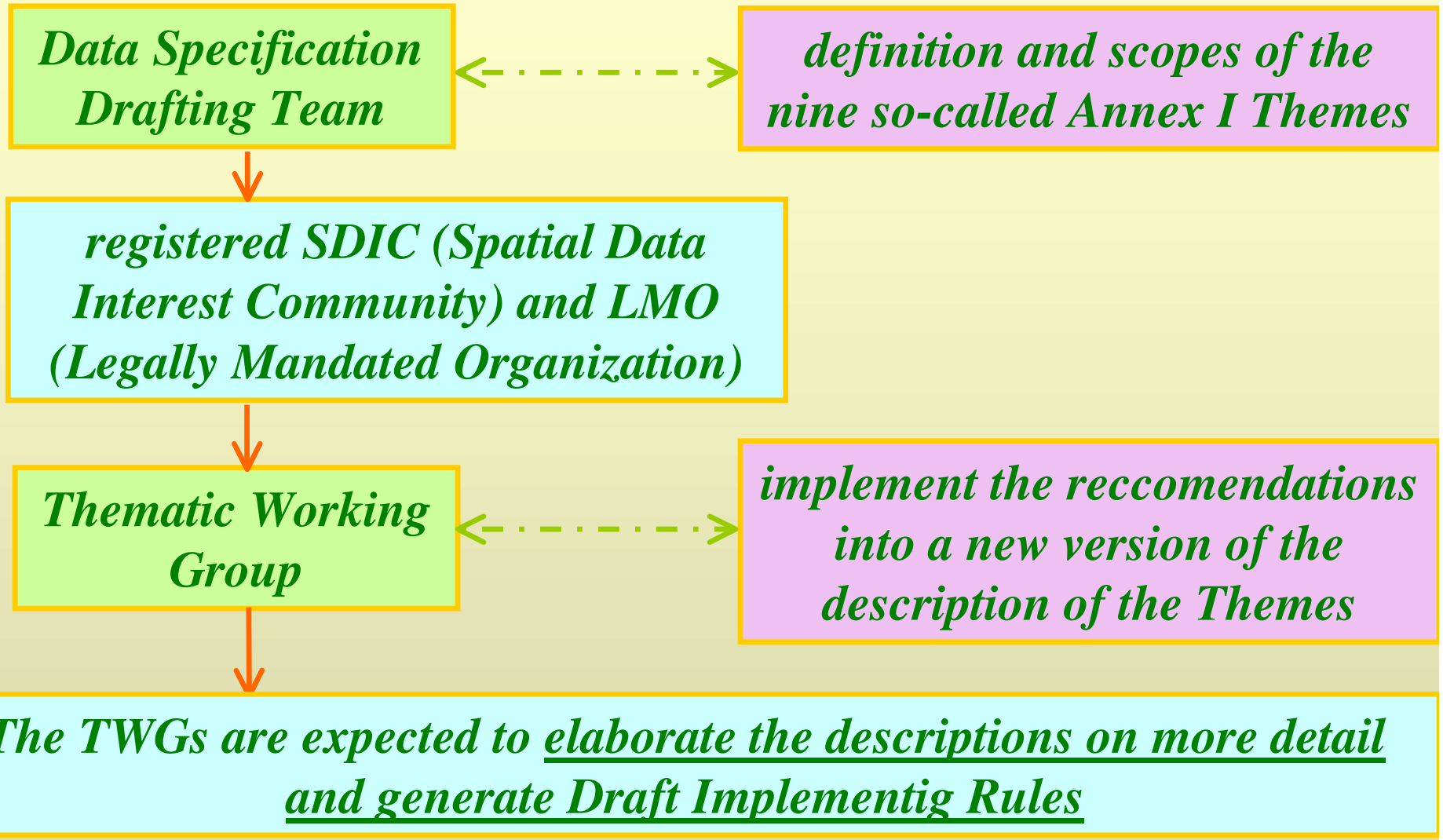
- *The INSPIRE Team envisages technical support from a maximum of 16 experts in the field of the Annex I spatial data themes (in particular, for Coordinate reference systems, Geographical grid systems, Geographical names, Administrative units, Addresses, Cadastral parcels, Transport networks, Hydrography, and Protected sites)*

- *Three EUREF/EuroGeographics candidates were accepted (Habrich, Caporali, Torres) for the Thematic Working Group 'Coordinate reference system'; this WG later absorbed the WG 'Geographical grid systems'*

INSPIRE TWG ACTIVITY

- *Inspire TWG KOM in Ispra (Italy) 14-15 February 2008*
- *Inspire Thematic TWG in Ispra (Italy) 16 May 2008*
- *Bi-weekly telecons*
- *INSPIRE Conference 23-25 June 2008 at Maribor, Slovenia*

WORKFLOW AND ASSIGNMENTS



PRINCIPLES

- ***ISO191xx very important as a scheme of data. Discussion on the final accuracy which is implied by the scheme, and which accuracy and time stability is required for the several Inspire tasks***

- ***Resolutions from IUGG, Technical specifications from IERS need to be taken into account***

- ***ETRS89 is a basis but some reccommendation must be made for portions of European states not in continental Europe, or not in 'stable' Europe. For them the tie to 'stable Europe' foreseen in ETRS89 would imply changes in the coordinates of some centimeters/yr.***

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CURRENT POSITION OF TWG - 1

- *For the horizontal component, INSPIRE will mandate the use of the European Terrestrial Reference System 1989 (ETRS89) inside the stable part of the Eurasian tectonic plate.*

- *International Terrestrial Reference System (ITRS) and other systems compliant with ITRS may be used in areas outside the stable part of the Eurasian tectonic plate.*

CURRENT POSITION OF TWG - 2

- ***For the vertical component, INSPIRE will mandate the use of the European Vertical Reference System (EVRS).***

- ***Other vertical reference systems may be used in areas that are outside the geographical scope of EVRS.***

CURRENT POSITION OF TWG - 3

- ***Member States shall publish which Coordinate Reference System they use.***

- ***In the case that other CRS than ETRS89 is used, the Member State shall publish the geodetic codes and parameters according to EN ISO 19111.***

IMPORTANCE OF USER REQUIREMENTS

- ***If a user requests only 1 m accuracy, there is no need to separate two CRSs, which differ for only 2 cm in coordinates***

- ***Depending on user requiremens (1) simple or (2) more sophisticated mathematical models need to be applied***

- ***The knowledge of user requirements is mandatory for definition of CRS implementing rules → Questionaire among all TWGs needed***

RECOMMENDATIONS TO TWG AND DT

- *TWGs should know what accuracy is required*
  - *Follow GCM, methodology and the data specification template to capture information on accuracy requirements*
    - *ISO 19131 data product specifications*
    - *ISO 19111: accuracy indicator for coordinate operation, but not for source coordinates*
    - *ISO 19113: Quality principles*
    - *ISO 19114: Quality evaluation procedures*
    - *ISO 19115: Meta data*
  - *Early information about accuracy should be transmitted to the TWG on Coref*
    - *Role of the DS DT to collect information*
  - *Accuracy should be modeled as constraints in the (UML)*

ACTIONS TO CLARIFY…

- *what is a GRS (Geodetic Reference System)*
- *how all the particular systems (linear, barometric, etc.) may be associated to geo-referenced by a GRS (examples)*
- *the need to have one and only one 3D (2D+1D) RS description to geo-reference all the information*
- *the existence within every country of a NMA (National Mapping Agency) that can provide experts and documentation on how to use a GRS for the geo-information*
- *that the principles used in the RS-IR follow the principles of the existing international standards*

MILESTONES

- ***September 2008***

  Final draft Implementing Rules

- ***15 May 2009***

  Target date for approval of IR by INSPIRE Committee

EVENTS

- *Warsaw meeting (20 May 2008)*
  - *Feedback to TWG*
- *Euref Symposium (18-21 June 2008)*
  - *Feedback from TWG to Euref*
  - *Feedback from Euref to TWG*
- *INSPIRE Conference (23-25 June 2008)*
  - *Feedback to TWG*