



EUROPEAN COMMISSION
JOINT RESEARCH CENTRE

Directorate B – Growth and Innovation
UNIT B06 - Digital Economy

**INSPIRE Community Forum
on Facilities, Utilities and Public Services
Phase 2 - 2020 activity report (Deliverable – D2)**

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1. State of play in the thematic domain

1.1. Overview / list of relevant EU Projects/technology/SW activities

In the D1 report it was highlighted that the Facilities, Utilities and Public Services thematic area is being affected by four key societal drivers and trends; decarbonization of the economy, smart cities, decentralized energy and future mobility services; the overarching of which is the decarbonization of the economy. This is key macro-level driver and that will dominate the sector going forward.

To this list I would for this report highlight the increasing move of hydrogen as a mainstream fuel. In the UK there are real world tests of hydrogen as a domestic fuel and hydrogen as a vehicle fuel is now as an equal long-term end point alongside battery technology. Hydrogen is a significant element for the energy transition as it is both an energy carrier and a storage medium with great potential for clean applications. Hydrogen is facilitating the large-scale integration of renewables, enabling grid balancing and the decarbonisation of natural gas through innovative technologies. With Hydrogen becoming more mainstream, it has become an area for future standardization by CEN.

CEN Activity on Hydrogen¹

The uptake of hydrogen as a more common source of energy in Europe cannot succeed without proper safety standards. In this context, performative research aiming at reducing barriers to the injection of hydrogen in the natural gas grid will start in 2020. This work will require expertise and feedback from several TCs dealing with gas (such as CEN/TC 234 'Gas infrastructure', CEN/TC 408 'Natural gas and biomethane for use in transport and biomethane for injection in the natural gas grid'). This pre-normative research exercise would directly feed standardization work, allowing committees to prepare, revise or amend European Standards. In parallel, the CEN-CENELEC Joint Technical Committee 6 'Hydrogen in energy systems' deals with devices and connections for the production, storage, transport and distribution, measurement and use of hydrogen from renewable energy sources. In 2020, the Committee will pursue its activities on the following issues: terms and definitions, guarantee of origin and safety of hydrogen in confined environments

COVID-19

This period's reporting has been dominated by COVID-19 and in the sector it has re-appraised the development trajectories that may be followed. For example, the significant improvements in urban air quality as a result of societal lockdown across Europe has promoted discussion about what 'future mobility' should look like. Should it actually be less mobility to realise the benefits of improved air quality? This is a wider debate, but it has highlighted that where governments take decisive action, environmental benefits can follow – although not necessarily economic ones.

At the same time, COVID-19 has highlighted the need for effective data sharing – both cross border but also cross domain. There has been a surge of GIS companies looking to contribute to supporting the fight against COVID-19. (e.g. <https://www.hexagongeospatial.com/covid-19>, <https://covid19.esriuk.com/>). This includes not only topics such as disease tracking, but also supply chain management.

¹ CEN work programme 2020

However, although the Facilities, Utilities and Public Services in particular is at the front line in the COVID-19 response and data is key to their operations, sadly Inspire is not. With many organizations operating on reduced staff, or with re-deployed staff and with several facilities, utilities and public services simply closed down, contribution to more strategic activities like Inspire would be expected to stall.

1.2. Overview / list of selected good / highly visited / highly replied Forum contributions

In the period January-April 2020 there has been no new postings to the forum or replies to existing postings. I have started to initiate some new postings to stimulate activity on the forum.

1.3. Overview and assessment of the availability of thematic domain data sets in the EU Geoportal

In this period the revised Inspire Thematic viewer service was launched, and this included a cleansing of records already held in the system to remove duplicates and erroneous data. The thematic viewing service is a huge improvement in being able to browser and discover Inspire datasets, making excellent use of the extensive data tagging that exists.

If we compare the data now available between November 2019 (D1 report) and April 2020 (D2 report) we can see that there has been a marked reduction in the number of datasets and metadata records available as a result of the data cleansing. However, ratios of view and download data services as a percentage of metadata services has remained largely consistent, which would suggest that data cleansing was required across all data services and not just metadata.

It is very important to note that the cleansing also included the removal of all the UK Inspire data records (see Section on Brexit). I don't have statistics of how many UK datasets were removed compared to general data cleansing.

Apr-20	M	D	V	Total	D:M	V:M
AF	210	26	25	261	12.38%	11.90%
UG	1693	185	365	2243	10.93%	21.56%
PF	402	64	75	541	15.92%	18.66%
Nov-19	M	D	V	Total	D:M	V:M
AF	377	38	79	494	10.08%	20.95%
UG	3298	382	647	4327	11.58%	19.62%
PF	740	161	161	1062	21.76%	21.76%
Change	D-M	D-D	D-V	D-Total	D-%	D-%2
AF	-167	-12	-54	-233	2.30%	-9.05%
UG	-1605	-197	-282	-2084	-0.66%	1.94%
PF	-338	-97	-86	-521	-5.84%	-3.10%

Table 1 Assessment of Facilities, Utilities and Public Services data services in the EU Geoportal

2. Overview of the facilitator's activity

My main activity this period as been twofold. First is general monitoring of the forum posts, and participation in Inspire Expert meetings. I have been concerned by the dormancy of discussion on the forum (not just in my thematic domain) and so have published new items for discussion and also agreed to editor the first of new suite of 'punchy' Inspire newsletters.

Second, I have worked on the development of a workshop session for the Inspire 2020 conference on the use of digital twins and the practical role Inspire could play in this respect. A digital twin is a digital replica of a living or non-living physical entity, but current attention has focused on digital twins for industry and utilities. By bridging the physical and the virtual world, data is transmitted seamlessly allowing the virtual entity to exist simultaneously with the physical entity. In this way the digital representation can be improved which in itself leads to better management of the physical entity throughout its life.

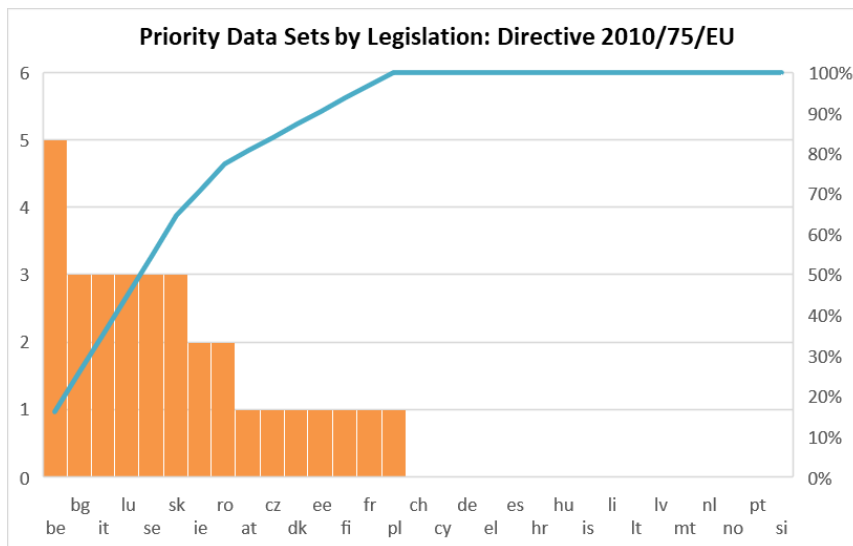
Digital twins are nothing new to the oceanographic and meteorological communities where numerical simulations coupled with real time observations has been the mainstay for weather and climate predictions for decades. It was in this context that the Inspire data models for ocean and atmospheric systems were developed.

As digital twins move into the industrial and utilities space I would like to explore the data models used for digital representation and data exchange between digital twin systems and to what extent Inspire data models are used in the digital twin context.

3. Facilitator’s suggestions for improvements

At this stage I have no specific suggestions for improvement. I have reviewed the revised services available under the thematic viewer and I think this is a significant improvement to support not only navigation of Inspire data services, but also the state of play across and between member states.

It is noticeable that there is still considerable variation in the data published between member states and also in general how sparse the data is across the EU. So for the Industrial emissions Directive, it is not clear why some MS have five relevant datasets, where are most (ignoring the 50% who have not published data) have between 1 and 3.



Brexit

As mentioned earlier, the data cleansing has removed all UK datasets from Inspire and the thematic viewer no longer shows the UK as a member state. The only reference to UK and inspire is made on the following page with the Ordnance Survey acting as a harvesting node.

https://inspire-geoportal.ec.europa.eu/harvesting_status.html

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In 2020 there is a transition period between the UK and EU so the UK would expect to be contributing to Inspire and benefit from Inspire services up to 31/12/2020. As a UK national expert, I typically refer to the UK situation as a refence for Inspire issues. Some clarity on the UK and Inspire during the transition period would be helpful.