DigLogs

WP5 Pilot implementation

Post deployment evaluation

5.3.3. Spatial Data Management System

Responsible partner: CFLI (PP1) Involved partners: All			
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1 Post deployment evaluation

The general issues that led to the definition of this pilot are basically related to a strong need of quality improvement and interoperability in spatial data management inside Port System Authority's decision processes. On the other hand, these aspects are also strongly regulated by the European Commission since 2007 when the INSPIRE directive were published. As we know, INSPIRE is based on the main principle that public organizations must implement a data infrastructure in order to reduce fragmentation and duplication data, and save time in accessing and processing data by leveraging some relevant principles related to effectiveness, sharing data between organizations and at different scales, as well as easy finding and availability.

Defining what the pilot action should be about, CFLI, in strict cooperation with the Port System Authority operators, decided to exploit the results of a survey conducted in 2018 to better know the internal use of ICT resources. The main result of that survey shows that all databases and documents could be related to maps and be georeferenced allowing to spatially analyse different kind of information.

Based on this previous situation, in which we had more than 100 datasets and 200 possible relationships, but a very fragmented infrastructure made of 22 different software tools and 17 storage systems, the implementation of a first basic experimental infrastructure it was considered the right choice to move to an improved scenario.

At the early stage, the instance of the new Spatial Data Management System is going to allow an initial reduction of the number of storage systems from 17 to 14 with the aim to add some ETL engines that enable the synchronization with further 4 existing DBMS. The objective of allowing operators to continue using the software tools they used to has been achieved by enabling interoperable connector between the SDI and the existing GIS desktop tools, while some new workstation based on the new QGIS open-source GIS desktop software have been implemented for several other operators. As already said, not all the storages can be unified, indeed, some of them cannot be easily replaced as some existing software still needs them. For such situations, the ETL technology has been planned to be implemented in the coming months to synchronize multiple databases.

The SDI was implemented using two different components, one for the vector maps and tables, and one for the imagery and Digital Elevation Models, in order to achieve the best performances and interoperability. The implementation of the pilot action following a two-pillars approach has been accepted by the Port System Authority so, in addition to the SDI, also an internal job training programmed has been defined and carried out, to explain to users how to setup their workstation, to access and visualize data, but also how to process data to extract information and support decision-making processes. The training program took place over 23 days for 17 operators working in 6 different departments, and it was facilitated by involving departments directors in order to better motivate the employees in carrying out these new tasks. The training activities were mostly individual and customized, strongly based on the user's needs with the aim of better implementing the use of the infrastructure within the real operational tasks.

So far, the post-evaluation scenario shows a possible first future step related to the implementation of a brand new public Open Data web portal which is moreover strongly recommended by national regulations. Also, new data-driven online services will be soon possible as they are strictly related to the availability of an effective and interoperable data infrastructure, as well as new type of online services such as booking services, real time (or near real time) warning services or any kind of performance monitoring based on historicized data series.

The Port System Authority is also considering to implement some real-time data-driven services for the wide port community (people, tourists, companies etc.) with the aim at improving the quality and efficiency of their activities within the port area, but also to improve Business Intelligence Systems, for both internal and external actors, that can highly be enhanced by spatially analyse data and indicators or relating any kind of documentation to spatial objects to easily search or visualize them by browsing interactive maps.

For what regards main issues and criticalities, probably one of the most relevant and impacting is related to the difficulties in collecting data owned by different departments, both for the fragmentation or the leakage and the resistance of employees to share data with colleagues since the direct control to some relevant data sources is deemed as a kind of "power element". About this, the possibility to easily and directly access data from different workstations and different departments was in most case a real booster to overcome the issue.

A further post-deployment adjustment relates to the division of data sources by departments; in some cases, different departments belonging to the same management works in strict collaboration so the “per department” database grants assignment was deemed too rigid and it was extended to the whole management.

Finally, for what regards the training programme, it has been found that trying to compress the activities in a too short period can lead to inefficiencies and progress difficulties, so it is recommended to plan activities well in advance. It is also very important to avoid giving the employees the perception to carry on a standard training course rather than a more effective training-on-the-job activity really linked to their actual operational needs. Indeed, for the DigLogs pilot action, the pandemic restrictions caused some time scheduling compression that put more in evidence this particular aspect.