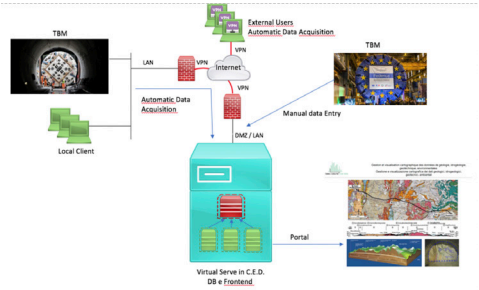
The Geological Portal of the Turin-Lyon Project

Parisi M.E.(*), Cussino M.(**), Brino L.(*), Paletto D.(*)

** TELT sas, Turin, Italy - ** gd test srl, Turin, Italy*

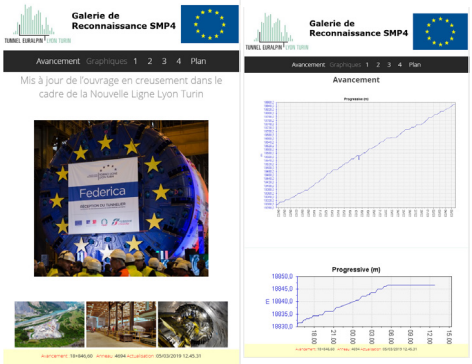
The Cross-Border Section, the first functional phase of the New Turin-Lyon Railway Line, concerns the mountainous territory between Saint-Jean-de-Maurienne (France) and Susa-Bussoleno (Italy). From the early project stages up to the start of the 2000s, the data produced have been collected in a specialized structure for the purpose of rapid and organized consultation.

The portal enables the management of all data types available during the excavation of an underground work, both with mechanized and traditional excavation. The following data are thus filed in the geodatabase: geological and geotechnical surveys (stratigraphy, laboratory tests, on-site tests, diagraphs, etc.), geophysics (geophysical stringing, cartography, etc.), springs and water courses (on-site measurements, water analyses, monographic datasheets, etc.), thematic cartography (geology, hydrogeology, geomechanics, etc.), underground works (excavation progress, rock face reliefs, monitoring, progress surveys, instrumented sections, documentary reports, etc.).



The upgrading of the IT systems has ensured that the platform keeps abreast of new technologies, gradually providing the necessary upgrades. This has included transferring the entire structure from dedicated systems to geographically redundant virtual platforms, guaranteeing greater data security and scalability in terms of performance in accordance with increased computational requirements, to the point of being able to merge two different platforms while maintaining a common database, in the order of 5 Terabytes.

The data relating to mechanized excavation produced by the TBMs are filed in the geodatabase in order to provide real-time consultation and visualization on graphs. The procedure was optimized for the management of the data volume that is able to record 300 different parameters with frequencies of 1 data set every 5-10 seconds for 1GB/month. The data of all the future TBMs will be integrated in the portal and the monitoring of these excavations will take place in real-time by means of instrument panels dedicated to each excavation, both on desktops and on mobile apps.
In order to be able to manage as efficiently as possible not only the geological and construction data deriving from the construction sites but also envi data, TELT is providing a unique platform which will contain both the geological and environmental portals.



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