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Upgrading a National Data Repository to a Key Register

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The national Dutch subsurface database ‘Data en Informatie van de Nederlandse Ondergrond’ (DINO) has been used by the Geological Survey of the Netherlands since 1997. The system holds data and geological models related to E&P, groundwater and the shallow subsurface that have been collected during the last century. Since 2001, all non-confidential information stored in DINO is free for anyone to use (open data policy) and is available via a public web portal (www.dinoloket.nl).

The importance of reliable subsurface data and information for planning and permitting procedures has been recognized by the Dutch government, leading to the upgrade of the DINO system to an official government register ‘Basisregistratie Ondergrond (BRO) governed by law (effective in 2017). This means that from 2017 onwards, all governmental parties in the Netherlands (11 ministries, 12 provinces, 22 water boards and 390 municipalities) have to use the data in this key register whenever their activities involve the subsurface, and furthermore have to deliver new subsurface data acquired during these activities to the register. According to current estimates, up to tens of thousands borehole descriptions and core penetration tests will be uploaded annually. This is two to three orders of magnitude more than the data intake when DINO was launched. The DINO system cannot handle these expected data volumes and is unsuitable for the desired physical linkage with government processes [1].

Therefore, over the last four years, the BRO system has been newly designed, built and tested, featuring fully automated data exchange between the key register and other (data) systems via web services. These SOAP services enable machine-to-machine communication for data intake (registration of new data, correcting or adding data to already existing data in the register) and delivery (individual delivery based on a unique identifier, or delivery of metadata for a data set meeting certain selection criteria) (see figure 1). Business rules in the SOAP service guaranty consistency of the data of each object delivered to the system, while the owner of the data has to make sure the data is correct.

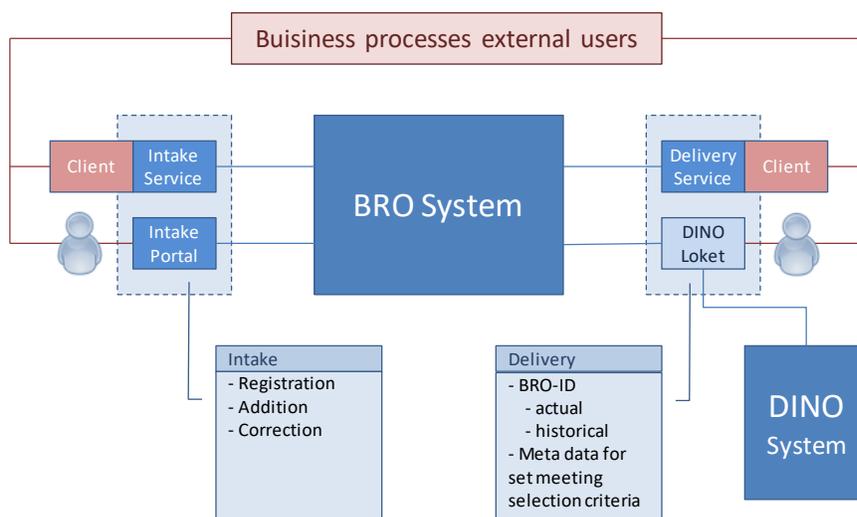


Figure 1: Schematic view of the BRO system

During an intense standardization process with data providers and users, the data model and exchange formats, for the first two out of 26 data types have been finalized. Along with this standardization, the main requirements and functionalities for the key register have been developed, built and tested. As a result the main components of the new system are now ready and

the transition of the first data type from the existing DINO system to the new key register is in operation. The others will to be added in a transition period of 5-10 years, during which both DINO and BRO will have to be fully operational.

References:

[1] Van der Meulen et al, (2013) Netherlands Journal of Geosciences 92(4): 217-241

