A standards-based portal for integrated Land Administration information A case study of the Netherlands

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SUMMARY

Land administration involves the systematic management of information about land. In the Netherlands, such information is dispersed across various geoportals for land registry, public law restriction, valuation and spatial plan information, each with distinct approaches to data delivery and processing. The question is, if this collection of separated portals can be harmonized and replaced by an integrated land administration system. The Land Administration Domain Model (LADM) Edition II offers a conceptual framework to unify land administration information and in case multiple authorities are involved, the Spatial Data Infrastructure (SDI) can be used to link and shared the information in an harmonized manner. This research explores the benefits and drawbacks of implementing LADM Edition II for data dissemination in the Netherlands using a linked data portal. Two quite representative use cases were modelled (1. Preparing for real estate transaction and 2. Preparing when applying for a building permit) and both needed information from multiple portals to complete the tasks. Given the current situation of non-harmonized terminology, separate portals with different user interfaces, the users would benefit from a more harmonized and integrated portal. For conceptual harmonization the country-specific Netherlands LADM profile was developed and documented the Unified Modelling Language (UML) class diagrams. This is the first published LADM country profile covering multiple parts. In order to provide a uniform access, the UML conceptual model was converted into an Web Ontology Language (OWL) ontology model and populated with data from the Dutch registers in accordance with the ontology. The developed SPARQL queries enabled the construction of a data story collecting and presenting information through a single portal for our use cases. The findings show that implementing LADM with linked data can enhance efficiency and usability by integrating multiple registers into a single geoportal. However, achieving this requires significant initial investment, including validating the country profile, aligning Dutch registers with LADM, and developing SPARQL queries.
