

Potentials of Semantic Standards („XÖV-Standards“) in the Area of Building and Planning – Summary

The production of land-use plans and the execution of building regulations law procedures require the cooperation of planner, developers, and municipalities, as well as building permission agencies and many other authorities and public offices of different administrative levels. For this it is also needed to exchange data and information between actors and IT systems without any loss. Until now the exchange often occurs on paper what means high efforts for all involved actors. To avoid such efforts it is required to describe the contents of space-related plans and building regulations law procedures with an interoperable data model that is independent from IT system providers so that common semantic standards are necessary. Also other administration areas can benefit from semantic data, e.g. statistics.

The semantic standardization enables an electronic data exchange and forms the basis for a networked and improved cooperation of many actors in the area of planning and building. Especially all procedures occurring between the different private and public actors can be accelerated, be simplified considerably and be more transparent. As a result based on the interoperable data further digitalization potentials can be derived for the involved actors.

The study structures the potentials of semantic standards and makes them ready to use for practitioners what in particular also indicates further digitalization potentials. It is shown where the cooperation with and between the different public authorities can be processed easier by the use of semantic standard and to what extent actors can also benefit beyond the planning and building area from it. To do this the study developed so called potential scenarios taking into account the present juridical, organizational and technical basic conditions. The potential scenarios aim to clarify how the use of appropriate semantic standards changes the existing procedures. Concretely, the following scenarios were developed: (1) production and submission of a building permission application, (2) mandatory collection of statistical data on a building project, (3) submission and checking a building permission application using the Building Information Modeling (BIM) approach, (4) coordination of planning between different actors to be involved by law (TöB), and (5) using valid plans for the selection of enterprise locations.

As a result for the construction area appears that above all the BIM approach makes it possible to omit the traditional paper based drafts, drawings, plans, technical components descriptions and building descriptions. The BIM approach changes the way how buildings will be planned fundamentally since all developments and plans from different actors such as architectures and engineers are integrated in a 3D model. The model is submitted to the building permission authorities and other authorities to be involved by law. They can derive from the 3D model via a XML interface these parts and components they are responsible for to check against the regulations. Semantic standards lead also to comprehensive potentials to fulfill the obligations regarding the federal building statistic. To do this, developers must provide information about the building projects which also are mainly already in the required documents for the building permission application. Nevertheless, this double work is avoided in practice up to now often, so that as a result statistics are incomplete and have to be completed with high effort. In the result the collected figures about approved flats differ, e.g. for Hamburg, between the results of the

federal building statistics and the collection of data in the building permission authorities around up to 40 percent.

For the area of planning also numerous potentials exist when using semantic standards. In this regard e.g. standard-compliant plans, like land-use plans, ease the choice of enterprise locations. To find out whether a region is suitable for an enterprise, e.g., concerning drive ways or possible limitations for emissions, contact must not be established any more with high effort with every responsible authority of a region. For the authorities the effort thereby also decreases because though less, for it, however, more promising inquiries occur concerning an enterprise settlement.

Summarized it appears that the submission of semantic standards contributes to a better quality of the documents in the area of planning and building on which can be decided in clear and quick administrative procedures. The as very complicate perceived processes can be formalized and also be standardized. This is also reached by the fact that standard-compliant plans and required documentations form a planning basis without any "interpretation range". This transparency and exactness raises the legal security and can improve the cooperation of the actors in the area of planning and building, e.g., by the reduction of negotiation processes and consultation processes, clearly. As a requirement for a further automation and integration of data and information is to be checked, to what extent certain information, documents and data are still necessary generally since it appears in other administrative areas that many requirements base on regulations amended in a time when the IT possibilities were still very low. The better quality and availability of information and data which can be anew combined raises all together the benefit for the politics, because better bases for decision-making are available.

Besides, the semantic standardization could favor the adjustment of the federal states building regulations law and the further regulations to the model building regulations and can lead to a uniform federal building regulations law. Actors from the building industry demand this adjustment of the building regulations law for many years. These demands gain increasingly high relevance against the background of the present tight situation of the housing market.