Summary report

Project: Concept for the seamless integration of Building Information Modeling (BIM) into the official building application process
[Konzept für die nahtlose Integration von Building Information Modeling (BIM) in das behördliche Bauantragsverfahren]

Short title: BIM-based building application [BIM-basierter Bauantrag]

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Project partners

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Ruhr-Universität Bochum

Stadt Hamburg / Landesbetrieb Geoinformation und Vermessung

Stadt Hamburg / Behörde für Stadtentwicklung und Wohnen

Stadt Dortmund / Land Nordrhein-Westfalen

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Bundesingenieurkammer

Bund der öffentlich bestellten Vermessungsingenieure

Bundesvereinigung der Prüfingenieure

Verband Beratender Ingenieure

Hauptverband der Deutschen Bauindustrie

|DA| DRAHTLER ARCHITEKTEN

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1 Starting situation

In recent years, uniform nationwide standards have been created in Germany for the exchange of information in administrative procedures under building law. However, the requirements for BIM models for administrative procedures have not yet been considered in detail. The main research question was therefore to what extent BIM models can be used efficiently for implementation in administrative procedures under building law.

2 Objective of the research project

Due to the demand from public and private clients, digital planning methods (building information modeling, BIM), are currently being introduced in Germany. The research project focused on the use of BIM models in the context of administrative procedures under building law, in particular the building application procedure. In the context of a requirements analysis, first the national reference building code and the state building codes (using the example of Hamburg) have been analyzed. Furthermore, it has been examined how the interaction of the development plan with building models takes place and which data must be transferred to the digital building application. Based on the specification of the digital building application (XBau), a selection of administrative processes has been made which were examined more closely in the research project.

The overall process of a BIM-based building application procedure has been developed and described. Furthermore, a concept for the use of open data standards has been developed. In order to transfer information from models into the digital building application in a targeted manner and to be able to check models in a rule-based way, model requirements have been defined and recorded in a modeling guideline. The scope of the modeling guideline is based on the use cases for data transfer and rule-based checking that have been considered in the project. In addition to the model contents, a model-based communication concept has been developed that allows model-based comments to be transmitted with the digital building application, e.g. to support deviation applications. A container-based concept has been developed to transmit the digital building application together with the BIM model and other documents required for the BIM-based building application.

For the validation of the developed process, selected use cases have been used as examples of how data can be compiled and rule-based checked for transfer to the digital building application. For the practical demonstration of the procedure, a prototypical implementation of a client software has been realized and a web portal has been developed, which accompanies the process. An evaluation of the process has been carried out on the basis of sample projects and the process has been successively expanded to include further use cases. In workshops and surveys with technical experts the modeling effort has been considered, added values have been discussed, but also dangers and risks have been taken into account. Furthermore, the legal requirements for a BIM-based building application process have been worked out.
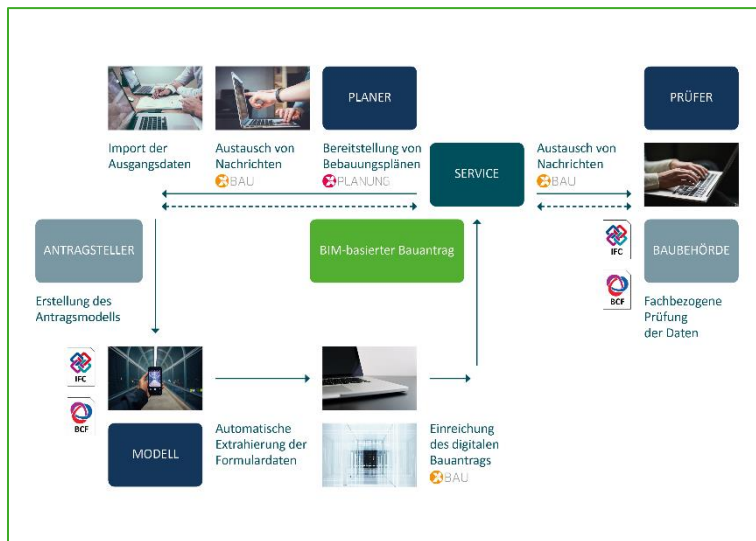
3   Conclusions

The core of the research project was to develop a reference process for a BIM-based building application procedure and to clarify, therefore, which requirements for BIM models arise. The process has been mapped as a flowchart diagram. The identified requirements, which are based on a selection of supported use cases, have been described in a modeling guideline. Example projects have been considered to validate the overall process. For the demonstration of the overall process, a prototypical software for the creation and processing of BIM-based building applications has been implemented. The results have been coordinated with technical experts. A higher degree of automation and more efficient application processing allows more efficient and resource-saving processes. The average processing time of a building application can be reduced by the BIM-based methodology.

4   Key data

Short title: BIM-based building application [BIM-basierter Bauantrag]

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                         Hauptverband der Deutschen Bauindustrie

Total costs: 416.550,00 €

Share of federal subsidy: 277.950,00 €

Project duration: 32 months
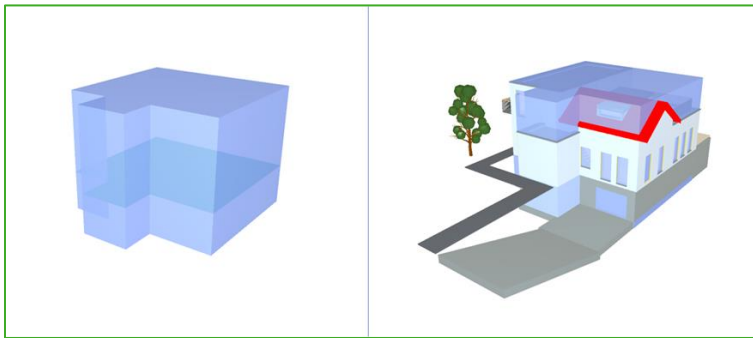
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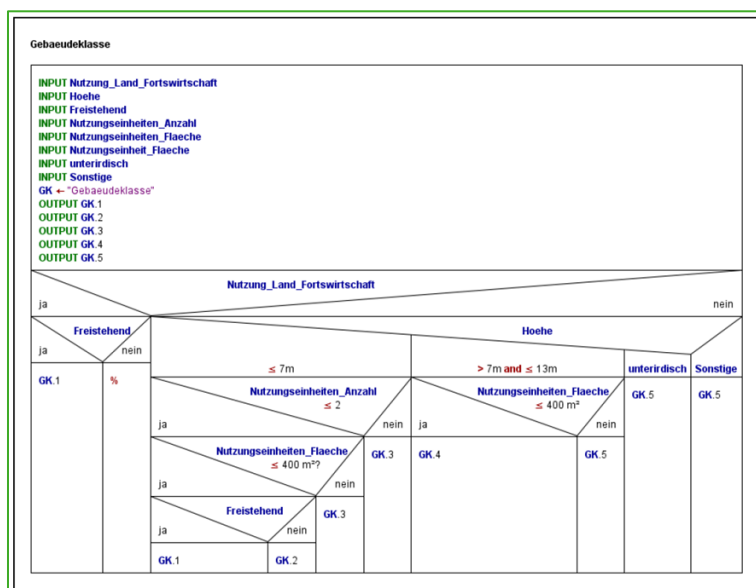
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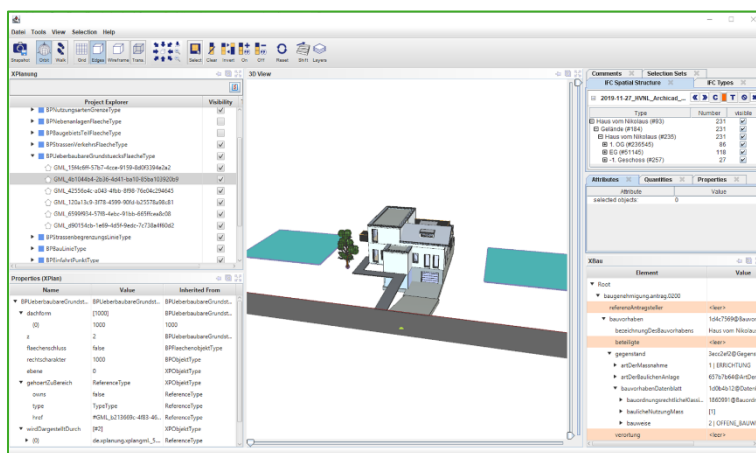
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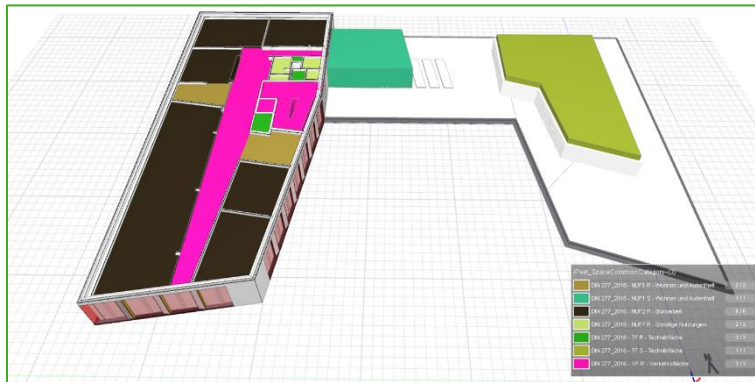
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