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Building Information Modeling (BIM) – Digitalisation in the building industry

Digitalisation is progressing further and further in large steps. This can be seen in various industries and in many different ways: In the legal sector, for example, new online services and software products are being developed every day under the term Legal Tech to support and automate legal work processes. In the financial sector, too, so-called Fin Tech companies are constantly presenting new systems and processes designed to facilitate financial activities.

Digitization has also brought with it various new technologies in the construction industry, such as Building Information Modeling, or "BIM" for short.
This is a 3D building model that enables all those involved in the planning, construction and operation of a building to work together on the model.

In conventional planning, drafts or plans of a building are created with the aid of so-called CAD systems (computer aided design) and presented to the project participants. As a rule, these plans are used to determine quantities and calculate costs for the project participants. If a plan is changed, all quantity determinations and specialist planning based on the original plan must be adjusted. This often leads to increased coordination and work effort and consequently to additional costs for all parties involved.

When using BIM, the structure is "built" in the computer as a 3D model before it is erected. This model no longer contains only purely geometric data for a three-dimensional representation of the building, for quantity takeoff and cost calculation as was previously the case with CAD systems. Rather, data such as dimensions, material properties, costs, deadlines, etc. are integrated into the model and linked with each other.
All this data can be used by all project participants in every phase of the building life cycle. This also means that any changes made during the process – from the planning phase to the construction phase – are immediately visible to all those involved. For example, if the room layout within the building changes, this can have an impact on the planned installation of doors and windows. If the room layout in the model is changed, the bills of materials for the windows and doors and the corresponding calculation are automatically adjusted. In this way, factors such as time and costs can be saved significantly and the number of defects and damage to the building can be reduced.

However, the use of BIM must be planned as a matter of course and requires clear contractual regulations: First of all, it should be considered whether a single BIM model is being worked on or whether each project participant is working on a separate model and the individual models are merged. In addition, a clear allocation of roles must be made. For the construction phase, it is advisable to appoint a BIM manager who is responsible for the ongoing support of the model. Contractual regulations on when and within which periods changes are to be made to the BIM model are also indispensable. It should also be contractually defined who owns the copyright to the model.

Both legally and technically, there are still many open questions regarding the application of BIM. Nevertheless, companies active in the construction industry are well advised to deal intensively with the application of BIM in good time. It is only a matter of time before the application of BIM becomes a matter of course or, in the case of public contracts, becomes obligatory due to legal regulations.