BIM for Politicians
ECEC Statement on Building Information Modelling – BIM

1. Definition of status and importance of BIM The role of the engineering professions

Digitalisation is one of the most important future topics for the building sector. Digital data processing supports engineers planning and designing since more than three decades. Due to the fast modernization of the utilized software, planning has changed a lot during that time. The term planning includes all design activities.

Building Information Modelling (BIM) is a cooperative working method that comprehensively captures and administers information that is relevant for the life-cycle of a building and allows the transparent communication and information transfer between all persons involved in the process.

BIM is a result of the ability to process large amounts of information. It allows moving from the analysis of individual transactions to the analysis of their impact on each other. Ultimately it makes the analysis and optimization of the cost of ownership of the building at all stages of its life cycle possible.

The outcomes of BIM implementations are:

- reliable forecasting of the timeframe, results and costs at each stage of its life cycle, including operation;
- increase of maneuverability and efficiency of use of resources by all participants;
- increase of labor productivity.

BIM works with a complex structured database. It offers the possibility to expand digital planning and include the cost and time dimensions. It thus provides – compared to 2 D and 3 D models – complete and comprehensive information that goes beyond the engineering planning (e.g. quality, materials, costs, documents and time frames etc.) and is of great added value for the planning, building and especially the operating phase of a building life cycle.

Due to the saving potential of the BIM method its' use is strongly enhanced within the EU. Although current EU legislation does not require the mandatory application of BIM in public procurement procedures, more and more European governments and public sector organizations are setting up programs to promote wider use of BIM at national and regional levels.
BIM is an important working tool for engineers. Planning is the basis for any building project and engineers are key persons of the building process. In order to fully realise the saving potential of BIM while keeping up or even increasing the quality of buildings it is therefore of utmost importance that the engineering profession is involved in the definition of rules for the successful application of the method. This is clearly reflected by the cost ratio of the life cycle of a building:
Every 1 euro added to the costs of design corresponds to 10 euro savings for construction and 100 euro savings for operation (source: buildingSMART).
Therefore, particular attention should be paid to the benefits of BIM during the construction

and operation stages.
Main advantage of BIM application at the construction stage is the possibility of variant development of organizational and technological solutions to reduce construction costs and eliminate space-time conflicts.
Main benefit in the operational phase is the possibility to complete information about the facility to ensure normal operation, including daily maintenance, ongoing and planned repairs.

2. Basic requirements for the successful use of BIM
Open BIM as the most essential criterion to keep the market open for SME

Thorough project preparation is essential: Without an in-depth project preparation potential positive effects of the BIM method cannot be realised. Past projects have proved that in case of a lack of preparation the use of BIM leads to

- higher costs than expected
- longer project duration than expected
- lower quality than expected
- weaker usability than expected
- political disaster

Well proven structures in the building process should not be endangered:
The BIM method can make the existing planning procedure more efficient but does not change the structure of independence between planning and constructing: It is important to maintain the division of tasks between planners and constructors in order to safeguard the interests of the clients, regardless of supply and execution interests.

Due to the key role of planners in the building process it is important to strengthen their coordination function as system manager in the BIM process:
Engineering planning requires professional expertise, creativity and also high-level coordination competence. Application of the BIM method strengthens the role of the planner in the area of cooperation and coordination far beyond the creation of individual plans. Shifting coordination functions from the area of planning to other areas endangers the quality of a project and can outweigh the potential benefits of BIM.

Open BIM ensures that SMEs maintain market access:
Engineering SMEs proved themselves as reliable economic factors especially in the economic crisis starting in 2007. The planning sector is dominated by SME structures in many Member States. Due to this market structure an open software collaboration („Open BIM“) is the basic requirement for an effective application of BIM. Keeping SMEs in the market is only possible by securing a non-discriminatory common access to planning software via an open standardized interface providing the loss-free transfer of the exchanged data. In case of the implementation of „Closed BIM“-systems many small and micro-sized planning offices would be eliminated from the market due to high disproportional costs.

Dependence from software suppliers must be avoided:
In case of „Closed BIM“ systems, when the stored data is not transferable via an open and standardized interface, public procuring authorities would be in danger of disproportionate dependence from software suppliers. Therefore a European validation process is required to determine the suitability of BIM-software for open systems.
If politics are not able to prevent a software monopole the open market will not function any longer and prices for planning services will increase significantly.

3. BIM requirements in public procurement procedures

The Public Procurement Directive (2014/24/EU) in Article 22 (4) offers the possibility for Member States to regulate the mandatory use of specific electronic instruments (e.g. BIM) for public building contracts and competitions.

Numerous Member States have implemented such a legal obligation or are planning to do so - partly step by step. But even if no legal obligation is implemented public procuring authorities are free to demand the use of BIM for their projects.

In any case the procuring authority is obliged to provide suitable alternative means of access if it requires the use of electronic tools and systems that are not generally available (e.g. providing log-in information and cost-free access to required programmes for a certain time period). In practice this provision cannot avoid the discrimination of tenderers that are not normally using the required system and thus have no experience with it. A non-discriminatory approach can only be based on an “Open BIM” system.

For successful public procurement procedures it is essential that requirements in regard to the use of BIM are defined very clearly in the tender (required BIM level etc.). Ownership, responsibility for data and liability must be clearly regulated for all project steps.

This requires the necessary professional knowledge and expertise also from the public procuring authority. If such expertise is not available within the authority, outsourcing is necessary.