

Fact Sheet - Use Case Management

1 Preface

1.1 Current situation

Building Information Modeling (BIM) indicates a fundamental change in the culture of cooperation. All actors along the value chain work in a network and become part of integrated processes and information flows. Established ways of working are being radically transformed - away from disciplinary to multidisciplinary processes. With the help of digital technologies, efficiency and quality are sustainably improved.

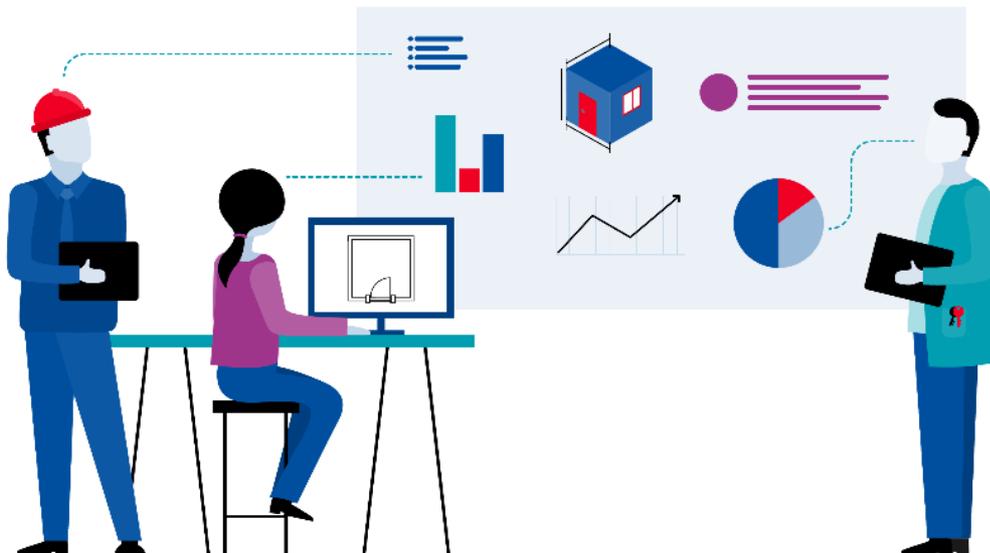
The focus of these developments lies the change from unstructured data to structured information. For each project phase, the needed information must be available in the required quality. In this way e.g. quantities and costs are determined, the need for gray energy and operating energy is shown, the construction process is planned, and the site logistics are organized. At the same time, it is possible to provide information for operation and maintenance.

A generally valid description of such use cases forms the foundation for networked, collaborative and integrative planning, construction and operation of a building. To date, these basics are not yet available for the construction and real estate industries.

1.2 Added value of BIM method

The use of the BIM method in the planning, construction and operation of construction offers great added value. In order to make full use of this method, all relevant information must be available for each phase of the entire life cycle of a construction.

Rules for the coordinated use of BIM are necessary in a way that clear agreements can be made between client and contractor. The client formulates the information exchange requirements^[1], which are respond by the contractor by means of a BIM Project Execution Plan (BEP)^[2]



^[1] ISO 19650-1:2018 – exchange information requirements – EIR

^[2] ISO 19650-1:2018 – BIM execution plan – BEP

2 Use Case Management

2.1 BIM Use Cases

The Use Case Management of buildingSMART has the goal to exchange experiences from already implemented or ongoing BIM/VDC projects among experts. Thus, a best practice is generated from individual practical experiences. Use cases are not related to individual project phases but consider the entire value chain (planning / construction / operation / deconstruction).

Each Use Case follows a clear objective and focuses on a specific outcome or benefit. The information requirements for the various actors are determined for each project phase. It is defined who needs what information at which point of time in which format and in which level of detail in order to achieve a specific result.

A Use Case defines ...



- who needs
- which informationen
- at what time
- in which format
- in which level of detail

Results of a Use Case:



- common understanding
- integrated processes
- inputs to BEP
- mapping to IFC schema
- basics for MVD's

The future order will be defined by the sum of all use cases over the entire life cycle. In this way, the Use Case Management forms the foundation for common understanding in the communication between the client (objectives) and the contractor (application).

2.2 Results of Use Cases

Use Cases ...

- establish a common language for the BIM/VDC applications of a project and a uniform understanding in the digital value chain from client to user
- follow a uniform structure and are described consistently throughout all life cycle phases
- provide the foundation for the definition of BIM/VDC relevant objectives between client and contractor
- increase the digital capability in the use of the BIM/VDC method for all players in the entire construction and real estate industry
- define the information exchange requirements and link them to the IFC schema
- provide a basis for a Model View Definition (MVD) or for the implementation in application software
- are neutrally formulated and based on the openBIM approach from buildingSMART International.

3 Publication / Information

buildingSMART provides the results to the entire industry. The documentation is published on the website of buildingSMART international. After a registration you have access to all use cases

ucm.buildingsmart.org



4 Methodology

The BIM method in planning, construction and operation of buildings offers great added value. To make the full benefit of this method, the needed information must be available in phase throughout the lifecycle of a building.

Use Case is the starting point of the IDM development. It describes the business need and ideal scenario – including goals and success criteria – for the information exchange. The different parties and their responsibilities are specified with actors and roles. At the same time, their initial activities in the information exchange are also described. Agreements, contracts, standards etc. deal with the external conditions that may have an effect to the objectives or deliverables of the information exchange

The ISO 29481 Building information models - Information delivery manual - Part 1: Methodology and format defines a framework and methods how to present process maps and exchange requirements for a certain purpose

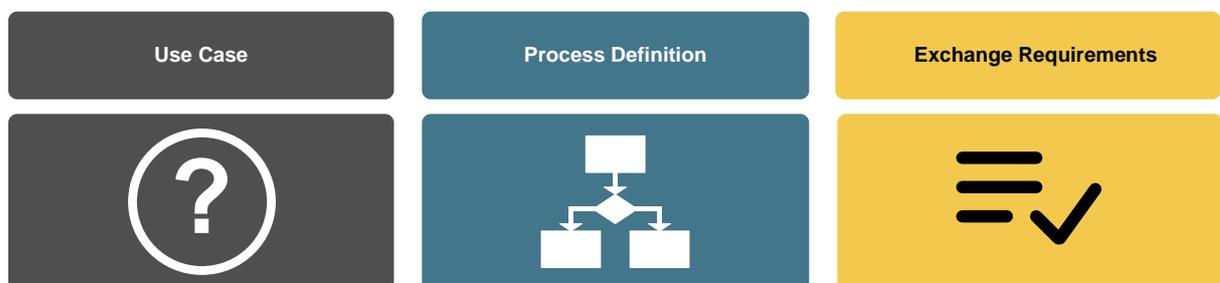
The standard provides a basis for reliable information exchange/sharing for users so that they can be confident that the information they are receiving is accurate and sufficient for the activities they need to perform.

IDMs enable stakeholders across the supply chain to determine their information requirements, by identifying use-cases, mapping processes and define exchange requirements.

The IDM standard is a standardized method for extracting exchange requirements from specific use cases. However, business use-cases are also crucial for translating strategic goals into information requirements. IDM is thereby a suitable methodology for translating business.

IDM is a technical document (physical or digital) that describes business needs, activities and transactions and information exchange requirements for a specific purpose. Business need defines a Use Case. IDM is a way to record and share Use Cases in a harmonized way.

IDM consists of three core elements:



- **Use Case** – Use Cases defines propose and the scope for the information delivery.
- **Process Definition** – Process definition is made through at least one of the following: Process map / Interaction map / Transaction map
- **Exchange Requirement** – Information delivery exchange requirements in non-technical format

The next development step is the creation of a technical specification in the form of a Model View Definition (MVD). An MVD is a subset of the IFC schema that is defined to fulfill one or more specific Exchange Requirements. It defines a valid, inherently consistent and complete subset of the IFC schema and contains guidelines or agreements for the implementation of the IFC concepts used (classes, attributes, relationships, property bars, set definitions, and so on).

An MVD forms the basis of a software development process for providing IFC import and export functions in a software application. This coordinated process ensures that the relevant data can be exchanged in such a way that it can be processed by the software applications used.

5 Community

The Use Case Management of is open to the entire community of buildingSMART. All professionals are required to take the necessary measures in their fields and thus actively participate in shaping digitization of their industry. Get involved, work with us and become part of the growing community!

5.1 Working Groups



Working groups develop use cases for a specific topic, such as geodata, model coordination, applications of building technology, BIM2Field, BIM2FM, etc. Experiences from BIM projects are exchanged among experts and developed collaboratively in a team. This ensures that the use cases are based on a broad know-how from different BIM projects.

From Practice to Best Practice

5.2 Collaboration platform

The core element of the Use Case Management is a cloud-based collaboration platform that provides a uniform logic and structure based on international standards. In this platform, the various working groups can collaboratively record and manage their use cases.

6 Partnerships

buildingSMART relies on the support of associations and companies so that the digital foundation for the construction and real estate industry can be realized in the form of Use Case Management. As a project partner you can get involved as follows:

Leadership of a working group

- You can appoint a project manager to take responsibility for leading a working group. Thanks to his proven BIM expertise and experience in BIM projects, the project manager can develop use cases with a team of professionals. The project manager will be trained by buildingSMART and accompanied throughout the entire project.

Sponsorship of a working group

- With your financial contribution you enable a quick and goal-oriented realization of the working group.

7 Use Case Management an initiative powered by **buildingSMART Switzerland**

The Use Case Management was initiated and developed by buildingSMART Switzerland. The Chapter is responsible for the development and maintenance of the platform. It forms the link to buildingSMART International and ensures a regular exchange with an international steering committee. It is also the direct point of contact for all enquiries relating to Use Case Management.

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