Nemetschek's trendsetting integration strategy

Boosting efficiency with IFC and BIM (building information modelling)

Planning and building is a highly cooperation-based activity, a complex interaction of a wide array of disciplines. The growing complexity of the tasks involved is creating an increasing need for expert knowledge, specialisation and division of labour in the planning process. A key factor in realising a coherent overall concept, despite this complexity, is the integration and coordination of all services related to designing, building and managing.

Building SMART: Integration at Nemetschek

Integration is therefore a core aspect of the Nemetschek business philosophy. Thanks to the company's extensive, wide-ranging product portfolio in the areas of planning, building and use, Nemetschek AG is able to offer interated process solutions and consistent, end-to-end IT support for the relevant disciplines throughout the entire structure life cycle – that's building smart.

Planning efficiency through sophisticated interfaces

The economic situation in the European construction industry demands efficient project execution and shorter planning times. Integrated information technologies are thus essential to optimise all process logistics to improve the designing, building and managing process.

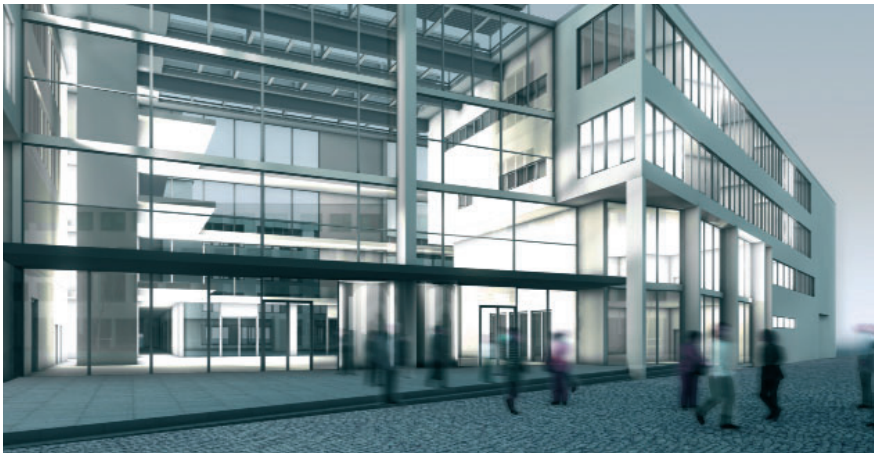
The Nemetschek collaboration strategy is based on precisely this demand: sophisticated interfaces help eliminate process friction and support system interaction across disciplines and applications. Thus, instead of stand-alone solutions that consider sub-processes in isolation, we offer integrated support and significantly improve process quality – an important contribution to improving the competitive position of Nemetschek's customers.

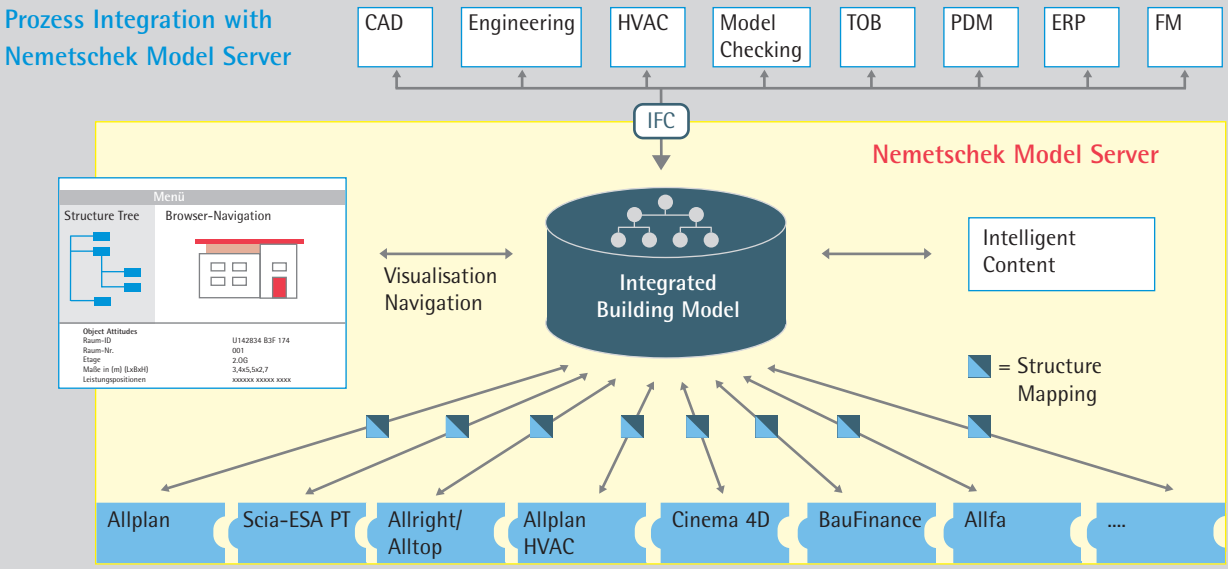
More reliable costing and scheduling

In this context, integrated costing (CAD, tendering, offering and billing) is a particularly important feature. Now, as an innovation in the market, the Nemetschek 2006 versions support not only quantity determination, but also construction scheduling – in other words, they incorporate the time factor based on the same underlying data. In this way, they facilitate joint analyses relating to time, geometry, quantities, items and costs. Consequently, Nemetschek offers efficient flow of information across disciplines based on a shared information base and ensures improved and more reliable costing and scheduling.

Object-oriented, model-based designing

A pioneer in the industry, Nemetschek AG played a key role in creating the paradigm shift from purely 2D drafting to object-oriented 3D modelling (BIM). The core of the Nemetschek technology is structural modelling using intelligent objects, which are linked through topological structures, and whose different characteristics are described by attributes. Therefore, apart from the actual geometry, users can also manage technical aspects such as element characteristics relating to building physics and statics or cost and process information. As intelligent objects, they





also incorporate standard knowledge, for example about their modelling behaviour during design and scaling (parameterised objects).
In order to enable this construction element "intelligence" to be put to use throughout the process that follows, Nemetschek created an efficient, object-oriented interface known as Nemetschek Object Interface (NOI).
These object-oriented developments have the potential to revolutionise the future of construction – they facilitate the seamless integration of downstream applications (such as project management and accounting software) into the IT environment, and in turn, they can then access the intelligent object-based information of the structure model.

Commitment to IFC and BIM

Although the internal interfaces between the Nemetschek products are already quite sophisticated, Nemetschek AG is already thinking one step ahead. Standardising the interfaces will greatly ease future integration into existing customer-specific IT landscapes.
Nemetschek customers will thus receive an integrated, customised process solution that takes their existing software applications into account.
Ensuring "intelligent" data exchange under these circumstances poses a great challenge for this exchange standard.
Consequently, Nemetschek AG places a strong focus on refining the IFC standard, which likewise supports object-oriented representation of buildings in the sense of the building information model (BIM).
That is why Nemetschek participates in the IAI to refine the overall model to better map such technical aspects as graphic quantity determination and costing, facility management, building systems and civil engineering. The aim of this is to cover the entire building life cycle management process.

Integration strategy for the future – Nemetschek Model Server

As a result of the increasing spatial separation of project and company structures, sharing information beyond workspace and office boundaries is becoming ever more important. For this reason, solutions must also support information exchange in distributed cooperative ventures.
The planned Nemetschek Model Server will act as an integration platform.
It will centralise the interfaces by providing a central "data hub" which also facilitates the integration of third-party products (for example via IFC).
Instead of file-based data exchange, a central, digital, object-oriented structure model serves as a consistent data base across the entire process for everyone involved.
This facilitates data exchange and improves content coordination and thus planning quality. Data loss and redundant entries are avoided, thereby helping companies lower their process costs.
Nemetschek is developing a structure-based dataserver that, like a data warehouse, centrally manages the structure data of all applications used. As a database-oriented building information model (BIM), it allows the sub-models of the various disciplines to be integrated and compared structurally (mapping).
Providing intelligent content relating to construction elements (intelligent building database, IBD) as a kind of "intelligent object catalogue" facilitates the creation of the building model.
Information can be located and linked by specifying a central building topology. This allows context-sensitive information management and facilitates efficient, structure-based and graphical navigation within the structure model.

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