

Dear reader,

please excuse that until now I was only able to send an abstract.

I had an accident which makes typing (and many other things of daily life) a little bit hard and slow for me momentarily. I hope I will be in a position to give a full paper with some delay only.

## Application of Product-Models in AEC Software and Virtual Enterprises.

*Is Product-Modeling still a Research Issue?*

Richard Junge  
Professor for CAAD  
Technical University Munich

### ABSTRACT

This paper will give an overview on the developments and results from projects undertaken by the author and his group during the last years (in ESPRIT as a member in an European consortium off course). These projects were partly ESPRIT projects – COMBI and VEGA-, partly fully industry funded projects – NextCAAD and ft. Product model technique was used as well as a ‘kernel’ inside applications, enabling new functionality, as well as for integration or better communication between applications.

COMBI was aiming at linking various expert- systems from the structural engineering domain plus a traditional CAD application via a product model based ‘communication center’. One of the interesting issues encountered was the problem of different semantics in the expert-system models and the need of translation between those.

VEGA’s main focus, as the full title is expressing –Virtual Enterprises using Groupware tools and distributed Architectures- was on the development of a middle-ware enabling communication between distributed applications based on product models or and using product model based interfaces. There were different starting points for developing such middle- ware, the ‘VEGA- Platform’. One was based on STEP’s SDAI and an existing software environment, the ‘EXPRESS Data Manager’. The second one was based on CORBA. The idea was to extend CORBA for a direct access to any product model written in EXPRESS, the so called COAST, CORBA Access to STEP. The third one, emerged during the projects development, was a kind of COAST without CORBA but with DCOM. (this caused heavy controversies because of the UNIX/CORBA versus Bill Gates issues). The reason for this third approach however was that in the area of construction one hardly finds any UNIX based applications, everyone seems to have DCOM for free, while has to pay extra for an ORB. This approach, undertaken by the partners the author was a member of, is directly leading to a commercial product.

NextCAAD was a project funded from AcadGraph for the development of its next software generation. The basic concept was to build a CAD system not having geometry or geometrical objects in its ‘center’ but rather the design objects of architects and engineers, which are to be described in increasing detail during the design process by attributes, relation etc. of which geometrical attributes are those describing the objects form but on a total equal level with all other attributes defining the object.

ft was or better is a project undertaken by group within Nemetschek with external work and consultancy by the author. It is aiming at making use of various kind of future technologies (ft). Among them as in NextCAAD approaches to ‘another CAD’. The most advanced

however is on a middle ware, called O.P.E.N., Open Product model Engineering Network. This was work underway before VEGA started, but VEGA helped a lot for the progress.

At the end of the fit and the VEGA project a commercial product as in a very advanced status. It is a commercialization of the 'VEGA- Platform'. The IFC- Model Architecture is direct offspring of the 'VEGA- Model Architecture' (95% plus x identical). At the end of COMBI and NextCAAD there was a prerunner of an Application for CAAD called 'Palladio', which is now marketed under the name Pallodio X, but has lost some of 'Palladio' was able to do. These projects, experiences, results are the background for the question:  
Is Product-Modeling still a research issue?

The second part of the paper will give an outlook on projects in research and development just about in the start up phase or under preparation. All projects are using as well as adding to the 'VEGA- Platform, respectively it's commercial development O.P.E.N.. In other words the projects will find a way for a continuous information flow during design and construction with extensions to usage.

The first projects is MAP, -mobile multi media working- place of the future. Multi- media here doesn't mean audio, video etc., but the geometrical, graphical and various 'alpha-numeric applications used in design and construction and their various data formats (At time of the workshop this project will be on the way).

The second project, or better cluster of projects, are bringing construction companies, machine fabricators, IT companies and, off course, research from university together. The common concept is building information system that links from design to production, as well prefabricated as well on site construction.

A third one of similar kind is under negotiation with the EU- Commission.

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