



Sparkling Science >

Science linking with School  
School linking with Science

**Final Report, 31<sup>st</sup> January 2010**

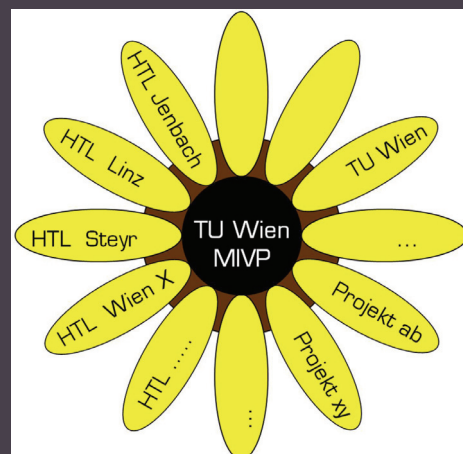
**Virtual Product Development**

**LEADING INSTITUTION**

Vienna University of Technology, Institute for  
Engineering Design and Logistics Engineering  
Coordinator: Univ.Prof. Dr.-Ing. Detlef Gerhard  
Contact: detlef.gerhard@tuwien.ac.at

**SCHOOLS INVOLVED**

HTL Jenbach, Tyrol  
HTL Linz (Litec), Upper Austria  
HTL Steyr, Upper Austria  
HTL Wien 10, Vienna



**BMWF<sup>a</sup>**

[www.bmwf.gv.at](http://www.bmwf.gv.at)

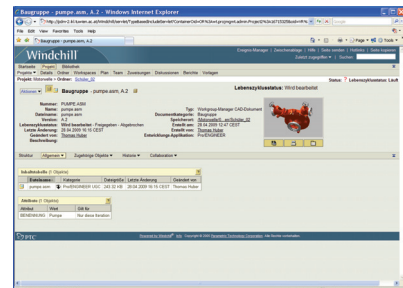
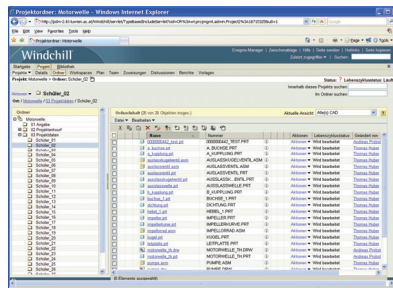
Austrian Federal Ministry of  
Science and Research

## “BLUME” – Development of a PDM education and project-environment for collaborative product engineering

Geometry modeling in 3D-CAD systems is the main part in the obligatory lessons engineering design and product development in technical and vocational schools. The amount of generated data gets more complex with increasing number of members in a project. Data handling in conventional file systems gets unmanageable. This is essential for educational and researching institutes as well as for companies. The reason can be located in the different methods of working with a modern 3D-CAD system compared to earlier in the 2D-sector where the design method rather corresponds to ruler and pencil. Data handling generates a lot of operative problems, as for example: data loss from lost removable mediums or overwriting newer versions with older ones over shared network connections.

The primary target of the project is the development of a suitable IT environment for lessons and projects based on a centrally maintained PDM system with access for all co-operating project partners. This ensures consistent data also in multi user environments over all participating partner schools. In addition to an IT tool that assists in operative tasks, the PDM platform also helps to improve the quality of education for curricula like technical documentation or teamwork experience. Additionally it is possible to communicate knowledge of technology, functionality and usage of database orientated technical IT systems to the students in the class.

In the sense of an agile development process the concept for the implementation was to get as much feedback from the users (pupils and teachers) as possible and then to setup and adjust the system in short iteration cycles. This was the best and right way as common PDM systems – so is the specially for the BLUME platform used system – are designed and preconfigured for producing industrial companies and are not orientated on the requirements of educational institutes. Also the necessary information for usage and handling of the system was designed short and compact. Instead of a printed documentation screencasts of handling sequences were produced and provided as videos on youtube.



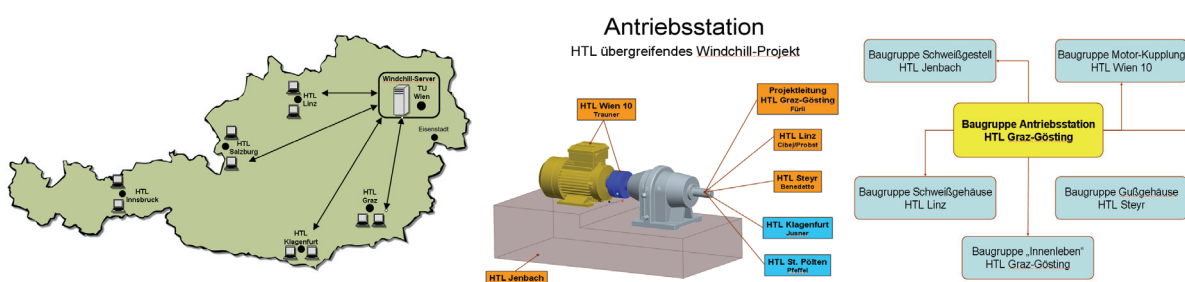
## Conclusion


After analyzing and summarizing the requirements for the different types of classes to be supported, the various needed components of software were installed and adapted. After overcoming some barriers, e.g. different browser versions in the schools, partly not server compatible, at about one third of the expected project duration, an important milestone was reached. A prototype environment for testing with small class projects was provided to the schools. Ing. DI (FH) Andreas Probst, teacher at the HTBLA Linzer Technikum (LiTec) said: "The BLUME platform has become a basic tool for efficient execution of design projects for us. The implementation was not always trouble-free and surely it was only possible through a co-operative project of multiple schools together with a university institute. It was important and useful to integrate the students directly into the project, because they have another approach to software solutions and therefore they gave important suggestions and feedback."

With the substantial involvement of students and teachers it was possible to get a configuration of the PDM system that fits well to the requirements of educational institutes. When creating new projects, teachers get predefined templates, for example class project, small team project, industry project, with pointed setups and directory structures for the project type. Furthermore, access rights to project data can be set up easily depending on the project type. The definition of milestones, e.g. calculation, pre-design, detail design 3D, drawing 2D, is provided in the project life cycle, so that teachers have to give the approval at certain points, before students can continue their work.

## Perspectives

From the very beginning the project was designed to be an enduring solution platform for collaborative product engineering at schools and universities and to be the basic for a high quality education matching the requirements of industry. All HTL schools involved in the consortium 3D-CAD ([www.3D-CAD.at](http://www.3D-CAD.at)) are interested in a future use of the BLUME platform. In the first step only one CAD interface was implemented. In future steps the integration of all CAD systems used at Austrian schools and universities is planned. Then common projects with several schools or industry partners can be operated efficiently. Furthermore, the integration of international cooperation partners of various schools into the BLUME platform is aspired to support international education projects in the fields of machine design and product development.





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