The parallel engineering of industrial plants demands the effective and efficient collaboration of domain experts, such as mechanical, electrical, and software engineers, and of their specialized software tools. While there are attempts to impose fixed sets of software tools, which work well together, the reality in most projects is a “best of breed” collection of software tools that were not designed to cooperate seamlessly.

For existing plant, which have been automated in a traditional way, the integration of engineering is valuable and important. However, for Industry 4.0 solutions, which are to be changed repeatedly along their life cycle, this integration is indispensable, since only machine-processable lifelong documentation of all systems enables their evolution.

We can observe a kind of “Engineering Polynesia” of tool islands with interfaces that do not fit seamlessly and an “Engineering Babylon”, in which engineers use common project-level concepts, which are, unfortunately, represented in various ways by their tools. As a consequence domain experts have to cooperate in person to conduct repetitive engineering tasks that should be mostly done by cooperating tools, e.g., the propagation of changes across tools, quality assurance between engineering models, or progress reporting on engineering tasks.

At ANDRITZ HYDRO, a hydro power plant engineering company, and at further industry partners, automated change propagation across domains with the ASB allows introducing comprehensive versioning of engineering models in shorter cycles, e.g., with the “Semantic Dropbox”, and therefore finding and correcting defects significantly earlier than before. In tool networks, which use the AutomationML standard for describing the data to be exchanged, the AutomationML Hub offers the efficient integration of data views, versioned storage and analysis for advanced engineering processes, such as test automation. To support continuous improvement processes, an adjusted improvement process according to VDI 3695 allows the focused analysis of organizations or engineering projects and helps identifying customer-specific candidates for improvement.

Benefits of Software Engineering Integration for flexible Automation Systems

- Cost Savings by means of improved inter-disciplinary communication.
- Reduction of down-times by means of improved use of engineering documents
- Quality assurance due to traceable systematic tool networks.
- Flexibility by enhancing the benefits of existing software tools.
- Fit for automation engineering as engineers can work offline, on site.
- Low risk with incremental introduction of the integration as needed.

Contact:
Heinrich Steininger
CEO logi.cals Austria
Phone: +43 5 77147
Fax: +43 5 77147-99
info@logicals.com
http://www.logicals.com

Stefan Biffl
Head of CDL-Flex
Stefan.Biffl@tuwien.ac.at
http://cdl.ifs.tuwien.ac.at