

Engineering Process Improvement based on VDI 3695

The efficient design of technical systems requires appropriate engineering processes to enable high-qualified engineers in focusing on new challenges and delivering high-quality results. Reusing experiences and solution concepts, derived from previous projects, have to be efficient and systematic.

Goal

Efficient and timely execution of engineering projects are success critical issues in many organizations. However, every project is challenging for all project stakeholders. Projects that exceed planned project constraints, e.g., time and budget, and the loss of critical experiences and knowledge include high risks for project success. To overcome these risks, organizations have to establish processes that link project-dependent activities and project-independent activities efficiently.

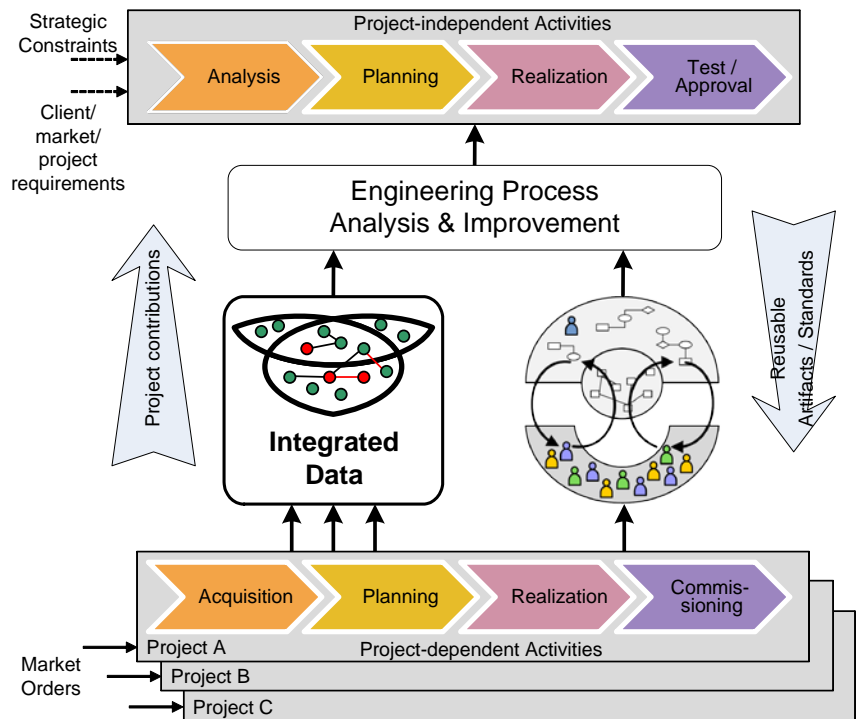
Established processes have to be assessed according to upcoming needs and opportunities and have to be adapted accordingly to limit project risks and to enable engineers to benefit from previous experiences and knowledge.

The VDI/VDE guidelines 3695 „Engineering of Industrial Plants – Evaluation and Optimization“ can support different aspects of engineering processes by analysing the current state of the process, defining planned target states, pre-conditions, and measures to achieve these states.

Implementation

Based on VDI 3695, logi.cals GmbH, University of Magdeburg, and TU Vienna developed an analysis and consulting approach that enables an efficient and traceable analysis of existing engineering processes as well as an efficient identification of improvement options and opportunities. In addition, this process approach enables analyzing projects that could be at risk.

Based on an on-site process analysis including all involved stakeholders, current engineering processes are described and assessed to elicit current needs. In cooperation with experts of the organization, improvement options and improvement strategies are derived.



Approach

- **Initial Analysis** and needs elicitation at customer site (workshop with key stakeholders). Outcome are candidate improvement actions to bridge identified process and/or tool gaps.
- **Implementation and Implementation Support.** Depending on the customer decision, recommended improvement action can be implemented or the implementation can be supervised and supported.
- **Evaluation of implemented improvement actions.** Systematic and traceable evaluation of improvement actions on-site.

Topics

- Engineering Processes and Process improvement.
- Reuse of engineering artifacts.
- Integration and Traceability.
- Tools and Tool Chains.

Technical Specification

- VDI/VDE Guideline 3695
- Cooperative Process Analysis, Implementation, and Assessment
- Focus on customer needs
- Light-weight engineering process improvement approach.

Benefits for Customers

- Identification of potentials for improving efficiency in engineering processes.
- Localization of project risks and project delays.
- Applicability for continuous improvement and emergency actions.
- Stepwise approach: Initial Analysis – Implementation Support - Evaluation



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