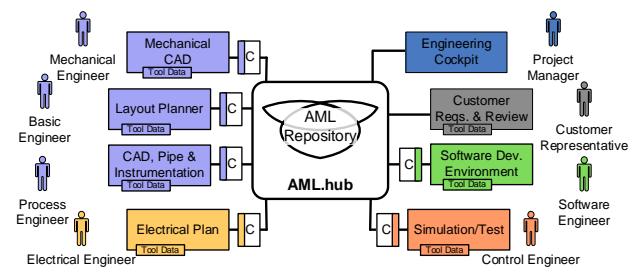


# Collaborative Review Support in MDE Environments



Review Processes should be improved by providing systematic and traceable review processes and supporting tools for defect detection for AutomationML/text and non-text documents in heterogeneous and multi-disciplinary engineering environments.

## Goal

In Multi-Disciplinary Engineering (MDE) environments changes and defects incur higher risks if not propagated accordingly. *AutomationML* provides a standardized data exchange format as foundation for synchronizing AutomationML data from different disciplines. The *AML.hub* provides the technical platform for data exchange. However, defect detection of small change sets in early engineering phases are not supported.

The main goal is to provide a collaborative review process with tool support

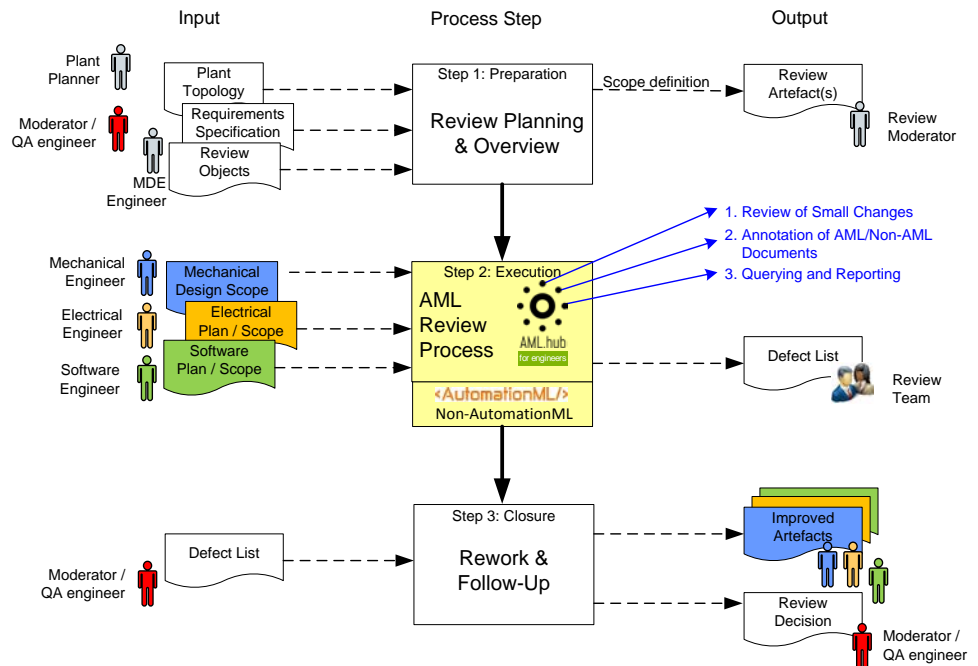
- for systematic, traceable, efficient, and early reviews
- with focus on small change sets instead of reviewing large data sets
- and tool support that enables a clear focus, annotations, and querying.

## Implementation

Based on established review and inspection an adapted review process is required to address needs derived from MDE environments. The adapted process approach includes three main phases:

- Review preparation for planning and review scoping.
- Review execution, i.e., AML Review process with tool support to identify defects early and efficient.
- Review closure including rework and reporting.

Main requirements, derived from industry, include needs for (a) *systematic and traceable review processes*; (b) focus on *small change set* instead of reviewing large change sets at the end of every engineering phase; (c) *simple annotation capabilities* for AutomationML and Non-AutomationML documents; (d) efficient browsing through engineering artifacts and the plant to-



ology to identify relationships; and (e) efficient integration capabilities into tool chains.

## Tool Chain and Tool Capabilities

The *AML.hub* provides the technical foundation for collaborative review processes with tool support. For reviewing **small change sets** of text/code documents, *Gerrit Code Review* ([www.gerritcodereview.com](http://www.gerritcodereview.com)) is well-established in Software Engineering and provides fundamental capabilities for defect detection. Key capabilities include the focus on small change sets (new, modified, removed code parts), commenting and review support by accepting/rejecting current changes. However, this approach is applicable to text documents (code and AML). *DefectRadar*

([www.defectradar.com](http://www.defectradar.com)) is an established tool in building automation for issue reporting and enables efficient **annotation** of candidate defects in non-AutomationML Files (e.g., pdf). The *AutomationML Analyzer* ([data.ifs.tuwien.ac.at/aml/analyser](http://data.ifs.tuwien.ac.at/aml/analyser)) uses integrated AML data sets and queries to enable **automated defect detection, browsing, and reporting**. This tool chain can enable systematic and traceable review processes with small AML data sets.

## Technical Specification

- *AML.hub* provides integrated data and synchronization capabilities.
- Support of *AutomationML* and Non-Automation ML engineering models.
- Best-of-Breed tool support integration.



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