



Automated Clash resolution

Contexte

A consortium of actors in the field of construction seeks to optimize the process of assembly and disassembly of large-sized structures.

In particular, it aims to increase the productivity of clash/conflict resolution operations, typically conflicts between the positioning of bars, plates, anchors, which may overlap or intersect in the construction or decommissioning design drawings.

Objectives

The Objectives are to identify solutions (processes and software) to help manage/optimize the clash (automated/semi-automated) resolution :

- Map software packages -ideally compatible with TEKLA (interoperable)
 - Identify a complete software processing chain
 - Or Existing plug-ins
 - Or propose machine learning tools/methods to automated the resolution of clashes
- Propose a written process to optimize the management and resolution of clashes
 - Iterations to determine the best solution
 - Setting up scenarios of clash resolution

Examples of possible solutions

- Tekla plug-in for clashfree rebar automatic detailing, if it exists
- Real-time Coordination process or tools could be an intermediate solution as well

Technical constraints

- Compatibility with the Tekla solution or with the TEKLA Developer API
- The proposed software could be linked to any BIM software solution (TEKLA, Solibri, Dynamo, AVEVA, Catia workbench, Naviswork,) as long as there is a software bridge/interoperability with Tekla

Economic constraints

The license fees of an off-the-shelves solution should be in the average range of the market license fees for this type of software

Rewards

Proposed solutions		Conditions	Rewards
Software	Complete software processing chain	Compatible with TEKLA (interoperable)	5 k€ for providing information on existing, off-the-shelves solutions ⁽¹⁾
	Plug-ins		
	Machine learning tools/scripts to automated the resolution of clashes	Ad-hoc	
Written process	Iterations to determine the best solution Setting up scenarios of clash resolution	Could be converted from another filed to the construction sector	

(1) : this is a first challenge, concerning information, studies, mapping of existing software, plug-ins, that meet the needs above described in this document. Based on the information from the chosen solution, a new challenge could possibly be organized concerning the detailed writing of ad-hoc algorithms and the delivery of source code.