CEPS
Cognitive Engineering Process Support

Pro²Future

Cosmina-Cristina Ratiu[1], Christoph Mayr-Dorn[2], Alexander Egyed[2], Marc Iseler[3], Gala Walden[4], Thomas Mandl[4]

Pro2Future GmbH[1], JKU-ISSE (Institute for Software Systems Engineering)[2], MethodPark by UL[3], Robert Bosch AG[4]
[1] Science Park 4, Altenberger Strasse 69, 4040 Linz
[2] Science Park 3, Altenberger Strasse 69, 4040 Linz
[3] Wetterkreuz 19a, 91058 Erlangen, Germany
[4] Göllnergasse 15/17, 1030 Wien

MOTIVATION & GOALS

Motivation: As the complexity of engineering products increases, the processes involved become more **complex** and **collaborative**. This results in numerous corner cases, process variations and completion criteria for different process steps.

Goal: Supporting engineers and process modelers through these processes by:
- Improving artifact traceability and trace navigation
- Supporting more fine-grained artifact properties in process modelling
- Supporting temporally-aware process constraints
- Identifying process deviations at runtime and generating repairs
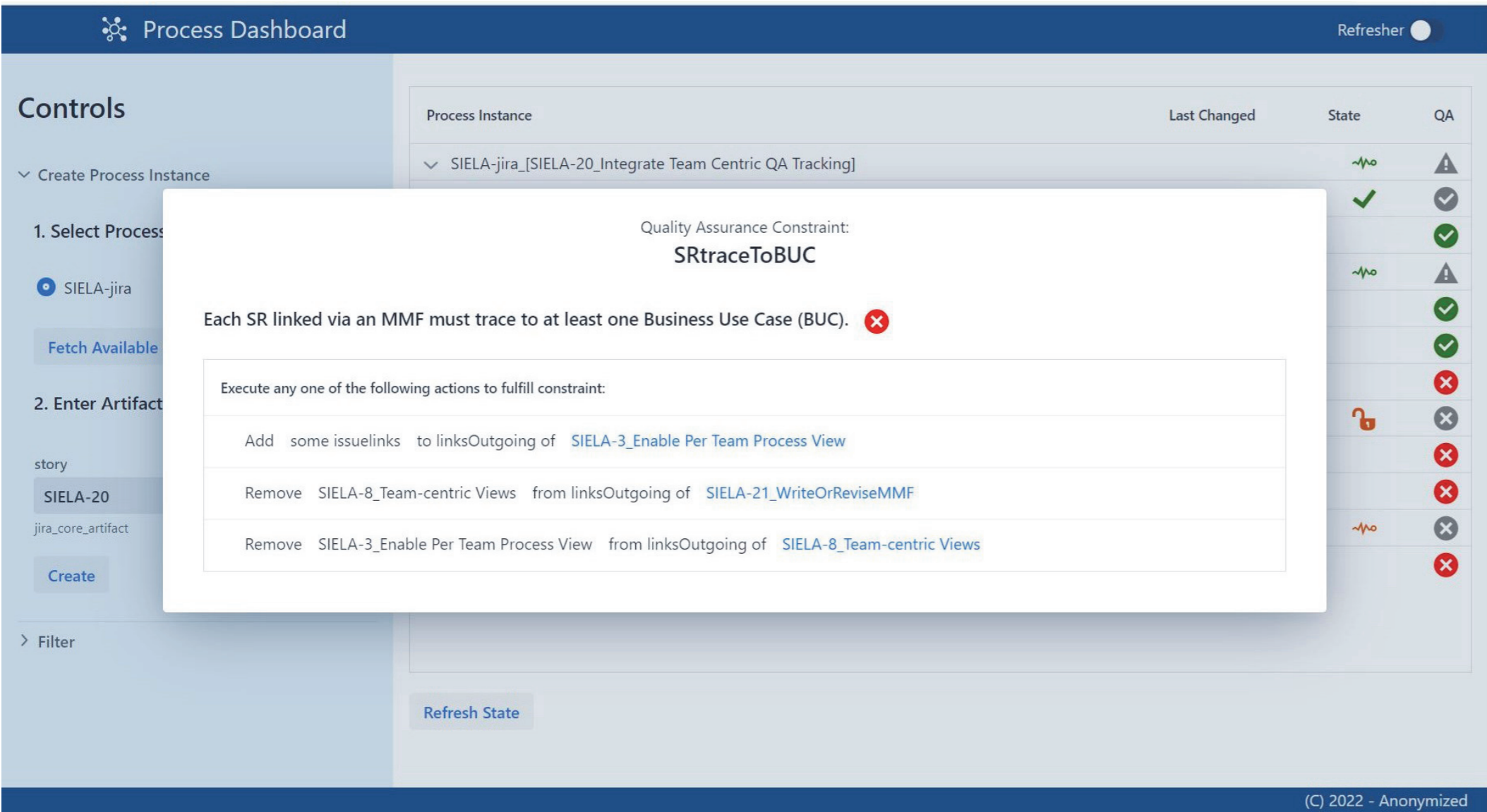- Providing runtime, customized process guidance for engineers

Project FactBox

Project Name	CEPS
Project ID	MFP II 2.1
Duration	36 Months

Area 2
Cognitive Robotics and Shop Floors

Project Lead
DI Michael Mayrhofer

APPROACH

The Guidance Dashboard. The dashboard shows an overview of the process and currently active process step. Here, the engineer can check the pre- and postconditions of the step, as well as the quality constraints to be fulfilled.

CONTRIBUTION

Scientific contribution
Publications in reputable journals and conferences
A novel runtime process constraint checking method
A novel runtime-checked temporal constraint specification language

Economic contribution
Supporting faster error recognition and offering repair suggestions
Rapidly enabling and training developers and engineers
Adding supplementary process monitoring options

SYSTEM ARCHITECTURE
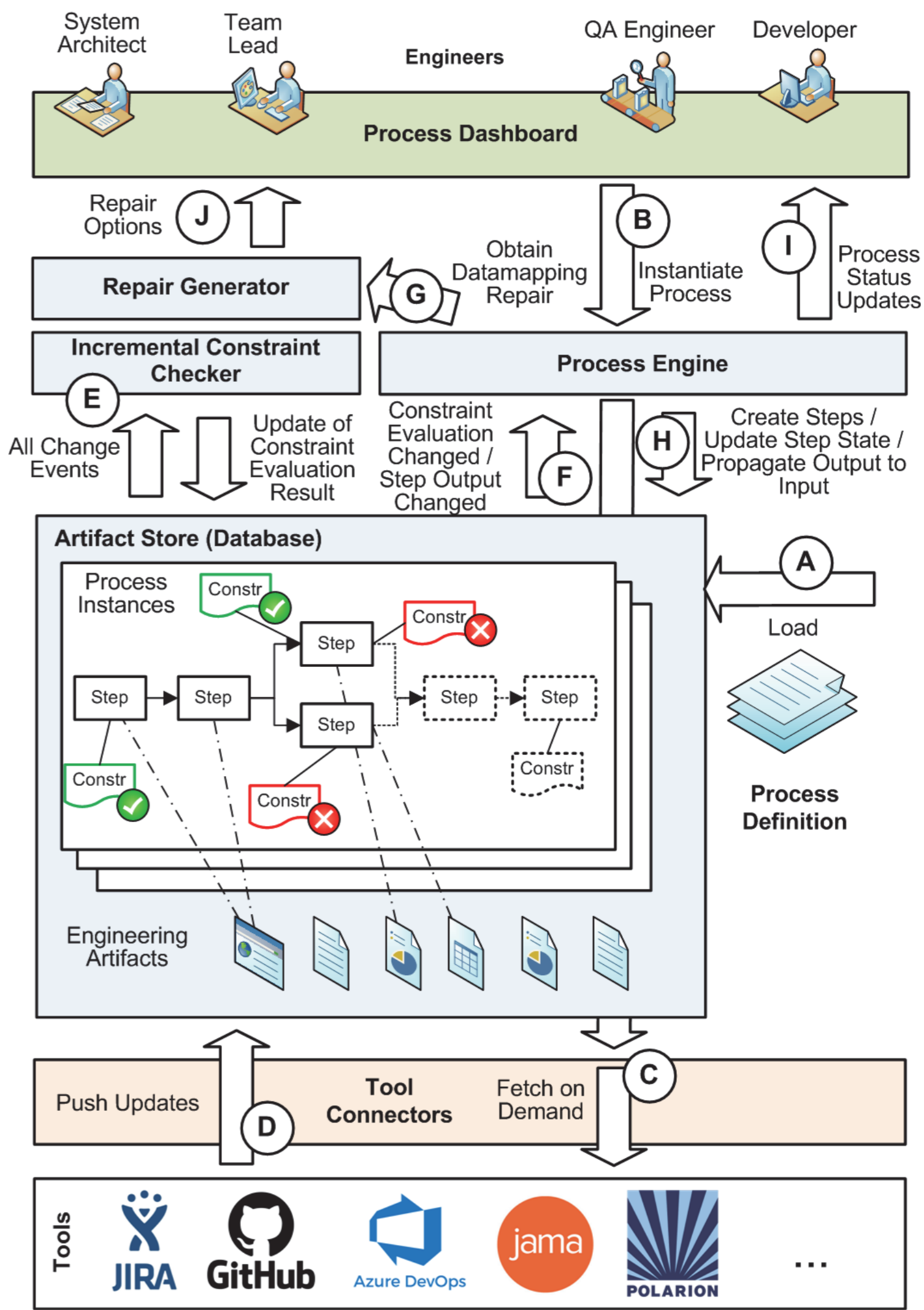
The System Architecture. Tool connectors observe the changes happening in the tools used by the engineers. The changes are passed to the process engine, returning updated process step information.