Modeling for Reliabilty Engineering

by Gerrit Muller TNO-ESI, University College of South East Norway

e-mail: gaudisite@gmail.com

www.gaudisite.nl

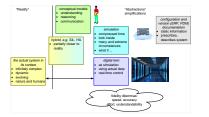
Abstract

Reliability engineering may gain from using executable models such as simulations. However, core in achieving reliability is understanding of the system, and its behavior in its actual context. This requires conceptual models complementing executable models.

Distribution

This article or presentation is written as part of the Gaudí project. The Gaudí project philosophy is to improve by obtaining frequent feedback. Frequent feedback is pursued by an open creation process. This document is published as intermediate or nearly mature version to get feedback. Further distribution is allowed as long as the document remains complete and unchanged.

October 5, 2019 status: finished version: 0



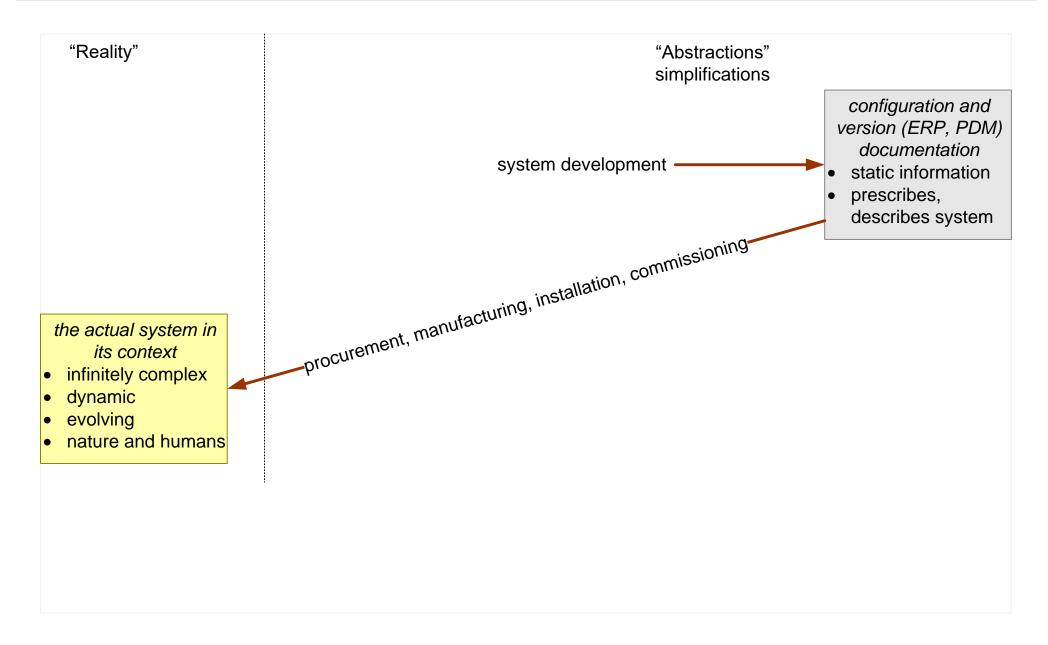
The system

the actual system in its context

- infinitely complex
- dynamic
- evolving
- nature and humans



Developing, Building and Operating





Simulating

"Reality"

"Abstractions" simplifications

simulation

- compressed time
- look inside
- many and extreme circumstances
- what if ...

configuration and version (ERP, PDM) documentation

- static information
- prescribes, describes system

the actual system in its context

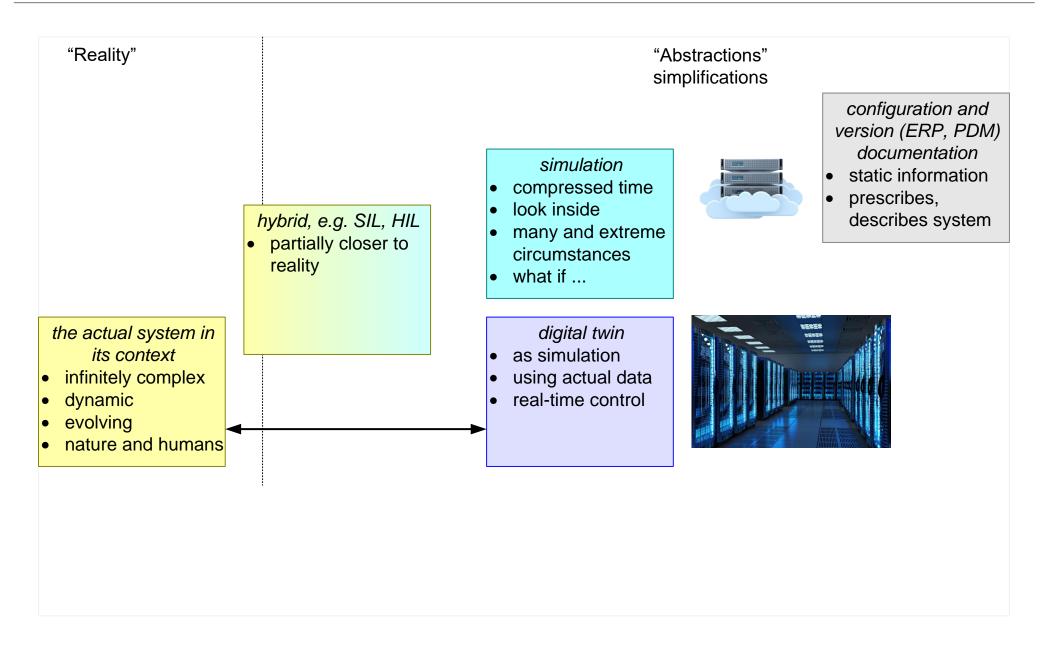
- infinitely complex
- dynamic
- evolving
- nature and humans

Hybrid simulators

"Reality" "Abstractions" simplifications configuration and version (ERP, PDM) documentation simulation static information compressed time prescribes, look inside hybrid, e.g. SIL, HIL describes system many and extreme partially closer to circumstances reality what if ... the actual system in its context infinitely complex dynamic evolving nature and humans

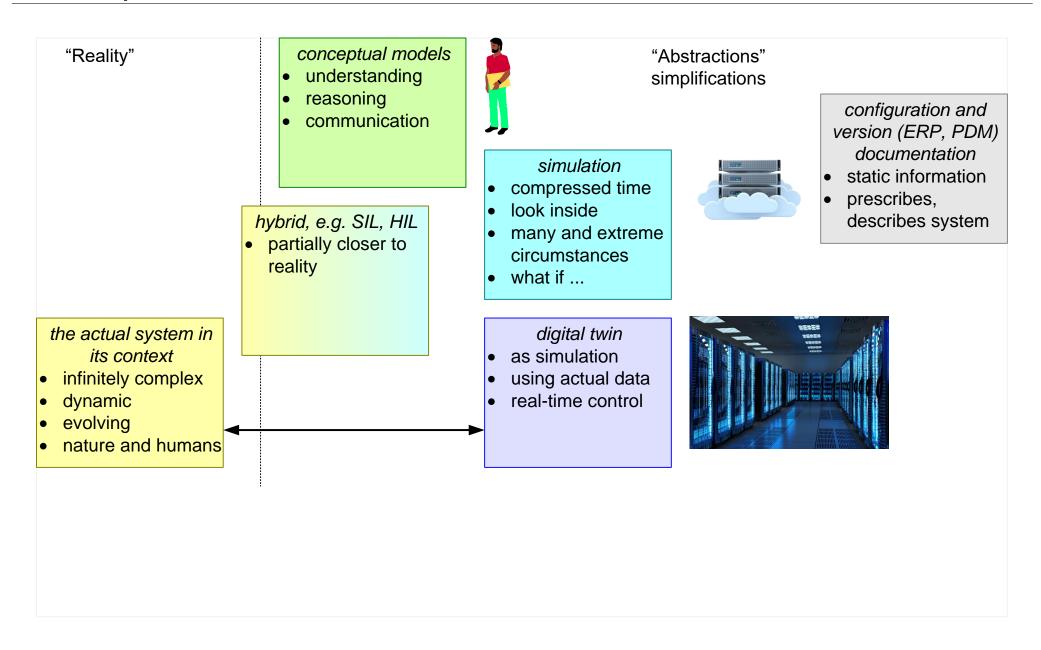


Digital Twin





Conceptual Models





The Modeling Playing Field

