

Combining digital twins to build virtual test beds for complex application scenarios – Frank Heinze, RIF e.V.



RIF e.V., Dortmund, Germany

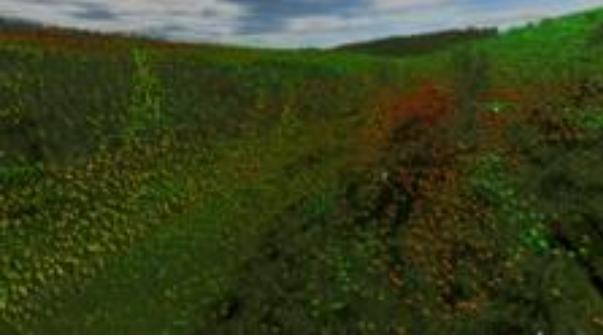
- Non-profit association founded in 1990
- Currently about 120 employees in different departments e.g.:
 - Quality management
 - Robot technology
 - Production automation
 - Industrial science
- Technology transfer organization to bridge the gap between university and industry



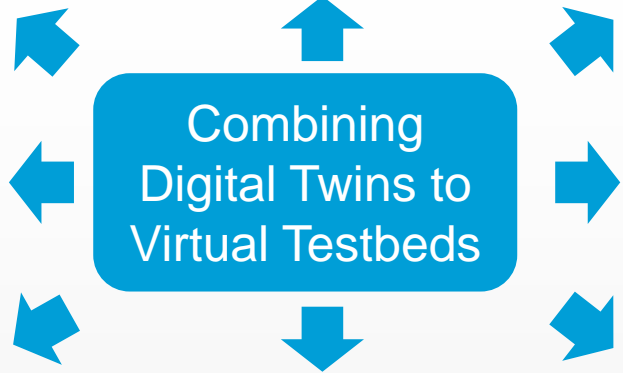
Topics to explore

Application areas for digital twins and virtual testbeds

Data Visualization



Virtual Training



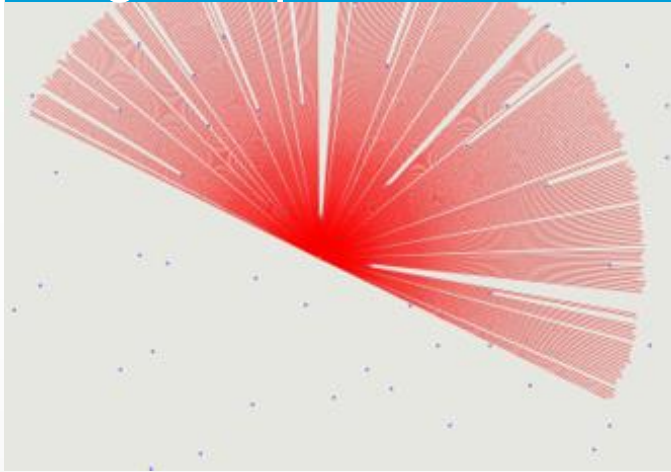
Engineering



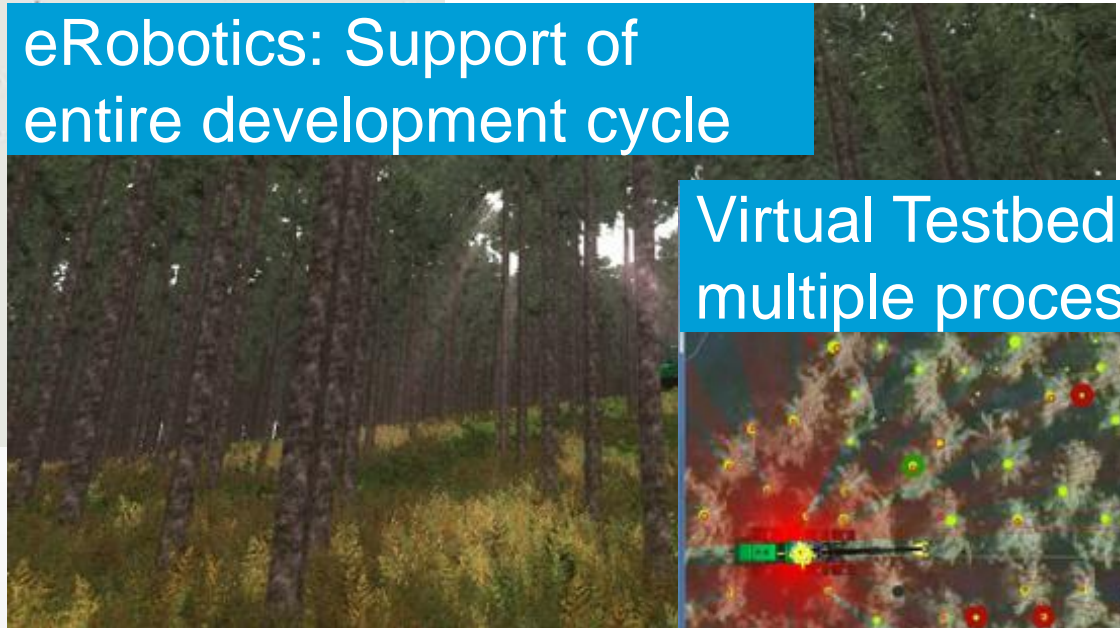
Type and role of partners

Partners/Consortiums looking for digital twins/ virtual testbeds

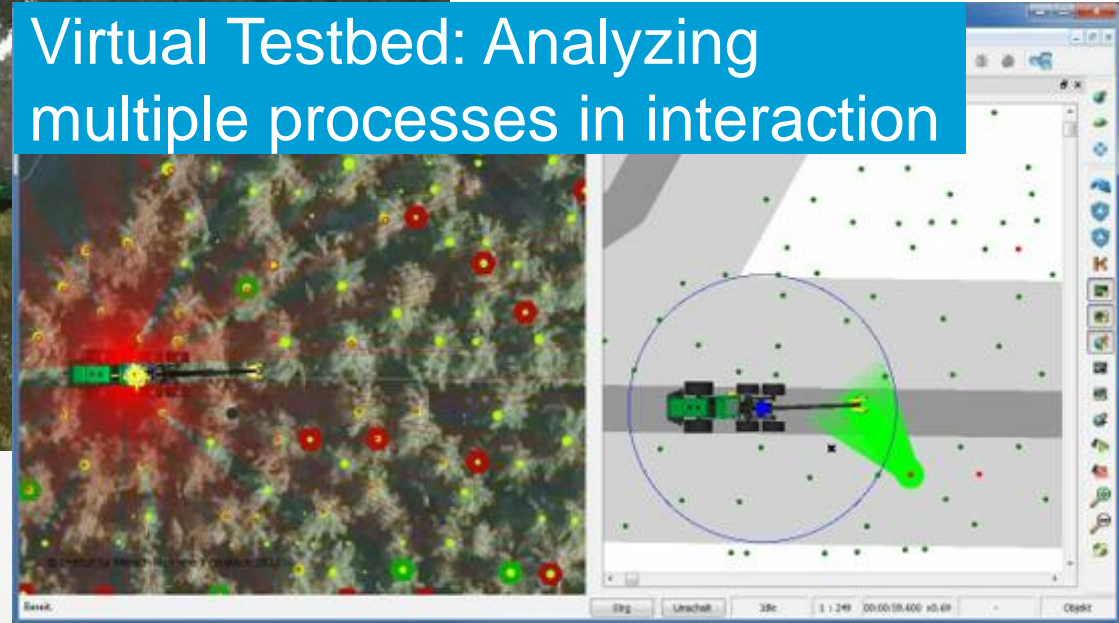
Simulation: Analyzing single aspects



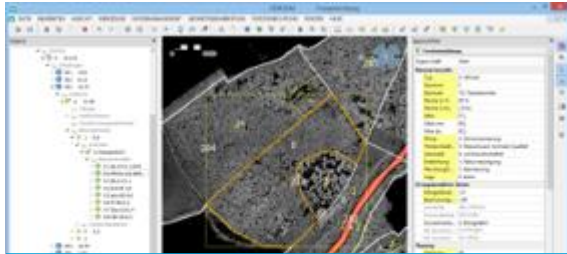
eRobotics: Support of entire development cycle



Virtual Testbed: Analyzing multiple processes in interaction



Application areas



Forest Inventory



Forest Management



Harvester Training

Environment



Process Optimization



Mechatronic Systems

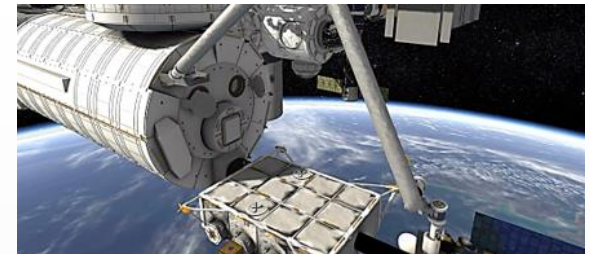


Production Automation

Industry



Assembly Integration and Testing



Orbital Missions



Landing and Exploration

Space

Operation and feedback for training simulators.



Targets:

- Realistic driving experience
- Training in extreme situations

Challenges:

- Use of real cockpit elements
- Synchronization of visualization and movement
- Movement restrictions of the robot

Solution approaches:

- Hardware-in-the-Loop for robot control and on-board computers
- Motion transformation using Washout filters

Contact information

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