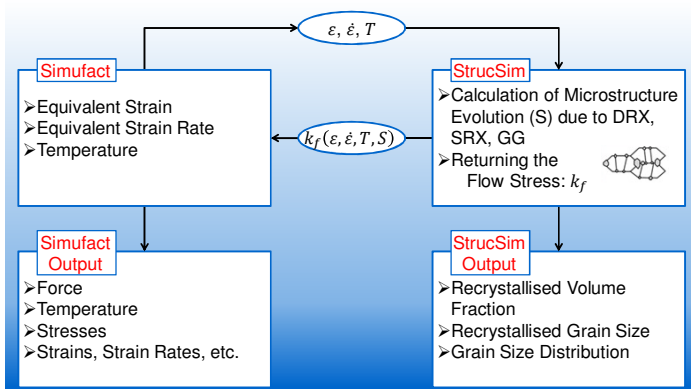


Research objective

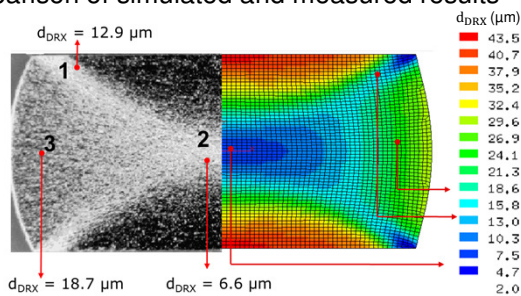
- Modelling hot forming processes of non-ferrous material with crystalline structure
- Design new and optimise the existing process chains considering the effect of microstructure evolution
- Applications: ring rolling and extrusion processes



StrucSim coupling with Simufact forming

Project Plan

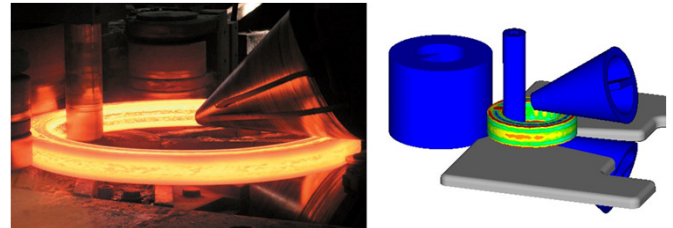
- Implementation of StrucSim material module for integrated microstructure prediction during the forming simulation in Simufact forming
- Tracking of the process chain during operation at further external partners
- Measurement of boundary conditions (e.g. forces and temperatures) and determination of material properties (e.g. microstructure)
- Comparison of simulated and measured results



Grain Size: Experiment and Simulation

Advantage of the StrucSim integrated structure simulation

- Prediction of the structure development during the complete process chain
- Calculation of the occurring forces and moments under consideration of the changing material behaviour

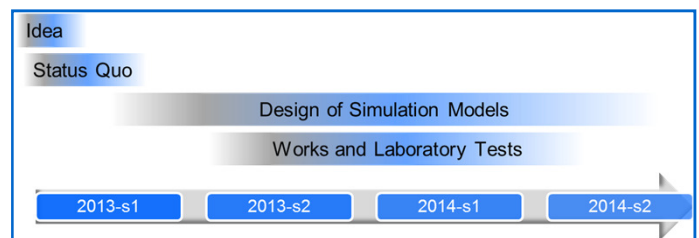


Ring Rolling: Real Process and Simulation

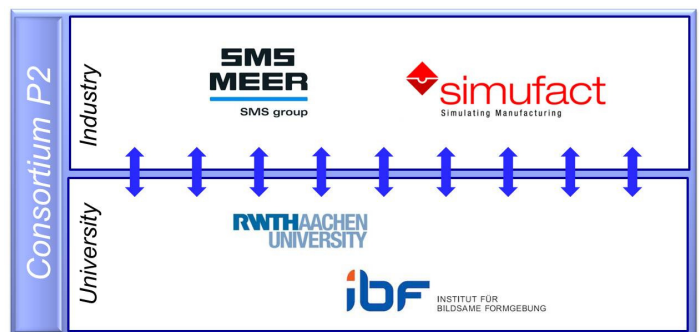
Major Work Packages

- Familiarisation with material modelling in hot forming
- Design and further development of simulation model
- Works and laboratory tests for validation of the model

Timeline



Consortium



Ring Rolling



Extrusion

