


# Newsletter 12

## Crankshaft remanufacturing demonstrator

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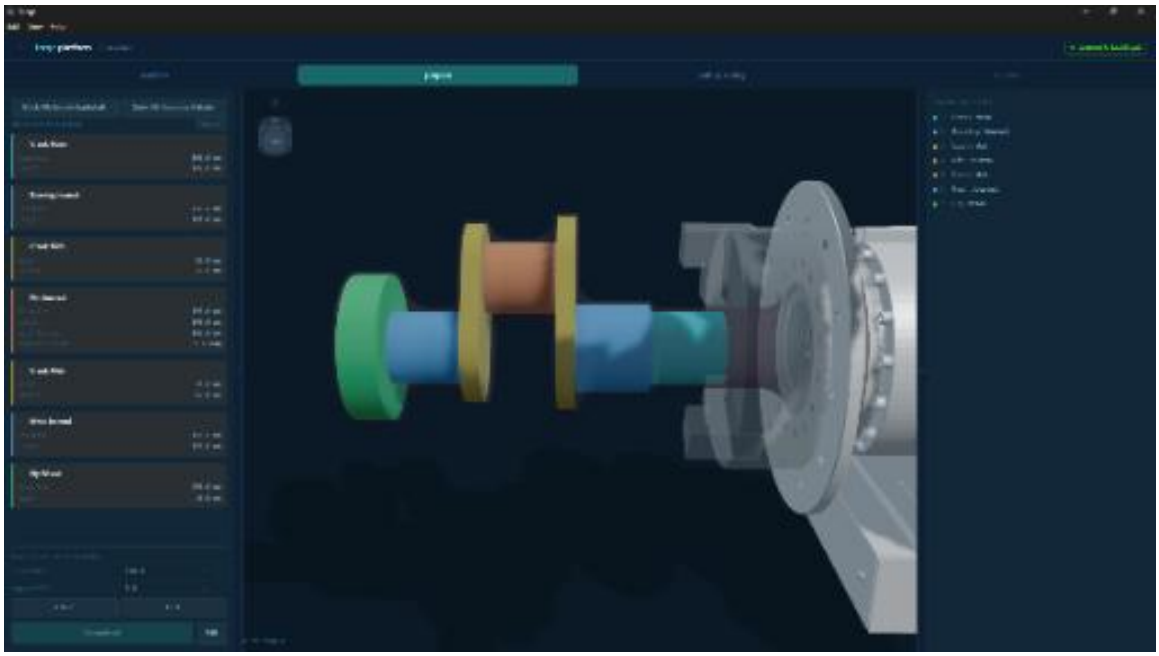
## Demonstration, testing and validation

### TMCOMAS's crankshaft remanufacturing demonstrator

For R3-MYDAS's oil and gas use case, TMCOMAS brought digital planning and robotic laser cladding together in a crankshaft remanufacturing demonstrator. The work connected measurement, planning and physical repair, addressing the challenge of rebuilding worn journals with eccentric geometries as one industrial workflow rather than a set of separate tools.

Scanned journal geometry informed repair planning, linking the component's actual shape to robot paths and checks in the virtual cell. This digital-to-physical connection supported preparation of the repair before execution on the equipment, bringing the planning tools into the wider demonstrator.



*TMCOMAS software interface showing the virtual robotic cell used for repair planning. Screenshot from the UC1 working documentation.*

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## Coordinating motion and validating the process

Coordinated robot and positioner motion was central to following eccentric journal surfaces during cladding. Integrating this coordination with geometry-based planning linked the digital workflow to the practical demands of repairing a crankshaft, the industrial focus of the demonstrator described in D2.3.

Cladding trials and material assessment supported process evaluation alongside checks of geometry and coordinated motion. The work culminated in final validation on an actual crankshaft, taking the workflow beyond simulation and sample-based trials to a real industrial component.

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