Proposed additive manufacturing projects

The workshop held by the Oil & Gas Technology Centre and Manufacturing Technology Centre generated four potential projects.

Please review the project descriptions below and complete the online form to let us know which projects you are potentially interested in supporting. Support could be in the form of co-funding, providing access to equipment and facilities, offering technical expertise etc.

If a project generates sufficient industry interest, we may prepare a proposal that would be subject to standard OGTC processes.

Project 1
Use additive manufacturing to design and manufacture a prototype of a pressure retaining component.

- Understand the end application/functional requirements of the component and respective working environment
- Redesign of component using 'design for additive manufacturing' principles to improve performance, reduce lead time and deliver material savings
- Select appropriate additive manufacturing material
- Manufacture a prototype

Project 2
Repair of worn-out or damaged parts (e.g. blades, casings, tooling, subsea equipment) to enable extend use life or allow reuse in other assets in a circular economy perspective.

- Scan the part and compare against nominal CAD to analyse the damage
- Use additive manufacturing to add material locally
- Machine the component back to original shape
- Testing program

Project 3
Landscape/feasibility study to generate printability index for the creation of an online repository of standard drawings for 3D print ready equipment.

- Identify parts with input from industry, including platform, control systems, assembly systems, non-critical structural parts and more
- Down-select all the components to rank suitability for Direct Energy Deposition (DED) and Powder Bed Fusion. Assessment based on technical and commercial viability. Rank the parts.
- Identify appropriate materials and additive manufacturing processes. List of parts to be added to the catalogue for additive manufacturing with complete sample templates & instructions

Project 4
Repair of pipes through internal cladding to extend the life as an alternative to asset replacement.

- Feasibility study to assess suitable methods of repair of different diameter pipelines, based on different grades of degradation, pipe fractures, different repair techniques and different repair materials (wires/powders)
- Demonstration of Direct Energy Deposition (DED) processes used for improving product life by remanufacturing the components and any post machining to take component back to original technical spec
- Provide mechanical test program to prove integrity of repair

NB your feedback at this stage is only an expression of interest. It is not a commitment to support the project if it progresses.