

## ICARUS - An ICT enabled approach to optimising the reliability of manual ultrasonic non-destructive testing

Manual ultrasonic testing (MUT) is a long established and extensively adopted inspection technology embedded in and vital to the integrity and performance management of capital assets in safety critical industries including aerospace, chemical processing and power generation.



Of all available volumetric inspection systems, ultrasonic testing is recognised as providing the highest sensitivity to flaw detection. However, the reliability of MUT has been comprehensively investigated in recent years with a particular focus on the influence of human factors upon the probability of defect detection.

### Project objective

Without exception, these trials have demonstrated that the reliability of MUT is sub-optimal. The ICARUS project seeks to deliver a step-change in the reliability of MUT inspection by developing an ICT enabled, enterprise-wide approach that improves the performance and functionality of each of the three key elements in the system: the procedure; the equipment and the personnel, thus effecting a significant and measurable increase in the Probability of Detection (PoD), a consequent decrease in the Probability of Failure (PoF) of an engineering system and thereby a substantial reduction in risk.

The ICARUS project proposes to:

- Model scanning patterns for typical structure geometries to be used for MUT
- Develop a spatial positioning system to locate the position of transducers during MUT
- Develop a Bayesian inference engine to help the inspector in the decision making and reliability of inspection
- Develop a training environment

For further information, please visit the project website at [www.icarus-project.eu](http://www.icarus-project.eu).



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