

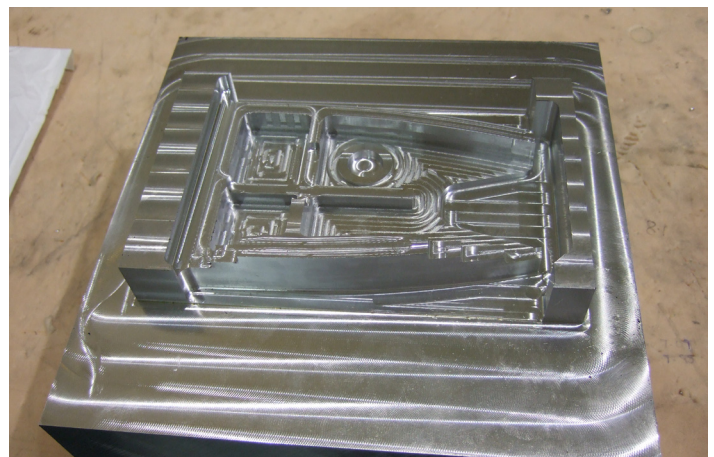
## **FoFdration project partners Artis and Delcam just finished a three day workshop in Birmingham to run the first set of machining experiments to validate the initial research outcomes of the 4th Work Package.**

Partner Artis (Germany) visited Delcam (United Kingdom) for three days at the end of November 2012 with the objective to install and train staff on using process monitoring equipment on one of the CNC machines inside Delcam's toolroom. The second objective was to perform the first set of machining experiments to use the process monitoring equipment and to log process conditions to validate the R&D developments carried out by Delcam in order to improve the lead time and surface quality in milling processes.

The 4th Work Package of the FoFdration project focuses on two main tasks. The first one, led by Delcam, focuses on developing realistic kinematic and dynamic models to achieve a realistic estimation of machining time and representation of surface quality. The second task, led by Artis, focuses on monitoring and processing real-time process information during machining to enable corrective actions to avoid damage to the tool/part/machine. The workshop in Birmingham brought together the two research tasks; using the process monitoring data logging capabilities it is possible to capture measurements data, which in turn is needed to validate the developed models with respect to estimation of machining time and representation of surface quality.

Simulation developments take place in Delcam's CAM software PowerMILL where the new algorithms will improve the predictability of time estimation and simulated surface quality using new kinematic and dynamic models using the most important identified process parameters such as spindle torque, axis feedrate and machine accelerations. Delcam's DMU160 5-axis milling machine is equipped with Artis' CTM process monitoring card, providing tools to, for instance, avoid tool breakage or part damage due to tool wear. In parallel to the commercially available hardware, several R&D results and new developments were also tested and installed at Delcam's facilities.

Machining experiments have been carried out throughout the three days and while machining was taking place, several members of the Delcam staff were trained in operating Artis' hardware and software components for future experiments within FoFdration. The project team will continue with machining experiments across Europe, including experiments at Artis, ECN (France), CRF (Italy) and ETHZ (Switzerland), where the team will all use a common test piece from aerospace, provided by project co-ordinator Airbus.



*The Airbus aerospace test part 'Fishhead' which was machined during the three day workshop, and is being used as a common test piece*

For more information about the FoFdration project visit <http://www.fofdation-project.eu> and the project's social media pages, including Facebook (#fofdationproject) and Twitter (@FoFdration).

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*For further information please visit:*

*[http://ec.europa.eu/research/industrial\\_technologies/factories-of-the-future\\_en.html](http://ec.europa.eu/research/industrial_technologies/factories-of-the-future_en.html)*