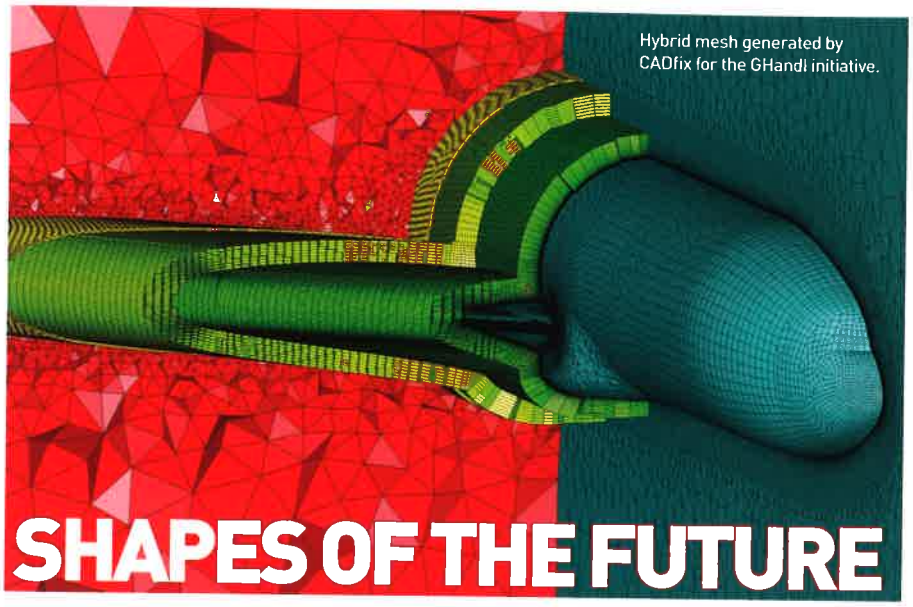
Update



Hybrid mesh generated by CADfix for the GHandl initiative.

SHAPES OF THE FUTURE

RESEARCHERS HAVE DEVELOPED NEW SIMULATION AND ANALYSIS TOOLS WHICH HAVE IMPLICATIONS FOR FUTURE AEROSPACE PROGRAMMES.

One of the most fundamental properties affecting the aerodynamic performance of an aircraft's body is its shape.

With demand increasing for improved performance and optimisation of airframe shape simulation and analysis, the partners in a UK government-funded research initiative into geometry handling and integration (GHandl) are optimistic their findings will have applications in future aerospace programmes.

New capabilities resulting from this project included enabling the automatic generation of a high-quality mesh for computational fluid dynamics (CFD) simulation of the airflow around an aircraft.

Among the GHandl partners was MAA member International TechneGroup (ITI), whose leading CADfix software offers reliable interoperability, validation and migration solutions for product data and related systems.

A key challenge in the aerospace industry is creating geometry for complex high-quality mesh. This is often a costly, time-consuming and manual process. The GHandl project was established to address a range of complex geometry handling and integration challenges that are key to the UK's future competitiveness in aerodynamic design.

ITI's CADfix team worked with GHandl programme partners, including Airbus and MBDA, to develop new capabilities for extracting information from geometry and adapting it for use elsewhere in the aerodynamic simulation process.

CADfix made three key contributions:

- Advances in the unique CADfix medial object technology.
- Automatic domain sub-division of the air close to the aircraft skin into connected partitions.
- Development of a framework for integrating best-in-class meshing technologies and external components to orchestrate the creation of a high-quality hybrid CFD mesh.

The results demonstrate the potential for application in future aerospace programmes, and extend to improving geometry handling for internal airflow simulation in aero engines, hypersonic simulation of missiles, and other advanced aircraft simulations.

"Improving aerodynamic modelling techniques are becoming increasingly important," said GHandl project lead Robin Addison of MBDA. "The results from the GHandl project and the advanced geometry handling and meshing technology developed give us the critical building blocks needed to innovate the next generation of aircraft."

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AGM, MEMBERS MEETING PUTS BREXIT IN A MIDLANDS CONTEXT

The potential impact of Brexit on the aerospace industry in the Midlands is the theme of the MAA members meeting, combined with our AGM, on 1 November in Derby.

Member companies of all sizes will find the discussion of the myriad possible implications of the UK's evolving relationship with the EU and the rest of the world valuable for their own business planning.

Factors such as export tariffs, border controls, customs, R&D finance and the single market are expected to come under the scrutiny of guest speakers.

The AGM will include MAA annual reports and election to the board.

The meeting venue is the Derby Conference Centre which is set in a historic railway building dating from 1938.

The meeting starts with networking and refreshments at 16.00 and concludes at 20.00 after a networking buffet supper. Visit the MAA website to reserve your place.

See also 'Navigating uncharted economic waters', page 6-7