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# PRINCIPAL OUTCOMES FROM THE GEMINIDS/IODA GEOMETRY-HANDLING AND PARAMETERISATION WORKSHOP

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This summarises the shared development priorities identified during the GEMinIDS/IODA Geometry-Handling and Parameterisation Workshop held on the 25th & 26th October 2017. Attendees were researchers and industrial practitioners from the aerospace and automotive sectors who shared experiences in geometry-handling and parameterisation for Computer Aided Engineering. Participants gave presentations, and group discussions were held to identify common interests. Note: This is an overview of the views expressed. It does not necessarily reflect the opinions of every individual who attended, nor of the organisations represented.

Development Priorities:

In both the aerospace and automotive sectors different stakeholders have different requirements for geometry modelling. This has far-reaching implications on the efficiency & effectiveness of the design process. The following development priorities were identified:

**1. Improve the links between different geometry models**

Synchronous access to multiple geometric representations is key. Requirements are:

1. Improved associativity between the different models of a product:
2. Improved support for model parameterisation:
3. Greater levels of automation to support the above

It was noted that improvements should not only be sought in geometry and meshing. Re-formulating simulation codes to make them less sensitive to imperfections in geometry and/or mesh could also contribute towards realising the above goals.

**2. Adopt alternative geometry modelling techniques to improve product performance**

Alternative geometry modelling technologies to those used in contemporary Mechanical CAD systems offer potential improvements in product performance and suitability to computational simulation. It is recommended that:

1. Focus be placed on exploring the use of disruptive modelling technologies. Examples include level-sets and sub-division surfaces.
2. In support of novel developments in areas such as constraint led optimisation, robust design, the use of advanced manufacturing techniques, and many others.

Substantial progress towards the realisation of these priorities could offer a range of new opportunities for inserting innovation into the industrial design process.