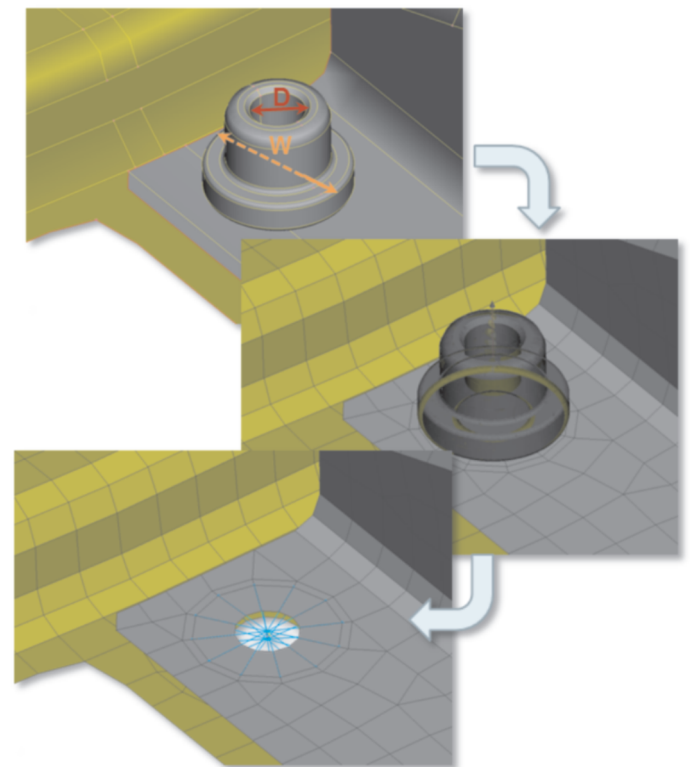# Volvo Car Corporation: Weld nuts modelling for vehicle durability

Challenge

- The exploitation of the weld nut 3D-representation for the extraction of bolt joint data .
- The use of them in the model build process at the early stage of meshing.

Approach

- A script was developed, that extracts geometric information of the weld nuts (i.e. weld nut width, bolt diameter) and stores it in bolt connections.
- For each bolt connection its connectivity is also detected, based on parts with openings in its vicinity.
- The Batch Meshing tool recognizes and treats bolt holes based on the bolt connections' - and subsequently weld nuts'- information. Finally, the bolt connections are realized through the Connections Manager, with suitable FE-representation.

Results

- The weld nuts modelling bottleneck for the body assembly is resolved.
- The process is automated.
- 20% modelling time reduction.
- considerable increase of the process reliability.

> "With the automation of the weld nut modelling, significant time has been reduced in the modelling phase allowing the engineers to focus on the more qualified analysis phase improving the product."
>
> *Markus Fritzell, CAE analyst, VCC*