

## Bristol, 18/03/2014 – Technology Strategy Board project LIGHT; initial results discussed at Bloodhound SSC

Bloodhound SSC hosted the first quarterly meeting for the LIGHT project in Bristol. Project Chairman Chris Lewis Jones of Delcam welcomed all partners with anticipation of progress since the kick off meeting which was held in December 2013.

The LIGHT project (full title Inspiring New Design Freedoms and Light-Weight Solutions for Metal Additive Manufacturing) is funded by the UK's innovation agency, the Technology Strategy Board. Potential improvements in the economy and performance of Metal Additive Manufacture (MAM) components will be investigated by the use of specialised software. The LIGHT software tool, which will be developed throughout the project, allows the selective replacement of internal geometry by a lattice structure. Thus it is anticipated that the mass and material required to manufacture components will be reduced, whilst maintaining external geometry.

Jenna Gaff (Bloodhound SSC) presented the selected demonstrator part which was chosen upon feasibility and potential benefits. The part (an airbrake door hinge) was discussed in detail by explaining the current specifications such as weight, costs and foremost performance. Currently the part is CNC machined (826M40 Steel). Another demonstrator is the energy absorbing crushable structure for an Earth Re-entry Capsule having a diameter of approximately 1.4 meter. Andy Cheney (Magna Parva) expressed that the challenge is in the design and assembly of an additively-manufactured crushable structure of this scale. The thrust nozzle was selected as a demonstrator part by HiETA Technologies. Stephen Mellor expressed the desired design improvements such as reduced mass, costs, exhaust noise and improved thrust efficiency and heat recovery potential.

The way forward for all three demonstrator parts in the coming three months was explained by Dave Cooper of EOS. Emphasis will be on completing the baseline data, refining the evaluation methods and redesigning the parts toward the use of lattices in their designs.

Johnny van der Zwaag (Delcam) and David Raymont (Simpleware) presented the requirement specification for the CAD/CAM tool for product design and additive manufacturing. This presentation included an overview on results from previous Technology Strategy Board projects which were dealing with lattice designs. E.g. the set of design rules established for additive manufacturing within the SAVING project.

See <http://www.manufacturingthefuture.co.uk/design-guidelines/>

In his summary, Chris Lewis Jones stated that the LIGHT project is currently in a phase of exploring the opportunities and impact of using lattices in high added value products.



*Baseline designs demonstrator parts (Bloodhound SSC, HiETA Technologies, Magna Parva)*

**For more information:**

Visit the website [www.light-project.co.uk](http://www.light-project.co.uk) or contact Petra Lugtenburg [info@light-project.co.uk](mailto:info@light-project.co.uk)

**Acknowledgements**

As the UK's innovation agency, one of the main roles of the Technology Strategy Board is to achieve business and economic growth for the UK. One way the organisation supports this is through funding innovative Collaborative Research and Development (CR&D) projects. Collaborative research and development (R&D) encourages businesses and researchers to work together on innovative projects in strategically important areas of science, engineering and technology – from which successful new products, processes and services can emerge, contributing to business and economic growth. Find out more about the CR&D programme here: <https://www.innovateuk.org/-/collaborative-r-d>