Innovate UK

Results of Competition: Lightweight Vehicle Structures
Competition Code: 1508_CRD_TRANS_LWVS

Total available funding for this competition was £8.24M from Innovate UK and OLEV

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
GKN Autostructures Ltd Hexcel Reinforcements UK Ltd Far-UK Ltd TWI Ltd NCC Operations Ltd University of Nottingham Jaguar Land Rover Ltd	Building a Volume Supply Chain for affordable lightweight composite Structures	£4,983,403	£3,327,777

Project description - provided by applicants

GKN through its expertise in composites and vehicle structures (Autostructures) sees a potential to offer their Automotive OEM customers vehicle structures incorporating composite lightweight components.Legislation is driving lower CO2 targets, historically achieved through powertrain efficiencies however the industry is in agreement the technological focus will have to shift to light weighting to achieve ever tighter limits. GKN knows that adoption of new technology will only happen once the business case supports it, this will require an efficient supply chain and lean manufacturing processes capable of meeting the customers' requirements for cost, volume and quality.The focus for this project will centre upon GKN working to establish a UK based, light weight supply chain supporting this high value and 'sticky' technology, building a consortium of industry experts concentrating on technologies in the areas of manufacturing processes, joining technology and non-destructive testing, which will be essential to meet the customer needs and provide lightweight structures in automotive volumes.

Note: you can see all Innovate UK-funded projects here
https://www.gov.uk/government/publications/innovate-uk-funded-projects Use the Competition Code given above to search for this competition's results

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Jaguar Land Rover Ltd Far-UK Ltd Stadco Ltd Nissan Motor Manufacturing UK Ltd Scott Bader Company Ltd Autotech Engineering R&D UK Ltd Granta Design Ltd TWI Ltd University of Warwick - WMG	Light-join: Joining technologies to enable implementation of lightweight structures in automotive	£2,354,526	£1,675,895

Project description - provided by applicants

The automotive industry faces major challenges to meet targets for emissions, efficiency, performance and cost; light weighting of parts using composites enables all of these to be addressed, except for cost. A key driver of cost of composites is the limited ability & capacity in the joining technology available. In project Light-Join, JLR, Nissan and their Tier 1 suppliers aim to develop a number of solutions that will enable cost effective integration of high performance composite components into volume car production. Light-Join aims to enable replacement of specific metal vehicle components with composites, specifically focussed on developing rapid joining solutions, raising the manufacturing maturity to produce a small scale demonstrator component (MRL5) and assessing the potential for scale-up to MRL9A. This project will develop a solution leading to 30% weight reduction for all-aluminium construction (for JLR) and 60% compared to an all steel construction (for Nissan). Critically this approach will have industry wide applicability, allowing a lower risk introduction of lightweight composite components to the mass market.

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Gordon Murray Design Ltd Innoval Technology Ltd Constellium UK Ltd Brunel University Yamaha Motor (UK) Ltd	Carbon Aluminium Automotive Hybrid Structures (CAAHS)	£2,870,890	£1,857,474
Project description - provided by applicants			
Gordon Murray Design's innovative and ground breaking iStream automotive manufacturing technology allows significant reductions in setup, production costs, vehicle mass, and lifecycle CO2 emissions, whilst offering cost effective design flexibility that exceeds current Euro NCAP occupant and pedestrian impact regulations. The project consortium of Gordon Murray Design, Innoval Technology Limited, Constellium and Brunel University (BCAST) aim to develop an iStream monocoque that is 30 - 40% lighter than the incumbent steel/glass fibre composite structure. Using a novel high strength extrusion alloy combined with advanced composite panels based on recycled carbon fibre, the project aims to further reduce CO2 emissions through significant lightweighting, whilst maintaining the high volume, low cost benefits of the original disruptive iStream technology. The project also aims to take another major step, making full use of the iStream process, towards a new generation of lightweight vehicles for the UK market that can have a major impact on the UK government's carbon reduction targets for the UK vehicle fleet			

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Expert Tooling & Automation Ltd Aston Martin Lagonda Ltd University of Warwick - WMG	Integrated Compression Moulding Process (InterComp)	£2,302,109	£1,359,643
Project description - provided by applicants			
The use of Carbon Fibre Reinforced Plastics in Body In White (BIW) structures could achieve a 30% weight saving over current aluminium vehicle structures and deliver direct improvements in vehicle performance and CO2 reductions. However the current routes for volume CFRP manufacture precludes their use due to the lack of a favourable financial case when looking at the high capital, tooling & material costs, plus lengthy labour-intensive processes involved. After a benchmarking activity, and linked to recent developments in resin technology which offer improvements in Tack, Out-life and Snap Cure, Aston Martin have identified that Compression Moulding could offer a financially favourable option for an increased use of CFRP. InterComp is a 24-month project aimed at tackling a number of critical R&D gaps and directly creating innovations in: automated lay-up of pre-cut forms, automated material management, control of layer orientations and overlaps, moulding and pre-forming development, material waste reduction and automated interaction between all processes associated with converting pre-impregnated materials to a finished part with a higher volume fraction than historically achieved.			

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