



Liberty
etech

We drive innovation for EV technologies...

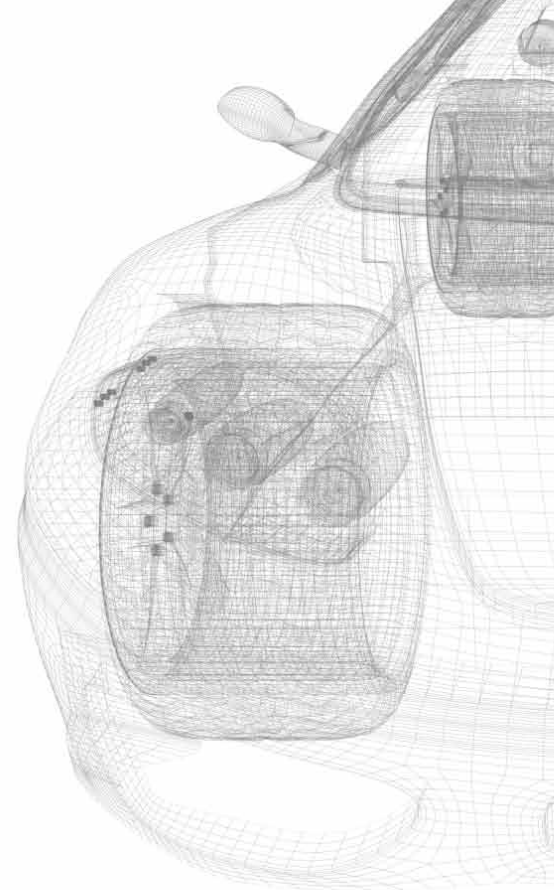
Electric vehicles
are not just our
business but
our passion!



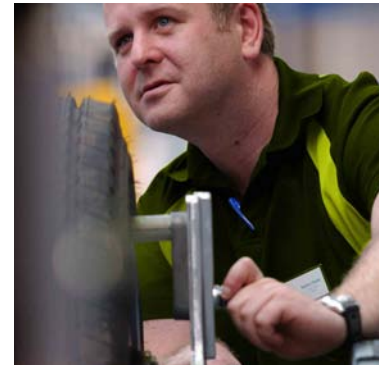
Liberty eTech

Liberty etech's engineering team has been described as "One of the most highly skilled EV engineering teams in the world."

The highly skilled experts count some 200 man years of automotive engineering experience with some of the most renowned OEMs and in particular 70 man years of experience in EV technology.



Our creative team with a track record of delivering vehicle programmes and "Thinking out of the box" has developed EVs that have driven over 2,500,000 miles – the greatest distance and thus best experience of any electric vehicle team. The Liberty etech team has received a number of international awards for innovation and engineering.



Liberty etech's Know How covers all vehicle development phases from the initial feasibility studies to vehicle design and concept, prototype build, pre-production tests and validation including full homologation to all international standards for passenger cars and commercial vehicles.

Liberty etech's core competencies include...

- Systems specification and integration:

Functional specification of vehicle systems, using unified modelling language (UML), and systems modelling language (SysML) to promote the generation of bug-free and unambiguous requirements.

- Diagnosis specification of vehicle systems, based on unified diagnostic services (ISO 14229 -1:2006) and unified diagnostic services over controller area networks (ISO 15765-X:2004).

- Vehicle architecture design, using controller area network buses (CAN buses, ISO11898), and local interconnect network sub-bus (LIN sub-bus)

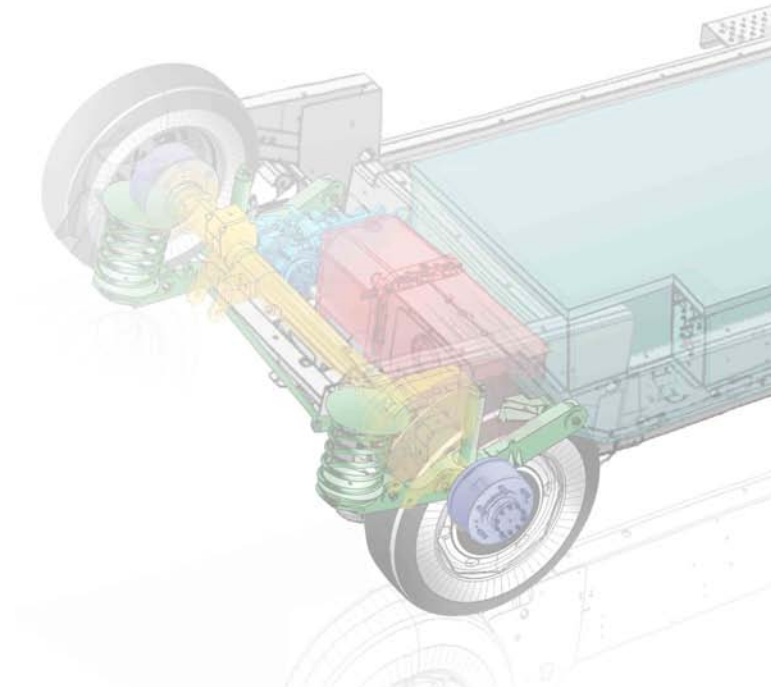
- Simulation of electronic circuits
- Vehicle System Design Specification
- Design and DFMEA
- Full Prototype build and testing
- DVP, Test & Validation
- Support and planning of type approval / homologation activities
- IPR registry

- Assistance with Grant applications for early stage research and development work right up to full prototype evaluation and testing.

- System safety analysis expertise in:

Potential failure modes and effects analysis for design and system level (D-FMEA and S-FMEA), to AIAG process including boundary identification and documentation, functional breakdown, block diagrams, interface diagrams, parameter diagrams (P-diagrams), Screen plots for targeting of RPNs after identification of critical and significant characteristics, functional hazard analysis.

- Diagnostics system specification for manufacturing systems, including SQL database tie-ins to production systems to accommodate product options and for storage of results in the main production management system.



We are not just
your supplier but
your partner in
finding innovative
and cost efficient
solutions!

**With our 10 years experience
and core competencies in EV
Engineering, Liberty etech
offers a wide range of services
to vehicle manufacturers.**

We arrive at the optimum result for our clients!



It is early in the concept design study phase that our team balances the requirements of speed, range, packaging, safety, comfort and cost to optimize the vehicle to its maximum potential and to make sure that all components installed, as well as the entire drive train, satisfy total requirements including safety, homologation and EMC.

Liberty's achievements in the field of EV drive train development, service and support has led to a number of contracts with global OEM's who have recognized the company's leading position in this exciting and fast developing sector.

For instance, we are currently working with one of the biggest USA truck manufacturers to provide them support in electrical and mechanical engineering such as electrical and electronic system integration, design for service diagnosis, end-of-line test and vehicle based data-logging systems, project and engineering management and coordination of all engineering changes on a range of electric vehicles.





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