



An agile approach to vehicle attribute management

Case study overview

Byton chose HORIBA MIRA to lead the driven attribute engineering on its electric vehicle programme.

A heavily international team - with consultants split between Byton's North American headquarters and HORIBA MIRA's facilities in the UK and China - defined and managed vehicle attributes from the concept phase through to the start of production.

HORIBA MIRA also provided engineering services to the project, covering NVH, dynamics, braking, performance & durability, quality, perceived quality and environmental impact.

Engineering team deployed: Six consultants based in the US, supported by a team of 20 to 25 in the UK and three in China, with the entire team being globally mobile to meet the needs of development.



Attribute integration, advanced CAE and simulation, NVH, dynamics, RLD, braking, durability, functional safety and homologation



Automotive start-up, battery electric vehicles, global homologation



UK, Germany, USA, and China



It was very much an attribute-led programme, working with a lot of different domain teams across Byton, HORIBA MIRA and external suppliers. The way we managed that was to embed our core team very much within Byton itself.

James Halstead, Manager and Chief Engineer
HORIBA MIRA



Approach

HORIBA MIRA employed a highly-flexible approach with extensive use of digital engineering to enable Byton to meet its aggressive targets for cost and timescale. The project began by defining the customer profiles and typical drive cycles for a diverse range of target markets. From there, HORIBA MIRA took a whole-vehicle approach, managing engineering teams spread across the client, external suppliers and HORIBA MIRA's own in-house personnel to deliver the required attributes.

Flexibility played a key part in this project. HORIBA MIRA was able to deploy consultants within a very short space of time, giving Byton a head start. This gave the team instant access to proven methodologies and processes with good background correlation.

As the programme progressed, Byton was able to rapidly grow its organisation with confidence, knowing that HORIBA MIRA had the capacity and the capability to fill any gaps that may emerge along the way.

Successes and benefits

HORIBA MIRA worked with Byton through to the start of production, successfully delivering the required vehicle attributes. Highlights from the project include:

- ✓ An **open and agile approach** from HORIBA MIRA that allowed Byton to ramp up or ramp down support as required
- ✓ A simulation-first methodology, which was key to **streamlining the development** and managing risk
- ✓ **Educating the OEM** and Tier 1 suppliers on engineering process flow, from design and CAE through to DFMEA and definition of DVPs
- ✓ Carrying out **fleet management** and definition of test plans for physical testing. Managing DVPs to **deliver maximum benefit** from the available test vehicles



Deliverables

- ✓ PALS and competitor benchmarking
- ✓ Attribute alignment, management and integration
- ✓ Test standards
- ✓ Procedures and processes
- ✓ DVP and test planning
- ✓ Multiple engineering services