VENDIGITAL®

Supporting a production-ready BOM through deploying design-to-cost engineering processes

PROTEAN
Electric Automotive Technology

Protean Electric is an innovation-led automotive tech company specialising in in-wheel motor technology. The company has developed an in-wheel, electric-drive system for hybrid, plug-in hybrid, and battery electric vehicles. Based in Farnham, Protean Electric was acquired by EV supplier and manufacturer, BEDEO, in 2021.

OVERVIEW

100+	BoM lines managed
>350	Global suppliers screened
114	Components sourced*
>50	Data sources for digital dashboard
15	Employees involved in knowledge transfer

* Electronic Components fitted to any PCBA counted as 1

THE CHALLENGE

In 2019, Protean Electric was a promising, well-funded EV start-up, which wanted to mass produce the automotive industry's first in-wheel motor system. The business faced a steep challenge to mature its prototype, configure a global supply chain at speed and bring its highly innovative product to market.

THE SOLUTION

The in-wheel motor developed by Protean Electric will change the way that battery electric vehicles (EVs) operate. By placing the motor inside the structure of the wheel itself, the product enabled the creation of 'smart wheels' capable of independent functionality to improve efficiency and optimise driver performance.

As is often the case with prototypes, the Bill of Materials (BoM) was not repeatable and surged by 8% based on market fluctuations and design changes. Via collaboration with Protean engineering teams in design-to-cost processes and active negotiation with the market, Vendigital mitigated this cost increase and maintained it at a high standard.

A new global supply chain was configured to support the product's industrialisation. This involved researching markets to identify suppliers with both the R&D capability and the required production capacity, as well as maintaining continuous, collaborative dialogues over 20 months across design and product verification stages. Template framework contract was established incorporating key parameters from Design, Quality, Development & Technical departments.

To summarise cross-functional input into necessary management intelligence, Vendigital developed a bespoke dashboard, drawing on live supply chain data, to provide insights such as part-level nomination status, part-level cost evolution, comparison with target BoM cost, overall risks and mitigation, to name a few.

We wanted to industrialise our highly innovative product as quickly as possible to make the most of a thriving EV marketplace, but we lacked the internal processes and capabilities required. Vendigital's consultants had a deep-level understanding of our product and its marketplace and supported us in professionalising our functions and building our cost engineering know-how on the road to industrialisation.

Ben Boycott, Chief Operating Officer, Protean Electric

This product offers EV manufacturers and end users differentiated benefits and it's exciting to have supported its route to market. As an innovation-led business, Protean Electric needed to industrialise their product in a way that was appropriate for their customer requirements and to be competitive in the market. We were able to assist Protean in making data-driven decisions that allowed them to be successful during their product development and manufacturing phases. The business is now well-equipped to meet their future production challenges.

Dom Tribe, Partner, Vendigital

THE RESULTS

- 100+ items of BoM are actively managed
- Over 350 global suppliers screened and global supply chain established for industrialisation process
- 60 parts costed in a bottom-up cost engineering effort
- Dynamic dashboard established to track status, cost evolution and risks of supply chain readiness to production
- Leadership advised on potential manufacturing footprint - looked into seven scenarios of factory/customer locations and potential split between global and local sourcing structure, identifying 25% gap in external costs among scenarios
- Procurement and manufacturing team trained in cost engineering methodology and tools