



SUCCESS STORY: **MANUFACTURING LAYOUT ASSESSMENT AND OPTIMISATION FOR NEW PRODUCT INTRODUCTION**

INTRODUCTION

The London Electric Vehicle Company (LEVC) is the leading global manufacturer and retailer of purpose-built commercial electric vehicles. Their iconic black cabs are famous across the world. As part of their commitment to deliver zero-emissions capable technology across a range of electric commercial vehicles, they introduced a new product: the VN5. It is a zero emissions-capable light electric van with a battery range extender.

The HSSMI team used its expertise in productivity improvement and scale-up, to support the introduction of the new product. The focus was on the critical workstations that would have the most impact.

THE CHALLENGE

The overall goal was to introduce the new product to the existing workstation. One key challenge was the limited footprint available on the production floor which would be further stretched by the addition of the new VN5 vehicle. It was important to maximise use of space while ensuring that takt times and operator safety were not compromised.

Other challenges included limited access to the workstation and constraints imposed by other production activities or facility elements which restricted potential expansion. Lineside inventory levels were high and were not possible to expand without looking into the safety stock and reorganising the storage space.

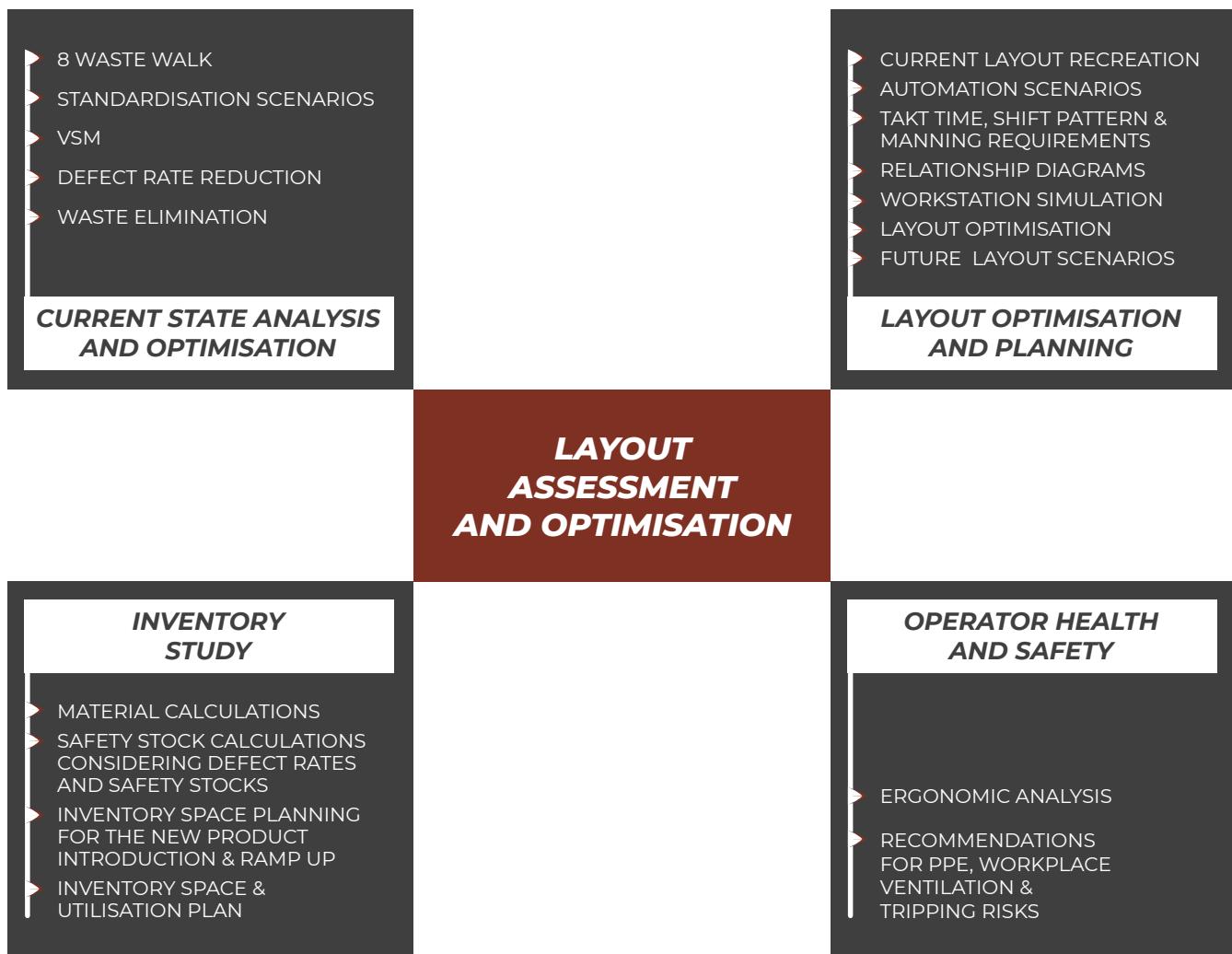
THE APPROACH

Starting with Value Stream Mapping and an 8-waste walk, the team identified the pain points / waste and categorised into high and medium and low waste levels, enabling the team to identify the opportunities that would have the highest impact. The initial assessments also included health, safety, and ergonomics.

To further understand the layout requirements, HSSMI assessed the planned volumes, product mix and sequencing requirements, shift patterns, manning requirements, process plans, and cycle times. The team analysed the documentation provided by the LEVC team and validated it through operator observations over a period of time. This allowed the team to understand the standard processes and the reasons for any operator deviations from the process.

Using relationship diagrams, spaghetti diagrams, process standardisation, and other lean manufacturing techniques, the team redesigned and proposed alternative layouts.

The layouts were further validated and optimised using manufacturing simulation that modelled layouts, manufacturing operations, and operator movement. Using the simulation, the team was able to understand the impact of volume scale-up and product mix changes on the layouts and predict and mitigate any potential issues.



An additional step was the storage and logistics assessment. HSSMI calculated the inventory space needed based on the minimum parts needed by production and safety stock, considering the defects rate and delivery time. This plan helped HSSMI to calculate the correct footprint for the current volumes and to see the future impact of the ramp-up and new product introduction.

