

Case Study

Hemsec Manufacturing

Delivery Partner



Background

Hemsec manufactures structural panels consisting of two outer sheets filled with an expanded foam core for the building industry. The basic design can either have the foam flush or under flush with the perimeter of the skins. Various lengths and thickness of panels are produced with wood-faced versions (OBS) made at one of the two factory sites and metal-faced (OMS) at the other.

There are several distinctions in the manufacturing processes of OBS and OMS panels, even though both methods involve separating two outer skins by a specific distance and then restraining them while injecting a two-part expanding foam mixture into the cavity. OBS panels are manufactured using jigs and fixtures, whereas OMS panels are cut to size at the end of the production line.

The OMS line operates within a well-established and mature facility, while a new factory has been established remotely, incorporating both new and existing plants for OBS production. Additionally, the storage and dispatch of finished products take place at this new location.

Challenge

Over approximately seven months, the Liverpool John Moores University (LJMU) team undertook several visits to Hemsec before the formal commencement of the Horizons assist. During this period, the Hemsec ethos and capabilities radically changed. Therefore, the original analysis and diagnostics contained work packages requiring a change in approach, which drove an equally dynamic response from Horizons.

The original factory site reflected a lack of change with the continued use of ageing machinery and methodologies generally superseded in the wider industry. The new site is based around the "clean sheet" installation of the new plant, reducing the scope for intervention.

The initial package comprised activities that Hemsec had already implemented to mitigate risks and modernise processes. The primary focus shifted to ensuring the reliability of the OMS line, alongside an emphasis on the company's investment program. The anticipated outcome is a more consistent production process, supported by enhanced streamlined activities.

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Solution

The radical restructuring at Hemsec called for a fresh approach. This renewed progress quickly resulted in significant advancements in the areas originally targeted by the LJMU Horizons team, effectively diminishing the impact of the previously agreed work package. Specifically, the comprehensive plan was replaced rather than rendered completely obsolete.

The Horizons team organised a site visit to a partner company, which served as an introduction and demonstration to established working practices that embrace Industry 4 principles. Similarly, while the review of existing funding opportunities did not yield results, the academic expertise that LJMU utilised ensured a thorough search was conducted, providing comprehensive coverage of the topic. This resulted in a comprehensive report, which details both the methodology and findings, further enhancing Hemsec's abilities to conduct similar searches in the near and distant future.

The initial perception of the OMS upgrade was that it would involve integrating new technology. However, as the project progressed, it became clear that the immediate priority was to assist Hemsec in comprehending and sourcing the technology they had identified. This began with desktop research into various approaches that could help achieve the Hemsec objectives, followed by B2B introductions and tailored support as needed. This strategy has mitigated risks and offered valuable external insights to the Hemsec team during critical decision-making processes.

Impact

Hemsec began with a situation where insufficient investment posed serious concerns for the company's long-term sustainability. The Horizons team recognised that the OMS line was the area with the greatest potential for value creation. Throughout the extended assistance, significant changes in the structure, coupled with new strategic goals, refocused efforts on delivering knowledge and expertise to mitigate risks and advance internal initiatives. Closely collaborating while maintaining flexibility and leveraging the University's academic expertise has been crucial in successfully executing this challenging project.

“As a 100-year-old manufacturing business, we recognised a need to modernise our culture, systems and engineering capabilities to remain competitive in an evolving market. Working with LJMU and the Horizons project has provided immense benefit to us to start achieving this through the fantastic guidance, connections and support they have provided. As a direct result of the Horizons project, Hemsec has improved production resilience and capacity to allow us to grow and challenge the bigger players in our market - we are already looking for our next opportunity to work with the Horizons team.”

Daniel Haworth, Head of Manufacturing, Hemsec