

Case Study

Roberts Recycling

Background

Roberts Recycling, founded in 2009, is a leading sustainable textile recycler and processor based in Widnes. The company is driven by a mission to divert waste clothing and textiles from landfills, offering a recycling service for fashion industry leaders, globally recognised brands, retailers, local councils, reputable charities, and school fundraising initiatives.

One of the primary goals is to extend the lifespan of garments through reuse. Customers can choose from various disposal options, including secure destruction, de-labelling, exporting to designated regions such as the EU and the Middle East, fibre sorting for subsequent fibre-to-fibre recycling, and the production of industrial wiping cloths.

In its fifteenth year of operation, Roberts Recycling Ltd proudly received its third King's Award for Enterprise in International Trade. This notable achievement highlights the company's commitment to sustainable practices and was presented at the company's headquarters in Cheshire by Lady Alexis Redmond MBE, His Majesty's Lord-Lieutenant of Cheshire.

Delivery Partner



Challenge

After an introduction to the Horizons team at Liverpool John Moores University (LJMU), a consultative support process was implemented. This involved a blend of digital diagnostics and readiness level assessments, leading to various support opportunities. These focused on manufacturing simulation, shop floor digitisation, and collaborative innovation in fibre regeneration projects. As a result of this initiative, Roberts Recycling is eager to explore additional avenues for employing LJMU graduates. The aim is to work closely with various multidisciplinary departments to strengthen, test, and further enhance digital technologies.

Solution

The "Art of the Possible Demonstration Tour" at LJMU highlighted cutting-edge digital technology and connected participants with key experts. The Horizons teams utilised digital simulation software to enhance efficiency by integrating autonomous robotic unloading and advanced NIR sensor technology to sort textiles automatically, distinguishing between manmade and natural fibres.

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A new energy monitoring dashboard was developed to visualise sustainable energy use, combining grid and solar power, which enhances Roberts Recycling's commitment to net-zero goals and boosts customer loyalty, sales, and market competitiveness.

Digital 360 camera technology and floor planning software were employed to optimise the warehouse layout, reducing stock buildup and holding costs while ensuring timely fulfilment of customer orders.

Additionally, an Industrial Biotechnology Innovation Catalyst Relationship Builder application is ready for mid-year submission to explore the biotechnological recycling of waste wool-based textiles, supporting circular textile recycling initiatives.

Impact

The upgraded manufacturing process is expected to boost productivity by 20%. This improvement involves replacing labour-intensive manual sorting with autonomous robotic box unloading and cutting-edge NIR sensor technology to automatically sort incoming manmade and natural fibre textiles.

Delivery Partner



Additionally, a new digital production site energy monitor dashboard has been created to enhance the visualisation of the sustainable energy mix from grid and solar panel power, benefiting the Roberts Recycling brand in terms of alignment with net-zero goals and environmental sustainability, which improves customer loyalty, sales, and market competitiveness.

Furthermore, a new factory warehouse layout has been developed to streamline operations, reducing stock buildup and holding costs while ensuring timely fulfilment of customer orders.

Our partnership with Horizons has significantly improved our repurposing lines through new digital processes, enhancing warehouse management and sales responsiveness.

We appreciate the final-year students' contributions to our productivity and profitability. We also anticipate further collaboration with LJMU on a circular textile recycling project for waste wool textiles.

Paul Roberts
Owner of Robert Recycling Ltd