

# MADE SMARTER

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*By investing in new technology alongside our people, Ultimat Defence is creating the foundations for sustainable growth.*

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Ian Carlisle  
Director



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## Ultimat Defence Limited

### Tech investment helps manufacturer stay cut above the rest

A Wigan manufacturer whose training products prepare police officers, prison staff and military personnel for real-world situations has cut production times by more than 75 per cent through digital technology, creating capacity for new products, new jobs and export growth.

Ultimat Defence Limited (Ultimat), based in Ashton-in-Makerfield, invested £73,000 in a GraphCut Elite 4022 CNC cutting system, supported by a £20,000 Made Smarter grant, to modernise manufacturing and unlock additional production capacity.

Ian Carlisle, Director, said: “We pride ourselves on designing, manufacturing and supplying the best equipment we can to our global customer base. To achieve this, year on year, we reinvest funds back into the business to help retrain our loyal team of employees with new skills and provide them with the best machinery and equipment available.

“This ethos helps us remain at the forefront in our market and we are proud to keep manufacturing alive in the UK.”

#### The Challenge

For more than 30 years, Ultimat Defence has designed and manufactured specialist textile protection products and immersive training equipment used by police forces, prisons, the Ministry of Defence, the NHS and emergency services in the UK and overseas.

Innovation has long been central to the company's growth. Previous investments in large-format printing, vacuum forming and 3D printing have progressively brought more production processes in house, improving quality, reducing lead times and reducing reliance on external suppliers. As the business continued to grow,

however, its existing manufacturing facility and several labour-intensive production processes began to limit future expansion. Having committed to investing £600,000 in a new production facility, Ultimat saw the move as an opportunity to rethink how it manufactured its products and identify where further investment would deliver the greatest long-term value.

One of the biggest constraints was the manual process used to prepare and cut heavy-duty technical fabrics before they reached the sewing department.

Preparing one of the company's best-selling wall module training systems involved printing paper templates, manually measuring and cutting multiple fabric panels, creating seam allowances, marking fixing points and preparing each component for assembly. The process took around 28 minutes for a single product and relied heavily on skilled manual work, creating unnecessary material waste and limiting manufacturing throughput.

#### The Solution

Ultimat worked with Made Smarter through a Digital Transformation Workshop to review its manufacturing processes and identify where digital technology could deliver the greatest impact.

The workshop resulted in a digital roadmap that prioritised automating the fabric cutting process as the next stage of the company's manufacturing evolution, confirming

CNC cutting technology as a key investment to improve productivity, reduce waste and unlock additional manufacturing capacity.

To deliver the project, Ultimat secured a £20,000 Made Smarter grant towards a £73,000 investment in a Vetigraph GraphCut Elite 4022 CNC cutting system, which integrates seamlessly with its existing CorelDRAW and Autodesk Fusion 360 software.

The new system automatically feeds, marks and cuts technical fabrics directly from digital design files, switching between cutting, marking and drilling operations while optimising material layouts to minimise waste. It creates a connected digital workflow from product design through to manufacture, allowing designs to be shared electronically with customers before production begins while providing greater visibility of material usage, manufacturing times and production costs.

#### The Benefits

The investment reduces preparation time for the wall module training systems from around 28 minutes to just 6.5 minutes, improving cutting productivity by more than 75 per cent and contributing to an estimated 25 per cent increase in overall operational efficiency.

The additional capacity frees both the operator and the machine for around two extra production days each week, enabling the business to shorten lead times, respond more quickly to customers and strengthen its competitiveness when tendering for public sector contracts.

The project also delivers environmental benefits. By combining automated nesting software with wider fabric rolls, Ultimat expects to reduce PVC waste from around 22 per cent to 10 per cent, saving an estimated 12 tonnes of CO<sub>2</sub>e



emissions while creating opportunities to reuse or recycle remaining offcuts.

Lower material usage, improved productivity and greater manufacturing efficiency are forecast to increase profitability, with the investment expected to pay for itself within 24 months. The resulting savings will enable Ultimat to continue investing in its people, facilities and manufacturing capability.

The project has already helped upskill three existing employees in advanced CAD/CAM manufacturing, giving them new digital skills while reducing the physical demands of manual fabric cutting. As the business grows, the additional manufacturing capacity is expected to support the creation of up to six new jobs, with new recruits learning both digital manufacturing techniques and the traditional craftsmanship that remains central to the company's bespoke products.

#### The Future

The increased productivity will accelerate prototype development, enabling new products to be designed,

tested and manufactured more quickly while making better use of surplus materials to create additional product ranges that would previously have been uneconomical to produce.

The business also plans to expand into new sectors, including sports and leisure and construction, while increasing exports across Europe. Having previously been constrained by manufacturing capacity, Ultimat believes its new digital manufacturing capability will support a 30 per cent increase in export sales while strengthening relationships with international customers.

Ian said: “By investing in new technology alongside our people, Ultimat Defence is creating the foundations for sustainable growth, ensuring specialist manufacturing skills continue to evolve while maintaining its position at the forefront of the industry.”

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