

MADE SMARTER

The Manufacturing Assembly Network Innovation through collaboration.

The Manufacturing Assembly Network (MAN) is a collaboration of manufacturing companies based in the Midlands and Stevenage that share technical excellence in mechanical, electrical and electronic engineering processes.

The group, which was formed more than 16 years ago, provides a non-competitive environment for its nine members to share best practice and create a stronger, combined force when tendering for contracts and generally competing in the global economy.

Their services include aluminium casting, CNC and conventional machining, contracts electronics manufacturing, electrical and electronics assemblies, engineering supplies, fluid power, forging, industrial design, metal stamping, plastic injection moulding, and tube bending and manipulation.

MAN has a combined total of over 1,750 employees, 15 factories across three continents and ten quality accreditations ensuring it collectively delivers world class quality and delivery performance.

The West Midlands Made Smarter programme has helped its members to improve the digitisation of its operations which has led to huge savings in terms of costs and time of its employees by making their operations run more smoothly.

Jit Gatcha, Digital Transformation Specialist at West Midlands Made Smarter, said: "We have helped members of MAN and other SME engineering and manufacturing businesses throughout the region to improve the digitisation of their manufacturing processes and digitisation strategies as well as produce digital roadmaps.

"Companies need to become more efficient and effective in what they do and traditional manufacturing processes are changing, especially in this coming decade.

"Made Smarter is a perfect starting point for those unsure or needing more advice about the digitisation of their manufacturing systems, and we're here to help."

The Challenge

Peter Davies, Chief Executive of James Lister & Sons, is co-chair of MAN and heard Dr Mark Swift from WMG, University of Warwick, discussing Made Smarter during a virtual meeting.

The four MAN businesses involved in this case study had varying needs because of their different specialisms in manufacturing.

Jit enlisted the help of Onur Eren and the team from WMG centre High Manufacturing Catapult at the University of Warwick, one of Made Smarter's strategic partners, who visited each business to discuss their digital plans in detail.

Birmingham-based Brandauer is a 162-year-old family-owned business providing precision-stamped components to ten different sectors worldwide, as well as increasingly the manufacture of high-speed progression tooling.

Engineering supplies and services company James Lister & Sons, which has branches throughout the West Midlands and South Wales, wanted to explore R&D in 3D printing to offer a new service for its customers.

Alucast in Wednesbury, an award-winning aluminium casting foundry supplying fully machined components, approached Made Smarter to begin their digitisation adventure.

And, finally, plastic injection moulding specialists Barkley Plastics in Birmingham had toyed with the idea of introducing a collaborative robot and wanted advice whether it was the right step to take.

The Solution

A 'digital roadmap' was produced for each business by WMG following conversations with its team and Jit, which provided various steps that could be taken to reach their ultimate goal of making their companies more productive.

Rowan Crozier, CEO of Brandauer, wanted to discuss a project to help the business introduce a system that would generate up-to-date operational data.

Peter Davies, of James Lister & Sons, worked with WMG to trial a set of 3D printing machine technology and materials.

He said: "Many innovative ideas stall at this point, especially if a prototype can't be developed. By being able to produce a real bent tube component from a 3D printed tool it could unlock potential for new product development for new and existing customers.

"We also looked at the possibility of introducing cobots to our business and, whilst that ultimately didn't work out, it did give us the impetus and creative thinking to change the way we set up our machines. This has been very beneficial from a customer perspective because we have

improved the actual service we offer."

Tony Sartorius, Chairman of Alucast Ltd, said: "The Made Smarter programme has been really the first step on our digitalisation journey. As an SME with 100 staff, you sometimes need external assistance to embrace new approaches, so it was great that we could access support to digitalise parts of our business that helps protect our future success."

Matt Harwood, Managing Director of Barkley Plastics, discussed the layout of the plant as well as the advantages and disadvantages of investing in a collaborative robot to improve its efficiency.

The Benefits

Rowan said: "Made Smarter was very easy to access. It is tailored towards advanced manufacturing SMEs and allowed us to kick-start a project we had been planning for some time, but one that we just didn't have the funds to go ahead with on our own.

"Made Smarter makes the decision to progress with R&D and investment in new technology much easier. Without it, perhaps we wouldn't have had the confidence to go ahead, particularly with the cost-of-living crisis and the huge raft of global economic shocks we are witnessing."

Peter added: "WMG was able to say which 3D printers and materials might work in our application and which wouldn't work straight away, speeding up the whole process since we could eliminate the 'trial and error' that would undoubtedly have happened on our own. We don't have a huge amount of time to devote to R&D so that was really useful.

"A meticulous regime of trials was carried out on numerous machines and materials at WMG labs to conclude on the best combination of equipment and material."

Tony said: "We worked with Made Smarter to introduce digitisation particularly to our machine shop."

Matt said: "We have moved machines around in our factory to get the best layout for a particular product line and we now have a six-collaborative robot and air curtains that help us with removing static and packing automotive lenses in this particular cell."

The Future

Onur Eren, Chief Engineer at WMG at the University of Warwick, said the digitisation of each business had been improved by signing up to the Made Smarter programme.

He said: "Brandauer has implemented a machine monitoring system to create tactical real-time data on the shop floor to help make business decisions, and Alucast is maximising the potential of their Material Resource Planning log operator 'time and capture' data to help increase productivity by 15 per cent.

"James Lister & Sons has reduced the risks of investing £200,000 of capital investment, which importantly created a rapid design service that will lead up to eight per cent of new sales.

"The implementation of the collaborative robot at Barkley Plastics will help to save over £100,000 a year in terms of utilisation of their labour.

"Overall, we have helped to generate fantastic commercial research for members of the MAN group as well as helping them create new products and introduce research that will make a real difference to the UK's economy."

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From the left, Matt Harwood (Barkley Plastics), Jit Gatcha (West Midlands Made Smarter), Rowan Crozier (Brandauer), Onur Eren (WMG at the University of Warwick) and Peter Davies (James Lister & Sons)

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CASE STUDY