Knowledge Transfer Partnerships

METALLISATION LTD
AWARD-WINNING PARTNERSHIP OPENS NEW MARKET OPPORTUNITIES

KTP BENEFITS

Knowledge Transfer Partnerships are designed to benefit everyone involved

- Businesses will acquire new knowledge and expertise
- KTP Associates will gain business-based experience and personal and professional development opportunities
- Universities, colleges or research organisations will bring their experience to enhance the business relevance of their research and teaching

Knowledge Transfer Partnerships
Accelerating business innovation;
a Technology Strategy Board programme

http://www.ktponline.org.uk

ABOUT THIS CASE STUDY

Midlands firm **Metallisation Ltd** manufactures and supplies equipment and consumables for thermal spraying applications. This Knowledge Transfer Partnership (KTP) with Aston University was initiated to design and manufacture a radical high velocity oxy-fuel thermal-spray system, capable of using alternative fuels without any reduction in performance or coating quality.

ABOUT THE SPONSOR

The **European Social Fund (ESF)** supports national employment and skills priorities, in line with EU regulations by helping unemployed and inactive people enter work, promoting lifelong learning, skills development and gender equality.

EUROPEAN UNION
European Social Fund

FAST FACTS

- Innovative thermal spray system developed, offering substantial technological, quality and commercial benefits
- New knowledge and capabilities in place, benefiting product design and development
- Potential to exploit significant new markets
- Prestigious award for the knowledge transfer work, generating positive publicity for Metallisation and the University
- Academic Partner gained valuable industrial experience and established a computational modelling research group
- Associate acquired important management skills and business knowledge, and accepted a job with the Company

The Company

Metallisation Ltd has been serving the thermal spray industry since 1922. The Company now manufactures a wide range of thermal spraying and arc spraying equipment, and also supplies an extensive range of spraying consumables. More than two-thirds of its products are currently exported.

"The collaboration with Aston University enabled us to undertake invaluable research work on our products that we simply wouldn't have been able to conduct ourselves."

Terry Lester, Managing Director, Metallisation Ltd

ABOUT THE PROJECT

Metallisation has a long history of developing quality products to meet the needs of its customers. The Company was aware that the quality of kerosene, the liquid fuel used within its high velocity oxy-fuel (HVOF) thermal spray systems, varied around the world, creating a market for a new HVOF system that would run on alternative fuels without impairing performance. The KTP with the School of Engineering and Applied Science at Aston University was set up to provide Metallisation with the expertise and capabilities needed to develop a suitable leading edge product.

BENEFITS

The benefits from this KTP project have surpassed expectations. The collaboration has developed a pioneering HVOF spray gun system, which offers substantial technological, quality and commercial benefits to Metallisation and its end users. The innovative design can run on alternative liquid fuels, such as compressed natural gas, and offers reliable, high-level performance and consistent coating quality. It also uses less energy, thereby delivering sustainable performance with reduced environmental impact, and is also cheaper to produce. The new system has the potential to open significant new markets for the Company, particularly in conditions where extreme wear takes place or in areas where consistent-quality kerosene fuel is unavailable.

The new knowledge and enhanced capabilities now in place will enable Metallisation to pursue a broader range of product development activities and remain competitive. The introduction of computerised design and modelling tools has significantly reduced product design and test periods, while increased knowledge of flow mechanics, combustion and engineering technology will realise benefits across the whole product range.

RESULTS

- Innovative HVOF system developed, opening significant new markets
- Modern techniques and technologies introduced, leading to improvements in design, development, testing and production
- Knowledge gained successfully transferred to other thermal spraying products
- Stronger links and greater market presence in overseas market
- Lord Stafford Impact through Innovation Award 2007 for knowledge transfer work

The Associate

"The partnership greatly expanded my skills base; expertise was available from the University and Company, along with financial backing for external courses required to make the project a success."

Benjamin Hawkins, KTP Associate

A degree in Materials Science and Engineering made Benjamin Hawkins the ideal candidate for Associate on this highly-successful KTP. His knowledge and commitment ensured solutions to problems were found rapidly, and his practical skills proved invaluable in building the first prototype system.

BENEFITS

Working in a competitive, high-tech industry provided the Associate with the scope and opportunity to develop both personally and professionally. Ben's technical skills have developed significantly, and he has gained extensive experience of 3-D computer-aided design (CAD) modelling, computational fluid dynamics (CFD) modelling and programming work. Through the work, Ben has also gained useful business knowledge, and acquired valuable management skills that should prove useful in his future career.

RESULTS

- Gained valuable practical experience in CAD and CFD modelling, and programming
- Management skills and business knowledge developed
- Offered and accepted job with the Company as Development Engineer

The Academic Partner

"The project with Metallisation is a great example of how our academics can work with local companies to help them develop new products and open up new markets."

Aston University
Business Partnership Unit

John Richards, Business Partnership Unit, Aston University

Dr Sai Gu, Lecturer in Engineering Systems and Management at Aston University's School of Engineering and Applied Science, was lead academic on this successful partnership, which also involved the Business School.

BENEFITS

This KTP project has enabled academics to update their industrial experience and see how their knowledge can have a positive impact on product development. The work has also highlighted the growing importance of computerised modelling and design tools. Knowledge gained has been fed into research and teaching practice, ensuring that the University continues to serve industry and produce students with commercial awareness and useful product design and development skills. A new MSc Course in Computational Engineering has also been developed.

RESULTS

- Improved student knowledge of commercial needs and product development work
- New teaching tools and lab sessions introduced from industrial feedback
- Valuable cross-school links established
- Computation modelling research group established, attracting significant funding
- Strong and long-lasting link established with Metallisation