

Knowledge Transfer Partnerships

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>

ALBA ULTRASOUND LTD NOVEL TRANSDUCER DESIGNS OPEN NEW MARKETS

ABOUT THIS CASE STUDY

Alba Ultrasound Ltd is a technology leader in ultrasonic transducers and arrays. Working with the Centre for Ultrasonic Engineering (CUE) at Strathclyde University, this Knowledge Transfer Partnership (KTP) was set up to implement the next generation of ultrasonic transducers for application in new market areas, such as sonar and non-destructive testing.

ABOUT THE SPONSORS

The Scottish Government is the devolved government for Scotland. It is responsible for most of the issues of day-to-day concern to the people of Scotland, including health, education, justice, rural affairs, and transport.

The Engineering and Physical Sciences Research Council (EPSRC) is the UK Government's leading funding agency for research and training in engineering and the physical sciences.

FAST FACTS

- 🔄 Range of design techniques and manufacturing capabilities developed for single crystal transducers and arrays
- 🔄 Novel transducer designs developed for application in new transducer markets
- 🔄 Company profile increased and capabilities recognised, leading to lucrative defence contracts
- 🔄 International reputation of Academic Partner as centre of excellence for ultrasonic transducer design enhanced
- 🔄 Significant professional development and invaluable project management experience for Associate
- 🔄 Knowledge Transfer Partnership Programme Award 2007 for project

The Company



This KTP successfully fused CUE's transducer knowledge with Alba's product development skills

"Our working relationship with the University has grown stronger. We employed the Associate immediately after the project, which improved our position as a recognised leader in the design of high frequency ultrasonic arrays."

Vic Murray, Managing Director, Alba Ultrasound Ltd

Alba was keen to consolidate its growing international reputation as a leading manufacturer of quality ultrasonic transducers and array products, and to strengthen its future position by expanding into new market areas, such as sonar, non-destructive testing (NDT) and biomedical applications.

This KTP was set up to help Alba achieve these goals. Working with the

CUE at Strathclyde University, the partnership aimed to create new ultrasonic array designs incorporating advance single crystal materials.

BENEFITS

This collaboration successfully fused CUE's transducer knowledge with Alba's product development skills, to create a new product line for the Company utilising single crystal piezoelectric materials. The new transducer designs outperform current

commercial technologies, offering a factor of two improvement in sensitivity and a 25% increase in bandwidth, and have potential to be world-leading products in a short time.

The first single crystal-based transducer array product was targeted specifically at non-destructive testing applications, and its demonstrable high performance will allow Alba to expand into the NDT market. The technology also has applications in sonar and bio-medical fields, capitalising on the very wide bandwidths achievable with the technology.

Within the next five years, it is anticipated that state-of-the-art ultrasonic transducer arrays will incorporate these single crystal materials.

This KTP has provided Alba with a strong foundation in the design techniques applicable to this new technology, which will prove vital for the future growth of the Company.

High frequency design and manufacturing capabilities have also been enhanced, which will help accelerate expansion into new markets.

RESULTS

- Company placed firmly at the forefront of ultrasonic technology
- Range of new high performance ultrasonic array products
- Better design techniques and manufacturing capabilities for advance single crystal piezoelectric materials
- Continued expansion into new transducer markets

The Associate

“This KTP has demonstrated to me that when academia and business work closely together there can be great benefits to both partners, and this success has provided me with invaluable experience in my field of work.”

David Robertson, KTP Associate

David Robertson was recruited as Associate on this partnership, providing the link between the University of Strathclyde and Alba Ultrasound Ltd.

BENEFITS

Being involved in this KTP project gave David the opportunity to prove and enhance his technical skills. The work also provided scope for significant professional development and invaluable experience of project management, with David having responsibility for the project from transducer design through to production of the final technical report.

He attended several design review meetings with high-level technical personnel, and presented his work at various conferences, preparing papers and reports as necessary. David also proved himself able to work as part of a team.

RESULTS

- Gained a wide range of project management skills
- Enhanced technical skills
- Research done during the KTP was published in the top international journal in the field of ultrasonic transducers
- Offered and accepted a job with Alba Ultrasound as Acoustic Design Engineer

The Academic Partner



“Working on this project has resulted in an understanding of the demands associated with product commercialisation. The successful realisation of new ultrasonic array technology clearly demonstrates that

significant advances can be achieved through quality partnerships.”

Dr Anthony Gachagan, Senior Lecturer, Electronic and Electrical Engineering Department, University of Strathclyde

Dr Anthony Gachagan, Senior Lecturer in the Electronic and Electrical Engineering Department at the University of Strathclyde, was Lead Academic on this KTP, working closely with Professor Gordon Hayward, Director of the University’s Centre for Ultrasonic Engineering (CUE).

BENEFITS

The project’s success reflected the breadth of CUE’s technical knowledge of ultrasonic transducer design and understanding of the fundamental physics associated with piezoelectric composite transducer configurations.

Throughout the KTP project, the application of new single crystal piezoelectric materials within composite transducer configurations has been widely publicised, and has helped to enhance the Centre’s reputation both nationally and internationally.

New teaching material was developed from the project work, and incorporated in a transducer modelling module for a new Engineering Doctorate scheme.

RESULTS

- Promotion for Lead Academic
- International reputation of CUE as a centre of excellence in its field
- Results disseminated through eight conference and journal publications
- Postgraduate course work developed