

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>

ULTRA ELECTRONICS COMMUNICATION & INTEGRATED SYSTEMS KTP ADDS A VALUABLE DIMENSION TO DATA-LINK PRODUCTS

ABOUT THIS CASE STUDY

In this Knowledge Transfer Partnership (KTP), Ultra Electronics Communication & Integrated Systems (CIS) worked with the Department of Communication Systems at Lancaster University to develop a real-time integrated security monitoring and management system, for the communication of situational awareness from remote locations, such as unmanned aerial vehicles, over satellite and local broadband links.

ABOUT THE SPONSOR

The **Technology Strategy Board** is a business-led organisation established by the Government. Its mission is to accelerate research into, and development and exploitation of, technology and innovation for the benefit of UK business - building economic growth and quality of life.

FAST FACTS

- 🔄 Gained new capabilities and expertise in product design and testing, which have been firmly embedded by the KTP Associate
- 🔄 Unique High Integrity Data Link proven, opening new market opportunities
- 🔄 Contributions to the new international standard on aviation security
- 🔄 Enhanced understanding of computer networking, benefiting data-link work
- 🔄 Potential to expand product range and enter new markets, predicted to increase annual sales by over £500,000
- 🔄 Opportunity to develop artificial intelligence for aviation security and further signal processing concepts for the Academic Partner
- 🔄 Significant professional development for the Associate, and a position with the Company

The Company

“The KTP has added a valuable dimension to our data-link products and raised Ultra's profile at conferences, standards committees, and with published journals. It also resulted in a strategic partnership between Lancaster University and Ultra Electronics.”

Andrew Cambridge, Chief Scientist, Ultra Electronics CIS



Ultra Electronics Communication & Integrated Systems (CIS) is a specialist business within the Ultra Electronics Group and is a market leader in the provision of secure communications, information assurance and Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) systems to defence customers worldwide.



Enhanced product design and testing capabilities have helped Ultra to develop new monitoring systems

ABOUT THE PROJECT

Originally, Ultra initiated this KTP to gain expert input to develop an aircraft cabin surveillance system that would enable the crew to stream live images to ground in the event of an incident. However, changes to industry regulations and markets cut customer demand for this product. Fortunately, at that time Ultra identified a market opportunity for a system providing

live images to ground from unmanned aerial vehicles (UAVs) over satellite and local broadband data-links. By continuing with the collaboration, the Company gained a highly-motivated and skilled Associate, together with access to the expertise in communications technology and aviation security research within the Department of Communication Systems at Lancaster University.

BENEFITS

Overall the KTP has been a great success, meeting all objectives and providing significant benefits for all parties involved.

Ultra has gained expertise in the design and testing of new products. An enhanced understanding of computer networking continues to benefit its data-link work, with a computer-centric view complementing its more traditional radio-engineering approach and potentially opening new markets for its data-link products.

These new capabilities have been demonstrated in meeting the key objective of developing a monitoring system using communications via UAVs, exploiting the Associate's expertise to adapt video equipment so that images could be sent in real-time over Ultra's new and unique High Integrity Data Link (HIDL).

This innovative project has generated much publicity through exhibitions and the presentation of papers at several key conferences, raising the profile of Ultra in new market areas. The enhanced product range is expected to increase sales by around £500,000/year.

RESULTS

- Enhanced capabilities in product design and testing
- Better understanding of computer networking, facilitating easier-to-use products
- HIDL proven, with potential in many new products
- Aviation security identified as an area for future business growth, reflecting the increasing concern within the industry
- Greater ability to utilise computers to identify and solve data-link problems
- Ministry of Defence funding obtained based on future product development ideas

The Associate

"Working on a KTP project gave me greater opportunities and experience than I could have imagined, I couldn't have hoped for a better way to start my career."

Alex Tarter, KTP Associate

The appointment of Alex Tarter, who had completed a Masters degree in Information Systems Engineering, proved to be an excellent decision. As KTP Associate he proved enthusiastic, personable, skilled and hard-working, with his commitment and drive proving instrumental in the project's success.

BENEFITS

As Associate, Alex has gained considerable design experience, built on his project management skills and extended his technical knowledge, in particular of communication systems and computer networking. He welcomed opportunities to attend exhibitions and conferences, through which he made useful contacts and showed professionalism in representing the Company. Alex joined a European Aviation Standards working group, EUROCAE WG-72, which was established to develop guidelines to address security concerns for aeronautical systems, which was also directly applicable to his project work.

RESULTS

- Significantly enhanced technical, project management and presentation skills
- Completed an NVQ Level Four in Management
- Progressed towards PhD
- Progressing towards Chartered Engineer status
- Accepted a position with Ultra Electronics CIS as Senior Systems Engineer

The Academic Partner

"The project was beneficial to both the Industrial and Academic Partners and provided a unique opportunity for developing new skills and products in the Company, and exposing Lancaster University researchers to real life industrial problems."

Professor Garik Markarian, Head of Department of Communication Systems, Lancaster University



Academics from the Department of Communication Systems at Lancaster University provided the expertise and experience needed to deliver this KTP. Professor Garik Markarian, Head of Department and an international expert in communications technology was the Lead Academic.

BENEFITS

Working with the Associate to develop new monitoring systems has provided staff with the opportunity to apply research into computer networking and artificial intelligence to real products. It has also enabled them to develop ideas in 'fuzzy logic' relevant to aviation security.

A new area of teaching has been developed through the work, exploiting the success of video processing techniques utilised within the project.

A strategic partnership agreement has been reached with Ultra Electronics CIS, covering many areas of high technology including aviation security, wireless communications and artificial intelligence.

RESULTS

- Ultra laboratories made available for Academics' research work
- Strategic partnership agreement in place, strengthening mutual relationship
- Successful bid for Ministry of Defence work, generating further collaboration