

Promoting advancement of skills and education.

We launched our heritage collection as a unique historical and educational resource; initiated a new partnership with the Royal Academy of Engineering; and inspired more young people towards engineering.



In 2018/19 we fulfilled our intention to produce an investment appraisal for the Lloyd's Register Foundation Heritage and Education Centre (HEC), focusing on a new vision and ways in which the unique Lloyd's Register historical collection and archive can help us address our mission. In addition, we have directed a new Makerspace-based approach to understand how we can inspire more young people towards engineering. We worked with the UCL Centre for Engineering Education to publish *Innovations in Engineering Education; Inspiring and Preparing Our Engineers for the 21st Century*, which we launched in February 2019. Finally, we also initiated work with the RAEng to review world data on the provision of engineering skills and education to identify any significant gaps linked to the Foundations safety mission.

Highlights from our charitable activities and new grants

Enthusiasm for Engineering

We are funding 20 ENTHUSE partnerships across the UK, to stimulate and sustain young people's interest and enthusiasm for engineering through a £300,000 grant over two years awarded in November 2018. Led by STEM Learning, the funding enables groups of four to eight schools and colleges to work together in partnerships to identify and address issues with participation and achievement in engineering and technology. We aim to create a community of teachers with cutting-edge technical and pedagogical understanding in engineering and emerging technologies who are well connected to local employers within the engineering sector, who are able to deliver a quality engineering education programme. Teachers and schools are being provided with expert in-school guidance, mentoring, and continuous professional development based upon our emerging technology areas and other forms of support. To date, the partnerships have already recruited 85 schools and colleges across the UK and engaged nearly 100 employers, including Arup, the Ministry of Defence and Siemens.

Reimagining Engineering Education

In February 2019, the Foundation helped to launch *Innovations in Engineering Education*, a report led by the Centre for Engineering Education at UCL, that considers 21st century engineering, how it can be taught and how we can encourage more people to study it. The aim is for the insights in the paper to be adopted and used in engineering education to attract a more diverse generation towards science, technology, engineering and mathematics (STEM) subjects. The value of the grant given to UCL's Centre for Engineering Education was £55,000.

Makerspaces

To achieve the Foundation's mission, we recognise the importance of increasing the numbers and diversity of those within engineering professions. Makerspaces, sometimes also referred to as hackerspaces, hackspaces, and fablabs are creative, DIY spaces where people can gather to create, invent, and learn. We recognise a unique opportunity for maximising the potential of Makerspaces as a vehicle for widening participation in engineering and are funding two new programmes in this area. One will be led by Professor Louise Archer (Institute of Education, UCL) through a three year grant of £688,000 awarded in June 2019, and the other will be with the Educational Volunteers Foundation of Turkey (TEGV) through a three year grant of £201,000 awarded in May 2019. The programmes will

be mutually beneficial and will produce valuable evidence of the teaching and engagement approaches that work in Makerspace settings.

Improving Safety Culture

We are delighted to be supporting the Hellenic Marine Protection Agency (HELMEPA) in a new project that aims to strengthen maritime safety culture among seafarers, shipping companies and other marine communities of Greece and Cyprus through the establishment of a voluntary reporting scheme for near misses by all types of vessels, a series of refresher training seminars and simulation on incident analysis, 'safety-at-sea' workshops and a wide safety awareness campaign. In June 2019 we awarded a two year grant of £288,000 to HELMEPA in support of this work.

Data Skills for 21st Century Engineering

We are building on the success of our data-centric engineering programme at the Alan Turing Institute (ATI) and working with Imperial College and ATI on a programme that aims to train the next-generation of engineers, leaders, and influencers with the data skills to transform safety, reliability, and efficiency of critical infrastructure.

Saving Lives in South East Asia

The South East Asia Skills Enhancement Programme (SEASEP, formerly SEATP) is a skills initiative that aims to drive down the rate of fatal occupational accidents in SE Asia and contribute in saving more than 100,000 lives per year. Since launching in October 2018, through a three year grant of £2 million with TWI, the programme has already recruited 300 students across seven locations in Indonesia, and ten Memoranda of Understanding have been signed with industry, training providers and other agents. The Indian phase of the programme started in April 2019.

Tall Ships Youth Trust

We recognise the life-changing experience that Tall Ships Youth Trust voyages can bring to so many young people. That is why we are very proud of our support for their 'STEM and the Sea' programme through a £126,000 grant over 3 years awarded in September 2018. Our funding will allow 90 disadvantaged young people to go on voyages that will offer a rich science/engineering-based educational environment designed both to create aspiration towards marine engineering and develop personal/employability skills. The STEM and the Sea voyages also build on an existing collaboration between the Foundation and the 1851 Trust, furthering its potential for impact.

Individuals that can change the world

We have a 'family' of grants that aim to provide highly-talented individuals from emerging economies with the training they need to make the world a safer place. At the International Maritime Law Institute (IMLI) based in Malta, we fund postgraduate students from developing states to gain unique legal expertise that makes them a valuable resource to policy and decision-makers in their governments. The three most recent Lloyd's Register Foundation scholars now hold senior positions within the Gambian judiciary, the Ministry for Foreign Affairs in Guyana and Kenya's Ministry of Transport. Similarly, a new grant to the University of Manchester (value £38,000) will provide scholarships for graduates from Rwanda, Uganda, Ethiopia or Tanzania to obtain much needed high-level engineering skills and prepare them to apply their knowledge to the communities in which they live and work.

Contemporary impact of our rich heritage

The Lloyd's Register Foundation Heritage and Education Centre (HEC) is the custodian of Lloyd's Register's unique heritage collection, which contains more than 250 years of ship plans, survey reports, letter books, photograph collections and so much more. The collection is one of the great resources still available for maritime history, marine engineering, naval architecture, offshore engineering and ocean technology. This year we have shown how our collection can be put to work in line with our charitable mission and have set a goal for HEC to be "a globally-renowned resource for understanding engineering and technological innovation and its impact on society." To do this we are building on the collection's historical links to the marine sector and our safety-driven mission. We have already embarked upon an ambitious programme to catalogue, conserve, digitise and make the entire collection publicly available within three years and we are pursuing new and engaging programmes of outreach, education and research.



Future plans

In 2020 we plan to:

- Initiate activity in response to our new challenge-led strategy.
- Start building the global evidence base to help identify where engineering capacity and capability to address safety challenges is most lacking – and work with others to understand if education and training matches current and future industry needs.
- Support new approaches to engineering education that inspire and engage participation of disadvantaged and under-represented communities.
- Build public awareness and understanding of the importance of engineering education.



CASE STUDY

International Maritime Law Institute.

The International Maritime Law Institute (IMLI) based in Malta was founded in 1988 and is a world recognised centre for the training of specialists in international maritime law. In fact, in December 2018, the United Nations General Assembly recognised for the eleventh consecutive time the importance of IMLI as a centre of education and training of specialist in maritime law.

Lloyd's Register Foundation appreciates the importance of training and equipping young maritime lawyers to help their respective national maritime administrations translate International Maritime Organisation (IMO) conventions and treaties into national legal legislation and to help with their consistent enforcement. It is vital to the effective regulation of national and international shipping for IMO treaties and conventions to be implemented clearly and consistently via national laws of individual flag States. This makes the world a safer place.

Consequently, the Foundation is enormously proud of its long-standing support to IMLI, which actually stretches back to 1992, when Lloyd's Register donated some computer hardware for the use of IMLI students and staff and the first Lloyd's Register Computer Room at IMLI was opened.

Since 2002-2003 Lloyd's Register, and now Lloyd's Register Foundation, has supported IMLI through scholarships for students from emerging economies. Indeed, IMLI is establishing a formidable network of professionals – from registrar generals to chiefs of naval departments, and from ministerial positions to IMLI staff - who are rendering valuable services to our society.

We are honoured to maintain relationships with the IMLI graduates that we have supported, and we are delighted that Aleksandra Bujković, recently admitted to the Bar Chamber of Montenegro, is one of Lloyd's Register Foundation's 100A1 Ambassadors.