Press release: UK Hydrographic Office contributes to autonomous navigation study

The UK Hydrographic Office (UKHO) has contributed to a new UK government-funded study on navigational requirements for autonomous maritime vessels.

The UKHO worked together with partner organisations L3 ASV and the Maritime and Coastguard Agency (MCA) to identify the future data requirements for autonomous shipping, and explore how navigational and wider geospatial data can be used to enable the safe navigation of smart and unmanned autonomous vessels.

The study, funded by the Department for Transport's Transport Technology Research Innovation Grant (T-TRIG), started by exploring the characteristics of current navigational data and charts in terms of what they comprise, their structure and how they are updated. It then examined how these data sets could be repurposed to develop a prototype 'Smart Chart' system, incorporating data such as radio signals, regulations, tides and foundation navigational data, that can be interpreted by a computer without the use of an onboard crew.

Mark Casey, Head of Research, Innovation and Integration at the UKHO, commented: "A wealth of marine geospatial data, from bathymetry depicting the seafloor to the speed and direction of the tides, supports navigation across our oceans. For over 200 years, the UKHO has sourced, processed and supplied this information to shipping and defence to help keep mariners safe at sea. We have developed our expertise in sourcing and processing this location-based information to help others better understand the marine environment."

"With our expertise and knowledge of data required for safe navigation, we are well placed to help our partners identify the data requirements and standards needed to support the use of autonomous vessels of the future."

Commenting on the study, Nusrat Ghani, UK Shipping Minister, said: "As we move through the 21st century, technology will continue to transform the UK's world-leading maritime sector. Innovations such as Smart Charts pave the way for automation and Smart Shipping, and we are keen to support British companies making the most of new technologies, giving our vibrant sector a competitive edge. Technology and innovation are a key part of our Maritime 2050 initiative, which will set a vision for the growth and success of our maritime sector over the next 30 years."

Tim Wilkes, Product Manager, MCA, added: "Understanding the data requirements of autonomous vessels is going to be hugely important for the MCA if we are to continue to ensure the safety of navigation in UK waters to save lives and combat pollution."

Dan Hook, Senior Director of Business Development, L3 ASV, commented: “Current navigational data and charts have been developed over centuries to be read and interpreted by humans.

“Today, and over the coming decade, more and more marine vessels will be operating unmanned, and the charts will be read by computers.”

The UKHO believes findings from the study will help to support the development of navigational requirements for autonomous vessels and will look to use its expertise in marine geospatial data to help further develop this area of shipping.

News story: UK secures change to international aid rules

The UK has secured a significant change to the international aid rules which would allow high income countries, which experience economic shocks, caused by crises and natural disasters, to apply to receive ODA.

It comes after the UK was the driving force for change when many Caribbean islands, including some British Overseas Territories, were left devastated by two category five hurricanes in autumn 2017, Irma and Maria.

At the time, there was no system in place for such countries to automatically requalify for aid if their economies were badly hit in such circumstances. Countries would only requalify for aid if their economies were so badly hit, their economies dipped under the World Bank High Income threshold.

Because of the UK’s campaign for change, the Development Assistance Committee (DAC), which is made up of 30 leading donor nations, has agreed a new ‘reverse-graduation’ mechanism.

This means countries that have graduated from being eligible for aid will now be able to receive assistance if their economies worsen and fall below the World Bank threshold.

Such countries would be eligible for aid related to long-term economic recovery and reconstruction, rather than humanitarian assistance.

International Development Secretary Penny Mordaunt said:

> The British public are strong supporters of providing help in the wake of disasters, including long-term reconstruction. They want to help people, especially when they are from nations we have close ties to

> Not being able to pay for that help from the aid budget, because a nation's economy was doing well, before a hurricane, earthquake or other disaster hit, was illogical and had to change.
>
> Britain has never fallen short in our support of countries in need – either through sending aid, our Armed Forces or reconstruction support. This significant rule change means that in future we may be able to use our aid budget to pay for that longer term, reconstruction support
>
> This gives the UK more options in how it can help a nation recover and become more resilient to shocks. I think the public would agree that is what our aid budget should be used for.
>
> This is a major victory for the UK which has led the charge in securing this change. We will continue to press for further reforms to these important rules to ensure we are able to use the aid budget in the most sensible way.

Once a country reaches the World Bank's High-Income threshold for three consecutive years, under the OECD DAC rules they are not considered ODA-eligible.

The new 'reverse-graduation' mechanism means that British Overseas Territories and other Caribbean islands badly damaged by hurricanes could requalify for aid in the future if their economy is sufficiently badly affected. The rule change could benefit the UK when it assists with the economic recovery and reconstruction of nations hit by natural disasters.

The UK government has always been clear that in times of crisis, nothing will hold us back from helping the British territories. The ODA rules have not and will not hamper the UK's response to humanitarian crises. The new mechanism could help protect a country's hard-fought development gains and prevent it from slipping into long-term economic decline due to severe natural disasters in the future.

News story: Tri-Branch Management Board chairman appointed

Accident Investigation Branches: Tri-Branch Management Board (TMB)

The TMB was formed to optimise coordination between the three accident investigation branches (the Air Accidents Investigation Branch, Marine Accident Investigation Branch and Rail Accident Investigation Branch) of the Department for Transport.

Air Marshal Garwood said:

> I am delighted to be appointed as the first non-executive Chairman of the Tri-Branch Management Board. The three Accident Investigation Branches play a crucial role in the safety of our transportation system and I look forward to supporting the Chief Inspectors in this task.

Air Marshal Garwood was Director General of the Military Aviation Authority from 2013 to 2015 and Director General of the Defence Safety Authority from 2015 to 2017.

Further information on the terms of reference of the TMB: TMB Terms of Reference (PDF, 194KB, 3 pages) .

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News story: 10 health start-ups supported through KQ Labs accelerator

Artificial intelligence and digital technology are predicted to have a wide-ranging impact on health services. It is hoped that the sector will transform, from the treatment of illnesses to prediction and prevention.

To encourage the development and adoption of new, data-driven technology, Innovate UK has invested £400,000 in KQ Labs. The Francis Crick Institute – a centre that focuses on the understanding of the biology underlying health and disease – will run the accelerator programme.

KQ Labs, named after the 'Knowledge Quarter' area around King's Cross, Euston and Bloomsbury in London, will provide guidance and advice for health start-ups working with data.

The 10 companies that will receive support are:

- Ayuda, whose app helps diabetes patients with insulin management
- Chromadose, which personalises monitoring of blood levels to deliver oncology drugs
- ConcR, which uses data to predict cancer evolution and patient response to treatment
- Cortirio, which has developed a scanner for portable diagnosis of brain injuries
- Deepscope, the developer of an educational app for ultrasound simulation
- Heron, the creators of a graphical 'map of science'
- LifeEngine AI, whose hospital tool predicts mortality from acute kidney injury
- Macusoft, whose artificial intelligence system helps guide the treatment of preventable sight loss
- Mendelian, which has developed an online platform to help speed up diagnosis of rare diseases
- Vision Game Labs, which uses gaming techniques to diagnose eye disease through home monitoring

Dr Veronique Birault, Head of Translation at the Crick, said:

> This is the start of a very exciting journey for the 10 start-ups, and also a great contribution towards building the ecosystem for data-driven health in the Kings Cross area.

Help to progress business proposals

Each start-up will receive £40,000 to take forward their business proposals, a customised framework for developing and progressing their technology, alongside mentoring and coaching from a group of global experts to prepare them for future investment.

These experts will form part of the academy programme, providing insight into entrepreneurship, the health sector, data science and investment strategies. They will lead workshops to address a variety of challenges throughout the programme.

The accelerator programme supports the government's Industrial Strategy. It embraces emerging technology to transform industries and increase productivity, create new highly skilled jobs and improve living standards.

Chris Sawyer, Innovation Lead, Digital Health at Innovate UK said:

> The start-ups all have the potential to make an impact on global health outcomes and will have access to unrivaled support and resources.
>
> These ventures will help shape the future of health in a sector that is a vital part of the government's modern Industrial Strategy.

Why better management of health data is needed

Better management, tracking and automated analysis of health data could transform outcomes for patients and also save public money that goes into health services.

The companies being supported are working on ideas that could achieve these goals. Their solutions could be applied to a wide range of diseases and health areas, including:

- personalised medicine
- imaging and improved diagnosis
- management and interrogation of large amounts of scientific data

They will look to improve management of data in tackling illnesses like cancer, diabetes, rare disease and ophthalmology.

News story: Derailment at Stonehaven, Aberdeenshire

At about 17:03 hrs on Wednesday 10 October, the empty carriages that had formed a ScotRail service from Aberdeen to Stonehaven were being shunted from one line to the other over a crossover immediately south of Stonehaven station. The train was travelling at between 12 and 14 mph (19 – 22 km/h), when two of the three carriages became derailed on the crossover points, and the train stopped. The driver and guard, who were the only people on board the train, were unhurt. There was some damage to the track, and minor damage to the train.

The RAIB sent two inspectors to the scene, to determine the cause of the derailment. The evidence which they collected shows that the points had been set, and the relevant signal had been cleared, for the train to move from one line to the other. After the cab of the train had passed it, the signal reverted to danger and the points moved under the train, causing two

carriages to derail.

The RAIB’s preliminary examination has eliminated the condition of the train itself, the way it was being driven, and the condition of the track and signalling infrastructure as possible factors in the cause of the accident. The crossover is only used by empty trains travelling at low speed and, in common with many similar crossovers that are only used for shunt moves, the points are not locked by the presence of the train. For this reason, and given that that all other railway equipment appears to have operated as designed, the RAIB has concluded that the potential for safety learning is insufficient to justify further investigation. The RAIB will share evidence with the railway industry parties involved, to assist them with their own investigations into this accident.