

A good place to be: MIME is headquartered in one of Scotland's life sciences hubs at Inverness Campus. Photo: Gillian Frampton /HIE



Vital signs

When they occur, in-flight medical emergencies are stressful and often complex situations for cabin crew to manage. Alexander Preston speaks to Anne Roberts, CEO of MIME Technologies, to discuss a new innovation to help the industry with onboard medical handling.



Aviation focus: Anne Roberts of MIME Technologies.

Thoughts of the Scottish Highlands may conjure up images of picturesque countryside and whisky production, but away from the lochs, castles and distilleries, the region is establishing itself firmly in the life sciences and technology sectors.

Inverness, the 'capital' of the Highlands, has become a driving force in the region's wider life sciences cluster. One local company, in particular, is blazing a trail in in-flight medical emergency response.

Headquartered at the purpose-built life sciences building, Solasta House, on Inverness Campus, Managing Information in Medical Emergencies (MIME Technologies) has been far from silent, attracting both funding and plaudits for its technology.

During the course of 2020, MIME secured support from Highlands & Islands Enterprise, in addition to £248,000 in funding from the Early Stage Growth Challenge Fund, delivered by Scottish Enterprise on behalf of the Scottish Government, and before that the company raised its first investment from Scottish angel syndicate Equity Gap.

Its attractiveness to investors was rewarded with a Top 10 ranking in the Scotland Tech 50 for 2020, (a combined public and expert judging panel vote) in October, while the year began with Scottish Business Insider identifying MIME as one of 10 Scottish digital and science start-ups to watch in the year ahead.

This apparent 'overnight' success masks hard work and dedication.

MIME was originally a research project at the Centre for Rural Health (CRH), University of Aberdeen, as part of its Dot.Rural programme, which looked at new ways to enhance rural life and services through technology.

Led by Dr Alasdair Mort, (MIME founder and COO), the original study's scope was to investigate ways to underpin reconfigured remote emergency response services, by examining how technology could support the responders. During this time, the first prototype for responders was developed and refined.

With the technology validated, MIME Technologies successfully spun out of the University of Aberdeen. Anne Roberts, also a co-founder, was appointed as CEO in October 2019. Roberts says, "Our aim has always been to help people that are away from professional medical care, away from a hospital or those who may be in an extreme environment. We quickly identified aviation as our first repeatable and scalable market."

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The MIME team is diverse, bringing together computer scientists, clinicians and med-tech expertise. "We've got a high-energy, resilient, and very passionate team," says Roberts, with varied specialist backgrounds including technology, physiology, medicine and business.

Roberts herself has a background in remote health, specialising in the application of new technologies for pre-hospital care settings. Dr Mort, also a co-inventor, has a medical device PhD and was previously an Enterprise Fellow at the Royal Society of Edinburgh. He's also worked in aircrew protection for QinetiQ, formerly the UK MOD's Defence Evaluation Research Agency, where he conducted altitude protection research. Dr Tim Stevenson is MIME's Aviation Medicine Adviser and was previously Head of Health Services for Virgin Atlantic and medical advisor to easyJet. "We have a real mix of skill that's relevant to the technology that we produce, including aviation medicine," adds Roberts.

INTRODUCING AIBER

After in-depth product development and end-user testing, MIME's dedicated team launched its new solution, Aiber, in March 2020, specifically designed to support cabin crew.

"We spent many months working with the industry to fine-tune the product for aviation," says Roberts, adding that although MIME initially looked at all aspects of multimodal healthcare, commercial and business aviation has been the company's focus.

Aiber is lightweight (1.5 kg) and just larger than A4 in size and enables real-time data sharing of both minor incidents and major medical events in-flight through Bluetooth connectivity.

Aiber includes an iPad, with pre-loaded Aiber software, designed explicitly for non-medical professionals such as cabin crew. An in-built chat function allows the cabin crew to communicate directly with their ground-based medical support providers of choice, and the clinicians can equally review and recommend. "So, it's an end-to-end product," states Roberts.

The Aiber clinician dashboard allows aviation ground-based doctors to log in and view the incident in real time, as Aiber collects vital signs from the unwell passenger via equipment including an accurate and durable pulse Oximeter, 12-lead Bluetooth ECG recorder (designed for non-professional use), with disposable patch technology. This data is shared over secure cloud technology with clinicians, allowing not only better informed in-flight decisions, but, when necessary good diversion decisions.

As Aiber is a product developed for remote environments where sometimes there is no connectivity, it can still guide crew and record all vital data for accurate incident

Aiber enables real-time data sharing of both minor incidents and major medical events in-flight through internet connectivity.



reporting, sharing data as soon as connectivity becomes available. Roberts regards the low-bandwidth chat function as a key feature of Aiber. The crew don't need to leave the passenger's side to get help. But Aiber is also enhancing what already can be found on the market. For example, Aiber's chat functionality is not impacted by noise and the vibration of the aircraft, which may distort the quality and clarity of existing voice communication technology. A valuable feature is the in-flight first aid guidance. During any medical event, Aiber can guide the crew with first aid steps, aligned with their training. "Although all crew do receive annual training, it may be some time since they undertook CPR, for example, and in the heat of the moment, they may not remember how many chest compressions to perform. Aiber will help them: it will prompt them and remind them, on the scene, of how to do things step-by-step, the right way," Roberts explains.

ONE-TOUCH SIMPLICITY

As 2020 came to a close, MIME CE marked the Aiber software, paving the way for launch into international markets. The CE mark confirms that Aiber conforms to European Communities Council Medical Device Regulation 2017/745 and is now registered with the UK Competent Authority. This is a significant advancement for MIME Technologies as it allows the company to enter UK and European markets.

With more passengers and crew set to benefit from the solution, how easy is it to use? "Super easy," says Roberts. "Aiber has a unique element to it – one-touch technology,



Aiber’s in-built chat function allows the cabin crew to communicate directly with their ground-based medical support providers.



which simply means the crew just needs to touch singular buttons. There’s little typing or scrolling.

“One of the key pieces of intellectual property of Aiber is that we automate incident reports for the airline. We take the numbers and the data from the incident to create a readable English language report that can be used for handover reports for paramedics or for an airline audit (and insurance reporting) or for post-incident training. This all comes from a simple one-touch front-end user app that the crew have to use.”

PROTECTING PRIVACY

Such simplicity hasn’t compromised data privacy. All the data shared is purely incident-specific, as Roberts is at pains to reassure. “We take confidentiality very seriously. We work within GDPR guidelines. The clinician dashboard is hosted on a secure Microsoft Azure platform.

Crucially, we only record data that is required for the incident, we don’t necessarily have to record passenger identifiable information; we just need to know the health status of that particular casualty. We are strict with data quality and privacy.”

If 2020 ended on a high for MIME, the new year has begun in a similar fashion. The company joined the ATI Boeing Accelerator Programme as part of its second cohort of intakes. The ATI Boeing Accelerator is a three-month-long

programme intended to support innovation and the growth of young companies in the UK’s aerospace ecosystem. The accelerator was created in partnership with the Aerospace Technology Institute and Boeing. GKN Aerospace is the programme’s corporate sponsor, and Rolls-Royce recently joined as a programme partner. According to MIME, the alliance with the accelerator, coupled with the commercial and business support it brings, will deepen its networks and continue to raise its profile in the aviation industry.

“The professional input of the strategists and technical experts of these industry-leading companies will enhance our position in the aviation market,” says Roberts.

“We have to constantly consider that we’re ensuring that we have the most up-to-date

solution for the airline industry,” asserts Roberts. “When we started out, the Aiber product could only support the end-user, the cabin crew. We just had a front-end solution, but nowhere for that data to go, no end-to-end solution. As we’ve developed, we’ve made and brought new value because we don’t just support the crew, we support the airline, those that are making in-flight diversion decisions. So really, we’ve enhanced those features over time and will continue to do so. For example, in the year ahead, we will focus on sustainability, ensuring that it is at the heart of our product and our organisation. Sustainable solutions are key to the aviation market. We will also focus on communicable disease. Although the world is watching the COVID-19 pandemic right now, let’s not forget that various infectious diseases remain active across the globe. Communicable disease functionality helps to ensure that we’re continually relevant in the aviation market.”

Roberts concludes: “It has never been more important for the aviation industry to provide clear guidance and reassurance that every effort is being made to prioritise the health of passengers and employees. As the industry begins to recover following COVID-19, commercial airlines and private jets can use our technology to do just that.” ■



Aiber’s simple ‘one-touch’ technology helps cabin crew to manage a medical emergency.