

New Zealand's marine and wine industries are known globally for their innovation. Exports by the marine and wine industries are collectively worth around NZ\$1.7b. Interestingly, the aviation industry, with annual exports of nearly NZ\$4b, is not widely known internationally as an innovator.

But ask many of those in the know, and they will talk about the innovation in the New Zealand aviation industry. It is just that you usually have to ask! A few though are now talking!!

New Zealand, much like Australia, has always been a source of innovation, Distance from major markets meant many New Zealanders were very practical. They had to be; that ethos continues today. But the ease of air travel and the digital age have brought us all closer together and connected New Zealand aviation innovation to the World. Connectivity also makes the world a more receptive place for New Zealand innovation.

It is a little known fact but New Zealand's first aviation exports occurred by 1912. Bertram Ogilvie of Hastings engineers Hawkins and Rome was experimenting on, of all things, aircraft ailerons. The company relocated to England on the promise of Lord Kitchener to provide them with assistance from the War Office!

Aileron technology at the time was in its infancy and developed as the First World War progressed. It is difficult to know now just what part New Zealanders played in the development of a technology all aviators take for granted.

There is behavioural creativity too. Many years ago, Don Erceg, with over 20,000 hours topdressing time behind him, was about to drop another load when he saw a Japanese mother ship a few kilometres off the Taranaki Coast. Its fish holds were open, taking fish from 14 small boats. Erceg swooped low and dropped $\frac{3}{4}$ of his fertiliser load into the holds. Oh that such interception and justice was so quick today!

What distinguishes innovation in New Zealand aviation? Mike Pervan, General Manager of Altitude Aerospace Interiors says: "we'll actually give you what you are wanting. We can give you the curvy-looking componentry...yes, we can still meet all the requirements of the safety rules, but we know we can do it differently". Pervan emphasises the strategic approach: 'where's the niche, where are those things that we need to avoid and how can we be different'?

The ability to meet customer requirements is repeated by Keith Fisk, Managing Director of UTS/Geotech in Perth. In what it believes to be a world-first, Pacific Aerospace delivered a purpose-built geophysical surveillance aircraft, the P-750 XL187 directly from the production line in Hamilton, New Zealand to Western Australia. Fisk commented "the flexibility that Pacific Aerospace offered and their willingness to incorporate our requirements into the build spec would make a huge difference to our operation".

Airwork, with design input from Flight Structures, has secured European STC approval for the BK117-850D Honeywell upgrade project, in conjunction with US engine manufacturer Honeywell. The upgrade allows increased usable take-off weights from confined locations such as city hospital helipads where Category A – Class 1 performance is required.

New Zealander Peter Garden was a key participant in a consortium formed to prepare a plan to eradicate pests from Gough Island in the Tristan da Cunha group of islands. This incorporates input from the New Zealand Department of Conservation. So, we are likely to see some of the expertise developed in New Zealand for precision and measured dropping of bait applied in the South Atlantic.

New Zealand is home to a ranger of GPS based track and tracing technologies. Trac Map has developed technology for the agricultural industry, Tracplus has focused on a variety of vehicles in a range of industries and Spidertracks primarily has an aviation focus. This is a

good example of three companies using related technologies but developing in different directions for slightly different markets. The three companies sell in Australia.

We are also seeing New Zealand's marine composite expertise morphing into activities in the aviation industry – be they all composite helicopters, fixed wing aircraft or UAVs, or components/assemblies for aircraft. This is complemented by work occurring in the light metals area, including titanium, and the work of the Light Metals Research Centre. There is also increasing cooperation between the various research organisations and funders. This should effectively complement the work occurring at individual company level.

With over 100 years of aviation innovation behind us, we're looking forward to the next century. In a more connected world, expect more New Zealand companies to be working more effectively with more internationally aware research institutions, with more New Zealand developed technologies making it onto the world stage. Oh, and that innovation will be appreciated by a much broader audience!