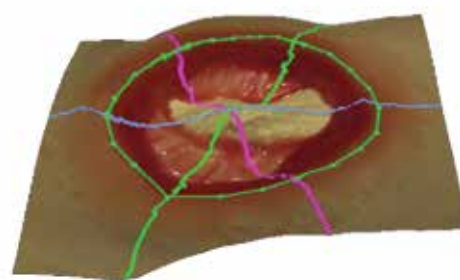




# Innovative Healthcare

New Zealand has enormous expertise in the engineering and technology sectors. Are we doing enough to sustain and promote this?

**Writer** Jennie Clarke



Behind the scenes, Silhouette creates a 3D model of the wound. Image: ARANZ Medical.

One of the challenges Dr Bruce Davey, Chief Executive Officer of Christchurch-based ARANZ Medical, sees for New Zealand is that we're not pumping out enough engineers, computer scientists, the technical disciplines. "In my view, our economy should be focusing much more on the technology space, on research and development. I think there's a limit to what we can do with agriculture. I don't think there's any limit to what we can do with innovative ideas and technology."

Bruce, who is an electrical and electronics engineer, should know. He leads a private sector research and development organisation that absolutely walks the talk in terms of innovation and technology. To quote from its website, ARANZ Medical is "a pioneer in transformative healthcare, disrupting primitive traditional assessment methods with leading edge, comprehensive solutions that lead to better patient outcomes and more effective and accurate clinical processes."

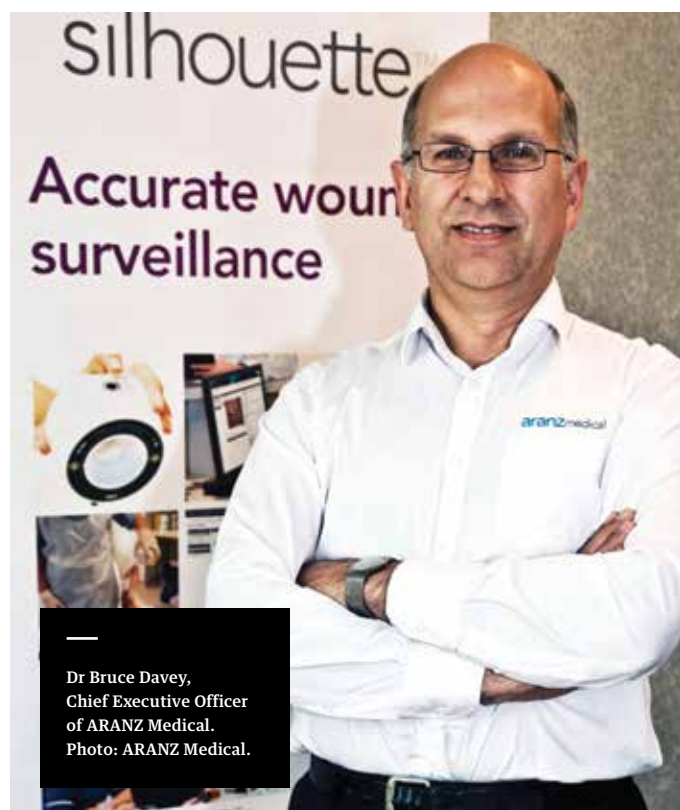
## Walking the talk

What does Bruce actually mean? "Basically, we're innovators, manufacturers and exporters of medical solutions," he says. "Since 1995, we've worked to commercialise three-dimensional scanning applications, principally for orthotics and prosthetics, and for wound care." With two cutting-edge products under its belt - FastSCAN and Silhouette - the company is, to say the least, very good at what it does: it counts the largest public healthcare provider in the western world - the United Kingdom's National Health Service - and the largest public and private healthcare providers in the United States of America (USA) - the Department of Veterans' Affairs and Kaiser Permanente respectively - among its customers.

Not bad for inspiration born over a pint of beer one summer afternoon in Hyde Park, when two University of Canterbury engineering graduates, Drs Rick Fright and Bruce McCallum, both on post-doctoral fellowships, were discussing the potential of laser scanning. After completing their research, the pair returned to Christchurch, set up the

business with colleagues Dr Mark Nixon and Brent Price, and over the next four years, using pretty much any spare time away from their day jobs, developed what eventually became FastSCAN, a 3D scanning system used to design and manufacture custom devices for amputees.

Curiously, one of FastSCAN's first customers was Weta Digital, which used it to digitally model figures for the *Lord of the Rings* film trilogy. "It was kind of the wrong way to go about things," Bruce says. "The guys had this great idea, then looked for a market for it and they thought they'd found it in animation. From a PR perspective that was great, but from a commercial perspective not so much. It was FastSCAN's application in the artificial limb space which really got the company flying."



Dr Bruce Davey,  
Chief Executive Officer  
of ARANZ Medical.  
Photo: ARANZ Medical.



*"I don't think there's any limit to what we can do with innovative ideas and technology."*

Systems engineer David Edwards demonstrates ARANZ Medical's latest FastSCAN portable 3D scanner. Photo: ARANZ Medical.



Silhouette. Photo: ARANZ Medical.

Right: Silhouette is showcased for its potential as a telehealth solution for the US Department of Veterans Affairs, by distributor Iron Bow Technologies' telehealth education specialist Leslie Fernyhough. Photo: ARANZ Medical.

Far right: Canterbury DHB diabetes podiatrist Rachael McBrydie uses the Silhouette system in her assessment of a wound. Photo: ARANZ Medical.

In 2005, ARANZ Medical began investigating what was available in the wound care area: think pressure sores, venous and diabetic ulcers. While the global annual wound care spend is a little unclear, some estimates put the cost as high as \$50 billion in the USA alone. Add ageing populations and growing prevalence of chronic diseases like diabetes to the equation and costs have nowhere to go but up. "At any time two per cent of the population of a typical western country has wounds being treated. That's seven million people in the US. Think about that on a global scale. It's an enormous problem and there's enormous opportunity."

*"Seeing our technology being used to assist some of the world's most underprivileged children in some of the poorest places in the world is very, very rewarding."*

In fact, once the company began investigating, Bruce recalls the shock at the parlous state of wound care. "It was Stone Age. Disposable rulers were used to measure wound dimensions, a cotton bud or probe would be stuck into wounds to guess at depth, measurements were recorded on bits of paper that would get lost. Those of us who'd come from radiology backgrounds, with equipment that measures to the nth degree, were amazed at just how antiquated the process was. It seemed like technology had skipped over wound care for 50 years."

That's where Silhouette, a wound assessment system, came to the rescue. Using a sophisticated but easy-to-use laser camera, software and database, Silhouette accurately measures the area, depth and volume of a wound, creates

a 3D model of it and stores that information, enabling the healing process to be tracked over time. "It's a highly accurate non-contact piece of equipment, able to detect small changes in wound size, supporting earlier intervention and better informed decision-making by practitioners," Bruce says.

### Global success

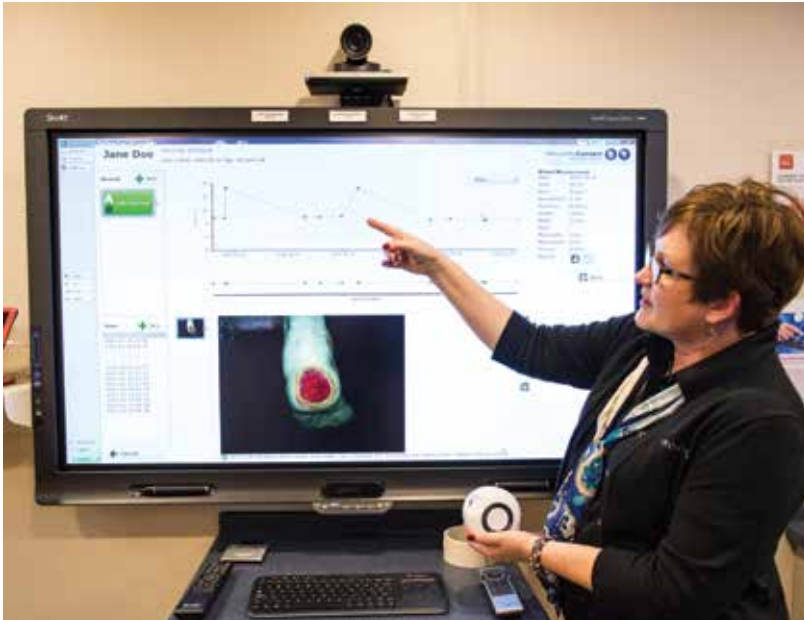
Today, ARANZ Medical has customers in 30 countries across five continents. In fact, 99 per cent of its sales are overseas. So, what makes the company tick? What helped it, over the course of just 20 years and out of a small city at the ends of the earth, to morph into a global leader?

According to Bruce there are a number of key factors, not least of which is an incredibly strong emphasis on research and development. "We have a very clear development road map. Take Silhouette for example. The current product is still being shipped. The next generation is under development and due out the first half of 2016, and the generation after that, also under development, is due out in 2017."

The calibre of staff is also a success factor: "We've got some pretty creative and skilled people who are extraordinarily customer focused: electrical, system and software engineers; medical imaging and informatics specialists; sales, marketing and business development gurus; quality and regulatory managers; product developers; specialists in commercialisation. At the last count, I think there are seven PhDs among them. But every single one of our 40 staff takes the time to understand what our customers want, what their needs are. Compared to some of our competitors, it's one of our core strengths.

"All our staff know that each customer's touch point with our organisation needs to leave an impression of, 'Gosh, that was simple. Gosh, that was excellent'. That's the taste we're looking to leave on their palates after interacting with us. In fact, you could say that simplicity and excellence are the two qualities we live by."

Bruce cites a recently signed contract with the largest manufacturer of orthotics and prosthetics in the USA.



“This was a big deal. They [the USA] are the gorilla of the prosthetics space, commercially the most successful prosthetics’ provider in that country. Our first generation FastSCAN had worked well for them but it was time for a product refresh in their clinics across the country. After looking at different technologies, different products available around the world, they made the decision to come back to us and FastSCAN II. But it wasn’t just about the technology. It was also about the confidence they have in us after 14 years of doing business together.”

### Overseas markets

Meantime, ARANZ Medical’s representatives in the USA and Europe are feeding information back to Head Office, complementing the work of the in-house marketing team especially in terms of potential opportunities.

“Keeping up with market intelligence in those all-important overseas markets is critical,” Bruce says. “There are a few things about the US health system, for example, that from a business point of view are quite useful to us. One is litigation, where having accurate documentation around a case is vital. But also the Affordable Care Act, or Obamacare, is driving an increased focus on outcomes, including reimbursement being tied to demonstrating patient improvement. Silhouette fits the bill beautifully for both those scenarios.”

But it’s not just patients in the developed world benefiting from these technologies. The World Health Organisation

is using Silhouette in West Africa as part of its push to find a better cure for Buruli ulcer, a chronic and debilitating bacterial infection of the skin that particularly affects children and, if left untreated, leaves sufferers crippled for life. “Seeing our technology being used to assist some of the world’s most underprivileged children in some of the poorest places in the world is very, very rewarding,” Bruce says.

The company’s success has been noticed and rewarded. Last year was spectacularly successful on the awards front, with the company being named a finalist in the NZ Hi-Tech Awards; Exporter of the Year in the AmCham [American Chamber of Commerce]-DHL Express Success and Innovation Awards (celebrating the success and innovation of New Zealand companies doing business with the US); winner of the Champion Canterbury Producer/Manufacturer (medium to large enterprise) category; winner of a United Nations 2015 World Summit Award in the health and environment category; and a finalist in the New Zealand Innovation Awards.

So - where to from here? According to Bruce, the vision is for the company’s technology to become even more synonymous with skin assessment solutions across the globe. Ancillary products are being considered. There’s a newly-established US subsidiary, with others planned for Europe and Asia. Staff numbers are expanding rapidly. It seems there really is no limit to what can be done with the company’s innovative ideas and technology. ☒

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