

CMDT Quarterly

Welcome to the first edition of the CMDT Quarterly. This is an initiative to keep in touch with our industry and clinical partners, researchers in the network and stakeholders through news and insights on developments in the NZ and global med tech sector.

The CMDT Steering Committee takes this opportunity to welcome Victoria University of Wellington (VUW) as a full research organisation member of the network. VUW brings complementary capability to that of the founding partners especially in additive manufacturing and product design.

The CMDT Industry Outreach Programme is now in full swing, with CMDT partners meeting with individual companies to identify short and long-term technology requirements. This will enable the CMDT to develop a roadmap to help grow the sector in conjunction with knowledge from the Medical Technology Association NZ and NZTE.

The NZ med tech industry remains vibrant with 100+ companies, 88% of which are small companies and start-ups with less than \$5M in revenue. These are typically the companies hungry for innovation and growth, as evidenced from their overseas counterparts.

The present global focus in this sector is around empowering patients to assume responsibility for their care, with an emphasis on keeping people in their communities and homes and out of the hospital. This creates a need for an integrated approach to healthcare across a decentralised infrastructure. A new market that has risen is for technologies that support remote

monitoring, assessment and health management of patients.

NZ is already a contributor in this field – examples include *Smartinhaler* (Nexus6) for monitoring of chronic respiratory disease, *Im-Able* in home-based stroke rehabilitation, and *Vigil Monitoring* with its cloud based monitoring platform and wearable wireless biometric patient monitoring systems. All 3 companies have raised capital this year ranging from \$1M to \$6M.

From a local perspective, the Canterbury DHB rebuild should provide a unique opportunity to work together to develop integrated care models from the ground up in various areas of patient care. This will be an exciting initiative to keep an eye on.

This issue of the CMDT Quarterly features some articles that we hope will provide you with a sense of the vibrancy of this sector and some initiatives, such as the NZTE Path to Market Programme which supports companies seeking new overseas markets. We also have an interview with Dave Darling, CEO of *Pacific Edge* to discuss his experiences in developing a diagnostic business which is currently on an exciting growth path.

Until the next edition in April 2014, the CMDT Steering Committee wishes everyone a Merry Christmas and Happy Holidays. Please feel free to contact the CMDT if you have queries and check our website (www.cmdt.org.nz) for news and upcoming events.

- Peter Hunter and Diana Siew, CMDT Co-Chairs

Hitting the sweet spot and avoiding the elephants

Bladder cancer diagnostics firm [Pacific Edge](#) had an incredible last quarter - signing three major commercial agreements within the US saw their share price rocket and means that now over 60 million Americans have access to their cancer test, [Cxbladder](#). They also took out two NZ innovators awards, including the supreme award. With a product significantly more effective clinically and less invasive than their nearest competitor, they are looking forward to a \$100 million turnover within 5 years.

Pacific Edge listed in 2001 and it has been a challenging road to success, “the one thing I want to let other start-ups know” says CEO David Darling “is that you *can* actually get through”. One of the keys to success he says is knowing where you want to go and breaking it down into manageable chunks. “If you don’t break it down and do it in stages, you’re going to get trampled by the elephant...if your goals sound too lofty at the outset, it is hard to get people to buy into your vision, so it is important to set



short term goals, meet them, and bring your investors along with you.”

David also attributes their

success to a culture of “celebrating” mistakes – their Screwdriver Award, which is presented to whoever makes the biggest stuff up each week, allows the team to talk about mistakes with humour, rather than sweep them under the rug where they could do a lot of damage.

Pacific Edge have hit the sweet spot in terms of combining science with commercial outcomes. Their IP

was developed internally, however the company has a strong relationship with the University of Otago and their Chief Scientific Officer, Professor Parry Guilford also drives the cancer research program at the University of Otago; their offices and laboratory are located in the [University’s Centre for Innovation](#) - a dedicated commercialisation facility managed by the University to facilitate the start-up and early growth of commercial enterprises; many of the original scientists are still part of the product development team, and are now a very effective commercially savvy group of scientists. Pacific Edge embodies Sir Paul Callaghan’s vision for NZ companies and the role they can play in creating prosperity, serving as inspiration for NZ’s budding entrepreneurs and scientists.

Running down a path to market

You are a New Zealand based company with cutting edge technology and want to break into an overseas market. How do you do it?

This was the problem faced by textile technology start-up [Footfalls & Heartbeats](#), who have developed technology that weaves conductive fibres into a fabric to act like a sensor. Enter the [NZTE Path to Market programme](#). This is a business capability building programme, run about 4 times a year for distinct sectors and markets to help NZ companies learn first-hand about overseas markets. This October the focus was exporting health technologies to the Australian market and was run in conjunction with the Melbourne [Centre for Health Innovation Conference](#).

Dil Khosa from Footfalls & Heartbeats said that a major benefit of participating was gaining understanding of the Australian health care industry: “we were in the market itself and we got to meet all sorts of people who were key stakeholders”. One of the big differences in Australia is that their market is segmented - “the states are quite different in the way they are run and funded”. We tend to think that culturally Australia and NZ are similar, but “throughout the programme we were told there are

cultural differences that we still need to be aware of ... there are things that they don’t find funny that you shouldn’t bring up in a negotiation”. So lay off the convict jokes!



The networking was hugely beneficial - “The main thing we got out of it was the connections we made, not with just people in the market, but also re-connecting with people like Callaghan Innovation...we managed to pick up two investors which was really awesome”. And the NZTE post-programme follow up has been invaluable – “they’ve carried on supporting us, even now they introduce us to companies we can work with, they build and bring us business connections globally”.

At a cost of \$250, the programme has provided excellent value for money for Footfalls and Heartbeats. For more information on Path to Market programmes, contact your NZTE Customer Manager, or the Foundation team on 0800 555 888.

Award winning innovation

Standard operating procedure for dealing with a recalcitrant computer is to perform one or all of the following: kick it; throw it; defenestrate it. In the near future, computers will likely be embedded with our various body parts. If a computer misbehaves once it is

part of you, throwing it out a window is no longer an option. This raises an interesting problem that, with the help of the recipient of this year’s Prime Minister’s 2013 MacDiarmid Emerging Scientist Prize, Dr Benjamin O’Brien, one lucky PhD student will get to solve.



Ben O'Brien, CEO of StretchSense Ltd, was in Boston when he got the call that he'd won – obviously excitement ensued! Along with the prestige of being named the Emerging Scientist of 2013, the prize comes with \$150 000 which will be used to support the company's long term research. This will fund a 3 year PhD project in the ABI's Biomimetics Lab (where StretchSense came from) to

explore the use of new sensing technology to make emotionally sensitive electronic devices. While this is quite "blue skies" stuff, it is expected there will be

commercial benefits as well, including the development of new sensors, new algorithms and so on. In short, Ben says the research project will be a "nice marriage between short term commercial goals and long term research".

In addition to the Prime minister's prize, the team at StretchSense took out both the Emerging Innovator and the Innovation in Design and Engineering award at the New Zealand Innovators Awards held in October this year. While these didn't come with a wad of cash, Ben reports that "having this validation from an entrepreneurship themed award is fantastic for driving the value of the company up and raising interest with our customers." The awards also provided a great excuse for the team to celebrate "there is a huge team of people working with and around StretchSense who have made our success possible".

Designing a new health system

In the wake of the Canterbury earthquakes, the Canterbury District Health Board (CDHB) health system is undergoing a 600 million dollar makeover which includes replacing the current main hospital in downtown Christchurch. It's not every day you get to rebuild a hospital from scratch and the CDHB's Design Lab, led by Richard Hamilton, is a space where health professionals, clinicians, patients and family can work together, supported by designers and technology companies in User Based Design sessions, that prototype ideas for a futuristic health system. Callaghan Innovation Engineer, Marcus King says "this presents a unique opportunity for health professionals to drive their own future and for technology developers to engage with that". Richard agrees – "The ideas to enable this transformation will come from our patients and staff working collaboratively with industry to create the solutions for our new world".

The ideas that have been distilled from this process have been turned into full sized cardboard models of possible hospital rooms. From the best of these ideas, a high fidelity mock-up of a hospital ward has been created, which arguably has more in common with the business

class cabin of an Air New Zealand 777-300ER than any hospital you've seen before.

One exciting opportunity that has emerged for the high value manufacturing industry in NZ is the potential for a joint project on developing the various technologies to be included in the new hospital rooms. This is a great example of user-centric design practise, providing clinical facilities appropriate to future health system need. The design work redefines how we pull together; the resource being created in Canterbury has the potential to lift NZ's med tech companies above their international competition.



Awesomeness and Accolades

iMeasureU, an Auckland based company founded by Mark Finch and Thor Besier of the Auckland Bioengineering Institute at Auckland Uni took the top prize in the 2013 Spark \$100 K Challenge with their

inertial measurement sensors. For more information, check out their website: <http://imeasureu.com/>

Auckland Bioengineering Institute PhD candidate Nikini Puhuwelle Gamage tied for third place in the Fisher & Paykel Healthcare Oral Competition for his presentation entitled “Soft Tissue Deformations in Shaken Baby Syndrome”. The talk focused on the use of computational modelling in linking the deliberate shaking of babies to the resulting injuries – a critical step for both correct identification of the syndrome and for prosecuting the guilty party. To see his talk, click [here](#).

In a three way collaboration funded by [Marie Curie Actions](#) International Incoming Fellowship programme,

the Institute of Biomedical Technologies at AUT, Laboratory of Hemodynamics and Cardiovascular Technology-Swiss Federal Institute of Technology (EPFL) and The Centre for Sleep Investigation at the Central Hospital of the University of Lausanne (CHUV) have just completed a successful clinical trial of a new method for treating obstructive sleep apnoea. The new method uses much lower titration pressure, improving both comfort and apnoea index.

Interesting (and sometimes bizarre) med tech from around the globe

Probably best if you don't try this at home: <http://mashable.com/2013/11/05/biohacker-sensor/>

This will be a relief for people with small veins and needle phobias: <http://www.medicaldaily.com/new-smart-glasses-let-doctors-see-through-patients-skin-3d-imaging-technology-transform-nursing>

Closing the loop on brain injury (in rats at least!): <http://www.medicaldaily.com/prosthetic-device-brain-restores-lost-function-after-traumatic-injury-264606>

Drawing surgery on bones: <http://media.uow.edu.au/news/UOW162803>

Upcoming events

[MTANZ](#) Healthcare Congress – 17 & 18th of June 2014 at the Langham Hotel, Auckland

Feedback

We'd love yours! Please let us know what you think of this newsletter – is there anything you really liked (or hated!), or anything we missed that you'd like to see? News that you want to share? Click [here](#) to give us your thoughts.

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To request more information about the Consortium for Medical Device Technologies and its activities, please contact [Professor Peter Hunter](#) or [Dr Diana Siew](#)