



Submission to New Zealand's Productivity Commission into Frontier Firms from the Consortium for Medical Device Technologies

1. The Consortium for Medical Device Technologies (CMDT) is a medtech research-industry network led by the partnership of the Universities of Auckland, Canterbury and Otago, AUT, Victoria University of Wellington, and Callaghan Innovation. It was formed in 2012 to create a collaborative ecosystem between our universities and industry for the development and innovation of medical devices and digital health space, and advocate for the growth of this highly viable knowledge intensive sector.

The CMDT is today New Zealand's only national medtech network; it works closely with all stakeholders of the sector, i.e. researchers, healthcare providers and clinicians, industry, and government organisations. Recent significant initiatives by the CMDT are:

- MedTech Centre of Research Excellence: a national CoRE funded by TEC (2015-2021);
- HealthTech Activator: an initiative to support private entrepreneurs and Healthtech firms scale (established in 2019 by Callaghan Innovation in co-operation with CMDT partners);
- HealthTech Week: New Zealand's premier annual Healthtech event bringing together stakeholders in the sector including international key opinion leaders (partnership with MTANZ, 2014 to present); and
- New Zealand-Australia BioBridge: a programme to connect the health innovation ecosystems across the Tasman (funded by MBIE Catalyst in 2020).

The CMDT welcomes the opportunity to comment on the findings of this comprehensive report, particularly in relation to its relevance to the Healthtech sector.

2. The CMDT agrees with the main findings of the report and would like to emphasise and reiterate to the Commission the need for focused innovation policy and supporting areas which have potential to impact the productivity of New Zealand in terms of economic growth, the wellbeing of our population and societal improvement. Healthtech is one of the 'weightless' industries that has potential for New Zealand to build competitive strength anchored on a growing industry, capability, and distinctive world leading science.
3. New Zealand is well placed in health technology innovation. The industry is gaining momentum (see Figure 1 below) and is now supported by an active ecosystem that is starting to provide the "rocket fuel" for success. New Zealand can take advantage of what the Healthtech sector has to offer, but for this to become a fruitful enterprise there are several areas that still need to be considered, particularly in the areas of policy changes, funding, and infrastructure support.
4. DHBs are a big player in Healthtech innovation: Healthtech is not "widget making". It takes a specialized, highly inter-disciplinary team well versed in science, engineering, clinical knowledge, business, and entrepreneurship. New Zealand has these actors in place, but it has been difficult to

engage the DHBs in Healthtech innovation. However, for the Healthtech industry to truly flourish and provide the impact it can to New Zealand, it is vital that the DHBs take their rightful place in the development of home-grown health technologies from ideation to clinical trials, and determining clinical adoption pathways for these new innovations.

The Commission has identified the need to “improve the incentives on DHBs to participate in the Healthtech ecosystem” (pg 7). The barriers to our DHBs’ role in Healthtech innovation have been identified in the report as the lack of mandate to participate in innovation, the lack of targeted innovation funding, and rigidities in the procurement process. However, none of this is new. These issues have been the topic of frustration and discussion for more than a decade. Many of our most successful Healthtech businesses cite engagement with DHBs as one of the major impediments to growth.

There are several initiatives now that are trying to address this, such as the NZ Health Research Strategy (2017-2027) (*Strategic Priority 2: Create a vibrant research environment in the health sector*) and a National Health Innovation Hub targeted at DHB innovators. However, change is too slow and we suggest that a much faster pace is required at government level to get DHBs and their clinical staff into the Healthtech innovation space if New Zealand is to leverage its advantages in this space and deliver economic and social benefit.

We recommend considering two ideas to support DHBs becoming a player in Healthtech innovation based on findings by TIN and CMDT as part of the NZ Healthtech Insights Report 2020.

- *Dedicated funding for DHBs to support innovation.* Most DHBs currently do not have the infrastructure and dedicated personnel to support innovation. Additionally, clinicians and nurses need to be able to be freed of clinical time to work in clinical research or be able to obtain other manpower to support projects.
- *Framework for engagement with industry and research.* There is no currently systematic process for companies and DHBs to engage in innovation and technology development including clinical research. We need to be able to “scale-up” innovation pathway for industry to engage with more than one DHBs to avoid replication, delays and costs in partnering.

Technologies supporting the quality and productivity of our DHBs will help overcome the challenges in health care facing this country. They are also particularly important in pandemic response and recovery. Finally, they also offer New Zealand significant new export opportunities in an area of massively growing importance worldwide. In 5 years’, it would be great to see DHBs working closely and actively in the creation of viable healthcare solutions with significant global health, social and economic impact.

5. New Zealand has its own reference site: Fisher & Paykel Healthcare is one of New Zealand’s top 10 frontier firms with export revenue of over \$1.2 Billion today. It dominates the Healthtech industry and perhaps, at times, overshadows the other 184 home-grown companies in this space. Of these,

21 companies are listed in the Top 200 hightech companies in New Zealand with some world-class rising stars, including Aroa Biosurgery and Volpara Health (NZ Healthtech Insights Report 2020 and 2020 TIN Report).

Our Healthtech companies struggle significantly to get their technologies adopted in the New Zealand healthcare system. They often have to prove themselves overseas first before circling back into the domestic market. This issue will increasingly become a challenge for our companies as more international jurisdictions are requiring proof of home country adoption of technologies. Without a home reference, rapid development and export, already a challenge, will become increasingly difficult for these companies which often have product offerings that are globally competitive. Already, we are seeing New Zealand ideas being co-opted globally and the benefit to New Zealand of local innovation will become a cost.

A more agile pathway for uptake of new technologies arising from DHB-industry collaborations is required as part of an innovation pathway. We recommend the government reconsider procurement policies and funding systems to simplify the ability of DHBs to develop and adopt home-grown technologies in support of our own Healthtech innovation. It will accelerate confidence of New Zealand Healthtech in export markets and purchasing decisions, increase the rate at which we can develop these innovations, enhancing global competitiveness, and provide a unique competitive advantage not available in other countries. In addition, it will create other valuable opportunities locally including employment, training, and education. New Zealand as its own Healthtech reference site will also attract the attention of multinationals into our ecosystem and with that, new investment.

6. Regulatory Framework: The New Zealand Regulatory Framework for medical devices and digital health is currently under consideration. Up until now, there has been little to no real regulatory oversight into the introduction of new technologies into the healthcare arena. Whilst this has been identified as a “positive” for the introduction of new technology, we advocate that a well-founded framework that understands and supports technology innovation is needed so that all players understand the boundaries for development and clinical research to keep New Zealanders safe. This is also one of the foundations for a mature Healthtech innovation ecosystem.
7. The need to develop excellent science translation capability: New Zealand has a strong portfolio of publicly funded investigator- and mission-led science, and support for company-led R&D. However, there is still a gap in our funding ecosystem (Figure 7.3, page 97) today with respect to Healthtech innovation. This is in the “pre pre-seed” translation space. We presently have no real mechanism to quickly de-risk early stage concepts where proven science is applied to solve an unmet clinical need with a commercial opportunity to create new distinctively competitive innovations which have global reach. This formula is what will create the productivity gains New Zealand is to look for if Healthtech innovation is an area of focus. “Magic” occurs when scientists, engineers, clinicians, entrepreneurs, and end-users speak the same language and work together towards a common goal. New Zealand needs to build capability in this field as it is the foundation of an effective Healthtech innovation ecosystem and an important key to unlock the potential of this sector. The key is to



provide mechanisms to tap into the talent and entrepreneurial drive that universities can provide through the creation of multi-disciplinary research environments.

Impactful science translation in the Healthtech space has been effectively demonstrated by the MedTech Centre of Research Excellence (MedTech CoRE). Funding was used to train a new workforce in Healthtech translation, and develop an effective “fast-fail” process to de-risk opportunities identified through collaborations between engineers, clinicians, and entrepreneurs. The MedTech CoRE developed a strong ecosystem to support the “magic” in the network, created a pipeline for our government funded Pre-Seed accelerators (Return on Science and KiwiNet), and initiated a new wave of viable Healthtech start-ups, e.g. Formus Labs, The Insides Company, and Alimetry, which are our potential future frontier firms.

From 2015-2019, the MedTech CoRE spun out 2-3 new companies per year. These companies have raised \$15m (excluding government funding) and created 76 new jobs. With an average salary of \$85K based on the Healthtech Insights Report 2020, this has contributed \$6.5M into the ecosystem. A number of these companies have achieved ISO13485 standards for medical device manufacturing (The Insides Company, Alimetry, JunoFem) and several are gaining regulatory approval for entry into the US and Australia (The Insides Company, Formus Labs). This new wave of Healthtech companies is now being noticed internationally – e.g. Formus Labs has just formed a partnership with Zimmer Biomet, one of the three largest orthopaedic implant multinationals in the world.

Healthtech companies are a long-term play, with most taking 10+ years to succeed. The companies from the MedTech CoRE have been able to accelerate their growth by 2-3 years by harnessing the expertise and processes of the MedTech CoRE, as well as the ecosystem provided by the CMDT and its partners. The MedTech CoRE companies are also well-regarded by investors, as they recognise the rigour these companies have arisen from – first through the MedTech CoRE processes and then through the pre-Seed panels, Return on Science and KiwiNet.

The MedTech CoRE has unfortunately been defunded. This has come at a time when the translational capability was ramping up. The impact of the MedTech CoRE closing down is starting to be felt as initiatives in Healthtech translation are already being scaled down.

Based on what the MedTech CoRE funding has achieved for Healthtech innovation, we recommend that the government introduce some new initiatives to support curated programmes to build the “magic” capability and capacity in translating research into clinically and commercially viable solutions. This will unlock the chest of publicly funded research from our tertiary institutions and transform this into productivity gains for New Zealand. “All eyes are on New Zealand” due to our Covid-free environment; we should seize this opportunity to propel our health innovation onto world stage.

8. A Healthtech innovation district in Auckland: The Productivity Report indicates the need to upgrade our innovation ecosystem to support inclusive and sustainable growth and recovery post Covid. We

recommend that New Zealand now needs its own “Kendall Square” to inspire, educate, and bring together the actors that will partner and co-develop the next breakthrough solutions for Healthcare, and attract global players into New Zealand. The aim of such an innovation district is to shorten the life cycle of taking Healthtech solutions from ideation to market, and develop the skill sets and capacity for the sector.

Although New Zealand has a Health Precinct in Christchurch, the highest concentration of Healthtech activity is in Auckland. It is therefore reasonable that Auckland, our largest city, should be hosting an innovation district. Auckland is home to 50% of our Healthtech companies, most of our key investors, three substantial DHBs and private hospitals, and two key tertiary institutions (University of Auckland and AUT).

However, any new innovation district has to be well connected to the Christchurch Health Precinct and other healthtech activities across the nation to create the synergies that will provide the outcomes sought in the Productivity Report. Co-location should not be underestimated as this produces the exponential scale of ideas, opportunities, and partnerships that New Zealand needs.

NZ’s Healthtech Industry Today

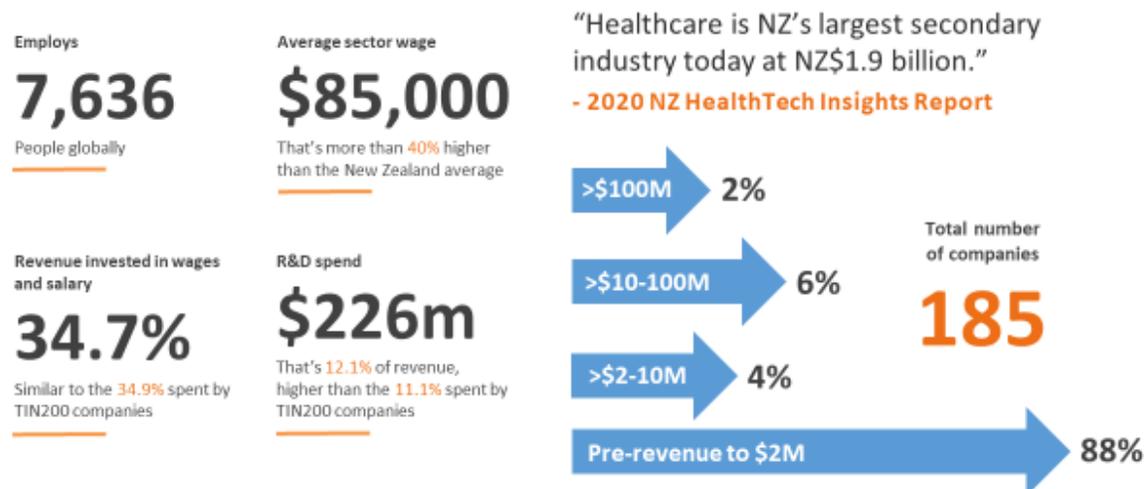


Figure 1: New Zealand Healthtech Industry Snapshot from Healthtech Insights Report 2020.