FLINDERS DIGITAL HEALTH RESEARCH CENTRE

SUBMISSION TO SA PRODUCTIVITY COMMISSION INQUIRY INTO HEALTH AND MEDICAL RESEARCH

6 MAY 2020

This submission addresses the topic of **Digital Health** as a specific area within the Health and Medical Research domain. Digital Health is the broad area of using Information Technology to assist in the delivery of healthcare, and in aspects of health systems management such as public health. Over the past decade, in parallel with the acceleration of the national electronic health record agenda, use of numerous Digital Health tools and services have become more commonplace in Australian healthcare settings, such as clinical decision support, health messaging and data exchange, and telehealth. The recent Covid-19 health emergency has accelerated adoption of some of these types of solution, and has also prompted strong consumer focus on new aspects involving consumer health informatics and citizen science through the release of monitoring and self-help mobile apps.

Digital Health should be viewed as an **essential component** in the contemporary and future Health and Medical sector and a highly influential factor in improving existing and emerging models of care. It also is a key enabling element in many areas of Health and Medical Research, supporting access to computation and information resources at scale, such as curated dataset repositories, new algorithms and predictive models, artificial intelligence decision engines. It is an attractive area for rapid research acceleration for these reasons, and also for the practical characteristic that it does not rely on specialised fixed infrastructure, it is essentially a research activity that is location independent. It also offers ease of access to substantial interstate and international market opportunities because of its portability, and a high rate of return on investment due to a low level of investment compared with many clinical areas, and its ability to be hosted on local IT infrastructure.

Digital Health is significantly **under-represented** in Australian Health and Medical Research fund grants and major supported research projects nationally. Many more grants are given aimed at developing and using IT-based tools within a broader health services or clinical project, than those aimed specifically at progressing the field of knowledge in Digital Health. Similarly grant opportunities are limited predominantly by the multidisciplinary nature of Digital Health creating ambiguity on its status as Health or Science, but also because it is not clearly recognised as an area worthy of independent support. This situation differs from that in many European countries (e.g. Scandinavia, Germany) where national funding agencies have created explicit funding opportunities for Digital Health and encourage active participation of government funded health services in these.

The major **Australian** national entities engaged in Digital Health research activities, viz. Australian Digital Health Agency, CSIRO Australian eHealth Research Centre, and Digital Health Cooperative Research Centre, have specific focus areas and generate funding for these on a project basis. They do not function in the same way as health research institutes, which generally have embedded longitudinal programmes which rely on strong and long-term links to funding bodies and close clinical collaborators within the health sector. Consequently, the remaining research expertise in Digital Health is highly fractioned in Australia with many small-scale research groups distributed mainly within the university sector. This has the effect of duplicating effort and preventing projects from being developed that can be easily translated and achieve impact of scale: prototype systems and pilot trials predominate. There have been few broad national initiatives to bring together inclusive groups with complementary skillsets to grow national capacity and prominence for the field: the current Australian Alliance for Artificial Intelligence in Health consortium formation is a standout example of this approach.

In **South Australia**, there is a small industry presence in Digital Health, mainly providing software systems products and systems integration services. This may in part be due to the modest nature of the state profile generally in IT research, with limited presence and diversity in contemporary IT research areas, by

comparison with national activities. The well-established state strength in medical devices and technology has not provided a focus on IT as an explicit area for growth and achievement of strength, despite the prominent role IT now plays in achieving the sophistication expected of devices particularly in their control and interoperability aspects. Flinders University established a multidisciplinary Digital Health research unit in 2016, and other major research entities have incorporated Digital Health themes in their overall scope such as Australian Institute for Machine Learning, and South Australian Health and Medical Research Institute. SA Health has provided several internal catalysts for raising Digital Health interest including participation in research, especially through its Commission for Excellence and Innovation in Health, and Office of the Chief Medical Information Officer. However, the intersection of interests and directions between all these various bodies has not been actively coordinated nor incentivised.

There are some critical needs for achieving future growth in Digital Health research in the state. The **workforce** required to pursue this area successfully needs to have a blend of health and IT research and sector expertise, ideally in each team member but if not then certainly in team leaders. Few researchers have post-secondary qualifications or active experience across both disciplines, and those who do should be sought out for leadership cultivation as their insights will likely be appropriately comprehensive and contextualised. Exposure of the workforce to interstate and international Digital Health initiatives is essential because it is a very fast-moving field, reliant on leveraging universal and non-local aspects such as standards and benchmarks for development of widely attractive products and services. Experience in integrating Digital Health solutions into the health system, and experience in dealing with the consumer market for products in the sensitive and regulated healthcare setting, are also highly desirable and rare characteristics to be incorporated in a supporting workforce.

A further critical need is to establish strong and meaningful partnerships for **collaboration** to enable rapid and purposeful state direction setting in Digital Health research, in conjunction with both national and international partners. State level engagement with the aforementioned three major national research entities has been low but could be strategically improved by direct interaction with them emanating from state level. Similarly engagement with major industry sector entities with active market and research interests in Digital Health such as Apple, Google, IBM, Microsoft (especially if they have existing footprint in Australia) and establishing niche involvement of them in the South Australian research ecosystem would be a strong booster. This is unlikely to be achieved by universities or research organisations making independent overtures as the research scale and substrate here cannot compete easily with that seen elsewhere. Instead, coherence and alignment of all components in a spectrum of Digital Health research and deployment capabilities at whole-of-state level needs to be developed and articulated.

A **local opportunity** for Digital Health research exists because of resonance with other state priorities This lies in the emergence of new societal movements towards personalised healthcare, where it is expected that services are tailored to the needs and preferences of individuals, and consumer mediated health services, where citizens are informed and empowered to adopt health supporting measures (e.g. wellbeing and prevention practices, chronic disease management). These would directly support some of the needs of the state Ageing Well and Healthy Living agendas. They rely strongly on IT-based delivery and monitoring mechanisms, ranging widely from dedicated Digital Health driven care coordination systems, to collection of data from wearables or medical devices for further analysis. Their potential for uptake in large volumes and by diverse targets is considerable, especially if new focus areas in mental health and workforce health are considered. For their adoption, there needs to be a clear value proposition, high level of trust and ease of access for users: the recent release of a national Covid Safe app aptly illustrates this. A development environment sympathetic to these characteristics is therefore essential: this includes appropriate mechanisms for stakeholder involvement, inclusive co-design processes, and widespread iterative testing opportunities. There are numerous examples of this approach in Europe, such as the Oresund regional alliance, or the Forum Virum Helsinki regional living laboratory. The overhead of establishing such an ecosystem in South Australia would be incidental to the return that might be expected in consequence.