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Roadmap to resilience: A post pandemic vision of healthcare delivery

Written by

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About this report

Roadmap to resilience: A post pandemic vision of healthcare delivery is a three-part series that looks at the future of resiliency in Australia and New Zealand's health systems.

The series was informed by desk research and additional insights from in-depth interviews with key opinion leaders across health institutions, universities and government administration.

Our thanks are due to the following for their time and insight (listed alphabetically):

Adam Elshaug

Professor of Health Policy and Director of the Centre for Health Policy at The University of Melbourne, Australia

Angela Ryan

Vice chair at the Australasian Institute of Digital Health (AIDH)

Ian Town

Chief Science Advisor at the Ministry of Health, New Zealand

Stephen Duckett

Health Program Director, Grattan Institute, and Emeritus Professor of Health Policy at La Trobe University, Australia

Dr Jacqueline Cumming

Independent Health Services Research and Policy Consultant, Waikanae Beach, New Zealand

The report was written by Amrita Namasivayam and edited by Gerard Dunleavy.

Article 3: Building post-pandemic resilience through technology and innovation

It would be amiss not to talk about the role of technology and innovation in discussions and decisions around building resilience in health systems. In the wake of the covid-19 pandemic, the digital health transformation seen in some countries has been remarkable, both in its speed and the extent to which changes have occurred. Articles #1 and #2 in this series explored the various ways that resilience in healthcare is defined, and highlighted different strategies and pathways for building more resilient health systems in the future. This final article delves into some of the important technological shifts and digital health innovations that are changing the healthcare landscape, particularly in the context of Australia's and New Zealand's health systems.

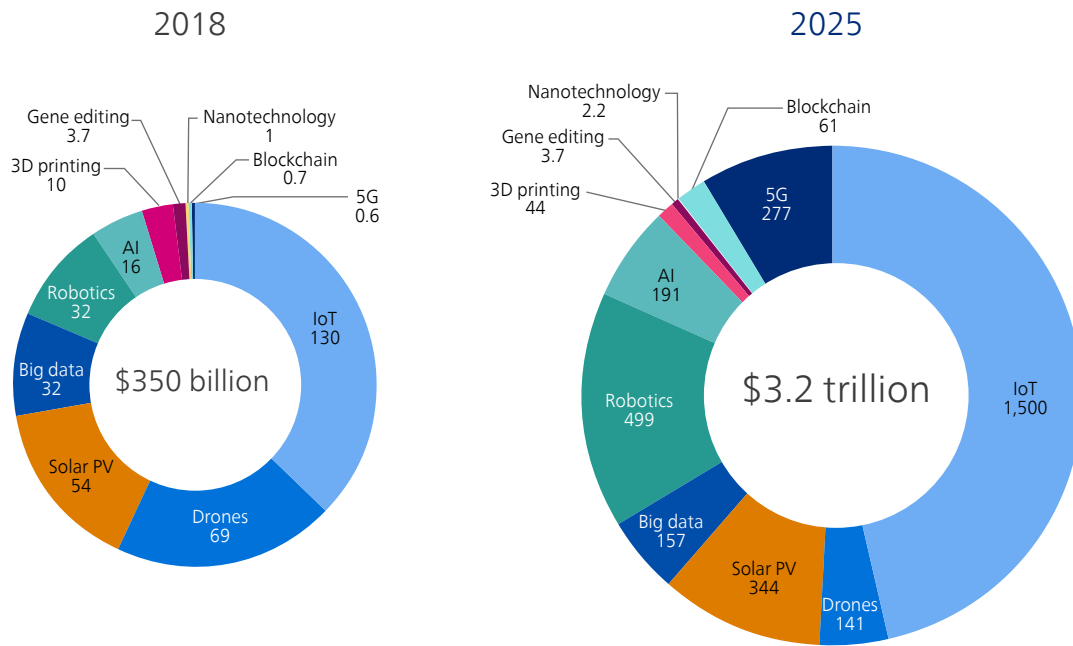
“Despite being a wealthy nation, inequity continues to be a significant issue in Australia, and this is especially the case if you reside in a rural or remote community, where there are real barriers to online participation, such as lack of internet access. Unless we first address this prerequisite for digital connectivity, we will see the digital divide expand, and already marginalised communities grow increasingly marginalised, with no ability to engage in the benefits that digital health can bring.”

Ms Angela Ryan, vice chair at the Australasian Institute of Digital Health (AIDH)

It is undeniable that much of human, social and economic development in recent decades has been driven by rapid advances in technology and an increased reliance on digitised devices and services. The implications of these developments on the health sector have been immense and far-reaching, from the ways data are electronically shared across healthcare facilities, to novel approaches for diagnosing and treating medical conditions, to changing the ways patients and clinicians interact and discuss disease management.¹ The pandemic alone has spearheaded innovative collaborations in vaccine development, the rapid screening of patients, and the monitoring of outbreaks through electronic contact tracing, all of which have relied heavily on technology.² However, while adaptation and innovation have been described as instrumental in ensuring the resilience of health systems,³ experts caution that a balance between short- and long-term goals and priorities is necessary in order to properly address limitations in the design and functionality of a health system rather than react to acute crises.

The United Nations Conference on Trade and Development's *Technology and Innovation Report 2021* highlights key 'frontier technologies' that are gaining reach and traction across several industries and can multiply their collective impact by harnessing digitalisation and connectivity. Some of these include artificial intelligence (AI), big data, nanotechnology and robotics.⁴ While most of these technologies are still in the early stages of testing and adoption in the healthcare sector, it is predicted that, when managed properly, they could significantly improve efficiency, diagnostics, treatment decisions, self-managed care and disease outbreak prediction.⁵ Figure 1 shows the predicted change in global market size as the adoption of these technologies increases across countries and over time.

Figure 1: Market size estimates of frontier technologies, \$billions



Source: UNCTAD based on data estimates from Froese (2018), MarketsandMarkets (2018), Sawant and Kakade (2018), Business Wire (2019), Chaudhary et al. (2019), GlobeNewswire (2019), MarketsandMarkets (2019), MarketWatch (2019), Raza (2019), Tewari and Baul (2019), Wagner (2019), Mordor Intelligence (2020).

While the benefits and potential of these technological leaps and bounds are exciting and hopeful, there is also a great risk that they create or exacerbate existing digital inequalities within and across countries. According to Ms Angela Ryan, vice chair at the Australasian Institute of Digital Health (AIDH), “Despite being a wealthy nation, inequity continues to be a significant issue in Australia, and

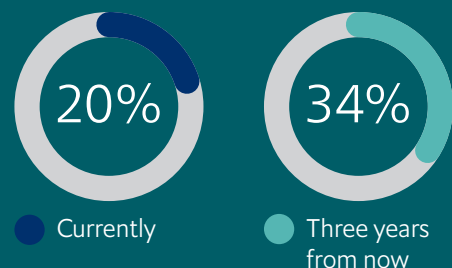
this is especially the case if you reside in a rural or remote community, where there are real barriers to online participation, such as lack of internet access. Unless we first address this prerequisite for digital connectivity, we will see the digital divide expand, and already marginalised communities grow increasingly marginalised, with no ability to engage in the benefits that digital health can bring.”

Philips insight

The Future Health Index 2021 country report for Australia highlights that many Australian healthcare leaders want to invest specifically in provider-to-patient telehealth in the future. This will require changes in future policy, including the creation of incentives for providers to use telehealth for patient visits and the addition of telehealth to Medicare’s list of reimbursable covered services.¹¹

Source: Future Health Index

Healthcare leaders in Australia who say healthcare professional-to-patient telehealth is one of the digital health technologies they are most heavily investing in now and in the future



The success of most digital health technologies heavily depends on a country's readiness to adopt them. A lack of access to stable, high-speed internet, insufficient financial investment in tech, low digital literacy, resistance to change and fears that automation will overtake and replace human capital are very real challenges faced in the digital space.⁴

How are the health systems of Australia and New Zealand moving toward harnessing technology effectively and equitably?

Australia and New Zealand's recovery from the pandemic has provided an opportunity to focus on key transitions that are highly dependent on technology-led innovation. One such transition is ensuring an inclusive digital health future for both providers and patients.⁷ In recognising that policy facilitating digital and virtual health service delivery through clear national goals is important, similar to those seen in Singapore, Sweden and the Netherlands,^{8,9} both Australia and New Zealand are moving towards this with strategic frameworks for digital health. Australia's National Digital Health Strategy and Framework for Action has put forward 7 targeted pillars of action and 44 key activities to be achieved by 2023; these focus on personal health records; secure messaging for health information; interoperability and data quality; medicines safety; enhanced models of care; building a workforce and education for digital health technologies; and

a drive for innovation.¹⁰ Ms Angela Ryan shares that most health strategies emphasise patient-centredness in healthcare. However, in practice, the fragmented healthcare system in Australia faces interoperability challenges, which hinders the delivery of patient-centredness that various health strategies strive for. "Transitioning from one health service to another, for instance, from aged care to acute care and back again, is quite fraught. While there has been some emphasis on making these transitions safer for patients, unless we actually tackle the issue of interoperability – where information is able to follow you from one care setting to another, there will be a limit to what improvements can be made. Ultimately this will remain a significant barrier to achieving the benefits of any digital health strategy, and our nirvana of a truly patient-centred health system", she explains.

New Zealand's Digital Health Strategic Framework outlines different ways for digital services to be incorporated into a larger digital health ecosystem, underpinned by accessible data, capabilities and resources to facilitate the creation and adoption of digital technologies.¹² Professor Ian Town, Chief Science Advisor at the Ministry of Health New Zealand notes that while New Zealand hasn't always been at the forefront of digital health initiatives, they have been early adopters of initiatives such as mobile phone-based screening and diagnostics, as well as the use of wearable technology. The pandemic has accelerated the creation and uptake of various digital health platforms for both providers and patients in the country.

Philips insight

The Future Health Index 2021 country report for Australia highlights that almost a third of Australian healthcare leaders believe their hospital or healthcare facility will need to invest in predictive technologies three years from now.¹¹

Source: Future Health Index

Healthcare leaders who say their hospital or healthcare facility most needs to invest in implementing predictive healthcare technologies to be prepared for the future

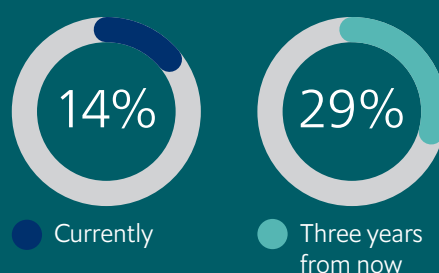


Figure 2: Requirements for the long-term sustainability of telehealth



Source: Thomas EE, Haydon HM, Mehrotra A, et al. Building on the momentum: Sustaining telehealth beyond COVID-19. J Telemed Telecare. 2020

A great example of digital health adoption that has gained much traction during the pandemic is telehealth. Though the concept and implementation of telehealth were not new in Australia,¹³ it has become an essential means of primary healthcare delivery since 2020, backed by federal government funding and supportive policy.^{11, 14} Professor Adam Elshaug, Director of the Centre for Health Policy, University of Melbourne, Australia, notes that “we now have specific funding for telehealth in Australia that wasn’t there previously, and this funding will play a key role going forward.” Professor Elshaug describes how embedded telehealth has become in covid-19 care

“Backroom components like pathologists and radiologists, are going to be changed with the development of AI. And sometime in the future, there’s going to be a sleeve that I put my arm into for plasma donations that I routinely do every fortnight, with a robot-guided ultrasound needle that goes into my arm. Not to mention in a couple of decades, we’re probably going to have artificial plasma that replaces the need for humans to donate.”

Prof Stephen Duckett, Health Program Director at Grattan Institute

and beyond: “via telehealth, hospitals are triaging and monitoring covid-19 patients, and they are also expanding this so that non-covid patients and emergency departments are now moving to have a parallel, online telehealth emergency department.”

Dr Jacqueline Cumming, Independent Health Services Research and Policy Consultant in New Zealand remarks that primary care in New Zealand also saw an increase in telehealth adoption in the early stages of the pandemic in 2020, particularly in the form of phone consultations. An evaluation of patient experiences with telehealth found high levels of satisfaction with the services, with the most cited benefits being convenience and safety in accessing routine care during lockdowns.¹⁵ This trend was accompanied by an increase in e-prescribing, with a majority of patient prescriptions being sent directly to pharmacies for patients to pick up, and for a growing part of the population, being delivered at home.¹⁶ Whether these changes will remain post-pandemic is yet to be seen; Prof Ian Town, Chief Science Advisor at New Zealand’s Ministry of Health notes that while increased uptake has occurred during the pandemic, longer-term adoption would still require “a behaviour and mindset particularly for providers, specifically regarding the notion that while telehealth is still not a complete substitute for face to face consultations, it is very convenient and just like food delivery services consumers now have a growing understanding and appetite for what a good consumer experience looks like.”

Looking further into the future, the implementation of technologies such as AI and machine learning are bound to be discussed. Prof Stephen Duckett, Health Program Director at Grattan Institute, comments that though the healthcare sector thus far has been “somewhat immune to the substitution of labour by capital” by nature of it being a high-touch industry, “backroom components like pathologists and radiologists, are going to be changed with the development of AI. And sometime in the future, there’s going to be a sleeve that I put my arm into for plasma donations that I routinely do every fortnight, with a robot-guided ultrasound needle that goes into my arm. Not to mention in a couple of decades, we’re probably going to have artificial plasma that replaces the need for humans to donate.” New Zealand’s Digital Health Strategic Framework includes a Health Technology Innovation Framework to provide guidance and direction for the use of emerging health technologies such as AI, to ensure equity and task shifting in the system if and when automation and innovation are introduced to different aspects of healthcare delivery.^{17, 18}

While new, emerging technologies can enable Australia and New Zealand to leapfrog previous technological paradigms and transform economies and societies, the challenge tends to be with more conventional health protocols and procedures that may not be ready to apply the new technologies due to resource, infrastructure and capacity constraints. The successful adoption of digital health will require system-level shifts in how data is collected, managed and shared, in the backdrop of concerns about privacy, security and data stewardship. Healthcare providers and patients alike will need to become more comfortable in the digital health space and will require digital skills and literacy to fully harness the tools and systems available. Though the pandemic has spurred shifts in the digital health space, the permanence of these changes remains unknown. While there are clear benefits and improvements to health service delivery that can be harnessed through investments in and implementation of digital health solutions, the pace and process of adoption and issues of equity and readiness will be equally important considerations in future health system resilience building.

Philips insight

About the Future Health Index 2021 report

The Future Health Index (FHI) is a research-based platform commissioned by Philips. It is designed to help determine the readiness of countries to address global health challenges and build sustainable, fit-for-purpose, national health systems. Since its inception in 2016, the FHI program has used credible research to derive actionable insights that have initiated dialogue across the industry, with the aim to drive change.

The Future Health Index 2021 report is based on proprietary research with almost 3,000 healthcare leaders across 14 countries. Now in its sixth year, the 2021 report reveals the challenges healthcare leaders have faced since the onset of the pandemic and explores where their current and future priorities lie. It outlines a new vision for the future of healthcare, shaped by a fresh emphasis on partnerships, sustainability and new models of care delivery, both inside and outside the hospital.

To read the full methodology, please visit: <https://www.philips.com/a-w/about/news/future-health-index/research-methodology.html>

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LONDON

20 Cabot Square
London, E14 4QW
United Kingdom
Tel: (44.20) 7576 8000
Fax: (44.20) 7576 8500
Email: london@economist.com

GENEVA

Rue de l'Athénée 32
1206 Geneva
Switzerland
Tel: (41) 22 566 2470
Fax: (41) 22 346 93 47
Email: geneva@economist.com

NEW YORK

750 Third Avenue
5th Floor
New York, NY 10017
United States
Tel: (1.212) 554 0600
Fax: (1.212) 586 1181/2
Email: americas@economist.com

DUBAI

Office 1301a
Aurora Tower
Dubai Media City
Dubai
Tel: (971) 4 433 4202
Fax: (971) 4 438 0224
Email: dubai@economist.com

HONG KONG

1301
12 Taikoo Wan Road
Taikoo Shing
Hong Kong
Tel: (852) 2585 3888
Fax: (852) 2802 7638
Email: asia@economist.com

SINGAPORE

8 Cross Street
#23-01 Manulife Tower
Singapore
048424
Tel: (65) 6534 5177
Fax: (65) 6534 5077
Email: asia@economist.com