



Australia's health reimagined  
The journey to a connected  
and confident consumer

March 2022

## Acknowledgement of Country

The authors acknowledge the Aboriginal and Torres Strait Islander peoples as the traditional custodians of the lands on which we work and live. We recognise that connection to Country is central to the life of First Nations peoples and that through caring for the land peoples are enriched in their mental, physical and spiritual wellbeing.

We pay our respects to their cultures, Elders past and present and honour their continuing connection to land, waters and community.

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"We need a far more linked or integrated health system, especially between public and private health systems. The more information my clinicians have about me, the better my health outcomes will be."

*Consumer quote from a CHF Kitchen Table discussion, October 2021*

## Foreword

Presented by the Consumers Health Forum of Australia



Australia's health system performs well globally, but it's a system with many pain points and one that's been tested like never before by the COVID-19 pandemic. We have seen many fault lines exposed, as well as opportunities for reform.

Consumers tell us they value coordinated care, yet they commonly experience a system that is fragmented and fails to connect care. Consumers also recognise the value of providers having access to their health information as they move across different parts of the health system.

At our Kitchen Table discussions in 2021, one consumer noted: "We need a far more linked or integrated health system, especially between public and private health systems. The more information my clinicians have about me, the better my health outcomes will be."

This whitepaper is the culmination of a collaborative Digital Health CRC research project between Curtin University, the Consumers Health Forum of Australia (CHF) and Deloitte, comprising a review of virtual health academic literature and a consumer survey.

In a 2021 CHF consumer consultation, participants were adamant that the best digitally enabled health system will be achieved when consumers are co-designers. The CHF, the literature review and other research not only reinforces this view but also demonstrates consumer acceptance is the basis for success when introducing digital health innovations.

But while consumers value the opportunities of digital health, they realise it could accelerate inequities in healthcare access and create new barriers. If a digitally enabled system is to avoid the 'digital divide', we must build digital health literacy and keep an eye on key non-technological factors that contribute to inequity.

Importantly, the strongest foundation for progressing digital health is maintaining trust and social licence as health information is shared between providers and systems.

*Australia's Health Reimagined* forecasts the future of our health system – how it can be digitally enabled, and with a consumer lens. It summarises the shifts that will lead to a future of confident consumers who take an active role in their health and wellbeing and have strong relationships with healthcare providers and policymakers.

Not only are consumer views and experiences an important barometer of the health system, but their involvement, insights and behaviours can also be the change makers in health policy and practice.

**Leanne Wells**  
Chief Executive Officer  
Consumers Health Forum of Australia



# Executive summary

Following the emergence of COVID-19 and significant foundational investment in digital health infrastructure, Australia's health system, like all health systems globally, is rapidly building momentum towards a digital future. Based on the *Reimagining Healthcare Consumer Survey*<sup>1</sup> and a rapid review of recent literature<sup>2</sup>, this whitepaper presents the purpose, path and principles to deliver a digitally enabled future health system – one that benefits all Australians and removes barriers to accessing healthcare.

The consumer survey, one of the largest on virtual health since the start of the pandemic\*, found that around 70% of Australians are willing and ready to use virtual health and over 80% are ready to share their health data in a digitally enabled health system. But the survey also highlights risks of digital exclusion for around 10% of participants; these risks will perpetuate a digital divide if not properly managed, particularly for individuals who experience the poorest outcomes in our current health system.

In response to the COVID-19 pandemic, the health system supported access to health services by rapidly shifting to telehealth, which grew from less than 1% to more than 25% of all Medicare

consultations. The sector has sustained this momentum of change and, rather than reverting to pre-pandemic ways of working, is enthusiastic to maintain telehealth as a feature across general practice, specialist care and allied health with a payment mechanism to support it. This is reflected in the inclusion of digital health enablement in major policies such as the National Preventative Health Strategy and the draft Primary Health Care 10 Year Plan.

The acceleration of telehealth was necessary in the short term; however, looking ahead, we must avoid simply digitising old ways of working. Telehealth should not merely replace existing face-to-face consultations, but rather enhance healthcare and the consumer experience. This can be achieved by working with consumers to co-design a digitally enabled future healthcare system that empowers Australians and integrates virtual and traditional healthcare, better connecting individuals to the broader set of factors influencing their health.

Increasingly, consumers are demanding and driving this change. The health system's acceleration of telehealth is playing catch-up to the growing number of people actively choosing to take health into their own hands with consumer-facing wearables, apps, devices and other digital tools.

As our consumer survey found that 71% of people are already aware of digital technologies that support health monitoring and 56% are willing to use mobile applications, wearable technologies and other personal medical devices to manage their health, our challenge lies in ensuring that we use technology to improve the equity of access to health – not create a new digital barrier.

It's inevitable the health system will undergo a digital transformation as seen in travel, media and other sectors. This transformation will change how people contact the health system, and our survey shows that's what they increasingly expect. However, transformation is not without risk. It requires attention to and investment in change management, infrastructure and new ways of delivering care. This whitepaper charts a course for reimagining the health system so it can digitise with purpose, serve the needs of individuals and deliver improved outcomes and value for all Australians.

Here, we set out the challenges that must be addressed across the quadruple aim<sup>†</sup> to improve population health and sustainably deliver a better experience for consumers and health workers. The quadruple aim provides a useful framework for understanding how well the system delivers outcomes across a range of perspectives. The system must evolve to meet these challenges and take advantage of the momentum for change created by the pandemic.

This whitepaper, *Australia's Health Reimagined*, is the culmination of work from a Digital Health CRC<sup>§</sup> project delivered by Deloitte, Curtin University and the Consumers Health Forum of Australia. It builds on and is directly informed and supported by our comprehensive consumer survey and rapid review of recent literature.

*Australia's Health Reimagined* is driven by four key objectives:

- 1 Demonstrate why now is the time for the health system to transform
- 2 Set a bold ambition for the health system of the future
- 3 Present a three-horizon model to deliver Australia's future health system
- 4 Provide recommended actions for policy, research and practice to deliver change.

## Definitions

**Virtual health, or digital health**, is defined as non-face-to-face clinical care, professionally enabled through digital mechanisms such as telemedicine and telehealth, remote monitoring, integration of consumer data and digital tools, and use of apps and devices. These mechanisms connect clinicians, patients, care teams and other health professionals to provide health services, support patient self-management, share health information and coordinate patient care across the health continuum.

**Telehealth**, as a subset of virtual health more generally, is a method of healthcare delivery that uses information and communications technology (ICT) to transmit audio, images and/or data between a patient and a healthcare provider. Telehealth can be used to provide diagnosis, treatment and preventive and curative aspects of healthcare services.

<sup>§</sup>DHCRC is funded under the Commonwealth's Cooperative Research Centres (CRC) Program.

<sup>†</sup>The **quadruple aim**, introduced by Bodenheimer and Sinsky (2014), describes the four aims of an optimally performing health system:

1. Enhancing the consumer experience
2. Improving population health and health equity
3. Reducing costs and providing better value care
4. Improving the work life of healthcare providers.

\*The *Reimagining Healthcare Consumer Survey* comprised responses from 1,826 consumers from across Australia in 2021.





**Key survey insights**

The *Reimagining Healthcare Consumer Survey*\* made a number of key findings:

Finding	Survey
Experiences with telehealth are positive.	<b>69%</b> of people surveyed experienced telehealth in the past 12 months. Of those people:
	<b>72%</b> agreed or strongly agreed the outcome was the same as it would have been face-to-face.
	<b>68%</b> agreed or strongly agreed the wait was shorter than for a face-to-face consultation.
Willingness to use technology to improve access to care is high.	<b>83%</b> agreed or strongly agreed the doctor or other health provider was equally as knowledgeable as other doctors or health providers they have seen in person.
	<b>74%</b> were at least somewhat willing to access a health coach.
	<b>74%</b> were at least somewhat willing to access a digital navigator.
Consumers want to be in control of their health data.	<b>65%</b> said they would consider using more advanced home-based technologies to help identify and diagnose health conditions.
	<b>83%</b> were at least somewhat interested in being able to access their own health records, share their health information, send messages to their healthcare team and, if appropriate, edit their care plans using a personal device.
Consumers want providers to share information to improve their care.	By giving healthcare providers shared access to their health information:
	<b>71%</b> agreed or strongly agreed it would improve communication between them and their healthcare providers.
	<b>70%</b> agreed or strongly agreed it would improve communication between their different healthcare providers.
Risks of a digital divide.	<b>51%</b> of participants were not at all willing to share de-identified health information tracked in apps and devices with private/for-profit health businesses.
	Compared to those with university education or higher, those with high school education or lower were:
	<b>3 x</b> less likely to be aware of digital health technologies
	<b>5 x</b> less likely to have access to digital health technologies
	<b>5 x</b> less willing to use digital health technologies
	<b>2 x</b> as likely to be comfortable to share health information
<b>3 x</b> less likely to be interested to access and contribute to their healthcare plans	
	<b>17%</b> of consumers experienced some technical difficulties when accessing telehealth.
	<b>17%</b> of consumers reported the technical quality of the telehealth consultation affected their meeting.

\*Educational attainment and willingness to use technology for health and to share health information – The Reimagining Healthcare Survey<sup>1</sup>

**A vision for a reimagined health system**

Vision – a health system that supports all Australians to live their best, healthiest lives.

This future is driven by the confident and connected consumer and enabled by the quadruple aim:



**Enhancing the consumer experience**

People receive care at a time, in a format and location of their choice, that is responsive to their complex, holistic needs. Technology is used to support individuals with their health and wellbeing.



**Improving population health and health equity**

Vast data sets are combined across the social determinants of health to deliver a range of personalised care services focused on prevention and wellbeing. The full health ecosystem is integrated and connected to the consumer.



**Reducing costs and providing better value care**

The ecosystem is founded on preventative and personalised healthcare measures, new service delivery models catering for both virtual and face-to-face care, improved safety and quality, and funding models that incentivise integrated healthcare journeys. These enabling factors create greater efficiencies and reduce costs.



**Improving the work life of healthcare providers**

Digital technology, automation and AI are leveraged to improve the health workforce's experience, reduce administrative burden and lift their capacity. Health workers have diverse capabilities, such as data literacy and the ability to draw predictive insights from integrated data sets to improve decision making.

**Design principles of a people-centred health system**

The *Reimagining Healthcare Consumer Survey* provides valuable insights into the principles that must guide the health system's transition into a digitally integrated ecosystem:



**Digitise with purpose**



**Empower and engage consumers**



**Meet individual needs**



**Not digital only, enhance not replace**



**Invest in equitable connectivity**



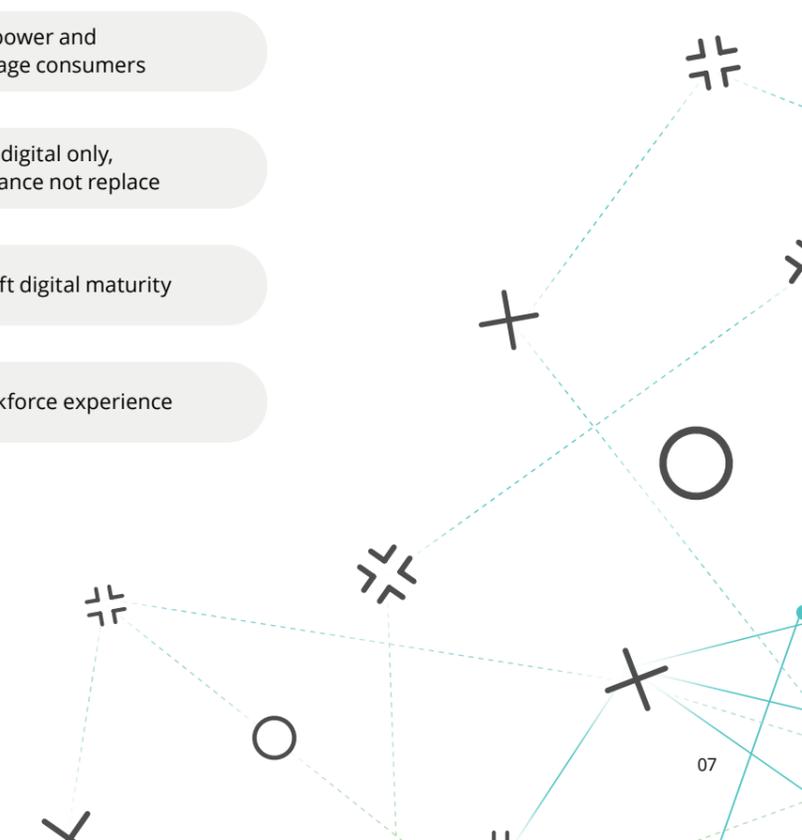
**Uplift digital maturity**



**Transparent, agile and accountable**



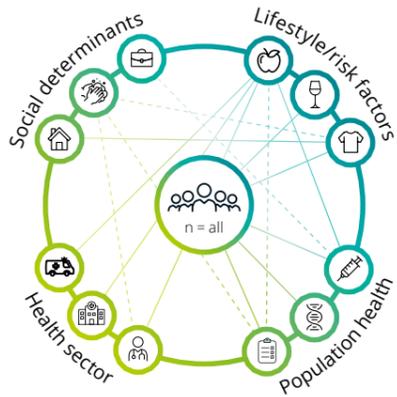
**Workforce experience**





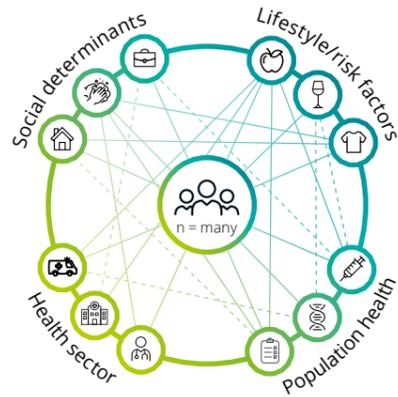
### Three horizons to Australia's reimagined health system

Over the next ten years, the health system must evolve to support all Australians to live their best lives. In this whitepaper, we present a three-horizon model to summarise the shifts that will occur.



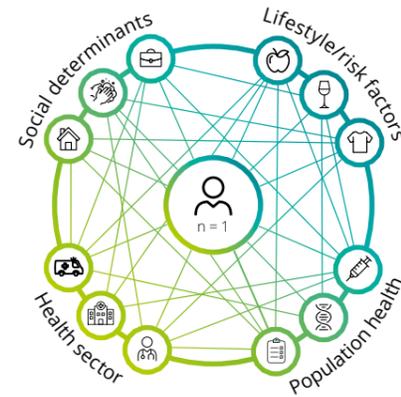
#### Horizon 1 – Connected consumer

People experience fragmented, one-size-fits-all care. The system is focused on treating illness and there is minimal digital interoperability and record keeping, resulting in a large administrative burden for health workers and poor experience for consumers.



#### Horizon 2 – Empowered consumer

People are empowered to access care and services are easier to navigate and access. Moderate data sharing and workflows ease workers' administrative workload and reduce risky behaviours.



#### Horizon 3 – Confident consumer

People take an active role in their health and wellbeing and have strong relationships with healthcare providers. The system benefits from robust data interoperability, digital tools and ecosystem connections to deliver personalised care.

### Actions

Across each horizon, the transformation of the health system must be driven by a number of key actions:

<p> <b>Digitise with purpose</b></p> <p><b>Actions</b></p> <ul style="list-style-type: none"> <li>Vision</li> <li>One purpose</li> </ul>	<p> <b>Empower and engage consumers</b></p> <p><b>Actions</b></p> <ul style="list-style-type: none"> <li>Go together</li> <li>Health literacy</li> </ul>	<p> <b>Meet individual needs</b></p> <p><b>Actions</b></p> <ul style="list-style-type: none"> <li>Service models</li> <li>Incentives</li> <li>Ecosystem</li> </ul>
<p> <b>Not digital only, enhance not replace</b></p> <p><b>Actions</b></p> <ul style="list-style-type: none"> <li>Infrastructure</li> <li>Elevate data</li> <li>Data control</li> <li>Interoperability</li> </ul>	<p> <b>Invest in equitable connectivity</b></p> <p><b>Actions</b></p> <ul style="list-style-type: none"> <li>Connectivity</li> <li>Strategic investment</li> </ul>	<p> <b>Uplift digital maturity</b></p> <p><b>Actions</b></p> <ul style="list-style-type: none"> <li>Digital skills and maturity</li> <li>Digital support</li> <li>Education</li> </ul>
<p> <b>Transparent, agile and accountable</b></p> <p><b>Actions</b></p> <ul style="list-style-type: none"> <li>Accountability</li> <li>Leadership and change</li> </ul>	<p> <b>Workforce experience</b></p> <p><b>Actions</b></p> <ul style="list-style-type: none"> <li>Digital workflow</li> <li>Workforce</li> </ul>	

# Background

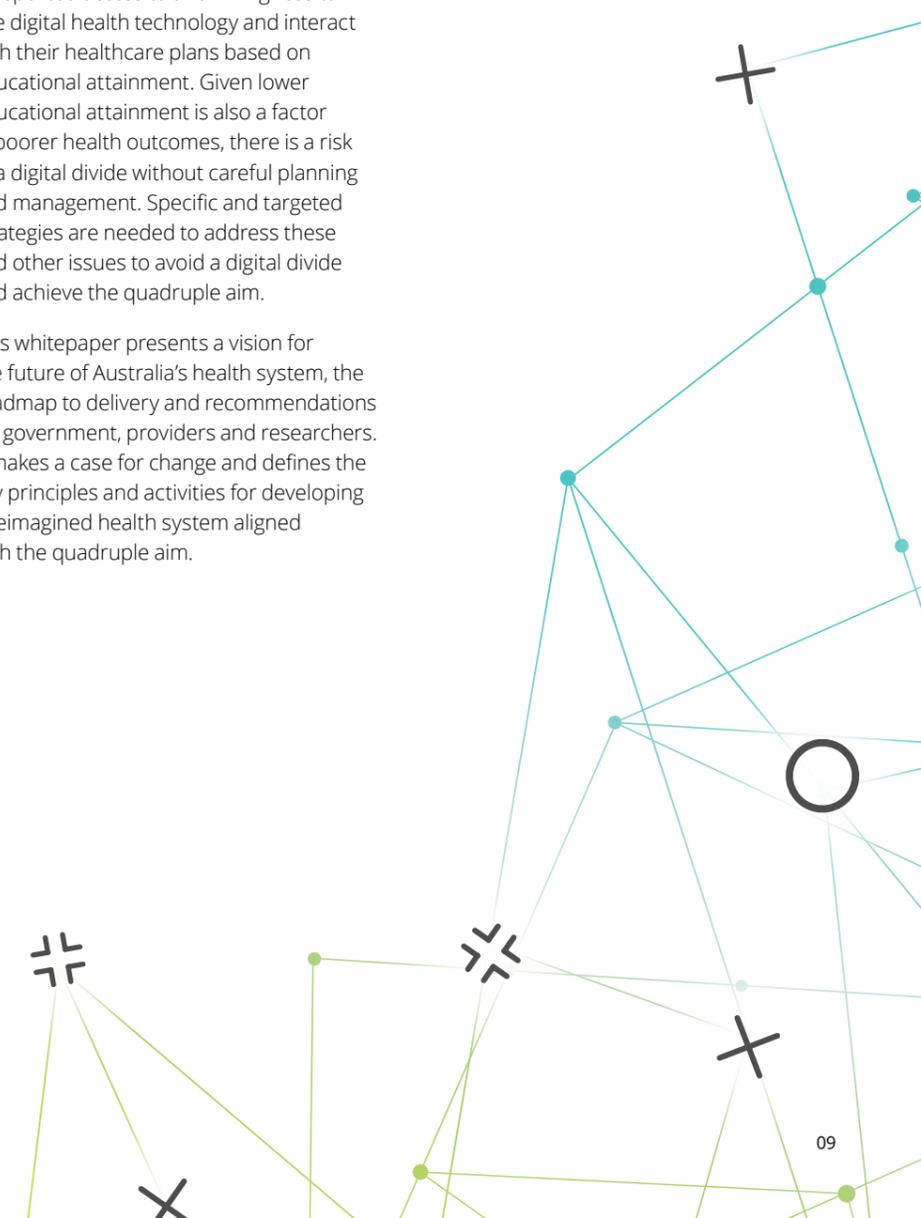
Australia's health system is world class and serves the community incredibly well. However, crucial areas for improvement are revealed by assessing the health system's ability to meet the quadruple aim: enhance consumer experience, improve population health and health equity, reduce costs and provide better value care, and improve the work life of healthcare providers.

The global pandemic forced the health system to rapidly adopt digital technology, showing the sector can establish virtual healthcare without significant impediments to effective service delivery. While this shift is widely supported and well overdue, the continuation of this transformation should not simply digitise old ways of working. The true opportunity is to reimagine our health system and digitise with purpose.

The *Reimagining Healthcare Consumer Survey* found around 70% of Australians are willing and ready to use virtual care and 80% are ready to share their health data in a digitally enabled health system. It also highlights the risks of a digital future which, unless properly managed, could create a digital divide – particularly for those who have the most to gain.

Although the survey's findings show there is strong support for a digital future, they also reinforce the need for a considered approach to this transformation. Simply digitising the current health system will create barriers and add to the system's fragmentation, especially for those most in need. The survey found a stark difference in reported access to and willingness to use digital health technology and interact with their healthcare plans based on educational attainment. Given lower educational attainment is also a factor in poorer health outcomes, there is a risk of a digital divide without careful planning and management. Specific and targeted strategies are needed to address these and other issues to avoid a digital divide and achieve the quadruple aim.

This whitepaper presents a vision for the future of Australia's health system, the roadmap to delivery and recommendations for government, providers and researchers. It makes a case for change and defines the key principles and activities for developing a reimagined health system aligned with the quadruple aim.





Section 1

# The case for change

Australia's health system does not serve everyone equally and will be increasingly unaffordable in its current form.

Globally, Australia's health system compares favourably on a range of measures including care outcomes and administrative efficiency<sup>3</sup>. But like all health systems, it's facing significant challenges that will worsen over time. Compared to countries with similar healthcare systems like Germany and Norway, and even low-performing countries like the United States, Australia is considerably poorer in patient engagement and delivering preventative, safe and coordinated care<sup>3</sup>. We describe these challenges below within the context of the quadruple aim and highlight the need for change to ensure Australia's world-class health system maintains its level of service.

Identifying the health system's pressures and challenges provides a clear basis for what must be addressed and why the current system isn't structured to be sustainable nor meet individual needs. We present these facts to illustrate the opportunity to reimagine Australia's health system and ensure these significant challenges are addressed through the impending digital revolution.

The health system is complex. Most people rely on multiple providers and different parts of the system for their care. This complexity is anticipated to grow as we move towards more personalised care

and address individual health needs, with an increasing requirement for coordination between providers across the care continuum. Because of this inherent complexity, consumers commonly report challenges with accessing and navigating health services and receiving coordinated care. The 2021 ABS patient satisfaction survey<sup>4</sup> found 13% of people experienced issues caused by a lack of communication between health professionals, and this rate increased for those with long-term health conditions. Additionally, just under 20% felt they waited too long to see a specialist and didn't receive enough time with them.

The Australian Digital Inclusion Index<sup>5</sup> suggests rural and remote communities face technological barriers to further adoption of virtual health, reporting 11% of Australians remain highly excluded with 8% variation between regional and metropolitan communities. Further, 14% of Australians would need to pay more than 10% of their household income to gain quality, reliable connectivity. These issues are impeding a digitally enabled health system and must be addressed as a foundational requirement of digital connectivity to support improved care coordination.



## Enhancing the consumer experience

Consumers are experiencing gaps in access to health services\*



\*ABS Patient Experience Survey<sup>4</sup>



### Improving the work life of healthcare providers

Health workers will need to deliver four times the current service level to meet forecasted needs based on health workforce projections.



Health worker



Activity unit \*(NWAU)

**2021** – 1 worker delivers 6 units of activity\*



**2050** – 1 worker delivers 25 units of activity\*



The health workforce would need to grow from 11% to 45% of the total Australian workforce to meet rising demand.

#### Our health workforce will be overwhelmed

Health workers have played an extraordinary role in managing the pressures of COVID-19 and keeping the health system operational. However, it hasn't been without increasing fatigue, burnout and mental health issues driven by the greater workload and social isolation. International studies reported 43% of medical physicians felt burnt out prior to the pandemic<sup>6</sup>, rising to 49% during the pandemic<sup>7</sup>.

Looking ahead, the health workforce is expected to experience significant shifts in its age profile, resulting in declining workforce participation rates and a real challenge to meet the health needs of an ageing population. Australia's population is estimated to reach 35.9 million by 2050<sup>8</sup>, with the proportion of people aged over 65 increasing by 6% to reach just under a quarter (22%) of the population<sup>9</sup>. Over the same period, the overall workforce participation rate is expected to decline

from 66% to 64%<sup>10</sup>. This decline, together with the expected growth in healthcare demand driven by an ageing population, will have a catalytic effect on the health system and its workers. Deloitte modelling based on figures from the ABS<sup>8,11,12</sup> and National Health Funding Body<sup>13</sup> estimates that if the system does not evolve, our health workforce must become four times more productive by 2050 to meet forecast demand.

Put another way, if current levels of productivity were held constant, the health workforce would need to grow from 11% to 45% of the total Australian workforce to meet rising demand.

Given current concerns about the added pressure and fatigue affecting health workers, the system cannot meet Australia's future health needs in its current form. We must rethink service models, shape the demand for healthcare and look to reduce the administrative burden on healthcare workers through digital workflow.

### Improving population health and health equity

The current health system has failed to address the cultural, cost and location barriers that continue to create inequitable access and poorer health outcomes for Australians facing these challenges.

**Compared to the average consumer\***

	Life expectancy (years)	Burden of disease (daily rate)	Delayed/did not see due to cost	Potentially preventable hospitalisations
<b>Indigenous</b>	-8.2	x2.4	+3.5%	+5.1%
<b>Low socio- economic</b>	-1.9	x1.6	+2.2%	+0.8%
<b>Very remote</b>	-3.8	x1.3	+1.8%	+3.9%

\*Non-Indigenous, least socio-economically disadvantaged and residing in a major city.

#### The system is unsustainable

Australia will be unable to afford the health system in its current form as our growing and ageing population continues to drive demand to unsustainable levels. Based on Deloitte modelling of public and private hospital bed requirements from 2016 to 2036, Australia must build a 375 acute bed hospital every month for the next 15 years to keep pace with demand and replace ageing stock.

Australia's health system is heavily geared towards an acute, reactive system of treating illness. The capital requirements are substantial and even if the cost of infrastructure could be afforded, the operating costs and workforce requirements are unsustainable.

#### The system does not serve all Australians equally

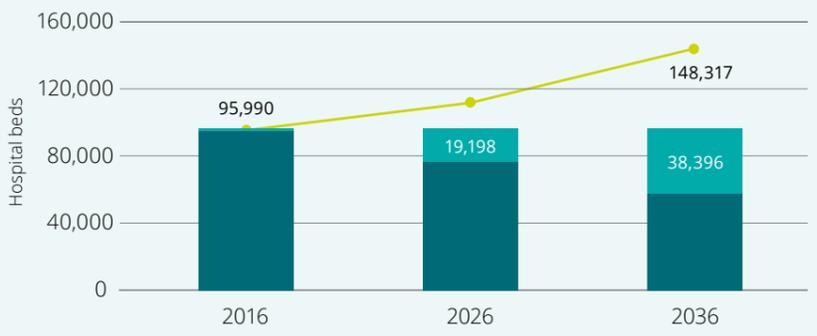
Australia's health system does not serve everyone equally. Patient outcomes and illness severity differ significantly across demographics such as cultural and ethnic background, geography and socio-economic status. For example, Indigenous Australians, residents of rural and remote communities and people of low socio-economic status have a shorter life expectancy, higher burden of disease and higher rates of potentially preventable hospitalisations than the average Australian.<sup>14,15,16,17,18</sup>

While services are designed to offer consistent access and delivery for everyone, the system's design doesn't acknowledge the various financial, regional and cultural barriers that hinder equitable access to care. This inconsistency is illustrated by the significant disparities in health outcomes and overall health of different groups of the population.<sup>14,15,16,17,18</sup>

### Reducing costs and providing better value care

To meet projected demand and replace ageing hospital bed stock, Australia needs to build 375 hospital beds per month for 15 years.

**Projected hospital bed requirement for Australia**



Year	Existing beds	Bed replacement	New beds (growth)
2016	95,990	0	0
2026	19,198	0	0
2036	38,396	0	0

Legend: ● Existing beds ● Bed replacement ● New beds (growth)

## Section 2

# Australia's health reimagined

## What is our bold ambition for the next ten years?

There's no shortage of papers and thought leadership on the future of health, often referencing the importance of data and technology as enablers. There's no question on the significance of these factors, but the system needs to be designed around a new vision and a purposeful set of objectives. It must evolve with a clear intention to leverage data and technology, not simply lead with them.

The future of health starts with a reset of our system objectives based on the quadruple aim of healthcare: enhancing the consumer experience, improving population health and health equity, reducing costs and providing better value care, and improving the work life of healthcare providers.

## Vision – a health system that supports all Australians to live their best, healthiest lives.

Carried out effectively, this vision will lead to improved and more equitable access to healthcare, better prevention of ill health and the delivery of safe, high-quality services that focus on holistic care and the social determinants of physical and mental health. It will also involve a shift in focus from acute care for illness to preventative healthcare for maintaining wellness. This shift will help reduce the growing pressures on the existing system by keeping more Australians healthy and reshaping demand for healthcare.

### Social determinants

Few innovations have attempted to address the social determinants of health despite the opportunity to reap the greatest benefit

to consumers and health budgets<sup>2</sup>. Future transformations of care lie in the ability to address these social and environmental determinants of health and wellbeing to deliver personalised care. Bringing together and analysing data from a range of different data sources, such as health, gender, education, housing, employment, justice, early childhood development and income, will inform an understanding of environmental and social factors influencing health-related behaviours. This personalisation of healthcare and shift in focus to what truly influences an individual's health status will result in GPs, nurses and other healthcare professionals prescribing social, non-clinical services that significantly improve consumer health and wellbeing.

### Linking data, information and knowledge

Interoperable data across primary, secondary and community healthcare, and personalisation of care for individuals, will also help healthcare practitioners identify underserved, at-risk groups and thus recognise health risks to the broader population. It will also help to identify treatments and interventions that either prevent illness or prevent conditions from deteriorating into chronic disease<sup>19</sup>. There is already evidence to support the value of sharing clinical data between care providers not just from the perspective of patient experience and preference. Data sharing is a key enabler for better clinical decision making, improved health outcomes and greater administrative visibility across the health system – and it empowers patients to better manage their own care.

Individuals will own their healthcare information and be able to readily access it through centralised technologies. This contrasts with the information of today,

which is fragmented and often difficult to obtain. Wearables and other smart devices will be linked to these data sources and nudge behaviours that encourage healthier lifestyles, vitality and wellness and prevent chronic disease and ill health. New virtual care models and technologies will be co-designed, tested and deployed in partnership with consumers, enabling more care to be delivered in the home. There will be a shift from the paternalistic practitioner-consumer relationship to one of partnership and coaching, while AI and automation will be used more readily to improve workforce capacity and quality of care. The workforce itself will have diverse capabilities, such as data literacy and the ability to draw predictive insights from integrated data sets to improve decision making and enable care provision at home. There will be greater focus on enhancing the workforce's 'web-side manner' and technology will reduce the ever-cumbersome administrative burden, allowing healthcare practitioners to operate at the top of their practice and focus on what they do best: delivering safe, optimal care.

### Advances in science

Scientific breakthroughs in fields such as stem cells, nanobots and biomedical sensors will occur at an increasing rate, enabled by interoperable data, new partnerships and increased consumer participation. Traditional barriers to accessing healthcare will be reduced – especially in Aboriginal and Torres Strait Islander communities and regional, rural and remote settings across Australia – largely driven by more targeted, personalised care and the ability to access services virtually. The accessibility gap will also be reduced by infrastructure such as reliable and secure Wi-Fi, 5G and emerging 6G technology; secure and accessible data storage; and open digital platforms.

### Value-based care and incentives

New value-based funding models will be created to incentivise integrated care and achieve cost-effective healthcare outcomes. Further, regulatory approaches will encompass data sharing and security to build trust and encourage people to share information that enables more personalised and accessible care.

As highlighted in our consumer survey, the future of health and Australians' willingness and ability to adopt digital health has been accelerated by the COVID-19 pandemic. The healthcare system needs to capitalise on this momentum and the significant investments that have already been made. But these ambitions will not be realised if healthcare providers and workers are unable to adopt and engage with integrated virtual solutions.

Leaders must invest in change management initiatives that cater for cultural nuances and prepare consumers and workers for a virtually enabled health system by supporting and incentivising desired behaviours. Involving consumers in the design of new services and technologies will prevent deepening the digital divide and ensure the future of health is fit for purpose.

Government and regulators have a crucial role to play in setting virtual care standards alongside data security and sharing agreements that are trusted and understood by consumers and providers. They also play a role in procuring technological infrastructure and ensuring value-based funding streams incentivise integrated virtual care models. These factors, and the roadmap to achieving this future state of health, are imperative to achieving these ambitions.

## Design principles of a people-centred health system

Achieving this vision of a reimagined health system hinges on understanding the roles we play as individuals and as a collective. This understanding informs the key design principles that will guide the health system's transition to a digitally integrated ecosystem:



### Digitise with purpose

Set a clear vision and objectives of what the health system must deliver across the quadruple aim dimensions of population, consumer, sustainability and workforce. The objectives must be specific, measurable and meaningful. The health system's transformation and the role of digital must be oriented to deliver the vision and objectives.



### Meet individual needs

Health is personal: everyone has individual needs and preferences. A successful transformation journey starts with a holistic understanding of the consumer, from their preferences to their health status, lifestyle and history. This means moving away from a one-size-fits-all approach, tailoring healthcare to every individual and catching up to industries that have adopted this personalised approach. Ensure there are the right incentives at all levels to support the delivery of system outcomes and meet individual needs.



### Invest in equitable connectivity

All Australians should have equitable access to digital connectivity regardless of where they live and how much money they earn.



### Transparent, agile and accountable

Establish strong governance to ensure all aspects of system performance and accountabilities are met transparently, protect health information and ensure accountability and performance are aligned with system goals. Whenever data sharing is involved, consent should always be requested from consumers or relevant stakeholders to address privacy and security concerns.



### Empower and engage consumers

Allow and support people to take greater control of their health journey, including how they interact with a broad range of health influences and navigate access to services. Consumer experience, satisfaction and input should be key considerations in designing the system, models of health, workflows and solutions across the ecosystem.



### Not digital only, enhance not replace

Developing singular digital channels will create a digital divide for some consumers. The design needs to balance human and digital channels, giving people the option for digital where relevant. Whenever technology is involved, the experience should provide a 'human touch' that's engaging, responsive and approachable. Digital healthcare should enhance the therapeutic relationship and encourage individuals to participate in their health – not replace face-to-face care.



### Uplift digital maturity

Consumers and their loved ones should feel in control and empowered to have a connected healthcare experience. A person's background and education is an important factor in their willingness to engage in digital health.



### Workforce experience

Understand the needs of the health workforce and support input with consumers to design new healthcare models with an enhanced workforce experience. To enable connected, empowered and confident consumers, we need connected, empowered and confident health professionals who are able to use technology to support shared decision making.

Section 3

# Three horizons to a reimagined health system

In the next decade, there will be a shift from the Connected Consumer (Horizon 1), who has improved access to health, to the Confident Consumer (Horizon 3), who is focused on wellbeing, prevention and receiving personalised healthcare. This transition occurs over three horizons as summarised in the following diagram.

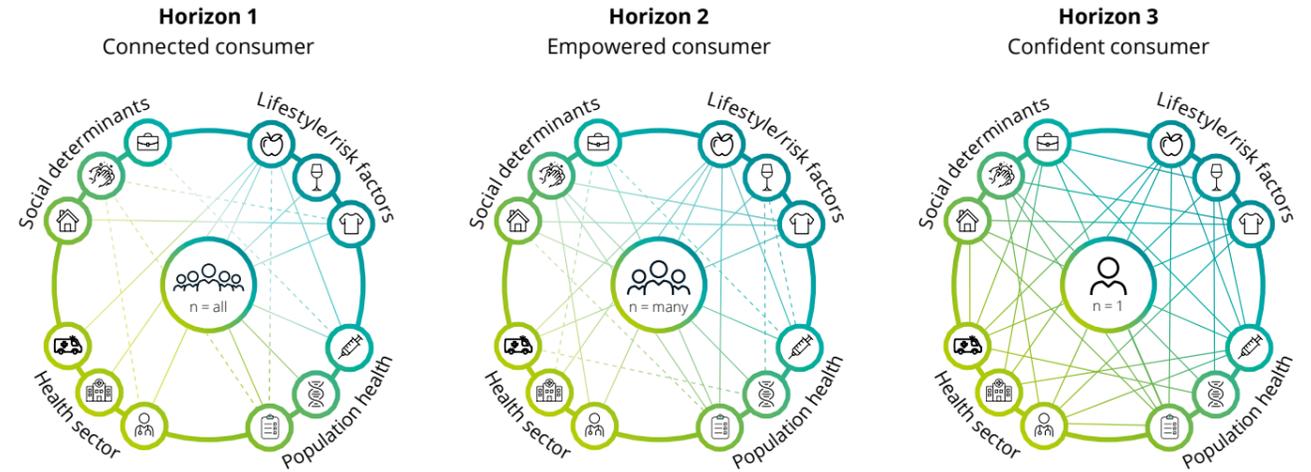
The presented horizon approach illustrates how the healthcare system operates within a broader health, social and economic ecosystem that affects the health of individuals. The interconnected nature of the broader ecosystem needs to be first acknowledged and then explicitly connected to the individual.

The diagram describes a number of important transitions that will reorientate the health system to focus on the needs of individuals across the following domains:

- **Consumers** – the degree of connectedness between the consumer and four focus areas for health: social determinants, risk factors, population health and the healthcare system. It presents the perspective of the health system and the degree of personalisation, accessibility and digital inclusion

- **System** – the orientation of the health system across the wellbeing-to-illness continuum, level of integration and model of funding and incentives
- **Enablers** – the nature of workflow, data interoperability and workforce considerations
- **Fiscal** – the level of value the health system delivers for the investment
- **Population Health** – the changes in health literacy, rates of risky behaviour and connectedness of the broader health ecosystem.

Digital evolution is complicated and unlikely to be linear. Some aspects of digital transformation will happen quickly, while others will take more time. We envisage some overlap between the horizons with activities and advances occurring in parallel over the next ten years.



	Horizon 1 Connected consumer	Horizon 2 Empowered consumer	Horizon 3 Confident consumer	
<b>Consumers</b>	<b>Consumer experience</b>	System takes a paternalistic role, consumers experience fragmented care	Consumers are empowered to access care	Consumers take an active role in their health and wellbeing
	<b>Personalisation</b>	Low – care is one-size-fits-all	Targeted care for cohorts with distinct needs	High – care is personalised for individuals
	<b>System navigation</b>	Complex	Improved navigation for at-risk groups	Digital integration enables easy navigation
	<b>Digital inclusion index<sup>5</sup></b>	71 (some consumers have limited access)	85	95 (most consumers have equitable access)
<b>System</b>	<b>Health system focus</b>	<b>Illness</b> Narrow – focused on treating illness	System focused on prevention and illness	<b>Wellbeing</b> Broad – focused on health and wellbeing
	<b>Integration</b>	Low – fragmented system	Better integration of complex care pathways	High – ecosystem approach to all care
	<b>Funding</b>	Input and output funding	Hybrid funding model	Outcome-based funding
<b>Enablers</b>	<b>Health workflows</b>	Analogue – minimal use of digital record keeping	Digital workflows and digital record keeping	Cloud-based digital records and workflows
	<b>Data interoperability</b>	Low – some sharing between providers	Moderate – data shared between providers and consumers	High – data shared between consumers, providers and across sectors
	<b>Workforce</b>	Substantial administrative burden on workforce	Reduced administration through digitisation, increased time for clinical care	Digital tools strengthen the relationship between clinician and consumer
	<b>Integration of physical and digital infrastructure</b>	<b>Physical</b>		<b>Digital</b>
<b>Fiscal</b>	<b>Value</b>	<b>Low</b>		<b>High</b>
<b>Population health</b>	<b>Health literacy</b>	Low	Moderate	High
	<b>Risky behaviours</b>	High rates of risky behaviour	Moderate rates of risky behaviour	Reduced rates of risky behaviour
	<b>Ecosystem approach</b>	<b>Weak</b>		<b>Strong</b>



### Horizon 1 – Connected consumer

Horizon 1 will deliver an increasingly connected consumer by leveraging existing investments in digital healthcare infrastructure. This horizon is focused on quick wins that can be executed in the next one to two years: supporting people with better access to health and improving system efficiency and quality, acknowledging that connectivity is variable. Importantly, Horizon 1 also aims to lay the foundations for improved connections between consumers, providers and the broader ecosystem to influence lifestyle and risk factors, social determinants and population health.

This horizon will deliver improved system efficiency, connectivity and quality of existing service provision models, achieved primarily by technology-driven upgrades to existing work practices. Horizon 1 includes familiar, traditional technologies:

- **Telehealth** – delivering services where consumers and providers are separated by distance, such as by phone, text, email or video
- **Digital information systems** – technologies that support sharing and transmission of personal health and other information, such as eReferrals, eDischarge, ePrescribing and electronic health records (EHR).

In Horizon 1, these technologies are controlled by and focused largely on providers, acting as digital substitutes for existing work practices to assist in providing contemporary care.

Given providers remain the primary focus in Horizon 1, it's a one-size-fits-all care model. The variation in digital inclusion means caution is needed to ensure virtual and technology-based care does not

create a digital divide owing to barriers in accessibility and digital ability. Additionally, since the health system is focused on treating illness as opposed to wellbeing, there's still a substantial administrative burden on the workforce as consumers shuttle between various care providers.

### Horizon 2 – Empowered consumer

We see focus shifting towards the consumer as we move toward Horizon 2, where people are empowered with greater control over how they access care, manage their health data and access information. The *Reimagining Healthcare Consumer Survey* found 72% of Australians are already aware of digital technologies that support health monitoring and 56% would be willing to use mobile apps, personal medical devices, fitness monitors and other technologies to monitor health issues (e.g., by tracking indicators like blood sugar, blood pressure, breathing, function or mood). Integration of population-level health data will strengthen chronic disease prevention by enabling earlier and more accurate risk predictions and more individualised management of ongoing health conditions like diabetes.

As well as empowering people to better manage their own health, improved disease prevention and management will also continue to be enabled by remote monitoring – which in turn will be enhanced by 5G network infrastructure. Data collected through remote monitoring can inform prevention and interventions across the continuum of care. Aggregated data can be used not only at a population level but also to predict and manage risk for individuals. Further, this will facilitate new work practices and improve early intervention for better health outcomes.

Data interoperability remains a challenge with current technologies through Horizon 1, and these challenges will need to be addressed in Horizon 2 to enable augmented models of care. Digital diagnostics and therapeutic technologies, as well as care navigation technologies, rely on the ability of health providers to share information with consumers and other providers.

Better interoperability and connectivity, as well as more empowered consumers, will allow the health system to consider a more targeted approach to health and wellbeing, not just illness treatment. Improving service integration across government, through parallel integration of human services and better digital linkages with the health sector, will improve access to housing, employment and education – all key determinants of future health status. Simplifying service navigation with digital technologies and improving digital access across age groups, socioeconomic groups and geographies will benefit people who need complex social support alongside healthcare, thus enhancing digital inclusion and reducing the workforce's administrative burden.

Horizon 2 describes augmented or expanded models of care that lead to new work practices and approaches. These models rely on technologies that can remotely collect and analyse consumer data:

- Digital diagnostics and therapeutic technologies used to identify, prevent, manage or treat a condition, or improve adherence to interventions. This includes remote monitoring and the use of health data to inform prevention and interventions across the continuum of care, from self-care to acute healthcare

- Care navigation technologies that give consumers access to health information, booking systems, triage systems and assessment and selection of providers.

Horizon 2 technologies give people more control over their healthcare data and better access to information. But the focus remains on healthcare service delivery, rather than a broader goal of optimising health and wellbeing.

### Horizon 3 – Confident consumer

Horizon 3 depicts a future where the maturing of technologies such as AI, robotics and cloud-based services creates possibilities for new virtual health models and a consumer who is far more connected to influences outside the healthcare system. The rapid evolution of digital technologies means this future cannot be fully described. However, this horizon is likely to be characterised by virtual health models supported by non-traditional or cross-sector interoperable technological developments. These will enable the analysis of a comprehensive range of health and other data to expand knowledge and provide services across the care continuum, with a particular focus on addressing the social determinants of health.

Horizon 3 will allow confident consumers to access preventive, personalised care and services in or near their home. The focus will shift to people choosing who can access and analyse their data to provide information and services promoting health and wellbeing. Horizon 3 is people-centred with great emphasis on consumer needs, preferences and choices, reflecting a policy shift away from provider-controlled care. This phase focuses on the complete disruption of the health ecosystem in the next ten years through value-based healthcare, digital navigation, augmented

and virtual reality, personalised medicine and precision robotics. Consumers are activated through a complete shift towards home service delivery and preventative health and wellbeing.

Australians will be even more empowered to actively control and manage their wellbeing, as well as a significantly reduced administrative burden for our health workforce. Self-care will involve a range of prevention activities with a combination of technologies facilitating remote monitoring and communication, thus strengthening the partnership between consumers and their healthcare providers. In fact, the *Reimagining Healthcare Consumer Survey* revealed consumers are already accepting and demanding this at an increasing rate.

**69%** of people surveyed experienced telehealth in the past 12 months.

**69%** were willing to share and link their health information with providers involved in care for conditions requiring ongoing monitoring for risk of deterioration.

**63%** were interested in being able to access their own health records, share their health information, send messages to their healthcare team and, if appropriate, edit their care plans using a personal device.

**64%** agreed (or strongly agreed) that if they gave healthcare providers shared access to their health information, it would make them feel more able to manage their own health.

Personalised care and digital integration can be achieved by maturing and developing technologies such as AI, Internet of Things (IoT) platforms, robotics, 5G and cloud-based services, allowing people to receive care in or near their home with fewer visits to hospitals for routine and emergency care. This will also encourage the promotion of independent self-care in older people and people with disabilities, thus improving digital inclusion and achieving true equity in the health ecosystem.

Currently, accessing the right care can be complex. A fragmented system with many health providers makes it difficult for people to know where they should access certain services. With better technology and digital inclusion in Horizon 3, care navigation can be simplified to help people access the right care, in the right place and at the right time.

For further integration between providers across the care continuum, and between providers and consumers, care coordination and navigation tasks can be automated and digitised. This will lead to simple improvements to the consumer experience; for example, people with multiple medical issues could schedule all their outpatient appointments on the same day, while digital queues could slash wait times for pathology collections.

Reaching Horizon 3 will only be possible if the existing digital health technologies in Horizon 1 are improved and made more efficient, effectively forming the building blocks for new and augmented models of care in Horizons 2 and 3.



Section 4

# Seizing the opportunity

## Why has the health system resisted change?

With so many exciting possibilities within grasp, why hasn't the health sector experienced the same disruption as banking and investment, tourism or transportation sectors?

We believe there are four major factors impeding transformation in healthcare:

1. Clinical governance and accountability frameworks are biased towards inaction, and the sector's broader culture remains conservative
2. Reform to enable the system of tomorrow requires investment today
3. To make lasting changes at the policy or service level, it's important to invest in implementation science
4. Health leaders are accountable for business-as-usual service delivery, not widespread innovation and change.

## Clinical governance and accountability frameworks are biased towards inaction

In Australia, current systems of clinical governance and medicolegal responsibility mean an individual clinician is ultimately responsible for the treatment of a single consumer. This means clinicians bear substantial reputational, legal and financial risks when changing the care they provide, even when the new model of care has a robust evidence base.

This barrier is surmountable through changes to policy, clinical standards and accountability frameworks that enable rapid adoption of clinical innovation. Organisations that set clinical standards need to adopt new ways of working into these standards to help clinicians manage risk.

The importance of risk mitigation was demonstrated during the COVID-19 vaccine rollout when the Australian government introduced a medical indemnity scheme to compensate individuals who suffered adverse reactions through a no-fault claims process scheme. The scheme was designed to increase vaccination uptake and give health professionals the confidence to recommend vaccination despite the novel nature of the technology. When something new needs to happen quickly, risk needs to be identified, managed and mitigated in a shared, cooperative way.

## Reform to enable the system of tomorrow requires investment today

Shifting how healthcare is delivered requires combined upfront investment in workforce, traditional health infrastructure (hospitals, clinic spaces, beds and medical equipment), digital infrastructure, technology and change management. A more personalised and digitally enabled healthcare system will have different infrastructure requirements, requiring significant investment in data interoperability and equal access to data networks and technology.

While Australia's internet access has improved considerably (56% of households had internet access in 2004-05 compared to 86% in 2016-17) connectivity remains a challenge. This is especially true for people of old age, low educational attainment, low income or regional or remote residency<sup>5</sup>. Continued public and private investment will be required to create the networks that support equitable access to digital healthcare across Australia, regardless of geography or income.

## Continued public and private investment will be required to create the networks that support equitable access to digital healthcare across Australia.

### Lasting changes require investment in implementation science

Investing in change management and implementation programs that use the best evidence and principles of implementation science is critical to effective change. In a system where growing clinical demands and rising costs make it difficult to meet the health needs of the population, additional funding for project roles and implementation programs with uncertain future returns is competing against the delivery of services here and now. System funders and leaders need to recognise this investment is necessary to deliver better, more sustainable care for consumers, and consumers and clinicians need to work together in a collaborative framework to champion, drive and be accountable for change.

Effective, well-resourced implementation is required to ensure lasting change. Consumers and health workers need to be involved in the design, implementation and evaluation of new services to ensure they are fit for purpose, improve patient safety and prevent deepening the digital divide. Consumer advisers should be part of change teams and the system needs to actively equip and mentor them to serve in this role. Quality improvement and human factors implementation science should be adopted to ensure new technologies and services are co-designed with the end user in mind and consider human behaviour and limitations.

Research in health and life sciences is very good at developing short-term pilot programs and assessing their efficacy, but poor at scaling up the innovations that work in clinical care. It's estimated only half of evidence-based innovations in clinical care are implemented, and of those that are, it takes an average of 17 years for a research-based change in care to be incorporated into routine clinical practice.

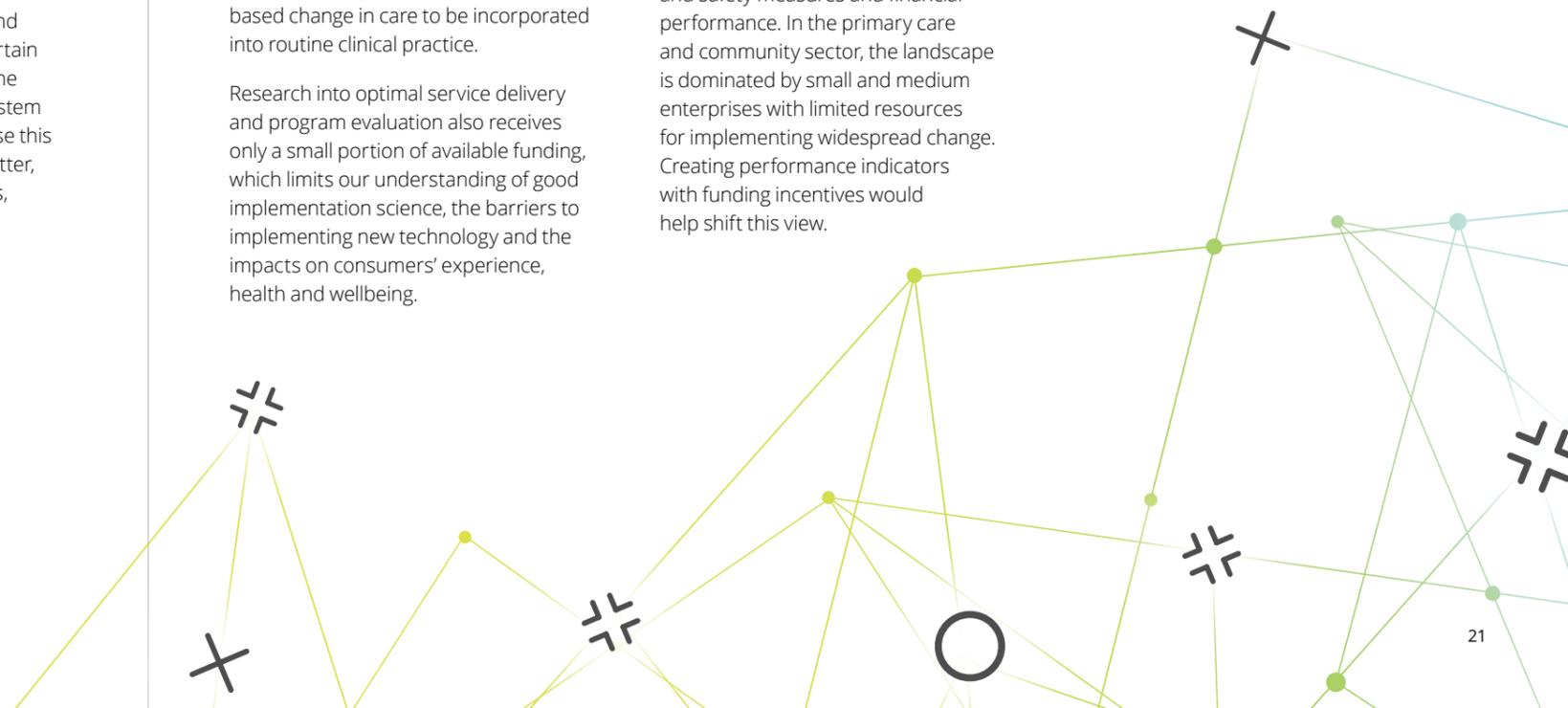
Research into optimal service delivery and program evaluation also receives only a small portion of available funding, which limits our understanding of good implementation science, the barriers to implementing new technology and the impacts on consumers' experience, health and wellbeing.

Implementation of change at scale is hindered by short-term funding for programs (rather than long-term funding commitments), procurement processes, limited application of implementation science and poorly planned and managed implementation programs. To transform the health system and deliver the care consumers expect, we need to invest in the capability to get the change right before continuing to build momentum through success.

### Keeping our leaders accountable for delivering change

Leaders in the health system need to be accountable for transformation. Currently, hospital chief executives and primary healthcare providers view innovation – particularly technological innovation and adoption of virtual care – as outside their core business. For the hospital sector, performance metrics relate to service delivery, quality and safety measures and financial performance. In the primary care and community sector, the landscape is dominated by small and medium enterprises with limited resources for implementing widespread change. Creating performance indicators with funding incentives would help shift this view.

In an already constrained system, system leaders and governments also have important short-term priorities that require immediate action (e.g., the COVID-19 response). This limits the capacity to prioritise long-term health system transformation, as opposed to a project with short-term payoffs that can be achieved within an election cycle. Consumers need to demand a sustainable, digitally enabled healthcare system from our elected representatives and hold them accountable for leadership at a system level.





### How can we seize the opportunity to create lasting change?

Across each of the horizons, key actions are needed in the following areas to plan and deliver a reimagined health system that leverages data and digital as enablers:

#### Digitise with purpose

##### Vision

Develop a clear vision and purposeful set of objectives for the health system based on the quadruple aim, including addressing health inequity.

##### One purpose

Integrate primary, secondary and tertiary healthcare and governments with a common purpose: providing people-centred, digitally enabled care.

#### Not digital only, enhance not replace

##### Infrastructure

Establish minimum standards for integrated digital and physical health infrastructure.

##### Data control

Give people the control to provide, share and use their health data.

##### Elevate data

Build governance frameworks to support consumer data sharing and privacy across the ecosystem.

##### Interoperability

Require health data to be available for consumers to engage with and share with whom they choose.

#### Transparent, agile and accountable

##### Accountability

Build clear accountability frameworks aligned with delivery of the quadruple aim.

##### Leadership and change

Invest in developing the current and future leaders of the health system and invest in change and implementation science to support the system transition to horizon 3.

#### Empower and engage consumers

##### Go together

To maintain healthcare's social license, health practitioners and the community need to participate in the journey together.

##### Health literacy

Develop tools to support greater health literacy and engagement in one's own health.

#### Invest in equitable technology

##### Connectivity

Improve digital connectivity (internet, device and data) for consumers and providers where they live, work and play.

##### Strategic investment

Government and other funders need to rethink investment in digital health and make more coordinated, strategic decisions to move the system toward Horizon 2.

#### Workforce experience

##### Digital workflow

Invest in clinical and non-clinical workflow platforms to improve efficiency and reduce the administrative burden.

##### Workforce

Define role-based workforce models, empower clinicians to operate at the top of their scope of practice and ensure adequate digital training for new and existing health workers.

#### Meet individual needs

##### Service models

Develop service models based on end-to-end health pathways for earlier and more precise intervention.

##### Incentives

Establish the right funding models and incentives to enable health improvement and drive greater value across the public and private sectors.

##### Ecosystem

Encourage better connections in the ecosystem of stakeholders and providers to deliver better health outcomes.

#### Uplift digital maturity

##### Digital skills and maturity

Develop programs to improve the digital skills of consumers, clinicians and health professionals.

##### Digital support

Provide at-hand digital health navigation support.

##### Education

Education providers integrate digital health into their programmes and offer micro credentials to support upskilling the health workforce.

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# Endnotes

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