

Digital Health Strategic Vision for Queensland 2026



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Message from our **stakeholders**



‘Digital healthcare is one of the most important revolutions in healthcare. Our digital hospitals and other digital healthcare capabilities not only relieve some of the pressures of public hospital infrastructure but are also providing highly connected and interactive models of care that support personalised, precise and well informed treatment of patients across care settings and care teams. This means improved safety, quality of care and faster treatment for patients.’

Dr Richard Ashby
Chief Executive, eHealth Queensland



‘Digital transformation is imperative for our future to enable Queensland Health to improve the delivery of healthcare to our communities. The sharing of information and the interoperable nature of new technologies will enable our consumers to move seamlessly through a system where their information is easily accessible by all. This, and the interconnectivity of information that will enable the use of data to drive healthcare improvements, is a truly exciting future for all Queenslanders.’

Sue McKee
Chief Executive, West Moreton Hospital and Health Service
ICT Portfolio Lead, Health Service Chief Executive (HSCE) Forum



‘Delivering health services to rural and remote communities is challenging with relatively small populations spread across very large geographic areas. Digital transformation of the health system will provide opportunities to enable connected care across service providers and overcome issues of distance and isolation to improve services and provide better outcomes in rural and remote communities.’

Glynis Schultz
Chief Executive, South West Hospital and Health Service



‘People want to take advantage of the opportunities that new technologies offer. Many patients want to be more informed and involved with their own care and learn how to prevent illness and improve wellbeing. Clinicians and carers want to be able to securely share information so they can provide safe, high quality services that are better coordinated around a person’s needs. We look forward to partnering with Queensland Health on driving the innovation needed to make this a reality for all Queenslanders.’

Tim Kelsey

Chief Executive Officer, Australian Digital Health Agency



‘I commend Queensland Health on the *Digital Health Strategic Vision 2026* and its focus on delivering technological advances that will aim to provide the best care in the best place for Queensland health consumers. Its focus on greater patient access to services and self-management is welcomed as is the ability for consumers to be proactively engaged in co-designing digital solutions that allow them to be a partner in their own healthcare.’

Mark Tucker-Evans

Board Chair, Health Consumers Queensland
Chair, Queensland Health Consumers Collaborative



‘Digital transformation is much more than just swapping paper charts for computer screens. We have a fantastic opportunity to engage with consumers and clinicians and embrace digital technologies to find ways to do things differently to do things better.’

David Rosengren

Chair, Queensland Clinical Senate



Message from the **Minister**

Digital technologies are disrupting every industry and healthcare is not immune.

To deliver on our 10 year vision for health, *My health, Queensland's future: Advancing health 2026*, we need to embrace digital technology and innovation.

The Digital Health Strategic Vision for Queensland 2026 is our vision for system-wide digital solutions, services and digital innovation.

Our digital vision builds on the strategic investment priorities outlined in the eHealth Investment Strategy to enable world class hospitals and facilities.

The goal is a personalised and integrated health system across all providers, both public and private, working together to make Queenslanders among the healthiest people in the world.

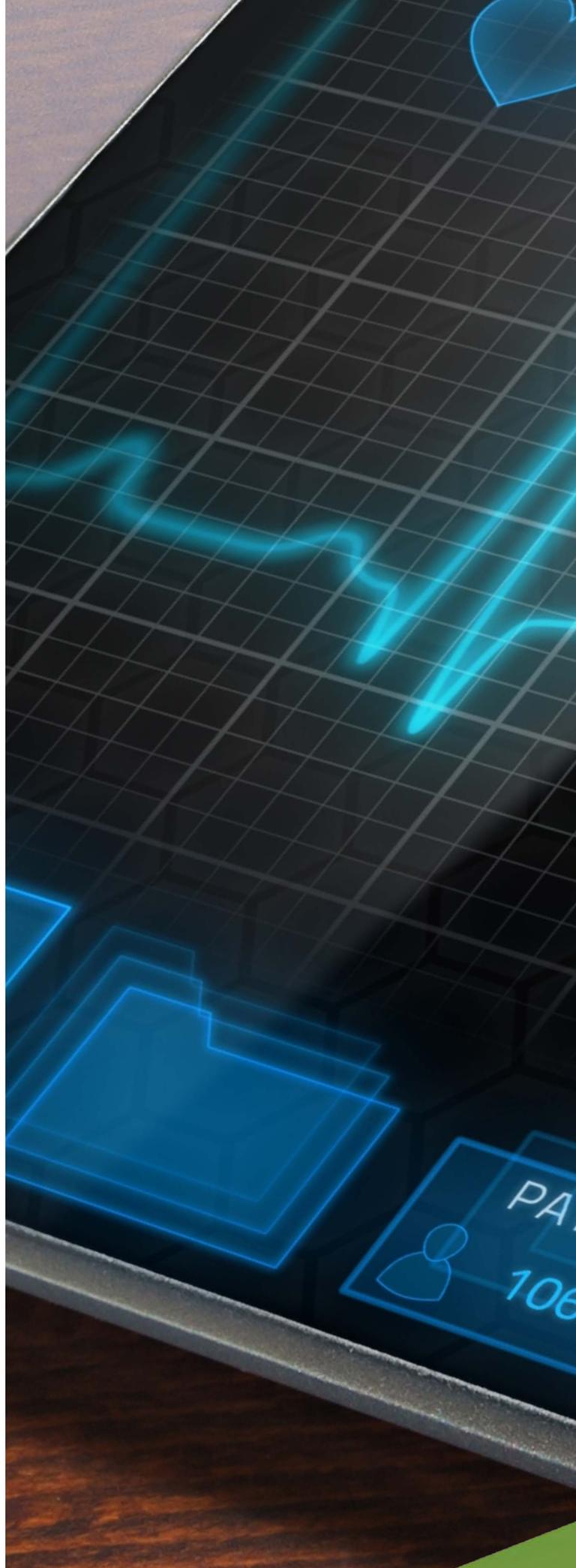
It has been developed in close consultation with consumers, staff, industry and the broader health ecosystem.

It sets out clear goals for the future – a future where the patient is engaged in their own healthcare, clinicians can access patient information and knowledge that enhances their clinical practice, and the health system is integrated and high performing, delivering on the *Advancing Health 2026* vision.

This is an important milestone in Queensland's digital health journey to provide Queenslanders with the digitally enabled health system they deserve.

Over the next 10 years we want Queensland Health to be recognised as a leader in health innovation, revolutionising the healthcare experience for our consumers, clinicians and the community.

The Hon. Cameron Dick MP
Minister for Health
Minister for Ambulance Services



Our vision

‘Advancing healthcare for our consumers, clinicians and the community through digital innovation’

PATIENT ID
67 5093 6918



Message from the Director-General

We've started the digital journey at Queensland Health.

We're embarking on an ambitious program of healthcare transformation — harnessing the power of data and technology for improved quality of care, patient safety and productivity.

The patient clinician relationship is changing — enhanced by digital innovation. Technology is now the third person in the room.

Consumers want greater control over their healthcare and clinicians want access to the right information where and when they need it.

Over the next 10 years we will see the health system move from digital ready to digital by default.

To deliver on our plan we need to work closely with stakeholders across the health system and beyond.

From digital hospitals to patient portals and apps — the future of healthcare is exciting.

Michael Walsh
Director-General
Department of Health





1

Introduction

The Digital Health Strategic Vision for Queensland 2026 will set Queensland Health on a journey to become a leader in health innovation, by seeding the digital transformation of healthcare that is inevitable over the next decade.

The vision includes goals for health system stakeholders when planning for a digitally enabled healthcare system.

What is digital health?

Digital health includes the use of information and communication technologies (ICT) for health including treating patients, conducting research, educating the health workforce, tracking diseases and monitoring public health (World Health Organisation, 2016).

Digital disruption refers to changes enabled by emerging technologies that reinvent traditional service offerings and models of care, putting consumers at the centre of service design.

Why is digital health so important?

The advancements of both healthcare and digital technology are driving innovation at an accelerated pace. This has led to the reinvention of healthcare through disruptive technologies and innovation.

A culture of continual improvement and innovation will be underpinned by increased access, sharing and analysis of information from the community, healthcare consumers, researchers, the healthcare system and global sources. This will enable predictive health delivery where the demand is needed most and ultimately personalised medicine and genomics.

For healthcare consumers and the community:

- Increase patient engagement
- Provide safer and faster healthcare services

- Improved access to specialist care
- Provide a co-ordinated and connected health system
- Allow consumers to actively participate in their own healthcare
- Provide support via tools and applications to help consumers make choices about their healthcare pathways and healthy lifestyle choices
- Allow greater control over where, when — and by whom — the required care is provided.

For clinicians:

- Quality healthcare supported by improved clinical decision making
- Increased access to patient health information wherever care is provided.

For the health system:

- Systematic and high quality care
- Continuous improvement
- Rapid translation of research and innovation into system-wide practice.

Who are our partners on this digital journey?

The Digital Health Strategic Vision for Queensland 2026 will be delivered through commitment, collaboration and consultation between healthcare consumers, clinicians, the community, the Department of Health, the Hospital and Health Services, and other system partners including:

- Queensland Clinical Senate
- Australian Digital Health Agency (ADHA)
- Australian eHealth Research Centre (AEHRC)
- Primary Health Networks (PHNs)
- Private sector healthcare partners
- Technology partners and innovators.

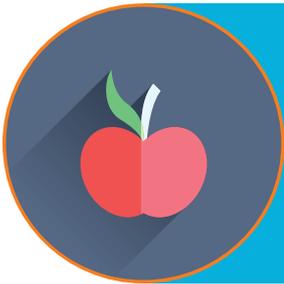


2

The role of digital in our health system

By 2026 Queenslanders will be among the healthiest people in the world.

My health, Queensland's future: Advancing health 2026 was released in 2016 and outlines a vision for healthcare in Queensland, underpinned by four strategic directions:



Promoting wellbeing

Improving the health of Queenslanders, through concerted action to promote healthy behaviours, prevent injury and illness and address the social determinants of health.



Delivering healthcare

The core business of the health system and improving equitable access to quality and safe healthcare in its different forms and settings.



Connecting healthcare

Making the health system work better for consumers, their families and communities by tackling funding, policy and delivery barriers.



Pursuing innovation

Developing and capitalising on evidence and models that work, promoting research and translating it into better practice and care.

Digital technology and innovations are crucial to advancing health.

This vision clearly articulates the role of digital health in supporting the achievement of the 10 year vision for health.

It includes three horizons and eight strategic goals for health system stakeholders to aspire to when considering digital health in their planning.

The goals are linked to outcomes that describe the transitional changes arising as technology and supporting systems move healthcare delivery in line with emerging trends and consumer and community expectations.



3

How healthcare in Queensland will be different

Healthcare consumers

Current experience

- I rely on my health service providers to inform me about my health information.
- Accessing the healthcare services I need is difficult due to distance, travel time and costs.
- I am constantly repeating my personal details and health information to each new clinician I see.



Required transformation

- A complete picture of my health information, accessible outside of hospital. I can choose to share health information with other health service providers. Healthcare information is presented to me, my family and my carers in a way that we understand and is culturally sensitive.
- I receive treatment and care when I need it through access to healthcare services such as telehealth and remote monitoring closer to or in the home. If I need treatment that requires travel, my appointments are coordinated to ensure they occur in the one visit.
- My health service providers work as a coordinated team regardless of setting. With my consent they effectively communicate with each other and share relevant information about me.

Digital future for Queenslanders

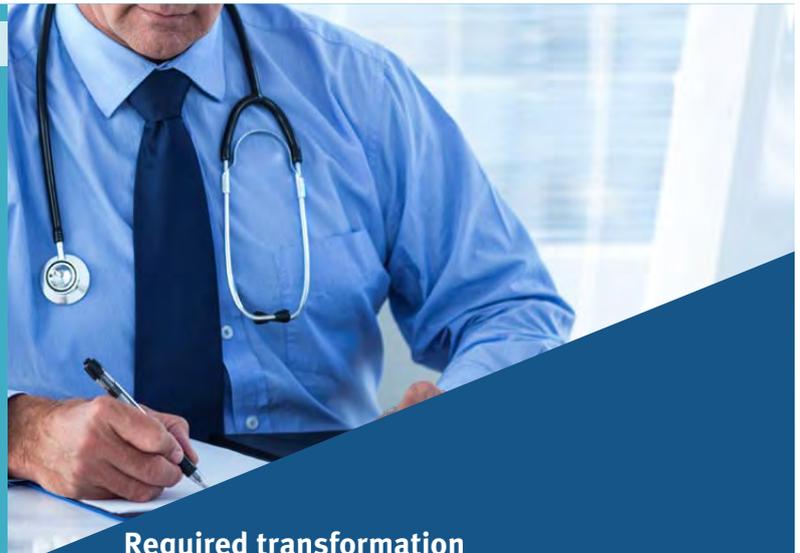
- I am a partner in my own healthcare. I am able to manage my health information, interact with my care team and interact through a single patient portal across all of my health service providers.
- I can access healthcare services including medical specialists from my home or care setting of my choice, even after hours. I can schedule my appointments at times that suit me. Where I live is no longer a barrier to accessing healthcare services.
- More time is spent with my clinicians on treatment and care rather than trying to piece together and verify my personal details and health information.



Our clinicians

Current experience

- I rely on my patient to give me accurate information about the health services they are accessing and outcomes which may affect their treatment plan.
- Difficulty in sharing information outside the hospital inhibits my ability to make informed decisions about my patient's care and to provide advice to colleagues.
- I am isolated from my clinical network and specialist advice when working in rural or remote locations. I rely on passive aids such as online or printed guidelines to support clinical decision making.
- I have to audit paper charts or wait weeks for incomplete data to improve my patient's care.



Required transformation

- Real-time access, wherever and whenever I need it, to relevant patient health information. I have the tools to work collaboratively with other health service providers to provide coordinated patient care.
- Given the appropriate consent, I can reliably and securely share patient information across care settings, including public and private providers.
- Access to real-time information, advice and guidance not only from ICT systems, but also from my clinical network and specialists who use and contribute to real-time information systems.
- All patient data is in the electronic medical record and accessible from a data warehouse using business intelligence tools. I can easily access data to improve the quality and efficiency of patient care.

Digital future for Queenslanders

- I can view information about the care and treatment my patient is receiving. This improves my clinical decision making and reduces delays and unnecessary duplication of tests.
- I can access the information I need when working outside the hospital. I can share my patient's information, given the appropriate consent, with relevant clinicians across the public health system. This enhances the quality of care I deliver and results in better patient outcomes.
- I am empowered by ICT systems to make informed, evidence-based decisions. The risk of errors in diagnosis and medication administration is reduced.
- Predictive analytics and precision medicine are improving patient care.



Our healthcare partners

Current experience

- There are differing levels of technological capability to support health service delivery in metropolitan, rural and remote areas.
- Care is fragmented, leading to inconsistent quality of care across the system.
- Data for system improvement is siloed with inconsistent definitions applied. Auditing paper charts and local databases is a major component of health service improvement.



Required transformation

- All Hospital and Health Services have a base level of capability that meets local needs.
- Information is shared and used across the system to facilitate clinical decision making and drive improvement in the quality of care. System focus is on information exchange and interoperability allowing for innovation across care providers and with industry.
- System improvements founded on evidence from rich, consistent data from various clinical and patient administration systems, integrated from a range of statewide and local data sources.

Digital future for Queenslanders

- All Queenslanders, irrespective of location, have equitable access to healthcare services across public and private care settings.
- Information is shared seamlessly across the system, enabling connected care. System-wide issues are identified quickly through active data analysis based on a Queensland-wide view, enabling more consistent and proactive patient care.
- The system is constantly improving patient care through the intelligent use of data and analysis to deliver a learning healthcare system.



Our staff

Current experience

- Going to work in the hospital, clinic or other support areas is like going back 10 years in time technology wise. I have to work with outdated systems or paper-based processes, which means I am less productive or efficient.
- The pace at which we adopt new technologies is slow. Technology is perceived as simply a tool, rather than something that can transform the way I do my job.



Required transformation

- Access to contemporary tools and systems that help me deliver timely, quality care. I feel more engaged at work than I did three years ago.
- Contemporary desktop tools, technology devices and business solutions that offer increased automation, workflow and workforce mobility.

Digital future for Queenslanders

- I enjoy working with modern devices and applications that support my work, regardless of setting. I can choose my preferred device and level of technological support.
- I am empowered to stay at the forefront of technological developments. I constantly think of ways that digital innovation and technology can streamline processes, increase productivity and improve the overall consumer experience.



4

Delivering health services in Queensland

In Queensland, healthcare consumers and patients are at the centre of an interconnecting network of public and private healthcare services.

The Australian Digital Health Agency leads and provides direction in progressing digital health in Australia. It provides direction at the national level for the Australian digital health ecosystem, enabling all parties, both public and private, to innovate and deliver complementary products and services to leverage the national digital health infrastructure and deliver digital health outcomes.



Australian Government
Australian Digital Health Agency

In Queensland, there are 16 HHSs that are independent statutory bodies responsible for delivering public health services in their local communities.

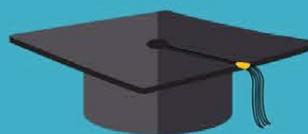


The HHSs and the Department of Health share responsibility for the overall health and wellbeing of Queenslanders with private hospital providers, primary health networks and other specialists.

The emergence of digital health, new clinical practices and accelerated innovation is delivering new opportunities for healthcare providers to partner and collaborate with:



Research organisations



Universities



Technology industry

The patient journey

There are a large number of healthcare services and providers available from public and private hospital based treatment, preventive services in the community, primary healthcare, emergency health services, and rehabilitation and palliative care.



When a person becomes ill often the first contact with the health system is a visit to a general practitioner (GP).

The GP may refer their patient to a specialist or hospital, order diagnostic testing, prescribe medication or pursue other treatment options.



There are services delivered to improve population health such as illness prevention and the promotion and protection of health wellness.



There are also services delivered to individuals with chronic conditions such as rehabilitation and extended care.



(Australian Institute of Health and Welfare, 2016)

The public health system also operates within a network of other government service providers to ensure that the basic needs of Queenslanders and their safety is managed and coordinated. This includes aspects of population health management such as:



Water and food safety



Disaster management



Emergency response



Management of disease outbreaks

5

Health challenges

Both within Australia and internationally there is a changing focus in the healthcare sector towards technology enabled outcomes that can be achieved through digital health.

Digital health is a key enabler for the delivery of better healthcare to achieve improved health outcomes and assist in addressing the health system challenges Queensland is facing.

Globally, health systems are under increasing pressure to improve health access, equity and quality, reduce costs of services, and provide services to the community that ultimately reduce hospitalisation and improve community health outcomes.

A series of trends present significant challenges for the health system in Queensland including:



Diverse and dispersed population

Providing equitable and accessible services across Queensland.



Closing the gap

Improving health outcomes for Aboriginal and Torres Strait Islander people.



Ageing population

Contributing to economic pressure on the health system and associated services.



Growth in healthcare spending

From approximately \$3,200 per person in 2000-01 to approximately \$6,900 per person in 2013-14 (Australian Institute of Health and Welfare, 2016).



Rising obesity relating to increase in disease

Two in three adults and one in four children are measured as overweight or obese.

Social health challenges in Queensland include:



The rise of mental health issues as one of the leading causes of disability and burden of disease both statewide and nationally.



Substance abuse including the use of illicit drugs, prescription medication and alcohol can lead to increases in mental and behavioural disorders as well as injury, disability and hospitalisation rates.



Both a national and state government focus to reduce the level of domestic violence and emotional abuse to ensure that every Queenslander has the right to feel safe, and be safe, especially in their own home.



6

Considerations

for a digital health system

Digital healthcare options open up new possibilities for healthcare accessibility and delivery.

Transformation is required as healthcare service delivery models change from provider-focused models to consumer-centric models. In order to enable this transformation, a number of challenges need to be considered.

Digital readiness



The need to support a 'digital ready' ecosystem and having the appropriate level of underlying infrastructure and executive and clinical leadership is essential in enabling digital transformation. This includes having a base level of connectivity, devices and integration to support the digital footprint of services being delivered.

Engagement



Collaboration, creative thinking and co-design with healthcare consumers, clinicians and communities is vital. In a healthcare consumer-centric system we need to understand how consumers want to access and use health services, information and devices.

Equity



While digital healthcare options open up new possibilities for the ways that healthcare is accessed and delivered, they are not the only considerations. In a consumer-centric healthcare system thought will need to be given to consumer preferences as to how they want to access and receive healthcare services.

Service redesign



The health system must also be prepared to redesign the way it delivers services rather than simply apply digital technology to existing practices.

Balancing technological advancement with innovation



Rapid innovation, accompanied by constant technological advancements, will require a bimodal approach to the management of ICT – one function that renews the core ICT platforms and another that focuses on innovation.

Cyber security and privacy



Increased access to and sharing of information by healthcare consumers, clinicians and researchers will also require new approaches and policies relating to how information and data is governed, accessed, used, secured and managed. A continued focus on cyber security and regulation will ensure the security and privacy of personal healthcare information.

Funding and regulation



As the integration of healthcare increases, changes to the way the healthcare system is regulated and funded will also be required. This includes models for how some HHSs are funded for the ongoing support of digital systems and infrastructure.

Digital literacy



Behavioural, cultural and socioeconomic factors have the ability to both inhibit or accelerate the use of digital technology and therefore overall digital literacy. The shift in the health consumer's role is driving greater awareness of personal wellbeing, promoting ownership over personal health and shared decision making. This will require improvements to the overall health literacy across the system, including the sharing of clinical information in a way that is easily understood by healthcare consumers.

Change management and training



As the adoption of digital technology increases, additional technical support and improved digital literacy will be required across the workforce.

7

Our eight principles of digital health disruption

All digital health initiatives in Queensland will be underpinned by principles. These principles reflect the desire to transform healthcare through increased health consumer participation and empowerment, innovation, research and agility. The aim is that new and disruptive technologies can be embraced and embedded quickly across the health system in a managed and sustainable way.



Co-designed healthcare

A culture of design thinking where consumers, clinicians and the community are always at the centre of the evolving health system.



Empowered workforce

Contemporary tools and streamlined workflows support an empowered workforce.



Innovation focused

Build the foundations for change to capitalise on opportunities and remove barriers to innovation.



Collaboration

Build strong and meaningful partnerships with stakeholders across the health system to realise digital solutions and innovation opportunities.



Empowered healthcare consumers

Shift to as-a-service provisioning using digital solutions where appropriate to enable greater consumer participation in the provision and support of healthcare.



Research into action

Improve system and patient outcomes as a result of focused research.



Effective governance

Lean, agile and fit for purpose governance and funding models, which provide certainty in the investment pipeline.



Sustainability

Approaches and solutions will be selected based on the ongoing sustainability of digital solutions in terms of cost, risk, impacts on the workforce and ongoing support.

8

Ten year vision

for digital health in Queensland

The vision for advancing healthcare through disruptive innovation will be implemented across three horizons. The horizons are not linear and will overlap, recognising that different stakeholders will be at different points along the digital journey. They will not all be on the same pathway at the same time.

The horizons provide a guide for stakeholders to align their own strategies and plans. They provide broad objectives for staging digital transformation within an organisation and across the system.

Horizon 1 (within three years)

Building

consistent and sustainable capability

The focus of the first horizon is on continually improving and seeding the necessary capability to support innovation and a digital future. This includes a focus on investing in systems, infrastructure, and enabling tools as well as establishing the frameworks, standards and governance required to support greater sharing and linkage of trusted information. This horizon will focus on understanding how technology can disrupt or facilitate healthcare and capitalise on immediate opportunities to build momentum.

Horizon 2 (within five years)

Optimising

integrating, growing and expanding digital health and digital workforce capabilities

The second horizon will build on the foundations and apply the technology required to integrate, optimise, grow and expand digital health and digital workforce capabilities. This focus will shift capabilities to the creation of the next generation of digital health solutions including integrated technologies, devices and workflows and the integration of big data to enhance decision support, health system planning and performance reporting.

Horizon 3 (within 10 years)

Transforming

scaled digital health

The focus of the third horizon is on scaled digital transformation across the health system. It will enable new and alternative models of healthcare, delivering treatment outcomes that are beyond the current realms of possibility. It promotes taking full advantage of technology and building capability to change the way that patients access care, where that care is provided, and the manner in which care is centred on patients.

All stakeholders in the health ecosystem will play a role in the digital transformation of healthcare in Queensland. While some system-wide capability will be delivered through the targeted investment outlined in the *eHealth Investment Strategy*, other localised investment will be required by our HHSs and healthcare partners.

The vision will play a key role toward lifting digital capability across the system so that all Queenslanders have access to similar services and similar standards of care.

9

Our strategic goals

Strategic goals provide a target for the health system stakeholders to aspire to when considering their digital health initiatives and investments over the next three to 10 years. These goals will enable a digital health system that will deliver on the vision of *My health, Queensland's future: Advancing health 2026* as well as achieving the desired digital health outcomes.

The digital health goals have been aligned to specific measures in the *Advancing health* vision. These goals provide the foundations for lifting overall digital health capability across the health system in Queensland.

Our eight goals for digital health disruption



Promoting wellbeing



1. Greater patient engagement through patient involvement and self-managed devices and applications.



3. More productive and targeted care using real-time patient monitoring, analytics and genomics.



2. Healthier and safer communities by harnessing information about people and their communities to inform planning, improved emergency response, wellness campaigns, population health policy and population health considerations such as water, nutrition and food safety.



Delivering healthcare



4. More systematic, high quality and safer care through optimised workflows, information decision support and knowledge management.



5. Improved resource management through streamlined workflows and the ability to match demand with capacity.



Connecting healthcare



6. Better coordinated care through increased collaboration, digitally enabled care pathways across care settings and the secure sharing of information.



7. Improved access to expert knowledge more easily, anywhere and in real-time, enabled by technology.



Pursuing innovation



8. Continuous system improvement and learning with a combination of analytics, science, digital innovation, organisational development and a learning culture (Nuffield Trust, 2016).



10

Outcomes

of a digital health system

<p>Direction</p>	 <p>Promoting wellbeing</p>		
<p>Digital goals</p>	 <p>Goal 1: Greater patient engagement</p>	 <p>Goal 2: Healthier and safer communities</p>	 <p>Goal 3: More productive and targeted care</p>
<p>Horizon 1 three year outcomes</p>	<ul style="list-style-type: none"> Healthcare consumers have access to Queensland Health endorsed digital tools and information to help make healthy choices. Information can be shared by all people and relevant organisations to ensure healthy and safe communities. Healthcare consumers are proactively engaged in co-designing digital solutions that allow them to be a partner in their healthcare. 		
<p>Horizon 2 five year outcomes</p>	<ul style="list-style-type: none"> Healthcare consumers are partners in their own healthcare enabled by tools and personal information tailored to their health needs. People and organisations are better connected to analyse information, plan and respond to population health issues. 		
<p>Horizon 3 10 year outcomes</p>	<ul style="list-style-type: none"> Improvement in health indicators is driven through health consumer access to digital tools and information tailored to their health needs. People, organisations, information and services required to ensure healthy and safe communities are seamlessly connected. 		



Delivering healthcare

Direction



Goal 4:

More systematic, high quality and safer care



Goal 5:

Improved resource management

Digital goals

- The workforce is able to embrace technology changes to provide better and safer healthcare services.
- Infrastructure and business systems are in place to enable contemporary healthcare.
- More patients can receive timely hospital and specialist care closer to home.
- Healthcare practices are transforming through the smart use of clinical information systems at the point of care.

Horizon 1
three year outcomes

- Infrastructure and operational business systems are optimised for efficiency, automation and accessibility.
- The scope and reach of telehealth is expanded (e.g. aged care, outpatients, in the home, rural and remote areas and Aboriginal and Torres Strait Islander communities).

Horizon 2
five year outcomes

- Telehealth enables patient care regardless of care setting.
- Innovative technology is changing the way clinicians work, delivering continuous improvement in quality and efficiency of healthcare services to patients.

Horizon 3
10 year outcomes

Direction	 Connecting healthcare	
Digital goals	 <p>Goal 6: Better coordinated care</p>	 <p>Goal 7: Improved access to expert knowledge</p>
Horizon 1 three year outcomes	<ul style="list-style-type: none"> • A patient’s care team will have real-time digital access to the patient’s health information wherever care is provided. • The care of patients can be coordinated and delivered in collaboration with the patient regardless of setting, as demonstrated by small scale pilots. • Information can be shared across Queensland Health sites and with key partners to improve system efficiency and patient safety. • Digital health is enabling new models of care, co-designed with appropriate stakeholders. 	
Horizon 2 five year outcomes	<ul style="list-style-type: none"> • Our first responders and emergency clinicians are able to share information in real-time. • Proven digitally enabled integrated care models are scaled across the system. • An information rich integrated view of the patient record is available across settings. • Interoperable information is available to deliver better healthcare outcomes. 	
Horizon 3 10 year outcomes	<ul style="list-style-type: none"> • Clinicians have access to an integrated view of the patient’s information, can interact with the patient’s care team and transact with the health system through portals. • A health system that works seamlessly and provides integrated care to patients. 	



Pursuing innovation

Direction



Goal 8: Continuous system improvement and learning

Digital
goals

- Research investment is targeted at developing an evidence base for digitally enabled service and system transformation.
- Research is enabled by more rapid access to and increased scope of Queensland Health data sets.
- The foundations to seed, support and scale innovation in healthcare are delivering better system and patient outcomes.
- Connected data is key to driving better targeted, more efficient, higher quality healthcare.
- Improve scope and quality of open data to provide greater insights and innovation opportunities.

Horizon 1
three year outcomes

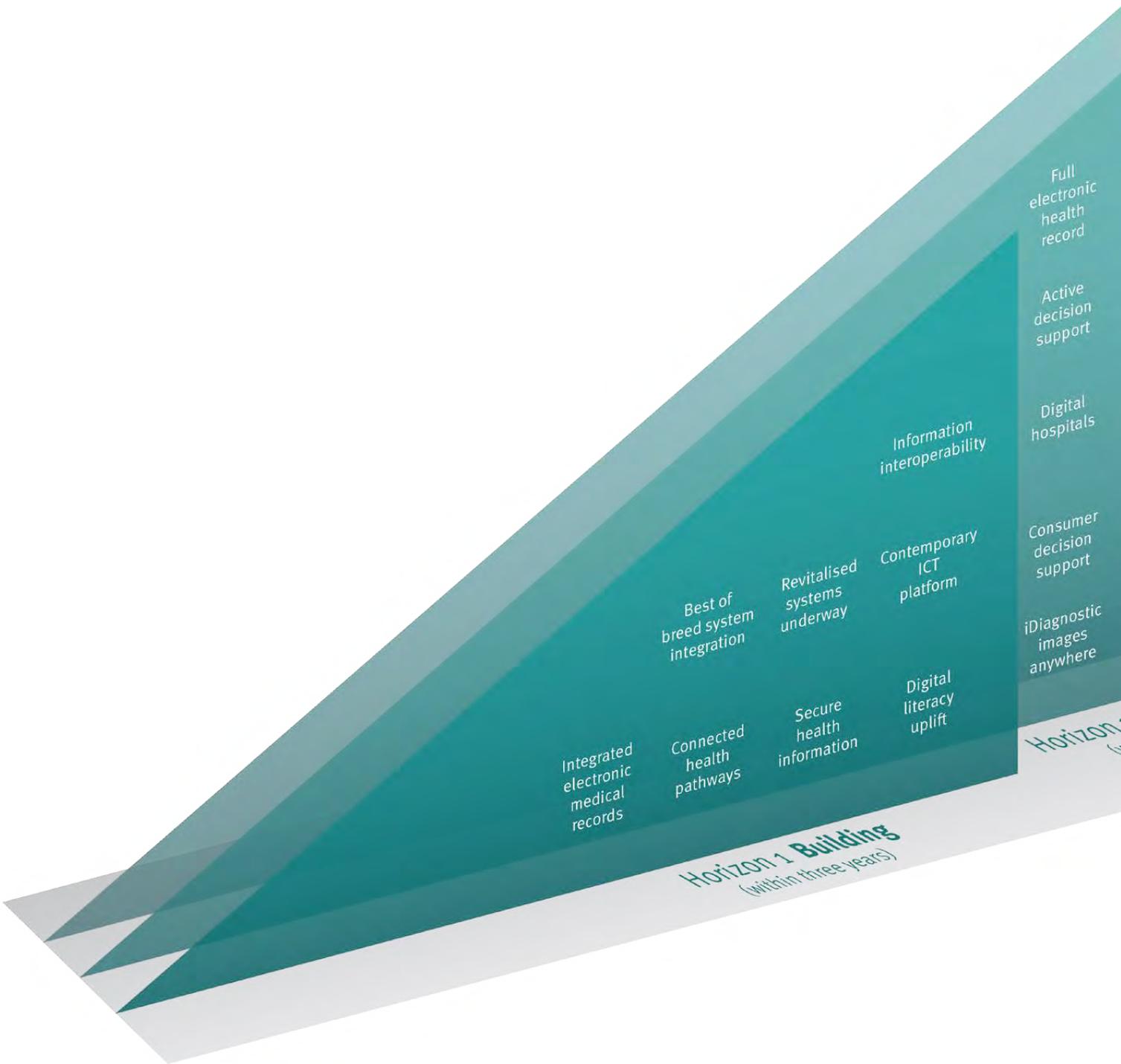
- Research outcomes align to a strategic patient-centric vision for digital enablement and research organisations are partners in achieving this vision.
- Innovation is scaled across the Queensland Health system and other jurisdictions to deliver better healthcare outcomes.
- Information is the foundation for system-wide insight, and improvement and integration of patient and population generated information.
- Healthcare open data is a key tool in supporting innovation and improved healthcare outcomes.

Horizon 2
five year outcomes

- Queensland is leading the country in research leveraging digital solutions and developing best practice.
- Information is transforming the way we deliver healthcare – from reactive, to proactive, to predictive healthcare.

Horizon 3
10 year outcomes

Digital health transformation





Enhanced research
and performance

Portable
diagnostics

Optimised
patient record
and care
planning

Digital
therapies

Advanced
analytics

Personalised
healthcare

Wearables
integration

Standardised
clinical
terminology
and health
informatics

Enhanced
business
intelligence

Personalised
mobile access
to health
information

Access to
Telehealth

Horizon 3 Transforming
(within 10 years)

2 Optimising
(within five years)

11

Strategic opportunities in a digital world



Promoting wellbeing

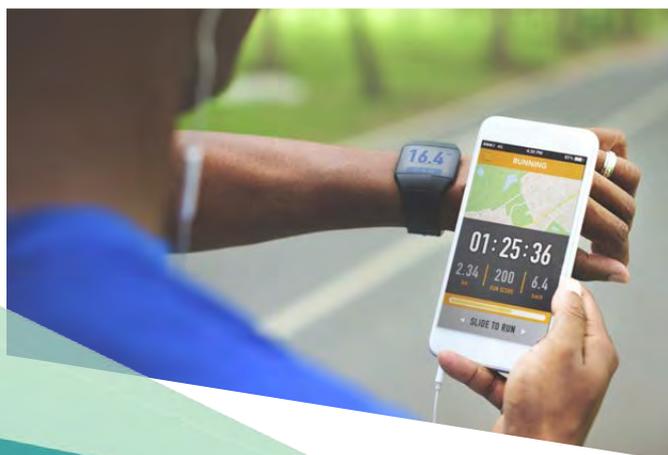


Goal 1: Greater patient engagement

Health-related websites, apps, tools and wearable technology

Increased use of a rich variety of health-related websites, internet-based portals, mobile applications (apps) and wearable technology is opening up extensive personal health management possibilities. Today, a wristband can collect data on heartbeat, temperature and a number of other environmental factors. Wireless heart-monitoring patches, smart shirts and sensors in accessories promise more accuracy and comfort to wearers.

People will have a choice of endorsed health and wellness applications and tools. This includes patient aids to assist individuals and their healthcare providers to make decisions about a condition, treatment and disease prevention. It also includes connecting people to like minded communities locally, statewide, nationally and globally.



Gamification and incentives

The use of real-time analytics, wearable devices, mobile applications and other tools will allow healthcare consumers to continuously monitor their health. Wellbeing is improved by helping people to track physical activity, share personal health and fitness data, adhere to care management plans and even self-diagnose and make lifestyle decisions, based on evidence about their current condition and pre-disposition to illness.

Gamification provides the opportunity to further enhance personal wellness outcomes and increase participation by individuals in their own healthcare. Gamification is triggering behavioural changes in people by motivating, rewarding and incentivising people to follow the steps necessary to achieve their own health goals.



Goal 2: Healthier and safer communities

Internet of Things

As the Internet of Things grows, so will the network of sensors on the body, around the body, in the home, in facilities and wherever people move in their lifestyles. Information is increasingly more fluid. Translating and using that information in a way that will improve the health of individuals will be challenging. There is an ever increasing trend to rapidly capture, access and use all of the information available about a health consumer (Gartner, 2016).

Big data is high volume, highly variable information about people and the environment. It requires complex and innovative analytics to derive value. In healthcare

the objective of big data is to know as much about individuals and communities as possible, as early as possible. Big data can be used to predict epidemics, improve the overall quality of life and address the burden of disease and preventable deaths.

At a personal level, people can monitor their wellbeing, upload their data and compare themselves with other people with similar conditions or in their community. When combined with information from health providers, personalised care planning is improved.

Individual and environmental data, from a large array of sources and organisations, can highlight specific threats, issues and patterns in behaviours, enabling sophisticated predictive modelling. This improves targeted management and preventative programs for individuals, whole communities, segments within a community or particular areas of burden of disease.

Big data encompasses information about social behaviours, purchasing behaviours, data from health providers, pharmaceuticals, unstructured clinical information and research. It has the potential to empower both healthcare consumers and the health system to drive improved health outcomes.



Smarter policy, regulation and response

The use of limited datasets is no longer adequate. Open data and big data are core to sustainable, well planned and well executed community wellness initiatives. The availability of large amounts of historical data, real-time streaming of information from many sources, the Internet of Things and advanced analytics will transform how policy and regulation is formulated, how programs are administered, how responses are planned and executed and whether the required outcomes are being achieved.



Goal 3: More productive and targeted care

Genomic and precision medicine

The mapping of the human genome and ability to undertake individual gene sequencing allows the practice of medicine to become more personalised. As the cost of genomic sequencing decreases, its use will increase to:

- assist in the test screening and diagnosis of disease
- tailor treatments to individual patients
- enable increased research into genome-wide association studies resulting in more effective treatments and practices.

The genomic era will feature simultaneous innovations in genome therapies. These therapies will operate across the spectrum of prevention, intervention and monitoring. These digital healthcare technologies will shift the focus of healthcare from responsive to preventative medicine.

Profiles on genomic and precision medicine and the related use of smart machines collectively emphasise the need to respond with a digital environment that permits real-time data and decision support exchanges. The electronic innovations will be mobile, networked to the internet, powered by the cloud, and linked to extensive information, sensor data and social context sources.

Digital therapeutics

Digital therapeutics will enable care activities such as cognitive behaviour therapy to be delivered through personal devices such as phones and laptops. These will become part of the increasing suite of health applications and treatment options available to healthcare consumers outside of formal care settings and appointments.



Delivering healthcare



Goal 4: More systematic, high quality and safer care

Telehealth (including in the home)

Telehealth is already widely accepted, connecting rural and remote communities with health practitioners. Practitioners can also connect, share and discuss clinical practices and treatments.

Telehealth reduces the need for face-to-face visits and opportunities exist to increase the scope and reach of telehealth services to include aged care and hospital in the home.

For patients this means less travel time as well as increased access to specialist healthcare services regardless of location.



Electronic medical records and digital hospitals

Queensland Health has already embarked on a program of implementation for integrated electronic Medical Records (ieMR) which has delivered a 'paper-light' healthcare system in a number of facilities.

Transitioning from paper to electronic patient clinical records will improve the ability to quickly locate relevant information and support clinical decision making at the point of care.

Facilities with high occasions of service and high complexity will benefit further from leveraged investment in ieMR and other systems resulting in digital hospitals.

Our digital hospitals offer enhanced capabilities and integration including:

- increased electronic clinical documents
- improved referrals and scheduling
- emergency, cardiac, maternity and surgical application components
- integrated decision support capability.

The Commonwealth's My Health Record is Australia's national shared electronic health record system. Over time the amount of clinical information in the My Health Record from other systems across the healthcare system in Queensland will increase.

Improved decision support and diagnostics

The productivity of the clinical workforce will increase as staff are supported by better decision support systems, workflow and diagnostics at the point of care.

Decision support systems provide clinicians with the tools, knowledge and necessary patient information required to enhance clinical decision making and workflows.

These tools include alerts and reminders, medication histories and knowledge networks that complement other clinical applications such as electronic medical records, medical imaging and pathology systems. They provide a comprehensive knowledge base to support clinical decision making and treatment.

Enterprise scheduling across systems will enable clinical decision support and workflow automation.

Information sharing and interoperability

In order to meet greater information sharing requirements, Queensland Health will need a scalable, information sharing capability that is open-standards based, reliable, flexible and allows interoperability between new and existing systems. An information interoperability platform will enable information sharing to be leveraged in a more efficient, flexible and agile manner that will help to reduce costs, improve the quality of patient care, and support technical, corporate and clinical innovation.

Patient Master Index

Queensland Health's ability to effectively identify the patient is also a key enabler for delivering services. As many systems require patient information, a single, reliable patient directory is required. A simplified health system-wide patient master index is required to manage the identity of a patient across multiple systems and care settings and eliminate duplication of records and services.

A patient master index will be the single source of truth, against which any patient record is managed.

3D printing

3D printing is already becoming a critical tool in surgical procedures that require customised prosthetic and implant devices, including synthetic organs (Gartner, 2015).



Goal 5: Improved resource management

Mobility of the healthcare workforce

Wireless networks and Bring Your Own Device (BYOD) initiatives are already improving the mobility of clinicians. These networks will be pivotal in the design of new facilities, including Wi-Fi for patients and staff.

Single and rapid access sign on to systems will improve the ease of signing onto disparate systems using a single integrated identity management solution. Profiling of users will speed up access processes and provide greater control and monitoring of access to systems and information.

Internet based portals for clinicians will provide a mobile workbench where they will have access to a customised and seamless view of all of the systems necessary to support treatment and clinical workflow.

The Viewer is a read-only, web-based application that provides a seamless view of key patient information from a number of existing Queensland Health clinical and administrative systems.

The Viewer supports improved patient care through easier access to patient information at the point of care.

Over time access to The Viewer will increase to include first response teams, healthcare partners and general practitioners, and will add additional data as more digital sources of information become available.

ICT communications networks will need to support access to data, voice and video services from both fixed and mobile devices. Unified communication must be supported on these devices to ensure support for real-time, secure communication, especially between clinicians.

Clinical systems used at the point of care will also need to integrate with the My Health Record. This will support seamless access to the My Health Record by clinicians to view relevant patient information held or linked within the system.

Smart systems and integration

Efficient health organisations require systems, data and analytics to target the use of resources and drive increased cost efficiency. Deploying resources based on priority areas of need, effective supply chains and streamlined procurement processes ensures that resources and clinical skills are accurately deployed to meet patient demands.

Implementation of enhanced financial and resource management systems will provide Queensland Health with the ability to better access, control, manage and report on financial data, leading to improved decision making.

Pathology solutions are core enablers of the clinical workflow. A renewed pathology system that will provide a single point of access to pathology data, including cumulative data will avoid unnecessary testing and ensure clinicians have comprehensive and timely access to diagnostic data.

Pharmacy systems will also support improved patient safety through electronic prescribing of medications through to the tracking of dispensing and the correct administering of medications to patients. This will include the integration of electronic medication records with the electronic medical record for the patient as well as the My Health Record.

Queensland Health is also committed to revitalising its patient administration systems. The program will include the capability to:

- provide comprehensive, up-to-date and accurate patient administration records across the patient journey
- work in an integrated way with specialised scheduling systems, clinical information systems and clinical support systems
- enable a patient or their carers to actively participate in and control their care
- support contemporary models of care and care delivery including more connected, integrated care
- reduce duplication and allow limited resources to focus on frontline delivery without compromising the quality of patient care
- support more accurate costing of activity and billing for improved work practices and increased revenue protection.

These systems will combine with other technologies that can manage and track patients, human resources and other assets.

Integration of specialist and best of breed systems will present a more complete electronic medical record of the patient, streamlining workflows and enhancing clinical decision support.

Our operational workforce will be supported by contemporary systems and technologies that streamline executive and operational processes and workflows.

Real-time health systems

Present day medical practices and electronic health systems generate information which can be rapidly disseminated.

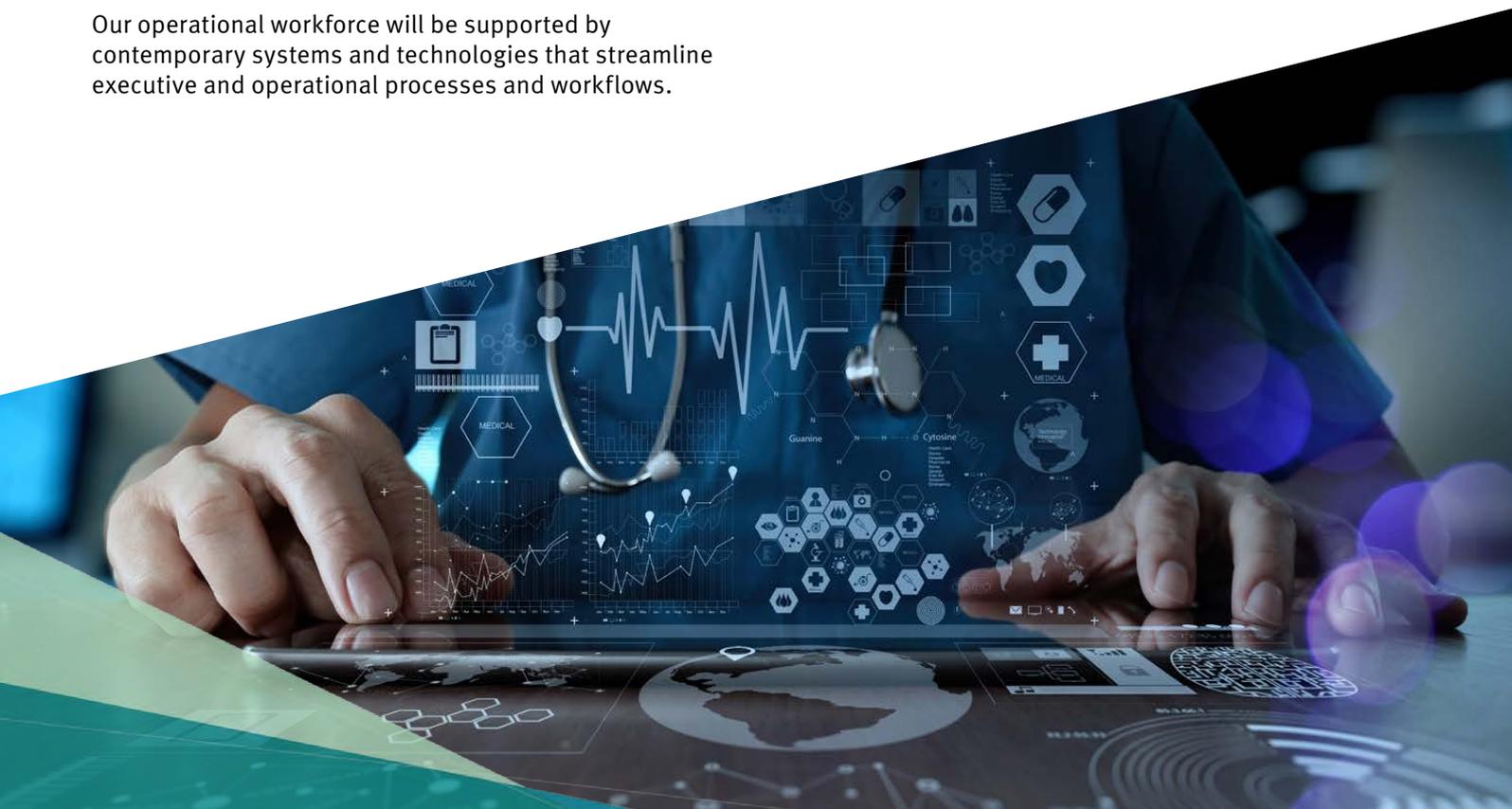
Real-time health systems rapidly access and use situational and operational intelligence to determine the need for intervention, eliminate waste and latency, improve workflows and business processes, and balance resources with demand to improve care quality as well as open up new possibilities for alternative models of care.

This will transform healthcare providers from reactive and disconnected to more predictive and collaborative.

Automation

Machines are also becoming more connected, sensing their surroundings, streamlining workflows, supplementing human effort and reducing the cost of operations.

Healthcare consumers are also increasingly more comfortable in allowing machines to perform activities formerly reserved for practitioners (Gartner, 2016).





Connecting healthcare

Connecting healthcare involves multi-disciplinary teams working together with the patient, communicating and easily exchanging information to deliver consistent, safer and quality care.

The health system in Queensland is already a leader in adopting the national digital health infrastructure and specifications, and has progressed a number of initiatives to facilitate information sharing and establish the foundations for an interoperable health system including:

- My Health Record
- Healthcare Identifiers
- National Authentication Service for Healthcare
- National Health Service Directory
- Clinical Terminology Service.



Goal 6: Better coordinated care

My Health Record

As the amount of clinical information in the My Health Record increases, the reliance by clinicians and patients on the record, as a richer source of patient related information will also increase.

The increased use of internet based portals will provide healthcare consumers with the capability to access their healthcare information including their own medical record.

Electronic care plans

As the use of electronic medical records increases, there will be a natural progression to electronic care plans. These plans will provide the ability for patients to better manage their condition through a coordinated, holistic approach to managing their care that has been designed in collaboration with all participants involved in the care and wellbeing of the patient.

This can include the management of existing conditions as well as general wellbeing and preventative measures for healthcare consumers considered to be at risk.

Electronic health records for primary and community care settings

Electronic health records for primary and community care settings will enable the exchange of information with other facilities, service providers and across the health system.

Primary and community care systems will ensure responsive and seamlessly connected health services and promote improved partnerships across many public, private and not-for-profit providers in the primary, community and acute care settings.

Diagnostic images anywhere

The use of diagnostic imaging is an essential component of the practice of medicine. It is therefore essential that clinicians can securely share medical images across care settings, including single points of access to images and diagnostic reports at the point of care.

The safe and secure exchange of digital information provides opportunities to leverage a broader spectrum of health services and provide opportunities to share learnings and solutions with healthcare partners.



Goal 7: Improved access to expert knowledge

Electronic referrals and scheduling

Electronic referrals (eReferrals) and scheduling will assist clinicians in managing the transfer of patients and the integrated scheduling of appointments across the health system.

eReferrals will also reduce the reliance on paper based referrals, improving the quality of care and providing instant access to the complete and relevant information required by treating clinicians.

Scheduling of appointments by the patient and access to patient centric information about their condition, treatment and preventive health measures will also be possible.

Patients will benefit by having a longitudinal view of healthcare services they are receiving, as well as having the ability to make changes to their schedule through portals.

Electronic clinical handover

Connecting healthcare through the sharing of digital records will include the secure sharing and transmission of care documents such as electronic specialist letters, emergency summaries and discharge summaries to relevant participants in the continuum of care for the patient.



Pursuing innovation



Goal 8: Continuous system improvement and learning

System-wide innovation strategy

Innovation is the key to value for money and agility across the health system in adopting new digital systems and technologies. Start-ups and seeding of innovation will improve the health system's ability to respond quickly to new healthcare practices and technology. This includes scaling innovation for system-wide value and benefits.

This will require new strategies around the engagement and brokering of relationships with researchers and innovators to enable innovation to happen where the service is delivered.

Enhanced business intelligence and analytics

Contemporary business intelligence solutions, combined with data stores of health and patient information from multiple sources, will enable the capture and analysis of accurate patient, community and healthcare service information.

This will enable the use of big data and analytics, to improve research outcomes and translate research into improved policy, standards and practice.

Enhanced clinical and operational performance analytics and reporting will also be possible to identify variability in practices between care settings as well as changes to

Remote monitoring of biometric data

Remote patient monitoring allows patient biometric information to be gathered at home. When combined with other information from the electronic health record, tailored pathways for managing chronic conditions and patient specific care plans can be developed. Remote monitoring is a viable alternative to presenting at a facility for patients in remote settings and in aged care facilities.

quality, safety and performance over time. This will drive improvements in clinical practice, workforce efficiency and resource utilisation.

Research and performance portals will leverage integrated business intelligence platforms to provide for clinical and financial performance data across the Queensland healthcare system.

Activity and resource metrics will be integrated, as well as dashboards for clinical safety and quality indicators.



Clinical terminology services

Clinical terminology services refers to the provision of tools and functions that support the codification of diagnostic and treatment data. They allow data to be consistently consumed, shared and compared.

In order to support the discovery, mapping and recording of data and the integration and use of standard clinical terminologies in clinical practice, further research and planning needs to occur.



Clinical data repositories

The ability to codify healthcare data is also pivotal to create the required knowledge hubs and health informatics platforms. These platforms will include Clinical Data Repositories (CDR) containing patient centric health data from multiple systems.

These enterprise-wide clinical and activity data stores will provide the basis for research and performance portals as well as the active exchange of information.

The data stores will also support a range of activities including:

- population health planning
- analysis of clinical outcomes to improve clinical care paths
- clinical research
- system performance analysis and reporting.

A learning healthcare system

A learning healthcare system is a system in which science, informatics, incentives and culture are aligned for continuous improvement and innovation, and are seamlessly embedded in the health service delivery.

Evidence-based healthcare will be moved to the bedside in a manner that is meaningful and efficient.

Service improvements include increased accuracy of diagnosis and appropriateness of treatment, reduced variation in practice and increased quality of healthcare across settings.

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Where to from here?

This vision outlines system-wide goals for a digital health system in Queensland. It establishes a foundation for further, more detailed strategies for digital health to support the *Advancing health 2026* vision and the focus areas of promoting wellbeing, delivering healthcare, connecting healthcare and pursuing innovation.

The *Digital Health Strategic Vision for Queensland 2026* will be reviewed annually through a 'digital health check' to monitor progress against the eight strategic goals.



The strategic landscape for digital health in Queensland

2017

 Digital plan for:
Pursuing innovation

Strategies for a learning health system through research as well as seeding and scaling innovation for system-wide benefits

 Digital plan for:
Connecting healthcare

System-wide strategies for connecting healthcare with information technology

 Digital plan for:
Delivering healthcare

System-wide strategies for a real time health system driven by information and smart systems

 Digital plan for:
Promoting wellbeing

System-wide strategies for healthier people and communities through disruptive innovation

Digital Readiness
Strategy

System-wide strategies to support digital-ready infrastructure, executive and clinical leadership

Information Management
Strategy

System-wide strategies for how information will be governed, accessed, used and managed

Digital Health for
Queensland's Rural and Remote Communities

System-wide strategies for digital healthcare in rural and remote communities

Digital Health Strategic Vision for Queensland 2026



System-wide goals for advancing healthcare through digital innovation

2016

eHealth Investment
Strategy



The eHealth Architecture Vision and the eHealth Investment Strategy outlined the vision for eHealth capability and system-wide eHealth investment priorities for Queensland Health

eHealth Architecture
Vision

2015

An annual supplement will provide an update on planned investments, informed by individual investment plans.

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Glossary

AEHRC	Australian eHealth Research Centre
AIHW	Australian Institute of Health and Welfare
Care team	A team of health professionals such as general practitioners, specialists, nurses and allied health workers providing care to a patient
Consumers	Patients, patients' carers, patients' families and the broader community
CSIRO	Commonwealth Scientific and Industrial Research Organisation
Customer	An individual or entity (such as Hospital and Health Services and divisions within the Department of Health) who receive services from eHealth Queensland
eHR	electronic Health Record
eHealth	eHealth is the use of Information and Communication Technologies (ICT) for health (World Health Organisation (WHO), 2016)
EMPI	Enterprise Master Patient Index
eMR	electronic Medical Record
eReferral	electronic Referral
First responder	A person employed by or volunteering for an emergency service or law enforcement agency and who makes initial contact with a patient, often through responding to an actual or potential life-threatening event or an event that impacts physical or mental health
GP	General practitioner
HHS	Hospital and Health Service
HSQ	Health Support Queensland
IAM	Identity Access Management
ICT	Information, Communication and Technology
ieMR	integrated electronic Medical Record
Integrated care	Care ranging from prevention to treatment, delivered seamlessly by more than one clinician working with each other and in collaboration with the patient to ensure the patient's healthcare needs are met
LIS	Laboratory Information System
PAS	Patient Administration System
Patient	A person receiving healthcare
PHN	Primary Health Network
RFDS	Royal Flying Doctor Service
WHO	World Health Organisation