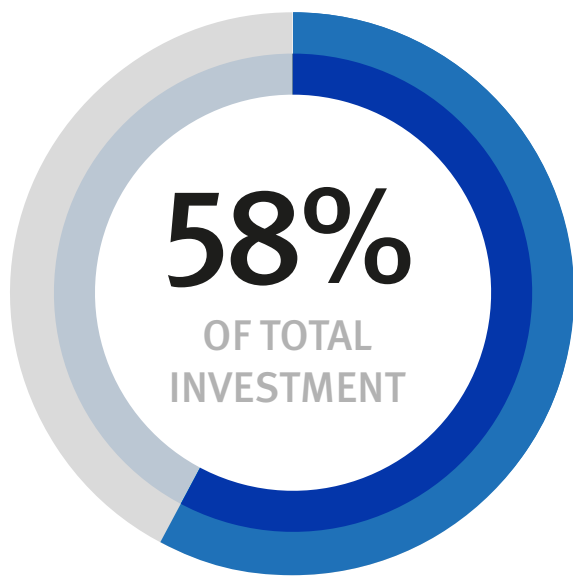


Clinical **systems**

\$730 million



Frontline health service provision is reliant on a number of clinical systems to inform effective service planning and decision making at the point of care. Five distinct areas have been prioritised for ICT investment to ensure quality healthcare outcomes and patient safety, both now and into the future—patient administration system renewal, electronic Medical Record (eMR) and digital hospital enablement, pathology information system renewal, primary and community care capability development, and digital imaging and transmission.

Queensland Health has more than 55 enterprise clinical systems across the ICT portfolio. Historically, investment has centred on ensuring key healthcare systems, such as the patient administration system operate with a high-level of availability.

Queensland Health is systematically reviewing the risk of ageing systems from a technical perspective and the level of functional fit, with changing core systems, and new capability and services introduction. A review of ICT systems has been undertaken with system owners to identify priority investment areas that represent a service delivery risk to Queensland Health and ultimately the patient.

Significant clinical systems components

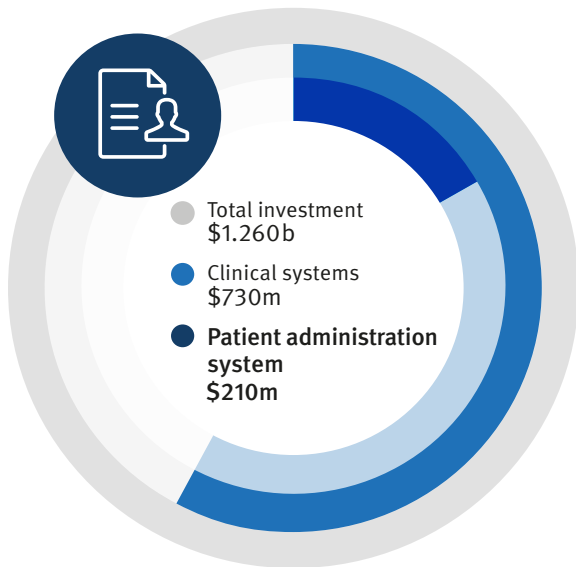
- Patient Administration System
- ieMR or equivalent
- Digital hospitals
- Primary and community care
- Digital imaging and transmission

These systems are widely used across the health system and will be core to the delivery of effective and efficient healthcare. These systems will optimise the investments already made in digital exemplar hospitals and the ieMR. Further investment in more contemporary solutions and ICT services will enable easier integration with other core systems within HHSs.



Patient administration system

Patient administration system



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The current patient administration system has been extensively tailored to meet Queensland Health requirements and can no longer support a modern patient administration system. As healthcare has evolved, the current system has not kept pace with the more modern products with new functions, workflow and business rules. The use of the current system is now at a point where it constrains how a healthcare facility can administer care. Queensland Health intends to renew the current system with a modern patient administration solution that builds on the current clinical and supply chain capabilities to:

- provide a comprehensive, up-to-date and accurate patient administration record across the patient journey
- work seamlessly with specialised scheduling systems, clinical information systems and clinical support systems
- enable a patient to actively participate and control their care
- support new models of care and care delivery
- reduced duplication and allow limited resources to focus on frontline delivery without comprising the quality of patient care
- support more accurate costing of activity and billing for improved work practices and increased revenue protection.



Success will be achieved when HHSs have a contemporary patient administration capability suited to the health service delivery model of the HHS.

Benefits

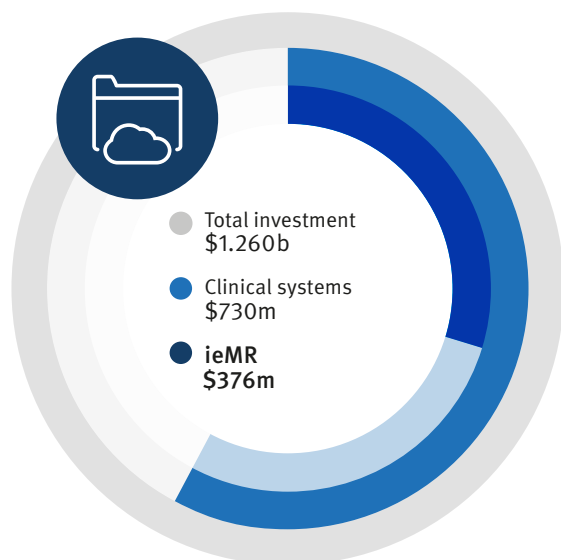
- Reduced patient risk and reduced organisational risk due to legacy systems.
- Reduced ongoing support and system maintenance costs of legacy systems.
- Increased system integration.

'The lack of a common patient administration system means we are working in the dark much of the time. We are dealing with inconsistent and incomplete information in patient files and this has the potential to impact on patient appointments and service delivery. Every day this hampers our ability to support connected care across the HHS.'

Maureen Hessmann

Administration Manager,
Royal Brisbane and Women's Hospital

Investing in an integrated electronic medical record (ieMR) to enable digital hospitals



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ieMR and digital hospital

- ieMR digital release or equivalent.
- Four facilities for rural and remote HHSs.
- 20 facilities with the highest transaction volume across the state.
- Introduction of an electronic medical record to support clinical decision making at the point of care, as well as enhanced biomedical device integration, emergency department solution, mobility, community health, surgery anaesthesia, voice dictation, clinical trials and research.

The increased demand for healthcare requires our HHSs to implement contemporary models of care that ensure patient safety, quality of care, increased staff productivity and health system efficiency. Quality healthcare is directly supported by access to the accurate, complete and longitudinal view of patient health information across the care continuum.

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. Investing in the ieMR has the ability to share clinical information, and reduce patient risk and the cost of healthcare in the long-term by reducing duplication of processes and readmissions.

Queensland Health has already invested the ieMR across nine facilities and seven HHSs in Queensland, delivering capability, including:

- document scanning
- pathology and radiology orders entry and results reporting
- recording of medical alerts and allergies
- tailored patient management solution to support renal, cardiac and maternity related conditions
- structured clinical notes
- problem and diagnosis
- clinical risk assessments
- electronic patient discharge summaries
- integrated scheduling of outpatient appointments
- medications management and inpatient medications dispensing
- biomedical device integration.

Queensland Health has changed its approach to best leverage the investment to date in ieMR and maximise the financial benefits and digital hospitals across the health system by focusing on facilities with high occasions of service and high complexity, particularly those that support an emergency department—40 per cent of all admissions in a hospital are initiated through these departments.

In addition to the existing investment in the ieMR core build, Queensland Health is planning to invest in 21 digital hospitals and four ‘lite’ implementations, including:

- Cairns Hospital
- Townsville Hospital
- Mackay Hospital
- Rockhampton Hospital
- Bundaberg Hospital
- Hervey Bay Hospital
- Sunshine Coast Public University Hospital
- Royal Brisbane and Women’s Hospital
- The Prince Charles Hospital
- Redcliffe Hospital
- Caboolture Hospital
- Princess Alexandra Hospital
- Logan Hospital
- QEII Jubilee Hospital
- Redland Hospital
- Lady Cilento Children’s Hospital
- Toowoomba Hospital
- Ipswich Hospital
- Gold Coast University Hospital
- Robina Hospital
- Carrara Community Health Centre
- Thursday Island Hospital (‘lite’)
- Roma Hospital (‘lite’)
- Longreach Hospital (‘lite’)
- Mount Isa Hospital (‘lite’).

‘We will create a step change, enabling Metro South to deliver more effective and efficient health services through innovative uses of information technologies to support optimised processes and practices in clinical operational and administration functions.’

Richard Ashby

Chief Executive,
Metro South Hospital and Health Service



The additional capability being delivered includes, but is not limited to:

- enhanced biomedical device integration with the ability to connect multiple devices at the bed side
- monitoring of vital statistics and organ dysfunction
- enhanced patient summaries
- complete workflow and documentation solution for critical care teams
- readmission prevention via a hospital readmission risk prediction algorithm
- early detection of patients at risk of developing Deep Vein Thrombosis (DVT) and Venous Thromboembolism (VTE)
- falls prevention and pressure injury prevention
- optimisation of patient flow through the hospital
- workforce management
- automation or supporting practices and processes for cardiac disease management through improved maintenance protocols across the continuum of care.

This investment will enhance delivery of healthcare in Queensland in line with modern standards and worldwide trends in healthcare. The use of innovative technologies and solutions will enable these facilities to optimise processes and practices across clinical, operational and administrative functions.



Digital hospitals are proven to deliver a wide spectrum of benefits in terms of increased patient safety, healthcare quality, early detection and monitoring of possible adverse clinical events, reductions in readmissions, improved patient flow and realisable cost savings.

The long-term strategy for Queensland is a digital HHS. This vision offers a fully integrated healthcare system across care settings enabling our HHSs to work seamlessly together and with healthcare providers and partners across the state.

Success will be achieved when Queensland has an international reputation and is an Australian leader in efficient and quality healthcare delivery across its digital hospitals.

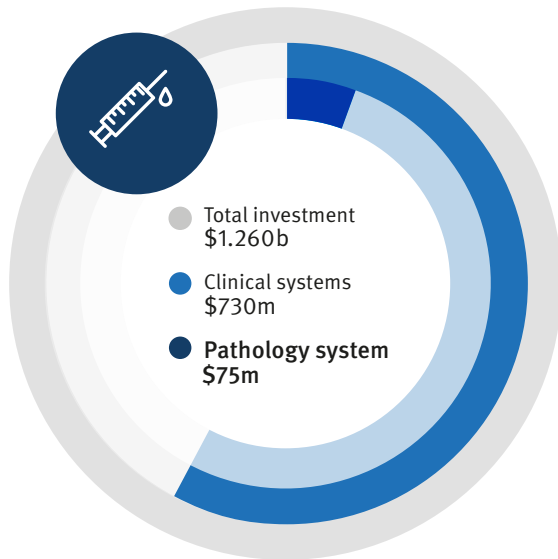
Benefits

- Increased patient safety.
- Reduced inpatient length of stay.
- Reduced pathology and medication order errors.
- Reduced medication errors and adverse medical events.
- Reduced readmission rates.
- Improved access to diagnostic imaging.
- Rationalisation and reduced system maintenance costs of legacy systems.

'Technology is constantly evolving to enable better healthcare across all facets of the consumer healthcare journey. It is vital we adapt our clinical and business practices to leverage the benefits this brings while also recognising the sometimes confronting changes to the way we work. This eHealth Investment Strategy is a great collaborative effort to provide a plan for better healthcare for Queenslanders through targeted investment in the adoption of technology.'

Colin McCririck
Chief Technology Officer,
Queensland Health

Pathology information system renewal



STATEWIDE ACROSS 16 HHSs

Pathology system

- An integrated pathology network to ensure safety and quality service improvements including direct financial benefits.

The pathology information system is the core operating system for the service provision of pathology, forensic and public health laboratory testing services. The system is no longer able to fully meet the current and future needs of laboratory services, in particular Pathology Queensland.

Every day the system processes 52,000 pathology tests, sends over 100,000 messages to at least 14 other clinical systems and sends more than 400 claims to Medicare.

The system stores 17 years of clinical patient data or more than four billion patient tests and results. It delivers 1.2 million pathology results to HHSs per month and sends electronic result information to more than 10,000 private practitioners.

The timing of the pathology information system renewal lends itself to an opportunity to fully integrate with the ieMR and digital hospital initiative. The HHS benefits will be realised through the integration of pathology, medical imaging and medications interactions.

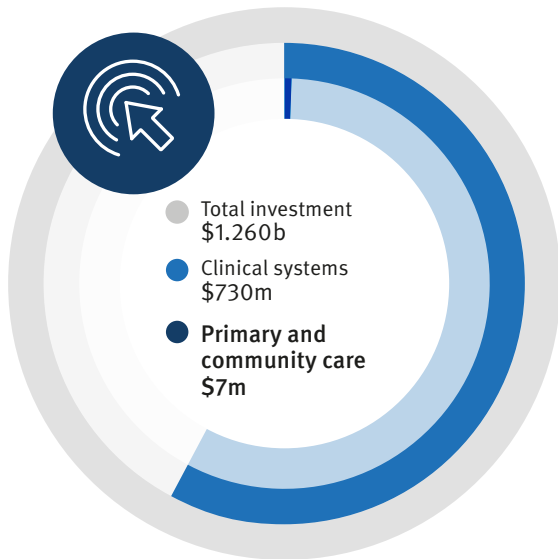


Success will be achieved when we have a contemporary system for testing and managing pathology results which is integrated to optimise the investment in the new generation of clinical systems.

Benefits

- Reduced laboratory system support and maintenance costs.
- Reduced cost in pathology testing.
- Reduced transcription, legibility and omission errors.
- Reduced time to locate and collect pathology samples.
- Improved data integrity and faster patient discharge times.
- Improved decision support for clinicians.

Investing in primary and community care capability



STATEWIDE ACROSS 16 HHSS

Primary and community care

Access to electronic health records from primary and community care sites. This will:

- enable the exchange of information with other facilities, service providers and across the health system
- reduce the needs for paper-based records.

Many community hospitals, multipurpose health services and outpatient clinics have individual business processes and information standards, supported by disparate ICT solutions, with some sites solely reliant on paper-based records to store patient and clinical information.

Current methods and systems of record keeping, information sharing, scheduling and coordination of services result in duplication of effort and fragmented information. This constrains a patient-centred and responsive approach to care delivery. Fragmented information does not support a holistic view of a patient's medical history or the care that

has been received, nor does it support care being delivered remotely, through Telehealth or other similar technologies. Consequently, issues of patient safety and quality escalate as information does not move with the patient throughout the healthcare system, which insufficiently supports appropriate planning.

Investment in primary and community care will ensure the responsive provisioning of seamless, effective and efficient care, connecting services through partnerships across many different (public, private and not-for-profit) providers in the primary, community and acute care settings.



The range of capability delivered through investment in primary and community care settings includes:

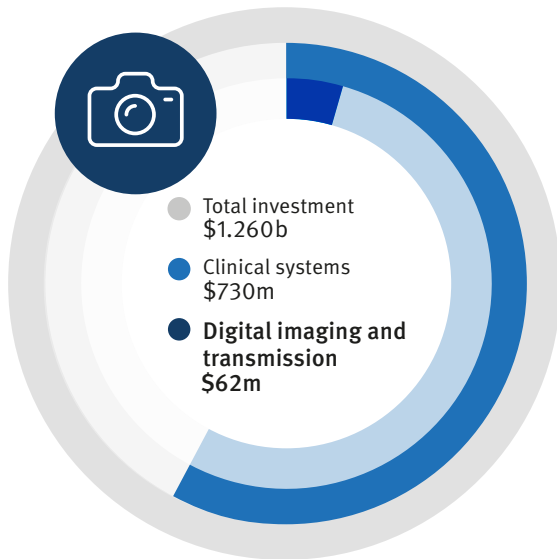
- access to electronic health records from all primary and community care sites reducing the need for paper-based records
- rationalisation of disparate ICT systems into a single solution at multiple sites that will provide opportunities for increased exchange and sharing of information with other health service providers, and improved integration across the public health system in Far North Queensland
- a platform to support more innovative care practices, such as Telehealth and home monitoring across primary and community settings.

Success will be achieved when patient and clinical information can be shared across primary, community and acute care settings, and Queenslanders have increased access to services and information delivery in an online environment.

Benefits

- Timely access to information to facilitate diagnosis and treatment.
- Reduced re-admissions due to improved community integration.
- Reduced duplication in diagnostic images.
- Increased availability of bed days.
- Reduced medication errors and adverse drug events.

Secure and reliable sharing of digital images



STATEWIDE ACROSS 16 HHSS

Digital imaging and transmission

- Investment in the secure exchange of digital images to enable a patient-centric view of reports and images across care settings and providers, that is integrated with the medical record.

A range of medical imaging services is provided by both HHSs and through healthcare service partners. Of particular importance are the medical imaging services related to radiology, cardiology and oral health. Current Queensland Health systems do not support the timely and secure exchange of high quality digital imaging and reporting for the purpose of clinical decision making and diagnostic review.

To realise benefits in the delivery of medical imaging services, including the ieMR, additional investment is required in a range of services and technologies to:

- provide clinicians with an appropriate patient-centric view of patient records and examinations history, including reports and associated images within the wider healthcare community
- enable imaging studies to be readily available for clinical and diagnostic review, mark-ups and annotations
- support electronic order entry and results, reporting medical imaging services
- provide a centralised image and document repository combined with the ability to source relevant prior patient data from other systems
- easily support third party interfaces, external to Queensland Health, that enable the import and export of medical imaging studies from outsourced service providers
- provide external access to authorised users for medical images and reports.



Investment in 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. Complementing the ieMR, this investment enables a complete view of the patient history, including medical imaging and diagnostics, and results reporting, irrespective of location.

Success will be achieved when our HHSs and approved healthcare partners can exchange high quality, high resolution digital image information across a range of services that is accessible electronically by authorised clinicians and the patient.

Benefits

- Improved patient safety and a reduction in the likelihood of misdiagnosis.
- Enhanced reporting, including:
 - reduced turnaround time of diagnosis
 - mark-ups and annotation
 - reliable and automated critical results notifications.
- Streamlined workflow management for order entry, scheduling, reporting and results reporting and notification.

Improving our capability to deliver health services across the health system

The Strategy ensures equitable access to healthcare services for all Queenslanders, as well as increased capability across our HHSs to deliver healthcare services.

Disjointed, disproportionate and in some cases marked underinvestment has resulted in disparate levels of capability to deliver health services across the system.

The Strategy represents investment priorities for the health system as a whole. The resulting impact of this investment will provide the necessary ICT infrastructure uplifts, standardisation of systems and the introduction of new capability to enable significant optimisation and transformation in the way that healthcare is administered.

For HHSs, advancing integration through the digital hospitals initiative and additional strategic investment will provide a platform to introduce new and more innovative models of care, delivering an integrated health system, particularly in the metropolitan areas.

For those HHSs not yet advancing the digital hospitals initiative, the investment detailed in this document will provide essential foundational elements, such as ICT infrastructure uplifts and introduction of the ieMR.

The digital capability continuum (right) illustrates the shift from the current state of lower integration in health service delivery to the future state of more integrated health services across Queensland.

The eHealth Investment Strategy will enable HHSs to build a base-level of capability across the entire health system, optimise existing digital investment and continue on the pathway of integration and the introduction of new and innovative models of care.

Figure 4: Queensland Health digital continuum



Queensland Health ICT Portfolio

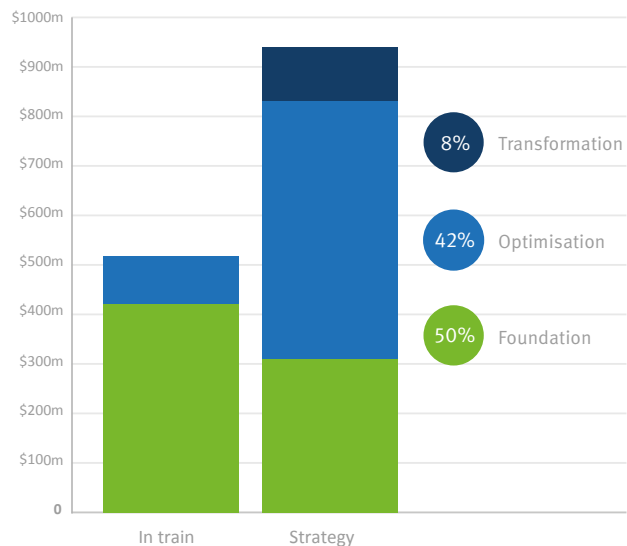
A balanced portfolio

Our investment priorities represent a balanced portfolio of investment in areas of capability that will:

- improve core infrastructure across the system that enables us to more effectively and efficiently run the business
- grow our health services by optimising existing systems and information to enable greater integration and interoperability
- enable the health system to deliver services in ways that consumers want to use them allowing us to transform the way we deliver services.

The planned proportion of investment to run, grow and transform health services in Queensland is represented in the adjacent diagram.

Figure 5: Portfolio balance (run, grow, transform)



'In an environment where we are under increasing financial pressure high quality and fit-for-purpose ICT systems are critical to improving patient outcomes in an affordable way. What the eHealth Investment Strategy allows us to do is to identify the priorities for ICT investment across the Queensland Health system that will deliver the most cost-effective benefit for patients from the funding available.'

Malcolm Wilson
Chief Financial Officer,
Queensland Health

Managing our investment

Queensland Health has a limited amount of funding and capacity over and above operational funding to invest in improvements to health service delivery.

To ensure funding is allocated to areas where it will provide maximum benefit to the healthcare of Queenslanders, the department's portfolio governance program is introducing processes designed to guide and manage funding decisions, while ensuring fair and equitable distribution in accordance with health system priorities. These processes will ensure there is reliable, repeatable, transparent and proven measures in place to request, assess and prioritise funding. Effective investment management will ensure initiatives requiring capital funding are identified, selected, prioritised and managed to optimise performance and return on investment.

Funding for initiatives will be gated, based on stages in the investment lifecycle and subject to the ongoing assurance that initiatives are implemented effectively, risks are mitigated and planned benefits are realised.

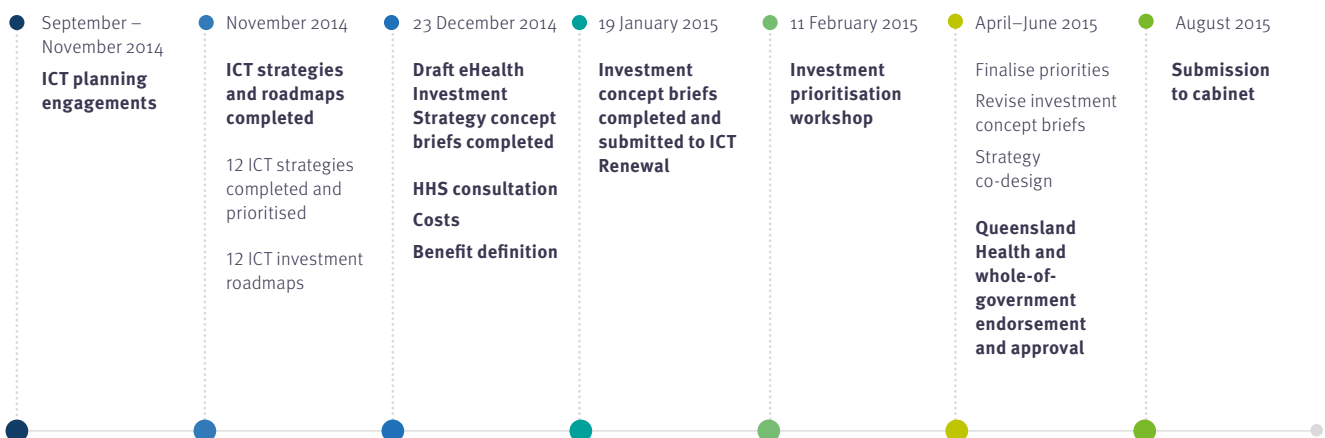
The planning process

The implementation of a new 'co-designed' approach to the development of this Strategy ensures the department and HHSs collaboratively identify, prioritise, select and review ICT investment priorities annually.

This Strategy has resulted from extensive HHS engagement and a co-design approach to prioritise individual HHS ICT investment. Twelve strategic planning engagements and more than 140 individual interviews with stakeholders have resulted in an ICT strategy and investment roadmap for each HHS. All 16 HHSs have participated in the development of this Strategy.

The priorities in this document were collectively agreed to by the 16 HSCEs, HHBs, and Department of Health divisions and agencies. Queensland Treasury, Department of the Premier and Cabinet, and the Department of Science Information Technology and Innovation also participated in the investment prioritisation process. As a result, this collective understanding of investment priorities, benefits, risks and options will place Queensland Health in the best position possible to move forward.

Figure 6: eHealth Investment Strategy timeline



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