Government of **Western Australia**
Department of **Health**

WA Health Information and Communications Technology (ICT) Strategy 2015–2018

Building a Strong Foundation

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Contact

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Contents

Vision

To continuously improve patient safety and quality of care through the effective delivery of Information and Communications Technology.

Mission

- Bring WA Health's ICT infrastructure up to contemporary standards, stabilise existing systems and establish and maintain a Standard Operating Environment.
- Prioritise improvements to clinical and business systems that will provide the greatest immediate benefits for patients and staff.
- Provide a stable industry standard ICT architecture and improve equity across sites, including in regional areas.
- Ensure ICT decision making, development and project delivery supports WA Health's core business – improving, promoting and protecting the health of Western Australians.
- Help patients take greater responsibility for their own care through the use of new and emerging technologies.
- "Future-proof" WA Health through the development of agile ICT systems.
- Continue to deliver business as usual during reform.

Foreword

As we continue to drive improvements across WA Health, it is critical that our key system enablers effectively support the delivery of safe and high quality patient care.

Information and Communications Technology (ICT) is complex and often costly, but new and emerging technologies offer significant opportunities to improve our services, increase efficiencies, and free up resources to focus on patient and whole of community health outcomes. Patients want and expect to be able to access the latest technologies to help them better manage their own care.

WA Health has addressed many challenges in delivering ICT over recent years and we have succeeded in delivering some innovative and contemporary ICT services which improve our services. This includes the digital medical record (BOSSNet) at Fiona Stanley Hospital, the Telehealth burns system and state-of-the-art technology at Albany and Busselton Health Campuses.

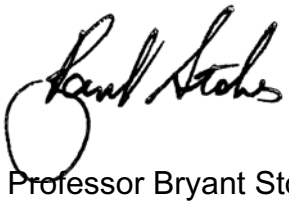
However, there is clearly more to be done to embed ICT as a business enabler across the sector which supports clinical workflows, addresses inequities in systems across health services, better supports patients to manage their own care, and takes advantage of advancements in technology. This must be balanced against what can realistically be delivered within available resources.

The development of this strategy involved extensive consultation across WA Health and with the WA Health Consumers Council and Health Network Leads Forum. These consultations emphasised the need to get the basics right, to allow better sharing of information to support patient care, and to provide the business intelligence needed to run the system. This includes allowing interoperability between our systems and those of other health care providers, such as GPs and private hospitals, and making more information available to patients.

This is a short-term strategy specifically designed to help us stabilise our existing systems, bring our infrastructure up to a minimum standard, improve the way we share information and build a strong foundation for the future. It provides the framework for ICT decision making but does not dictate the systems and applications we will use or how ICT will be delivered. This means that we can remain agile and flexible and take advantage of available new technologies.

Building a strong foundation is only the first step in the journey. As this strategy is implemented, we will continue to focus on the “future state” and consider how clinical workflows and business practices can best be supported by technology.

Making the best of use of technology will require us all to work in partnership, both within WA Health, with our patients, with other healthcare providers and across government. Experiences around the country and globally will guide us in choosing systems for the future that best support patient safety and clinical care.



Professor Bryant Stokes
ACTING DIRECTOR GENERAL

Digital Medical Record

WA Health has implemented a digital medical record system, BOSSnet, with paper scanning and eForms capability. Fiona Stanley Hospital is the first site to go live with this modern electronic medical record system. It will also be implemented at the Perth Children's Hospital and Busselton Health Campus.

Through BOSSNet clinicians record their admission documentation and progress notes online. These notes can be read by other clinicians in real time at other clinical workstations.

The technology will also be used to replace the Global Document Store, which is currently used to store and make available online historical discharge summaries and other clinical report documents.

Context

This strategy provides the framework for ICT decision-making and the governance and management of ICT systems and projects.

WA Health's approach to ICT focuses on delivering the systems which will best support our workforce to deliver safe and high quality patient care and to run our health system.

Unlike previous strategies, this is a short-term three year strategy which focuses on incremental and affordable change to bring current systems up to date, deliver on existing projects and build the foundations for the future. Immediate action needed to address current system issues is defined in this strategy and will be delivered between 2015 and 2018.

Going forward WA Health needs to take a strategic and long term view and deliver a well-managed and planned ICT portfolio and define the "future state" – that is, how can clinical workflows and business practices best be supported by technology? This strategy will build the foundation needed to allow us to innovate, take full advantage of emerging opportunities, and achieve more integrated and modern health care systems.

A new ICT governance framework will direct the implementation of the strategy. This framework ensures that decisions about ICT are made by the people who need to use the systems, and not from a technical perspective.

This strategy sets out the five key areas WA Health will focus on over the next three years. Annual Implementation Plans will detail key actions to be taken each year, including setting out clear timeframes and deliverables, funding implications, and accountability for delivery.

Enterprise Bed Management

The Enterprise Bed Management (EBM) system was designed and developed by the Health Information Network to streamline and standardise the bed request and allocation process.

The EBM began at Rockingham General and Murray District Hospitals but is now operating in 14 hospitals, including the new Fiona Stanley Hospital.

The system is designed to assist patient flow by tracking the status of beds and allocations against new requests within a hospital, and providing an electronic 'dashboard-style' view of these to emergency department and ward staff and bed managers.

The EBM eliminates the need for staff to make multiple phone calls for every patient bed request. This has the potential to reduce delays in bed allocation, improve staff efficiency, reduce patient waiting times and allow more time for patient care.

The web-based application can be tailored to meet the requirements of individual hospitals for specialties, patient needs and roles.

Challenges

WA Health is facing unprecedented change with the concurrent commissioning of several new hospitals and a number of clinical and corporate applications nearing the end of their life.

Further work is needed to bring WA Health's current infrastructure up to date. Addressing current inequities in access to systems across WA Health is also a priority.

Demand for the latest technologies will continue to grow. Patient expectations around access to information and the implementation of national e-Health initiatives will influence WA Health's directions in ICT.

Competition for highly skilled technical staff is driving costs up, making it more difficult to develop in-house technical expertise and to reduce our reliance on external contractors.

The State Government is facing a period of tight fiscal constraint that will require WA Health to make hard decisions on funding priorities and focus on obtaining better value for money from its current level of ICT spending.

CredWA Medical Credentialing

All senior doctors in WA Health Services require medical credentialing to establish that they have the qualifications, skills and experience to manage the treatment of patients. CredWA was devised to provide a single electronic database to support the workflow, reporting, and information sharing required for WA's first truly state-wide medical credentialing system.

Since its implementation as a web-based system in 2013, CredWA has enabled increased clinical governance and patient safety, particularly in the operating theatre and procedural setting, where relevant staff can view online the doctor's approved scope of practice. Future potential enhancements include credentialing for nursing and other clinical professions, credentialing for junior doctors, and use of the platform for performance appraisal and junior doctor recruitment purposes.

Principles

The following principles will guide all decision-making on ICT investments:

1. Investments in ICT must be used to improve safety and quality, improve patient outcomes, create a better patient journey or experience, build knowledge to inform research and changes to clinical practice, or improve efficiencies and financial sustainability.
2. Information sharing needs to focus on the best outcomes for the patient, including sharing information across the health care sector and not just in acute settings or within WA Health. Information sharing should be safe and secure and with patient consent. Opportunities to innovate need to be balanced with the need to maintain patient privacy and confidentiality.
3. Business (corporate) systems need to demonstrate value for money and improve efficiency by streamlining operations, better management information and ease of use for WA Health's workforce.
4. Systems need to be intuitive and easy to use, integrated, patient-centred, carer inclusive and aligned to clinical workflows and models of care. A set of standard infrastructure and applications should be available across WA Health.
5. Clinical leadership is critical to establishing systems that deliver better care. Effective governance and decision-making depends on regular, ongoing and responsive clinical, consumer and carer engagement.
6. WA Health should remain flexible and take advantage of new and emerging technologies.
7. Clinical advances and workflows should drive process improvement.
8. ICT projects and funding for ICT must be well managed in order to deliver better care and better value. Opportunities to leverage off existing investments need to be explored.
9. Expertise and learnings from around the world should be harnessed where possible and opportunities to partner with other State Government agencies explored.

Governance

The WA Health ICT Governance Structure (see Figure 1) outlines the decision making framework for WA Health's ICT investment. It clarifies the expected roles, responsibilities and accountability of all parties involved in the planning, delivery and management of ICT programs and projects.

The ICT Executive Board provides oversight and leadership in WA Health's ICT investment, ensuring that it appropriately supports the achievement of WA Health's strategic and operational objectives. The ICT Executive Board is accountable for the delivery of the strategy.

The ICT Program Committee, accountable to the ICT Executive Board, identifies and prioritises ICT programs/projects and ensures that they are delivered on time, budget and according to scope.

Individual Project Boards manage individual projects and report to the ICT Program Committee.

The Clinical Reference Group and the Consumer Reference Group will be established by April 2015. These groups will provide advice to the ICT Executive Board on the planning and delivery of ICT across WA Health. They will also assist in developing Annual Implementation Plans and reviewing progress against the strategy.

Business User Groups will continue to provide advice to the Health Information Network or other service providers about individual applications.

Princess Margaret Hospital (PMH) Burns Telehealth Service

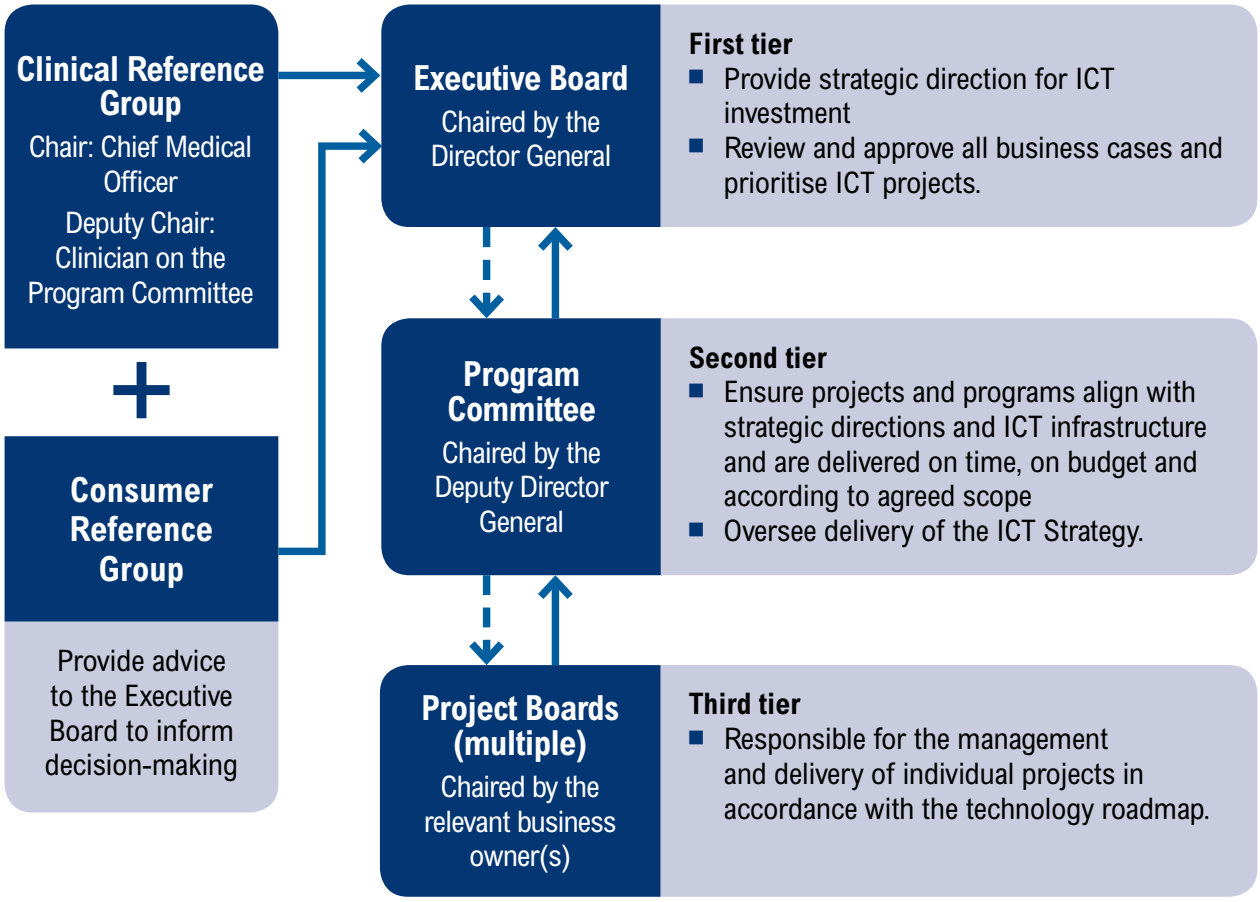
Since 2005, the Western Australian paediatric burn unit has provided a state-wide clinical consultancy and support service for the assessment and management of acute and rehabilitative burn patients via its Telehealth service.

Since then, the use of this Telehealth service has steadily increased as it has become imbedded in the model of care for paediatric burn patients. Primarily, the service involves acute and long term patient reviews conducted by the metropolitan-located burn unit in contact with health practitioners, advising patients and their families who reside outside the metropolitan area.

The service reduces the need for patients to be transferred unnecessarily, limiting the inconvenience on patients and their families and reducing the number of inpatient bed days.

Between 2005/06 and 2012/13 almost 5,000 inpatient bed days were avoided. Together with over 350 avoided acute patient transfers and over 1,700 avoided follow up review transfers, use of the Telehealth service delivered an estimated cost saving in 2012/13 alone of $1.9 million.

Figure 1 – **WA Health ICT Governance Structure**



Priority Areas

This strategy outlines a decision-making framework for ICT in WA Health and sets out the key priorities for the next three years. Together, these priority areas and the deliverables contained within them will enable WA Health to build a strong platform for the future and provide the foundations for our "future state".

1. Stabilise existing infrastructure and systems
Stabilise existing ICT infrastructure, implement ICT systems at new facilities, consolidate duplicate systems and build the foundations for the future.

2. Information sharing and management
Improve information management, including secure sharing of patient information in order to improve patient safety, quality of care and care coordination.

3. Governance and clinical leadership
Embed effective and transparent governance which prioritises ICT investment, ensures decisions consider outcomes across all of WA Health, manages risk, enables clinical leadership and provides accountability for project delivery.

4. Organisational capacity and capability
Build organisational capacity, capability and credibility to deliver and use ICT systems.

5. Policies, standards and processes
Implement policies, standards and processes which align with clinical workflows, support patient-centred models of care and help improve business processes.

The next section sets out the priority actions over the next three years in each of these areas.

1. Stabilise existing infrastructure and systems

Stabilise existing ICT infrastructure, implement ICT systems at new facilities, consolidate duplicate systems, and build the foundations for the future.

WA Health's ICT infrastructure is ageing and parts of the system need urgent updating. This includes replacing the outdated Windows XP operating system and upgrading some existing computers.

Work is also needed to review and consolidate our existing systems and applications, including those that are nearing the end of their license periods or which are no longer supported. This applies to both clinical and corporate systems.

A number of new hospitals are currently being commissioned and work is needed to implement new ICT systems at these facilities and to ensure interoperability at hospitals delivered through Public Private Partnerships, such as Joondalup and Midland Health Campuses. However, work is also needed to bring all sites up to a minimum standard, including in regional areas, and to ensure we have the basics right.

A new applications roadmap will help determine the current and future approach to core applications, setting out the current footprint and recommending the future state.

This includes defining the core state-wide applications to be used across WA Health.

Opportunities to improve the consistent use and effectiveness of telehealth should also be explored.

Year One – 2015/16

1. Deliver the Technology Refresh Project, including upgrading the standard operating system across WA Health to Windows 7.
2. Complete the implementation with associated support of ICT systems at Fiona Stanley Hospital, Perth Children's Hospital, Midland Health Campus and Busselton Health Campus.
3. Develop an applications roadmap, including developing options to roll out core clinical applications across the system, deploy key local applications, improve corporate systems and bring all sites up to a consistent standard.
4. Review all outstanding ICT requests and develop a prioritisation process and forward work plan.
5. Identify opportunities to rationalise software licenses across WA Health.
6. Develop a strategy to consolidate central computer rooms across metropolitan hospitals.
7. Develop a strategy for the future management of centralised computer services (for example data centres and the use of the Cloud).
8. Review research and development capabilities and understanding of existing systems internationally.
9. Commence work to establish an Enterprise Architecture.

Years Two to Three – 2016/17 to 2017/18

1. Develop a plan for asset refresh, including the management of systems nearing their end date, and legacy and unsupported applications. This plan will include a focus on the consolidation of multiple systems that perform the same function.
2. Complete the implementation of ICT systems at Karratha Nickol Bay Hospital.
3. Explore the latest off-the-shelf health technologies and identify opportunities for their use in WA Health.
4. Implementation of the applications roadmap.

Technology Refresh Project

Through the Technology Refresh Project all computers are being progressively and rapidly updated from an outdated operating system (Windows XP) to an operating system which both increases functionality and more easily supports further upgrades over time. Some computers will also need to be replaced to ensure WA Health has a fleet of modern computer hardware.

This will provide a good foundation for introducing more modern applications and solutions in the future.

The project will also reduce the number of unmanaged applications in use across WA Health, improve the way we manage software licenses, and introduce improved data security on mobile devices.

A simplified management and support process will mean computer applications can be deployed and support provided remotely.

2. Information sharing and management

Improve information management, including secure sharing of patient information in order to improve patient safety, quality of care and care coordination.

Technology provides significant opportunities to improve the way we share information, including how quickly clinicians both within and outside WA Health can access information about their patients and work together to achieve better clinical outcomes. This can help provide patients with improved and timely care, and increase safety. It can also help avoid the duplication of tests which will reduce inconvenience for patients, help support timely diagnosis, and save time and money.

Good business intelligence helps health services and the Department of Health to understand trends across WA Health and to manage performance. It is also critical in the transition to Activity Based Funding and Management, where hospitals are paid based on the actual services provided. Effective business systems that facilitate the gathering of management information, streamline business processes and support WA Health to improve operational performance are also critical.

Easily accessible (depersonalised) clinical information is also vital in identifying clinical trends, understanding the impact of particular interventions, and informing research.

Year One – 2015/16

1. Work in partnership with the National e-Health Transition Authority (NeHTA) to implement eHealth initiatives such as the State-wide Provider Index, State-wide Discharge Summary, the Notifications and Clinical Summaries (NaCS) Roll-Out and the Australian Medications Terminology mapping of WA's drug catalogue.
2. Review and refresh existing data custodianship and stewardship arrangements to better enable safe, secure and appropriate information sharing that maintains patient privacy and confidentiality.
3. Develop an Information Management Strategy that:
   a. supports clinical information sharing, both within WA Health and between acute and primary/community care
   b. includes a review and rationalisation of existing business intelligence tools
   c. supports the controlled use of data for research, performance monitoring and clinical planning.

Years Two to Three – 2016/17 to 2017/18

1. Continue to work with the Australian Government and other States and Territories on the integration of the Personally Controlled e-Health Record with WA Health systems.

WebPAS

WebPAS is a patient administration system which will be progressively introduced across all WA Health sites. It is currently operating in the Southwest and Great Southern regions, Fremantle Hospital, Fiona Stanley Hospital, Princess Margaret Hospital, Swan District Hospital and Kalamunda Hospital.

Introducing a common patient administration system will help standardise business processes and produce consistent information. Clinicians will be able to access information on a patient from any site. Reducing duplication will also improve patient safety outcomes.

As a single billing system, it will also improve revenue collection and deliver cost savings.

3. Governance and clinical leadership

Embed effective and transparent governance which prioritises ICT investment, ensures decisions consider outcomes across all of WA Health, manages risk, enables clinical leadership and provides accountability for project delivery.

Resources available for ICT need to be used effectively and spent on the activities that will make the greatest difference to our health services and to outcomes for patients. This strategy emphasises the importance of good governance and management of projects, and the need for clinical engagement and leadership to ensure ICT systems meet business needs.

Year One – 2015/16

1. Embed the new ICT governance framework across WA Health and provide clear information on how ICT requests should be made and how priorities are determined, and ensure decision making is transparent and communicated.
2. Establish a Clinical Reference Group to provide advice to the ICT Executive Board and support decision making.
3. Establish a Consumer Reference Group to provide advice to the ICT Executive Board and ensure consumers' and carers' views and needs are taken into account.
4. Clarify and communicate the role and responsibilities of the Health Information Network.
5. Develop service level agreements between the Health Information Network and health services which include key performance indicators.
6. Implement improved project management, including use of the PRINCE2 project methodology, clear points of accountability, and regular reporting to the ICT Program Committee and ICT Executive Board.
7. Determine Executive Sponsors for existing applications and data collections in order to ensure availability of consistent data entry standards, business rules and training models.

Years Two to Three – 2016/17 to 2017/18

1. Determine the best balance between central and local delivery of ICT systems, including managing the need for consistency while enabling innovation.
2. Review the ICT Strategy and develop the ICT Strategy 2018/19 to 2020/21.

cView

CView is a ‘view only’ web-based application that allows clinicians to use tablet devices like iPads to view patient information and results available from the iSoft Clinical Manager. Clinicians can view their list of patients and access key information such as test results and medical histories.

This means that clinicians can access medical records in real time in any location with internet access – including while sitting with a patient.

cVIEW is expected to be particularly useful to clinicians working at sites which do not have access to iCM, including many rural sites, who need access to metropolitan hospital reports, results and discharge summaries.

cView was introduced at Fiona Stanley Hospital in 2014.

4. Organisational capacity and capability

Build organisational capacity, capability and credibility to deliver and use ICT systems.

WA Health is a 24/7 business. All WA Health staff need to have confidence that ICT support is available when they need it. Effective ICT systems are intuitive and easy to use, but education and training also needs to be available to help staff understand how systems work.

In the future, we need to think about how we manage and source ICT and whether it could be done more effectively or efficiently.

Year One – 2015/16

1. Develop and implement a strategy for 24/7 ICT support across WA Health.
2. Develop an ongoing education, training and capability building program across WA Health to support the use of systems across the State.
3. Deploy appropriate toolsets to support the management of ICT.
4. Implement improved and consistent project management processes (as identified under Governance and Clinical Leadership).
5. Implement financial controls and rigour to ensure all projects are operating within appropriate financial guidelines and frameworks.

Years Two to Three – 2016/17 to 2017/18

1. Review the success of the 24/7 ICT support strategy.
2. Develop an ICT resourcing and sourcing plan.
3. Review organisational capability and future needs.

Clinical Costing System

A new Clinical Costing System - Power Performance Management (PPM) has been implemented across WA Health.

The system has improved WA Health's compliance with national standards on the reporting of health costs. This will enable better comparison of WA Health costs with other States and identify potential areas where efficiency improvements can be made.

The system will also assist in the implementation of Activity Based Management by providing more accurate, timely and relevant costing information to Clinical Departments.

5. Policies, standards and processes

Implement policies, standards and processes which align with clinical workflows, support patient-centred models of care and help improve business processes.

Work is needed to ensure that the development of, or changes to, ICT systems are informed by how our hospitals work, and allow us to comply with the policies and legislation which govern the health system. ICT systems must help improve business processes, support clinical workflows and patient-centred models of care and enable us to deliver better services.

Year One – 2015/16

1. Review existing ICT policies, standards and processes and prioritise amendments to policies which could better support clinical practice.
2. Develop a rigorous risk management process framework for ICT.

Years One to Three – 2015/16 to 2017/18

1. Review alignment of ICT systems with best practice models of care.
2. Ensure ongoing integration of ICT policies and processes with WA Health policies and legislative requirements.

Year Three – 2017/18

1. Develop a process to ensure proposed new ICT systems and policies align with WA Health's Enterprise Architecture once developed.

Fiona Stanley Hospital Operating Theatres

Three of Fiona Stanley Hospital's operating theatres have advanced digital audio visual capabilities which can be tailored according to the needs of the surgeons completing complex heart and lung transplants.

These highly advanced clinical environments with multiple display screens also enable greater viewing by everyone working inside the theatre, which is a marked improvement for clinical practice in this critical field.

The hospital is expected to undertake about 24 transplant operations a year.

Approach to Implementation

The strategy will be supported by Annual Implementation Plans (see Figure 2).

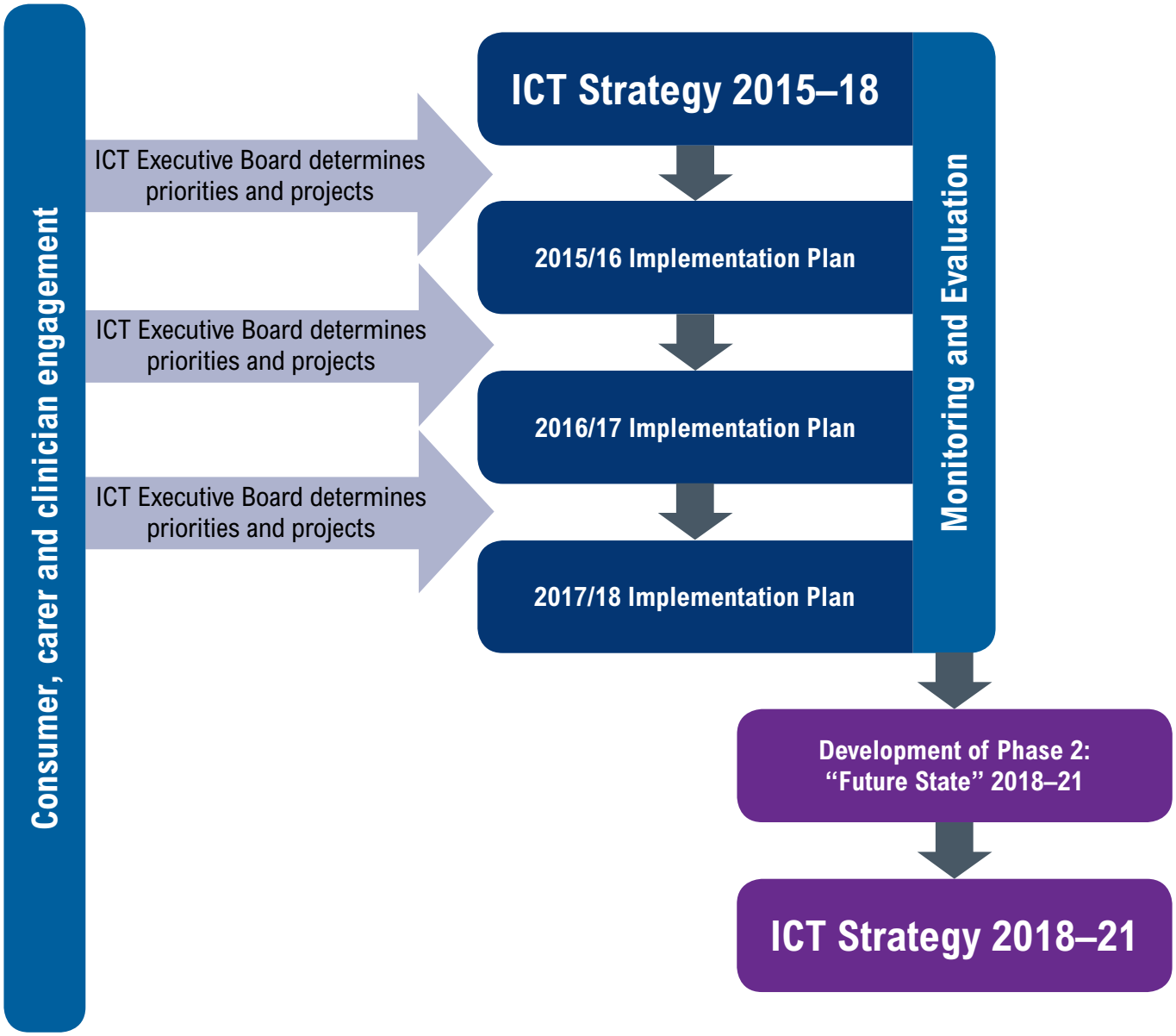
The first Implementation Plan will prioritise the stabilisation of existing systems and developing strong foundations for the future. This will be supported by a focus on effective governance, transparent decision-making and clinical leadership.

The Implementation Plan will set out clear timeframes, milestones and deliverables for 2015/16.

It will also provide more detail on prioritising and scheduling of work to address the other strategies and measures identified in the strategy.

During 2017-18, the strategy will be reviewed and a new strategy developed. The new strategy will outline a long-term vision for ICT across WA Health and focus on the "future state". It will describe how we want to position ourselves and use technology in the future to best meet the needs of our patients and our staff. Building the foundations over the next three years is a critical first step.

Figure 2 – **WA Health ICT Strategy Implementation**



Journey Board

Journey Board is a discharge management and planning tool used by nurses and allied health staff. It is a web-based application that displays discharge planning information for patients on a ward and makes it easy to update that information.

Journey Board provides information on patients including their discharge arrangements, team referrals, discharge goals and barriers to discharge.

It supports multidisciplinary care and discharge planning and improves the efficiency of referral making. The use of icons, colours and numbers help staff easily identify patients who need additional care before discharge.

Journey Board was introduced at Fiona Stanley Hospital in 2014.

Appendix A – Glossary

Activity Based Funding / Activity Based Management (ABF/ABM)	Activity based funding and management is a way of funding and managing public health care in WA. It means that health services are paid for every patient they see or treat, taking into account the complexity of the patient's healthcare needs.
(the) Cloud	Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable resources (e.g. networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. Cloud computing usually involves the transfer to, or creation of content in data stores which are maintained by the service provider and geographically remote from the customer. (Definition sourced from the US National Institute of Standards and Technology).
Enterprise Architecture	The overarching analysis, design, planning and implementation for successful development and execution of strategy. Enterprise architecture applies principles and practice standards required to execute strategy.
Legacy applications	Primarily refers to old applications initially deployed by Novell.
Managed Operating Environment	A standard implementation of an operating system and its associated software which includes the base operating system, custom configuration, standard applications used within an organisation, software updates and service packs.
National E-Health Transition Agency (NEHTA)	The National E-Health Transition Authority is jointly funded by the Australian Government and all State and Territory Governments to lead the uptake of ehealth solutions and to progress and accelerate their adoption through the health system (see nehta.gov.au).
Notifications and Clinical Summaries (NaCS)	Notifications and Clinical Summaries (NaCS) is a web based application for managing patient discharge summary information and prescriptions in the Common Information Model provided by Health Integration Hub services.
Personally Controlled Electronic Health Record (PCEHR)	An electronic record for a patient that contains a summary of their health information.

PRINCE2	PRINCE2 is an acronym for Projects In Controlled Environments. It is a process-based method for project management and has recently been adopted as the preferred project management methodology across WA Health.
Public Private Partnership	Public Provider Partnerships provide for joint arrangements between the public and private sectors to procure infrastructure and run services. Both Joondalup Health Campus and Midland Health Campus will be delivered in partnership with Ramsay Health Care and St John of God Healthcare respectively.
Statewide Provider Index	A list of all health-care providers within the WA Public Health system, including doctors, nurses and allied health professionals. It links with the National Health Service Provider Directory.
Standard Operating Environment	A standard implementation of an operating system and its associated software which includes the base operating system, custom configuration, standard applications used within an organisation, software updates and service packs.
Technology Refresh Project (TRP)	The rollout of Windows 7 and Office 2010 across WA Health. This is also referred to as the “Stabilising the Existing Platform” Budget measure.

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