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Transitioning to Digital, Managing Legacy and Maximising Budget

Warren Prentice
CTO Queensland Health
eHealth

Queensland's population will grow significantly over coming decades, reaching 7.3 million by 2036

- **Most of this *growth* will be concentrated around SEQ, with an additional two million people expected to call the region home by 2043.**
- **Aging demographic, longer life spans and increases in chronic illnesses such as obesity and diabetes places pressure on our health system.**

Queensland Health

Minister for Health and Minister for Ambulance Services
Hon Steven Miles

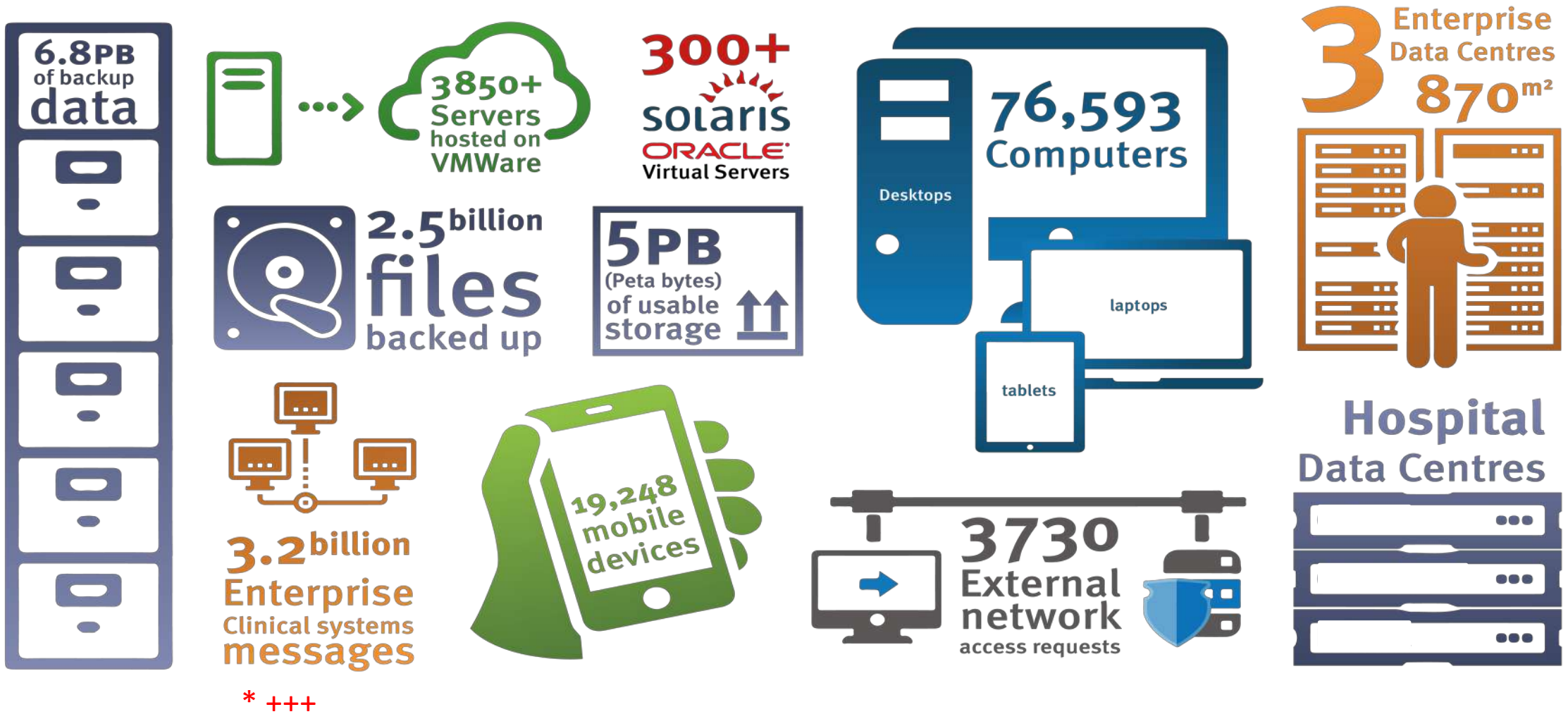
Department of Health

Director-General Michael Walsh

- Corporate Services Division
- Healthcare Purchasing and System Performance Division
- Strategy, Policy and Planning Division
- Health Support Queensland
- Internal Audit Office
- Clinical Excellence Division
- Prevention Division
- eHealth Queensland
- Queensland Ambulance Service

Hospital and Health Services

- Cairns and Hinterland
- Central Queensland
- Central West
- Children's Health Qld
- Darling Downs
- Gold Coast
- Mackay
- Metro North
- Metro South
- North West
- South West
- Sunshine Coast
- Torres and Cape
- Townsville
- West Moreton
- Wide Bay



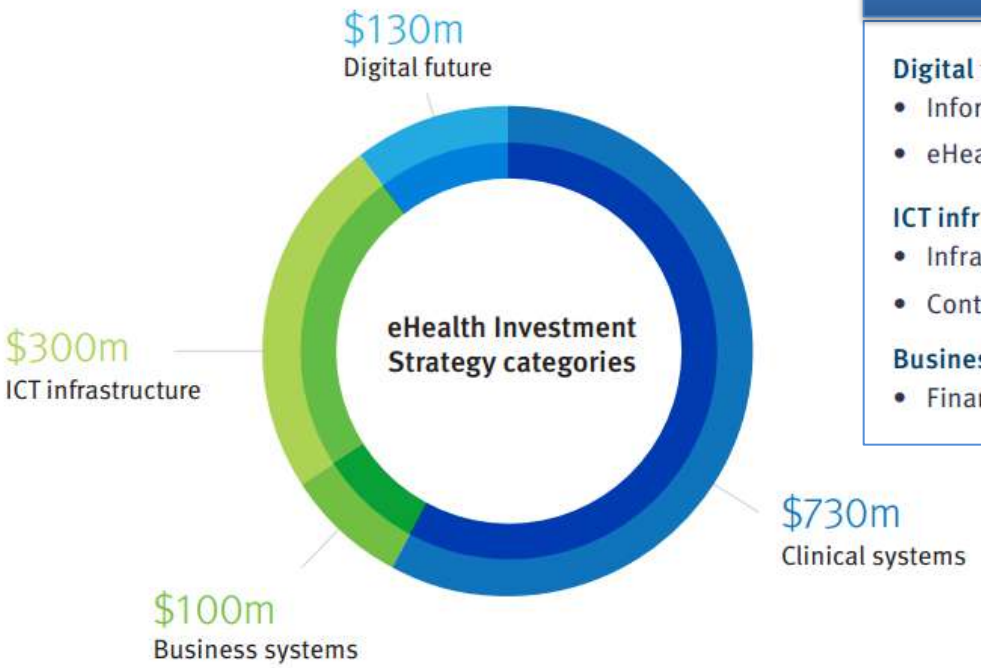
* +++

Active Director Accounts, 118,000, Telephones 130,000, total IP address devices 500,000+

Digital Hospitals and eHealth

Investing in digital

The *eHealth Investment Strategy* provides a cohesive and considered plan for Queensland Health's ICT investment priorities over the next 20 years



Investment priorities

Digital future
- Information interoperability
- eHealth foundations

ICT infrastructure
- Infrastructure utility
- Contemporary desktop

Business systems
- Finance system replacement

Clinical systems
- Patient administration system
- Integrated Electronic Medical Record and digital hospitals
- Pathology system replacement
- Primary and community care
- Digital imaging and transmission

Funding Package 3

Princess Alexandra Hospital

Mackay Hospital

Logan Hospital

Beaudesert Hospital

Lady Cilento Children's Hospital
Go Live - April 2018

Redland Hospital and Wynnum Manly Community Health Centre
Go Live – May 2018

QEII Jubilee Hospital
Go Live - June 2018

The Townsville Hospital (MARS)
Go Live – July 2019

Funding Package 4 (2018-19)

Ipswich Hospital

Q4 2018

Sunshine Coast University Hospital

Q1 2019

Nambour Hospital

Q2 2019

Gold Coast University Hospital

Q2 2019

Robina Hospital

Q2 2019

Toowoomba Hospital

Q4 2019

Queensland Government

Digital Hospital Program

The Digital Hospital Program has made substantial progress and to date have successfully transformed eight acute healthcare facilities into fully digital hospitals.

*A **digital hospital** is a hospital service facility with highly connected, interactive digital information systems which support precise, informed treatment of individual patients/clients while enabling optimally efficient use of infrastructure.*

Currently, over 30% of Queensland hospital beds are digital. By the end of June 2019 a further 7 healthcare facilities will become 'Digital Hospitals'.

And by 2020, Queensland will have 27 Digital Hospitals.


Princess Alexandra Hospital


Mackay Hospital


Lady Cilento Children's Hospital


Redland Hospital

Logan Hospital

Beaudesert Hospital


Wynnum Manly Community Health Centre

QEII Jubilee Hospital

Digital Hospital Benefits Realised

	Average*	Best*
Reduction in time taken to record vital signs	56%	**56%**
Reduction in stationery costs	53%	**88%**
Reduction in emergency readmissions	12%	**17%**
Reduction in diagnostic imaging	7%	**26%**
Reduction in inpatient length of stay	4%	**6%**

	Average*	Best*
Reduction in medical record maintenance	87%	**99%**
Reduction in admin time spent retrieving records	57%	**97%**
Reduction in hospital acquired pressure injuries	34%	**88%**
Reduction in hospital acquired infections	9%	**37%**
Reduction in hospital standardised mortality ratio	18%	**23%**

Refers to weighted average and best performance of benefits realised at participating hospitals (PAH, Cairns, Mackay, LCCH and Townsville) that have implemented the integrated electronic Medical Records (ieMR) solution.

Queensland Government

One day in the ieMR

eHealth Queensland

310,000
Charts opened

32,700
Users

162,000
eOrders per day

35,000
Medications administered

10 million
Total transactions

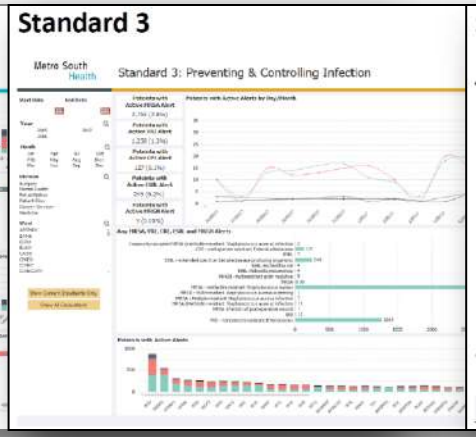
6000
IV infusion events

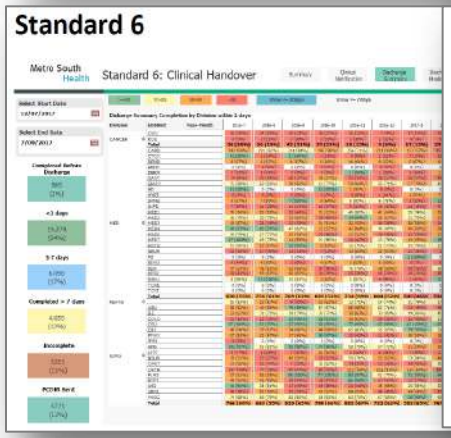
48,000
Discern alerts
(410 overidden per day)

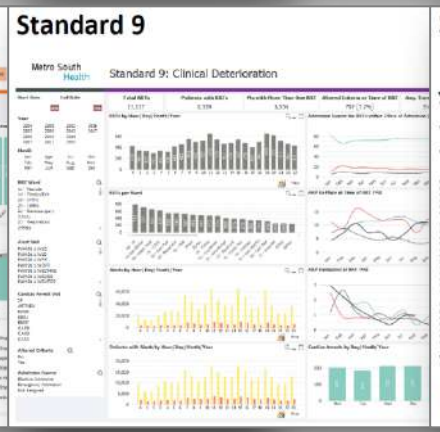
1600
Powerplans launched

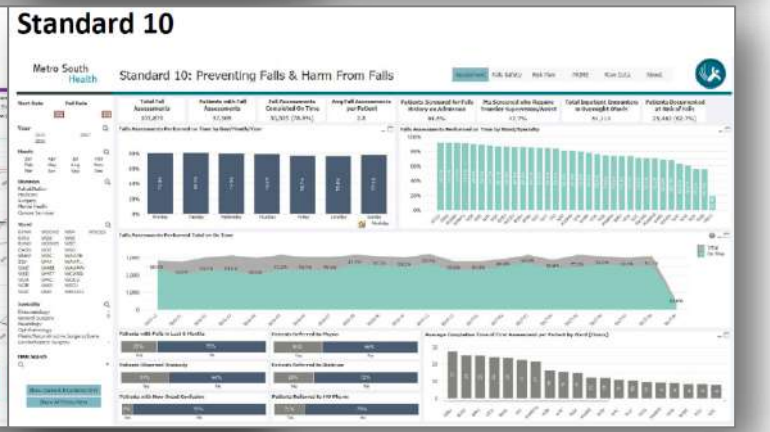
Dashboards and Analytics

National Safety and Quality Standards Dashboards





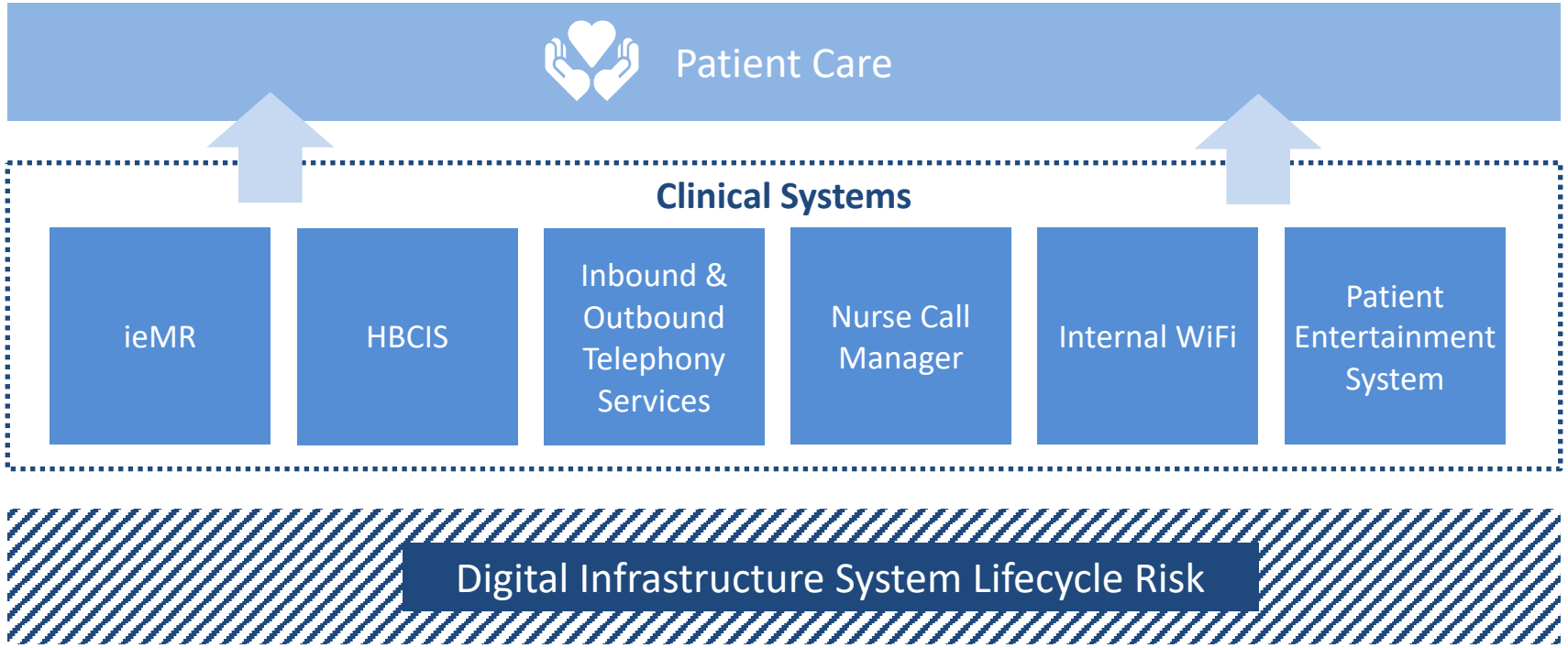




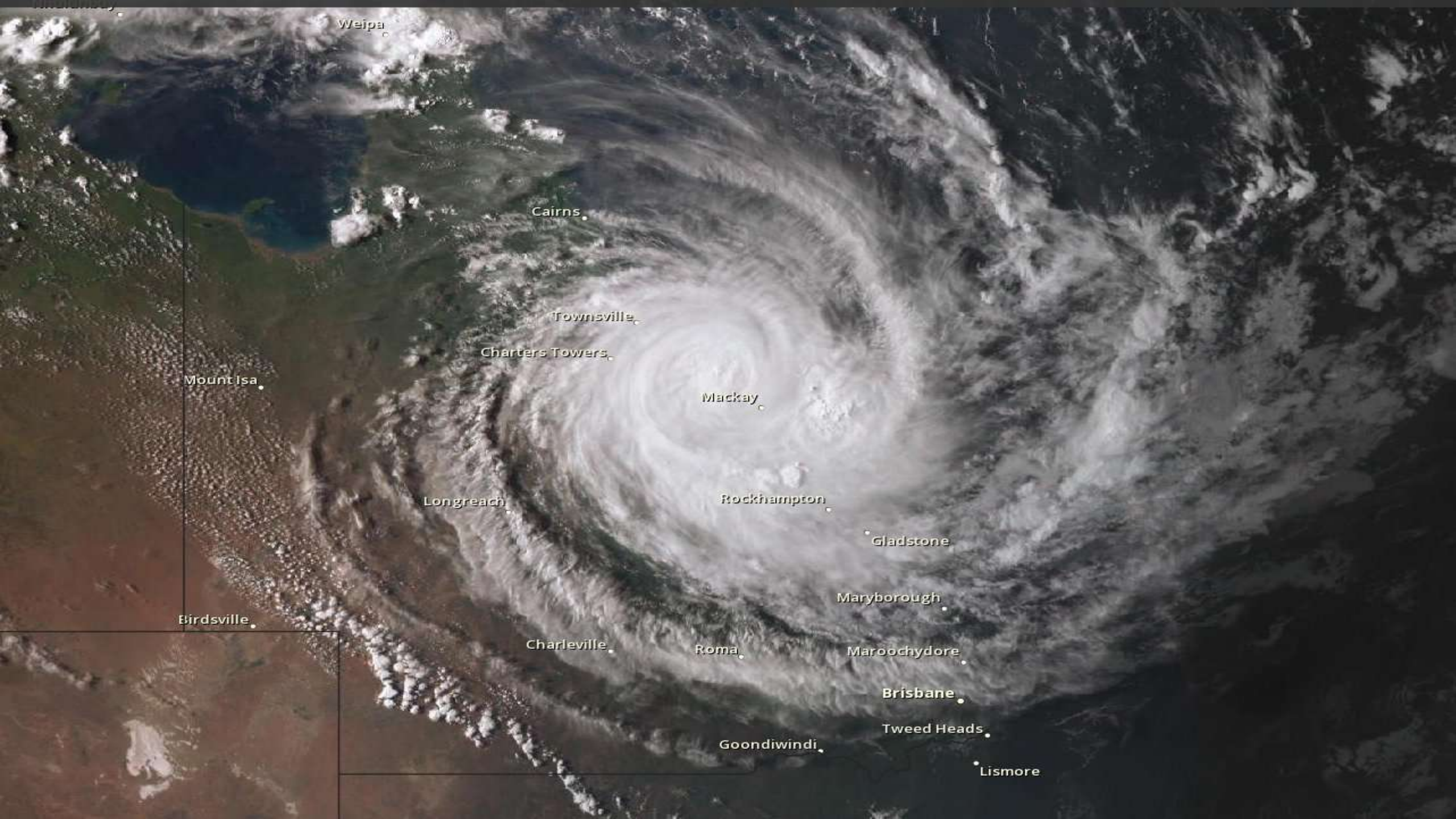
Infrastructure Foundations

Impact of Infrastructure Failure

In today's hospital environment, patient safety is directly enabled by information and business process inherent in clinical systems that are critical to delivering patient care. If ICT Infrastructure fails, a hospital will go into Code Yellow and all systems will be unavailable to process patients and provide care.



Queensland Health's digital infrastructure is no different to other ICT enterprises, the reliability of our infrastructure services facilitates clinicians to provide the best possible patient experience.

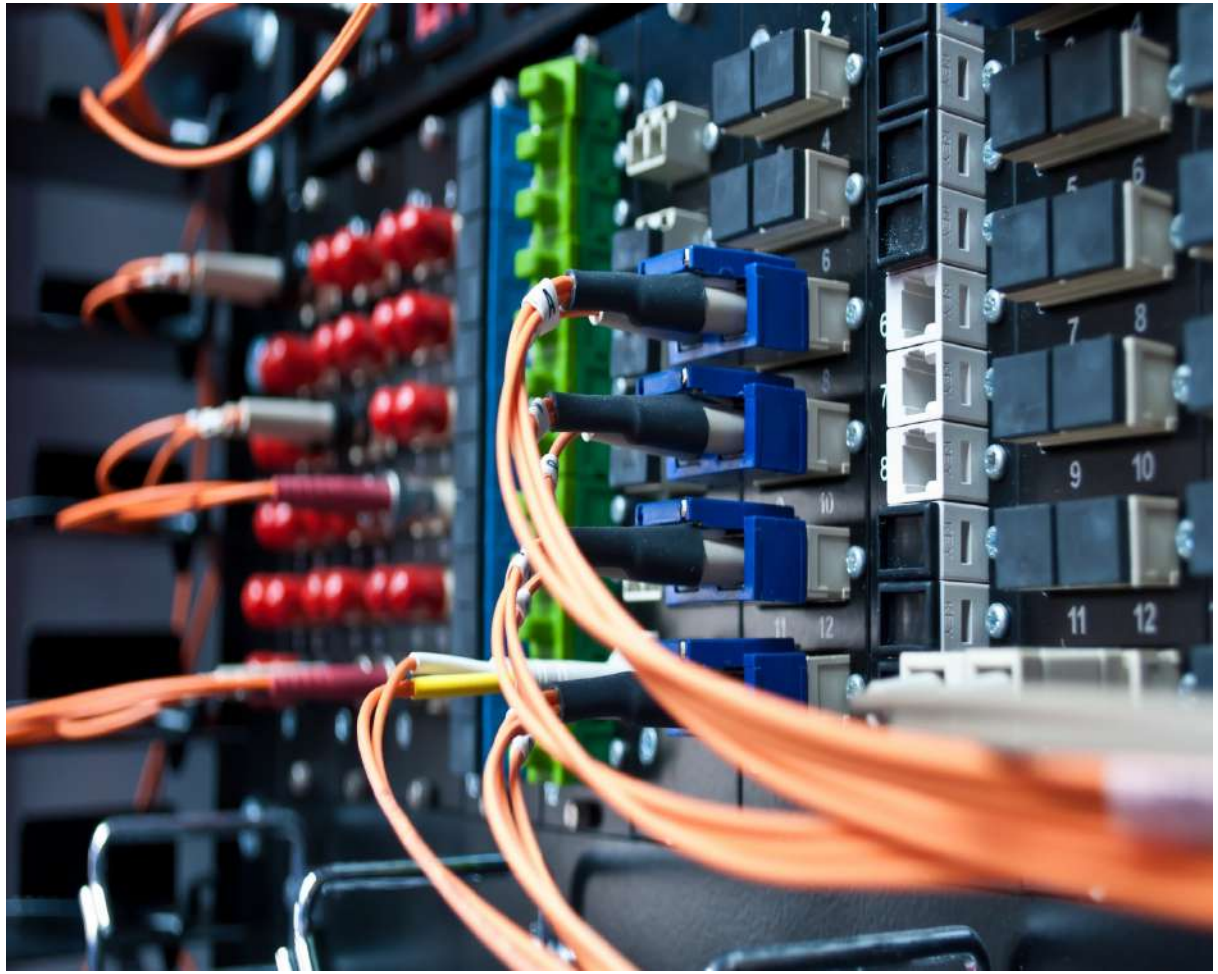

Weipa
Cairns
Townsville
Charters Towers
Mount Isa
Mackay
Longreach
Rockhampton
Gladstone
Maryborough
Birdsville
Charleville
Roma
Maroochydore
Brisbane
Tweed Heads
Goondiwindi
Lismore

Queensland Government


CATERPILLAR
CAT

Network Challenges

- SE Queensland quite resilient, good amount of choice & redundancy options.
- Regional areas do not have equity. Telco ROI on infrastructure investments doesn’t’ stack up.
- Queensland Health continues to invest in dark fibre where commercial entities won’t fund the service.
- The speed of light is not fast enough… Cairns is as far as we can currently go with existing technology. Latency is problematic beyond that.
- Natural disasters, weather events etc. all challenge redundant network capabilities.

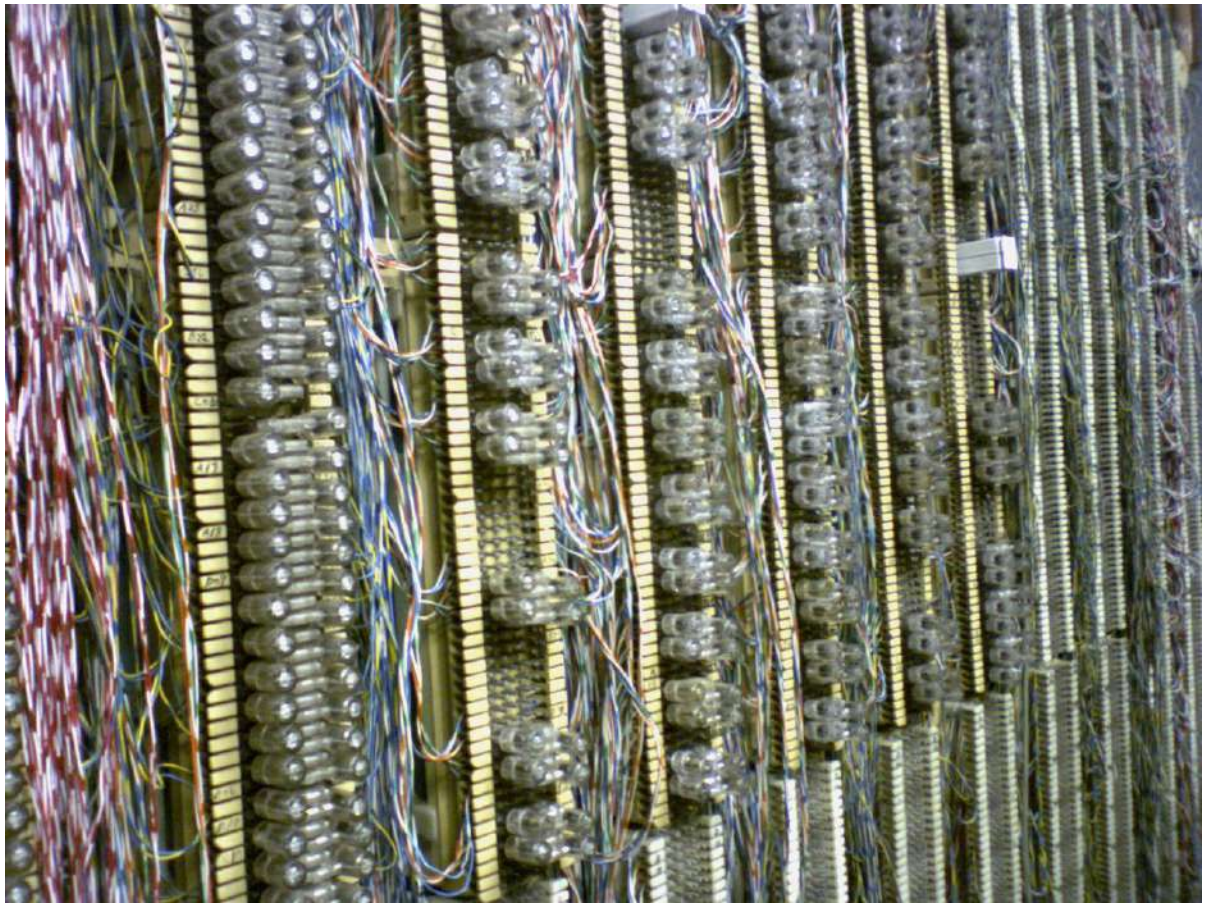


Wi-Fi

- Hospital networks support a broad range of devices and must be available 24 x 7 (3x9's 4x9's or better = target).
- Needs to be secure and provide access to only those who need it and are authorised; *exception public Wi-Fi*.
- The digital hospital has seen a substantial growth in demand for WAP's to support critical hospital services functioning on Wi-Fi.
  - *Spectrum Management is challenging and requires engineering expertise.*
- Typical wireless devices include, bio-medical devices, ieMR workstations, portable communications for code alerts and duress systems, RFID tagging and autonomous vehicles to name a few uses.
- Number of WAP's at a big digital hospital vs a non-digital hospital: 3400 vs 900...

Telephony (voice) Challenges

- Digital & Unified Communications is attractive as a corporate technology solution yet not resilient enough in regional areas.
- No power, no network, no 000 while copper technologies often prevail.
  - Current telephony technologies continue to form the backbone of BCP strategies when nurse call and duress systems fail.
- Telco wholesaler issues
  - Finger pointing, back-to-back wholesale service provider contracts.
  - Regional areas suffer equity issues.



Not all sites are equal…

Laying the foundations for our Digital Hospital Future

In today's digital health environment, the patient experience is directly facilitated by information and processes driven by technology. Technology is now the third person in the room.

Digital infrastructure is essential to support clinical and corporate systems that manage the patient's journey through the Health System.

The vehicle we are using to deliver our infrastructure uplift needs is primarily the Infrastructure Maintenance Program and other eHealth Projects.

IM Program Funding will provide the essential Digital infrastructure required to support eHealth systems into the future.

$1.5B over 5 years, not including Other eHealth initiatives

Case Study: Digital Infrastructure Required

A key lesson learned from the ieMR Program to date has been “to fund implementation of a digital hospital appropriately.”

Toowoomba Hospital

The Toowoomba Hospital was built between 1880-1927 with additional development phases in 1950s, 60s and 90s. The magnitude of uplift needed to support contemporary eHealth solutions at Toowoomba Hospital is significant; initially estimated at approximately $2m before a comprehensive infrastructure audit provided an updated costing of $12.2m. The uplift needed at this site includes:

- Construction of 2 new core rooms + 4 new building based uninterruptible power supply (UPS) rooms
- Construction of 30 communications rooms (22 new and 8 refurbished)
- Installation of nearly 800 wireless access points (WAPS), nearly tripling the number of WAPS in the hospital
- Laying of approximately 7,500 data cables and installing new cable pathways across the hospital
- Installation of new electrical outlets throughout the hospital to provision ieMR enabled devices

Toowoomba Hospital Theatre 7 Upgrade – Digital infrastructure will be essential to support the increase in reliance on digital patient systems and technology

Top 3 takeaways

- Technology has a critical role to play in supporting efforts to sustain our healthcare system and meet public expectations.
- The value of digitising the delivery of healthcare contributes towards better population healthcare outcomes.
- ICT Infrastructure is a critical and key enabler for digital healthcare which requires continued and ongoing investment.


The future is digital

Queensland Government