Digital Hospital Design

Six Key Principles

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BICSI South Pacific Chair
Digital Hospitals Handbook

- Standard SA HB 163:2017
- Principles and recommendations to inform design and implementation
Overview

- Digital Hospital Framework
- Six Key Principles
- Typical Project Framework
- Typical Program
- ICT Methodology
- Questions
Technology Framework
Principle 1  
Architecture and Design

- Documented vision and outcome statements for go-live and ongoing concerns
- High level business and information flows identified early in the program
- Integrated IT and Building architectures
- Final design requires logical data model, cyber security model and risk assessment
Principle 2
Business Case

• Peak governance structures and processes should be accountable for endorsing and approving the business case
• Multiple iterations of business strategy may be required
• Defined and documented approach to benefits management
• ICT budget estimates are not to be calculated based on construction costs or total floor space
Principle 3
Planning & Program Management

• All streams of work identified and scoped in detail with assigned responsibilities
• Stream leads engaged early to collaborate during planning phase
• Clearly identified decision makers at the overarching point of accountability
• Master Plan incrementally refined showing streams of work, schedules, risks, and dependencies
• Safety reflected in each stream
Principle 4
Leadership, Staffing & Risk Management
Governance

• Organisational readiness validated at each phase – considering change fatigue and risk changes
• Target outcomes for go-live, transition and ongoing operations align with organisational strategy
• Clear lines of reporting with an individual executive sponsor authorised to make decisions to prevent delays
Principle 5
Communication, Engagement, Change Management

- Engagement model and budget to identify time and resources required to meet end objectives
- Tailored stakeholder engagement for specific groups/needs
- Training for end-users as close to go-live as possible
- Testing in vivo with as close to live scenarios as possible
Principle 6
Operation of the Organisation, Go-Live, and Future

• IM&ICT will have a life of 5+ years
• Best practice and technology options will change over time
• High rate of change requests following go-live
• Embrace new IT trends to identify and deploy continuous improvements
Digital Hospital Vision
Digital Hospital Project

VICTORIAN HEART HOSPITAL

PROVISION OF TECHNOLOGY RELATED SERVICES

Tender no: C7055
8 February 2018
Technical advice & design for the following ICT Systems:

- **Group 1** – Passive Infrastructure
- **Group 2a** – Audiovisual & Digital Theatres
- **Group 2** – Nursecall, Messaging
- **Group 3** – Network, Clinical systems
Group 1

- All communications room works including environmental controls, capacity, power requirements, cooling, fire and smoke detection; spatial requirements, ICT equipment accommodation; inter-rack structured cabling, redundancy and stability
- Structured Cabling, CD, BD, FD rooms and racking systems
- All wall and ceiling brackets, mounts, reticulated arms, under desk mounts and other fittings as required to support the mounting and fixing of hardware described in this specification
- In Building Mobile Phone Coverage
- PA system
- Security systems (CCTV / Access Control / Intruder)
Group 2

- Package 1 – Nurse Call
- Package 2 – Master Clocks
- Package 3 – Facility Messaging System
- Package 4 – Wayfinding
- Package 5 – Digital Signage
- Package 6 – Patient Queuing and Check-in System
- Package 7 – Mobile Duress
- Package 8 – Security
Group 2a

- Single Tender Package
- Corporate AV
- Telemedicine / Telehealth
- Educational AV
- Clinical AV
- Site wide AV
## HIMSS Level 6

<table>
<thead>
<tr>
<th>STAGE</th>
<th>EMR Adoption Model Cumulative Capabilities</th>
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<tbody>
<tr>
<td>7</td>
<td>Complete EMR; External HIE; Data Analytics, Governance, Disaster Recovery, Privacy and Security</td>
</tr>
<tr>
<td>6</td>
<td>Technology Enabled Medication, Blood Products, and Human Milk Administration; Risk Reporting</td>
</tr>
<tr>
<td>5</td>
<td>Physician documentation using structured templates; Intrusion/Device Protection</td>
</tr>
<tr>
<td>4</td>
<td>CPOE with CDS; Nursing and Allied Health Documentation; Basic Business Continuity</td>
</tr>
<tr>
<td>3</td>
<td>Nursing and Allied Health Documentation; eMAR; Role-Based Security</td>
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<tr>
<td>2</td>
<td>CDR; Internal Interoperability; Basic Security</td>
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<tr>
<td>1</td>
<td>Ancillaries - Laboratory, Pharmacy, and Radiology/Cardiology information systems; PACS; Digital non-DICOM image management</td>
</tr>
<tr>
<td>0</td>
<td>All three ancillaries not installed</td>
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</tbody>
</table>
New Zealand EMR Adoption

EMRAM Score

Source: HIMSS Analytics® Database
Group 3

- Package 1 – LAN, WAN, WLAN, VOIP, RTLS, Video Conferencing
- Package 2 – Servers, Storage, Backup, Archiving, VDI, SSO, Tap On Tap off
- Package 3 – Patient Entertainment System
- Package 4a – PC’s, Thin Clients, SOE
- Package 4b – Workstation on Wheel’s
- Package 4c – Printers
- Package 5 – Clinical Mobile Handsets and Mobile Duress
- Package 6 – Workflow Terminals
Program

- Group 2a
  - Design
  - Tender
  - Technical Specification
  - Build & Test

- Group 2
  - Design
  - Tender
  - Technical Specification
  - Build & Test

- Group 3
  - Design
  - Tender
  - Technical Specification
  - Build & Test
  - MAC Test & Rectify
  - UAT
  - Transition
  - Go-Live
Program
# ICT Methodology

## Stage 1: Project Inception
- Mobilise Team
- Re-confirm dates to the master schedule
- Review of Technology Specification
- Review existing project documentation
- Consultation and Lessons Learned including workshops and reports

## Stage 2: Group 2a Design Stage
- Meetings & workshops
- Design Options
- Reports, Draft Design and Drawings
- Prelim Cost Estimates
- Feedback incorporation
- Finalise Technical Specs, Drawings and Schedules

## Stage 3 & 4: Group 2 and Group 3 Design Stage
- Meetings & workshops
- Design Options
- Reports, Draft Design and Drawings
- Prelim Cost Estimates
- Feedback incorporation
- Finalise Technical Specs, Drawings and Schedules

## Stage 5: Group 2, 2a, 3 Tender Process
- Tender evaluations and reviews
- Tender meetings

## Build & Test Phase
- Review tests plans
- Participate in tests
- Review documentation

## UAT
- Review submissions
- Participate in UAT’s

## Transition
- Provide Transition Plan
- Assist in mobilisation
Questions?