

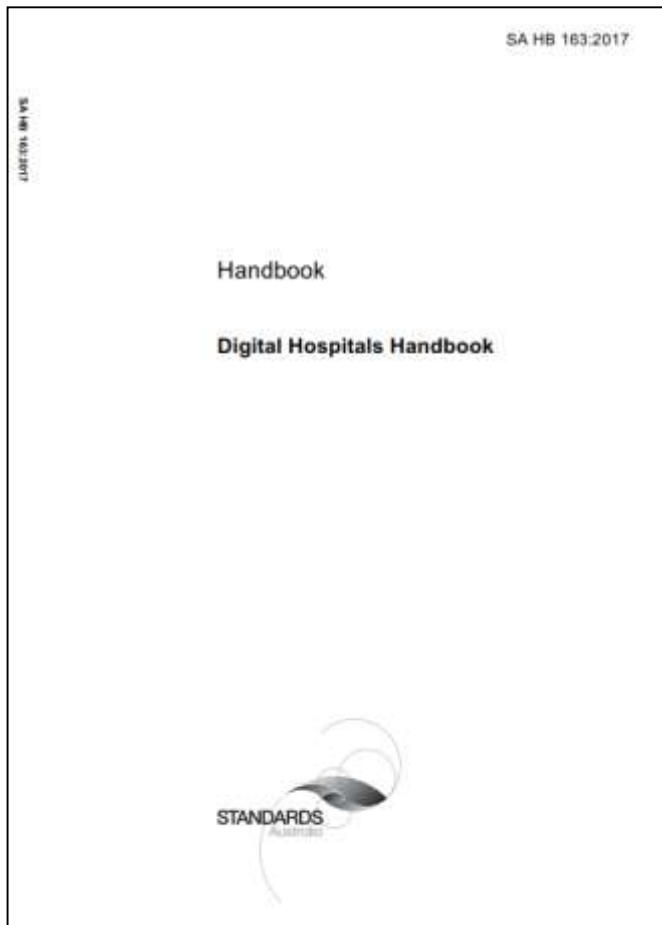
A blue world map graphic composed of small dots, located at the top of the slide.

# Digital Hospital Design

Six Key Principles

Richard Morrison  
AECOM ICT Practice Lead  
BICSI South Pacific Chair

# Digital Hospitals Handbook

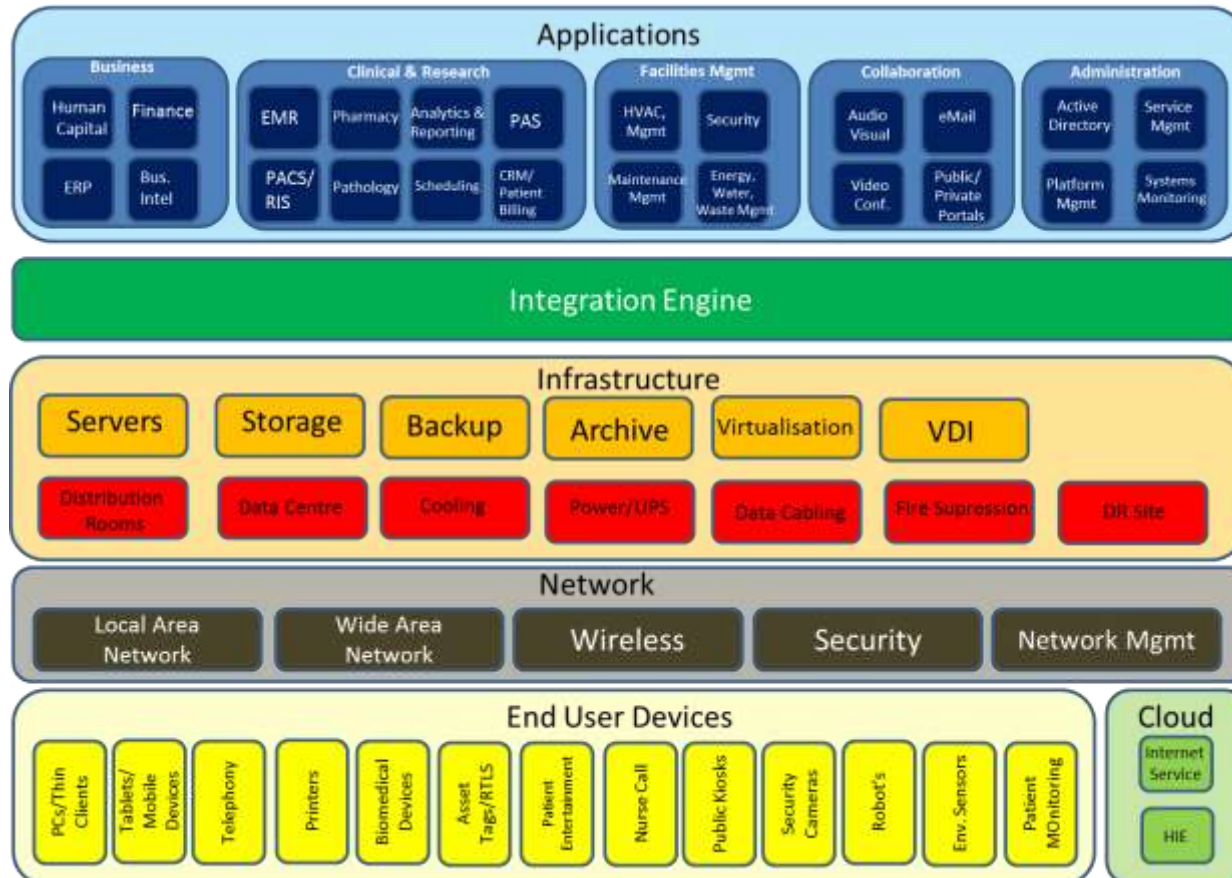


- Standard SA HB 163:2017
- Principles and recommendations to inform design and implementation

# 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

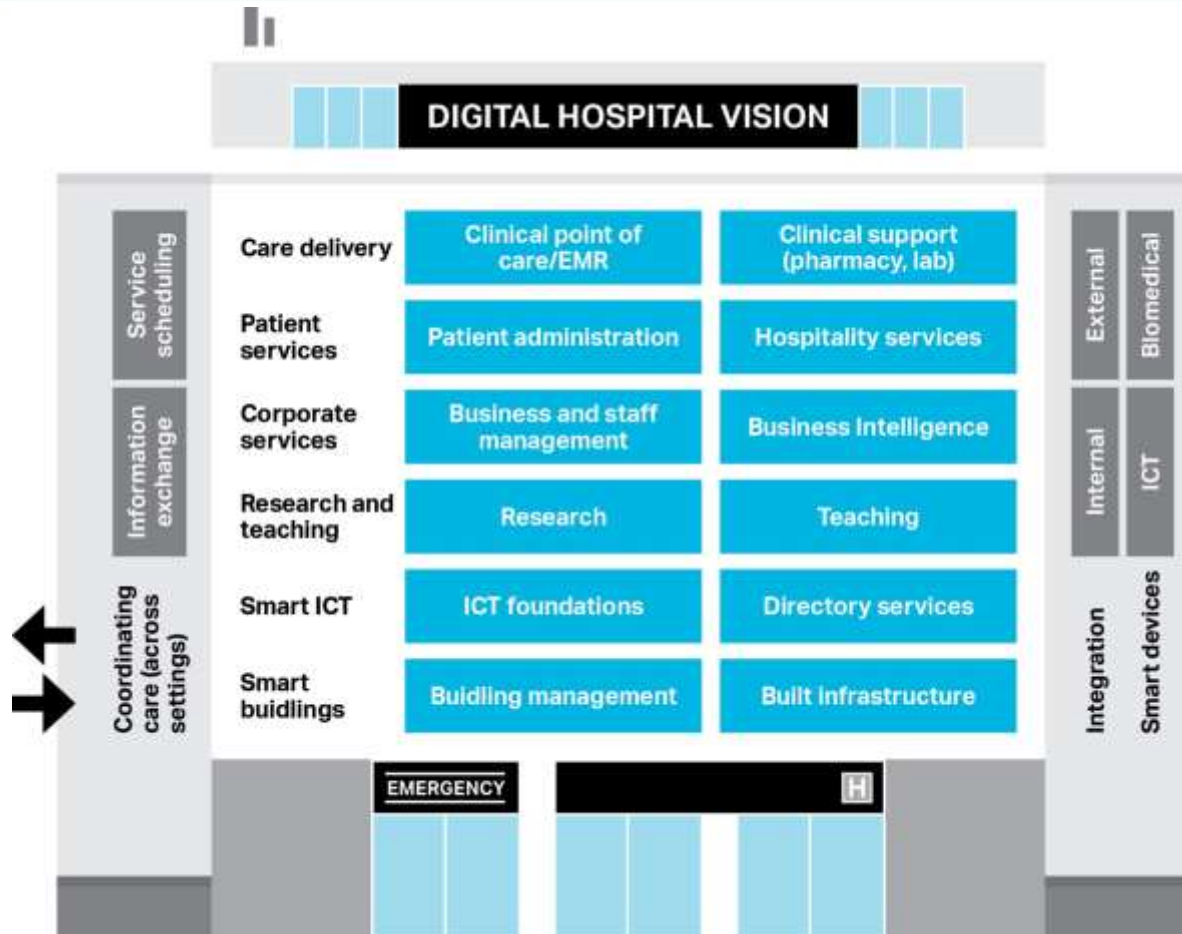
- Engagement model and budget to identify time and resources required to meet end objectives
- Tailored stakeholder engagement for specific groups/needs
- Training for end-users as close to go-live as possible
- Testing in vivo with as close to live scenarios as possible

# Principle 6

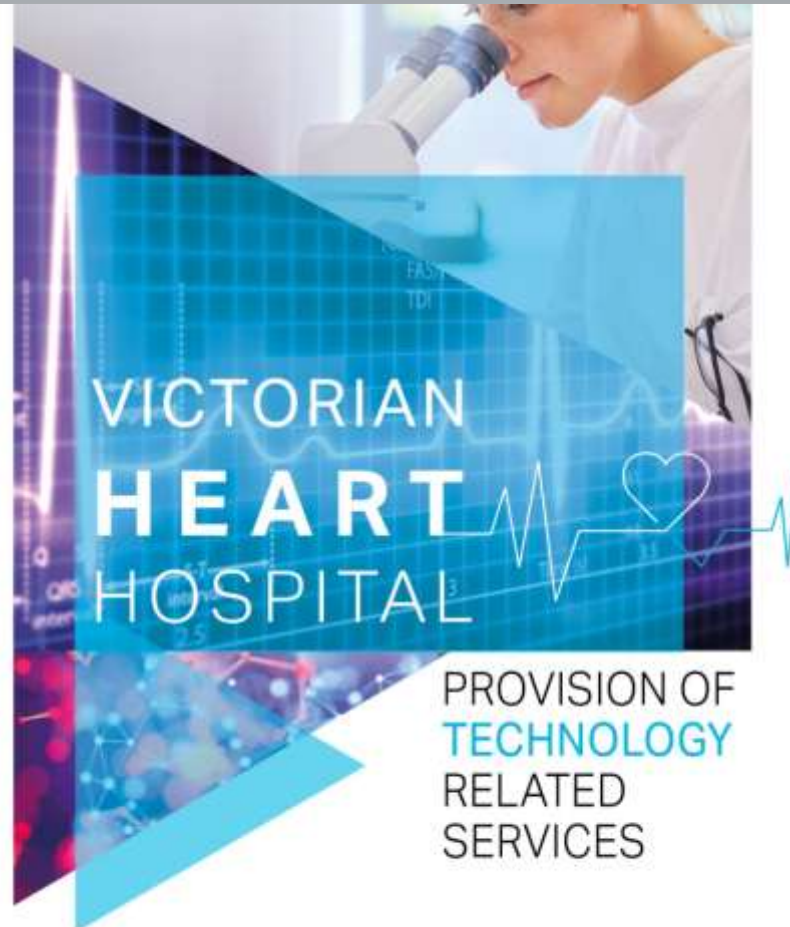
## Operation of the Organisation, Go-Live, and Future

- 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



Tender no: C7055  
8 February 2018

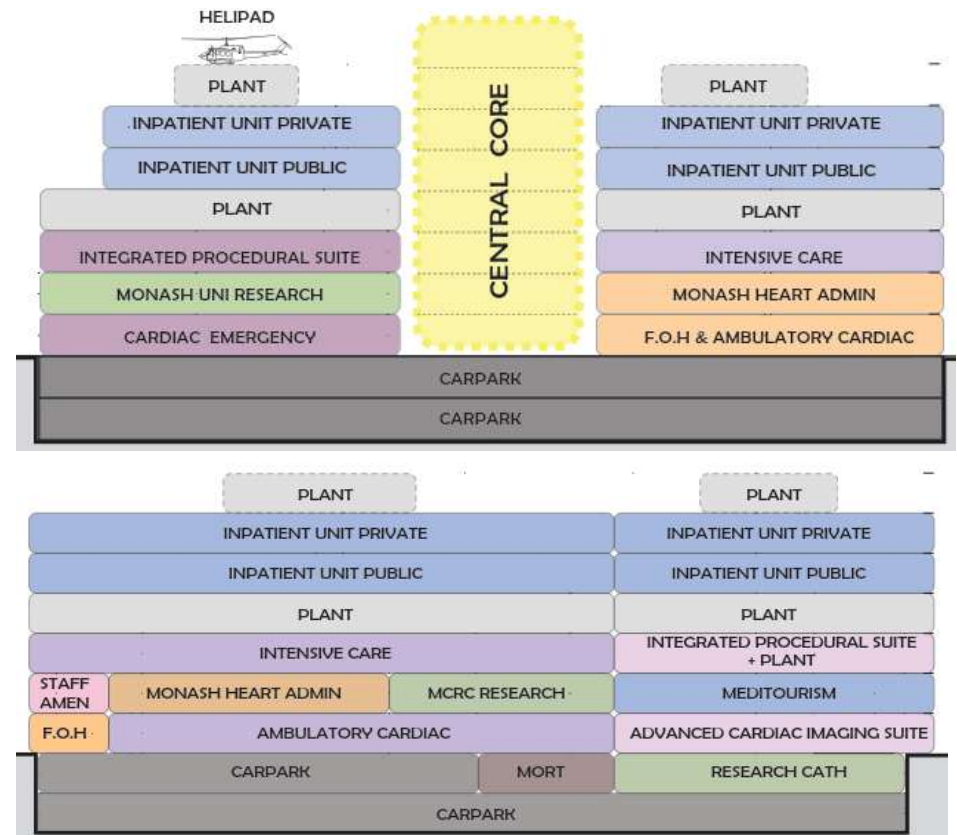
PROVISION OF  
TECHNOLOGY  
RELATED  
SERVICES

**Bicsi**<sup>®</sup>  
SOUTH PACIFIC

# Victorian Heart Hospital

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

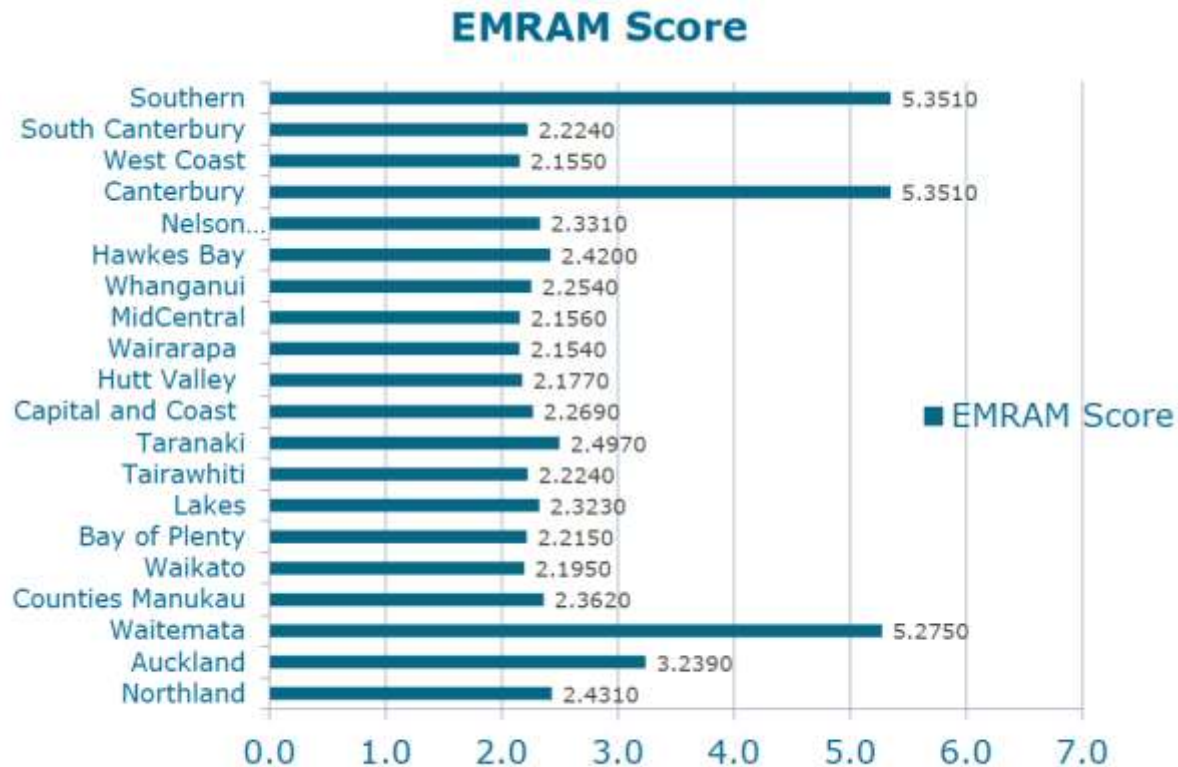




# HIMSS Level 6

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

# New Zealand EMR Adoption



Source: HIMSS Analytics® Database

# Group 3

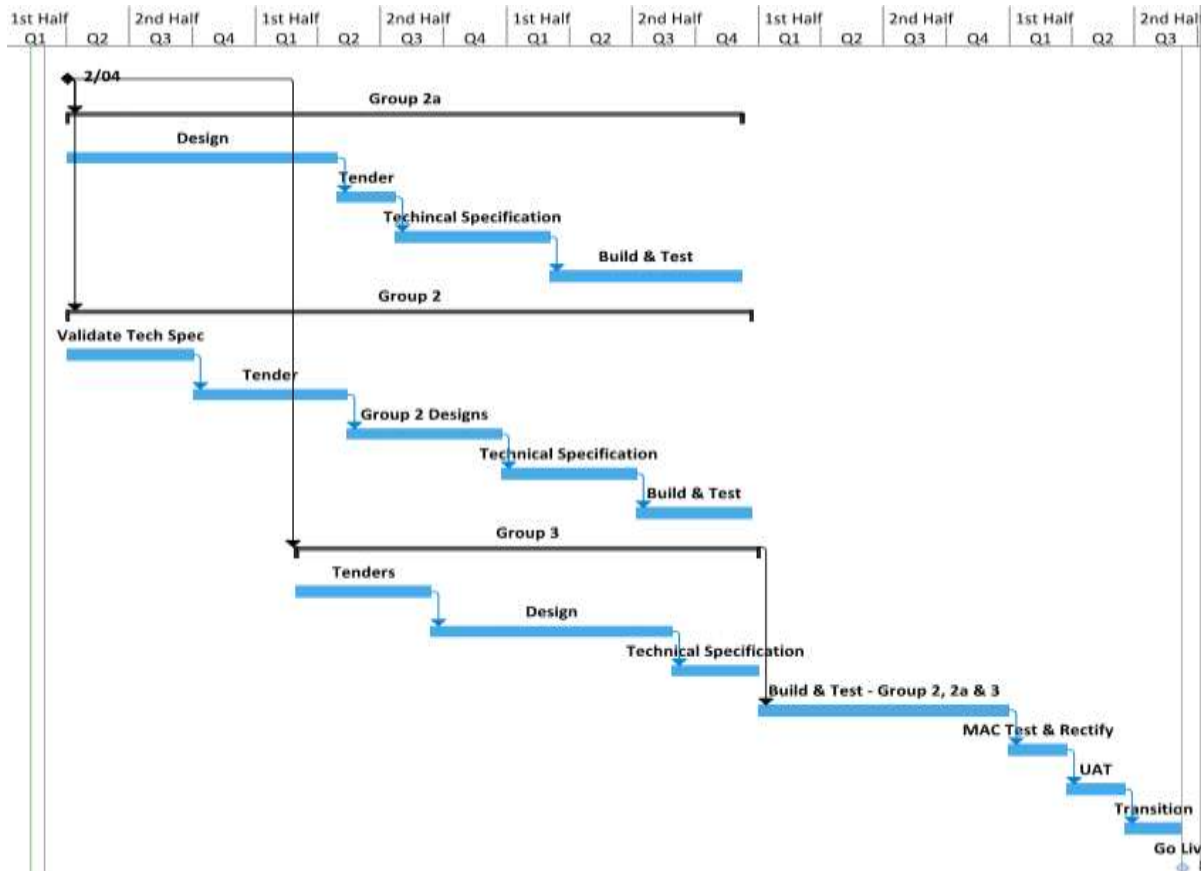
- Package 1 – LAN, WAN, WLAN, VOIP, RTLS, Video Conferencing
- Package 2 – Servers, Storage, Backup, Archiving, VDI, SSO, Tap On Tap off
- Package 3 – Patient Entertainment System
- Package 4a – PC's, Thin Clients, SOE
- Package 4b – Workstation on Wheel's
- Package 4c – Printers
- Package 5 – Clinical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

Cost Estimates

- Prelim Cost Estimates

Documentation

- Incorporate Feedback
- 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

Cost Estimates

- Prelim Cost Estimates

Documentation

- Incorporate Feedback
- Finalise Technical Specs, Drawings and Schedules
- Develop Responsibility Matrix

## 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?