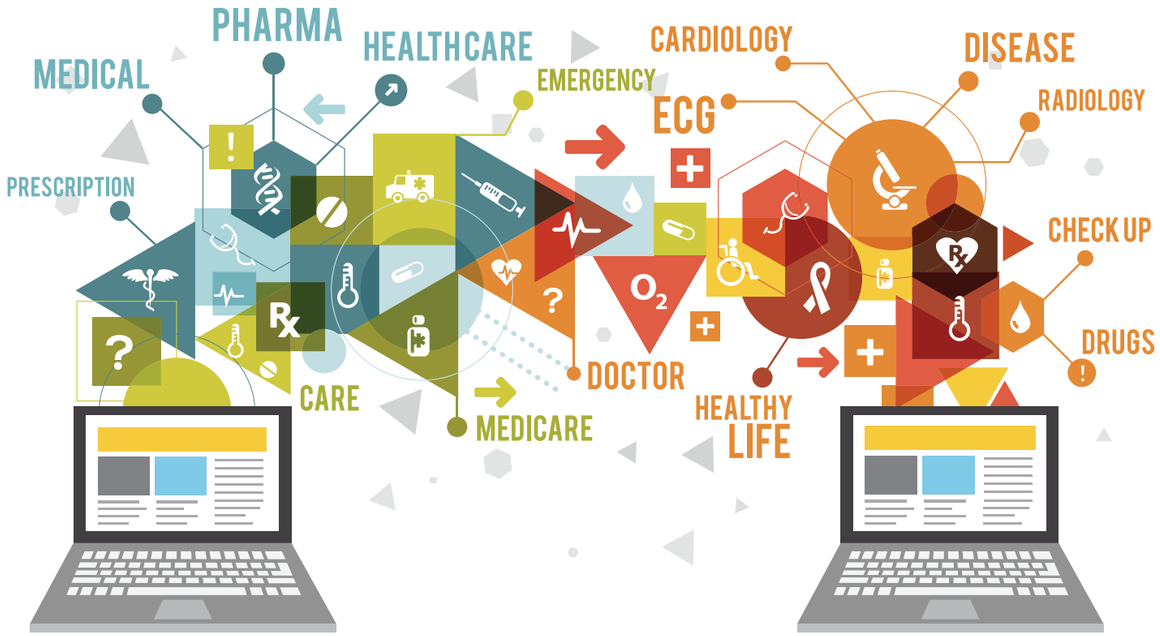
THINCinsight

Better Connected

Ben Ammundsen and Brad Richardson, Directors of Thinc, argue that ICT and technology systems are being considered too late in the development of health infrastructure projects and should underpin the planning process, if we are to truly leverage the power to maximise operational efficiencies and improve patient outcomes in the future.



The Australian healthcare system is creaking under pressure. With an ageing population, increasing levels of chronic disease and technology itself driving the higher demand for health care due to improvements in patient assessment and diagnosis, it is not surprising that the system is struggling to meet the demands of our population.

A recent report from the Grattan Institute highlights the massive spending on the health sector over recent years, showing that hospital spending increased above GDP more than any other individual category:

"The increase in government spending is driven above all by health spending, which in the past 10 years has risen by more than $40 billion a year in real terms. The cause is not the ageing population but the fact that people are seeing doctors more often, having more tests and operations, and taking more prescription drugs."[1]

Drastic solutions are being considered by government and there is no doubt that efficiencies need to be found to reduce both the operational and capital costs associated with building and running health assets. This includes achieving more efficient working environments, increasing the productivity of the system and ensuring the most appropriate party undertakes the service delivery.

As an industry, we need to explore innovative solutions to meet the ever-increasing demands on the health system and there is no doubt that technology will have a big part to play.

+ Harnessing the power of technology

New technology and integrated ICT systems are having a major impact on how healthcare is delivered. The potential to improve quality-of-care for end-users, whilst also generating operational efficiencies for providers, is significant.

With the rapid pace of development and major application breakthroughs happening almost every day, it can be a complex challenge. By sharing records through ehealth initiatives, harnessing new technology, creating truly connected healthcare 'atmospheres' and analysing Big Data, innovative health systems around the world are:

- Improving chronic disease management
- Reducing the demand on acute healthcare services
- Increasing throughput
- Improving patient safety and quality of care
- Unlocking operational efficiencies.

Considering the benefits it can bring, it is not surprising that the healthcare technology industry is big business and forecasts predict that by 2017 healthcare ICT spending in Australia will reach $2.16 billion[2]. What is surprising – considering its cost and also its potential value – is that all too often we find ICT is considered too late in the planning and development of health assets to deliver on its full potential. It is almost inconceivable for example, in today's hyper-connected world, to think that a new hospital would open without an Executive Information System. However it remains commonplace that new hospitals

[1] Grattan Institute, *Budget pressures on Australian governments 2014,* May 2014
[2] IDC, *Australia Healthcare ICT Market 2013–2017 Forecast and Analysis,* October 2013

> *"Leadership and management should actively engage the workforce in any changes, and communicate the benefits of new technology to increase the change of successful adoption.*[3]

are planned and open without Clinical Information Systems with clinicians expected to draft lengthy business case submissions and spend many years trying to justify their need.
A well planned and truly connected healthcare ICT 'atmosphere' can enable health practitioners access to medical applications and electronic patient data at any time, from any location, facilitating the best possible patient care. Yet acute care areas are often still extremely paper and data intensive with even the most basic clinical decision requiring the clinician to digest a vast array of indices and results from multiple disparate 'island' ICT systems. Some of these systems are located at the point of care and others such as LIS & PACS are typically located away from the point of care.

As an example, within the ICU a nurse will transcribe onto paper (in some cases many times per hour) all parameter data and indices from the myriad of bedside therapy devices. He/she will then add notes, add up, subtract, graph etc. This paper chart becomes one of the primary sources of data for decision making. When you consider that iatrogenic hazards such as transcription errors and medication errors rank among the highest preventable and costly hazards in healthcare, it is difficult to comprehend why electronic clinical information systems such as Critical Care, ECG, Perinatal, Anaesthetic, Dose Error Reduction etc. are not included in mandatory standards of care for the purposes of integrated systems design and development.

Data-sharing and analytics, collaboration and digital practices will be the driving force behind delivering healthcare services into the future. In hospital environments when such systems are effectively integrated with other technology, the efficiency generating opportunities as well as the clinical benefits are significant.

+ The technology mix

Other new technology systems – such as automated guided vehicles (AGV) also have a part to play in the 'technology mix.' AGVs have multiple uses and can be used to transport waste, consumables, linen, food, sterile goods and equipment. They can have major cost benefits, but as with any other new technology, they can have a major impact on design.

Good logistics planning in the design phase is vital to enable providers to realise these savings and key factors to consider include:

- Incorporating drop off and pick up areas
- The width of corridor and fire doors to accommodate AGV sizes
- Security needs – e.g. access between secure and unsecure areas
- Flooring – it should be level (a maximum of 5 degrees), well laid and preferably rubber
- Fire considerations
- Interface management – between lift, door and fire systems
- Travel paths

If these things aren't considered, an AGV system is highly likely to be completely redundant. The design implications of implementing an integrated 'whole of hospital' ICT system are infinitely more complex.

Other areas of technology adaptation such as bar coding, use of tablets, mobile equipment and devices, voice recognition software and integrated teaching and clinical systems also lead to major improvements in efficiencies relating to information recording, access and reporting.

Telehealth through videoconferencing, live-streaming and recorded sessions also results in technology enabled live interactions, which improve patient management at all stages of health care and overcome some of the workforce challenges associated with rural and remote populations accessing timely care.

+ A technology enabled workforce

The health workforce will also need education to understand the benefits of technology and be receptive to new ways of working. As stated by the Centre for Health Workforce Intelligence (2013):

"Leadership and management should actively engage the workforce in any changes, and communicate the benefits of new technology to increase the change of successful adoption." [3]

[3] Centre for Health Workforce Intelligence, *Diffusion and Adoption of Technology and Innovation across the health and social care workforce*, 2013.

A new approach

- As an industry we need to embark on a new era of health construction, redevelopment and optimisation, whereby the planning and development process of health assets and the health workforce is underpinned by ICT and other technology systems and their potential to improve outcomes for all participants.
- The potential impact of technology on models of care should commence at the health service planning stage and, supported by a change management process, subsequently flow through to the facility planning, and workforce planning stages. ICT providers should also then be effectively and consistently consulted at the earliest stages of the design process of major projects. The same is true of FF&E providers.
- Design teams also need to work together with clients, to create flexible health assets that can adapt to the rapid pace of technological change over the coming years.
- By adopting a more collaborative approach and embracing technology, we believe we will be able to create more efficient and effective healthcare facilities that will enable Australia to continue to offer world-class healthcare and deliver the best possible patient outcomes for our growing population.

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