# CAUDIT
Council of Australian University Directors of Information Technology

# Tip of the iceberg

A brief for CAUDIT member representatives

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## TOPIC: The Digital Campus

## BACKGROUND

In the previous *Tip of the Iceberg*[1] we considered the issue of digital transformation, and how strategy, rather than technology, drives digital transformation.  In this brief, we identify the various technologies, trends and approaches that are being incorporated by universities to create the 'Digital Campus'.

The technology strategies being discussed are options; for consideration in the larger context of the strategy of the university and may not necessarily be a good fit depending upon the digital maturity of the university and its other priorities.

A 2015 study by MIT/Deloitte indicated the top five barriers to digital progress (according to the education respondents) were:

1.  Lack of overall strategy (40%)
2.  Competing priorities (37%)
3.  Lack of organisational agility (30%)
4.  Lack of management understanding (28%)
5.  Insufficient technical skills (28%)

The environment is complicated, with many moving parts, but these barriers may be addressed through three areas: people, process and technology.

## KEY FINDINGS

*(Please note that some items don't fit neatly into the three simplified areas.  'Shadow IT' can be seen, for example, as a failure in process, or as a deliberate strategy.  Items have been categorised as they fit best).*

**1.  People**
### 1.1.  Social

In *Alone Together* (Turkle, 2012) careful consideration is given around how technology has become part of the social fabric.  The illusion of online companionship has created both connection and solitude.  The university campus has swung from one extreme to the other; a place where all learning takes place, to a relic of previous times (where study happens online, separately) and now normalising with the integration of online and in-person interaction.  If it hasn't already done so, your institution will need to develop a strategy and approach to determine the best balance between physical and virtual.  The Digital Campus need not be exclusively online; the strategy needs to guide which technologies are the best fit, and how that technology is to be used.

### 1.2.  Generational Issues

Different generations handle and consider 'technology' differently.  In *The Salmon of Doubt,* Douglas Adams considers the relationship between age and technology.  *It's Complicated* (Boyd, 2015) considers teenagers in particular – those students that are entering university in the coming few years.

> "I've come up with a set of rules that describe our reactions to technologies:
>
> 1.  Anything that is in the world when you're born is normal and ordinary and is just a natural part of the way the world works.
>
> 2.  Anything that's invented between when you are fifteen and thirty-five is new and exciting and revolutionary and you can probably get a career in it.
>
> 3.  Anything invented after you're thirty-five is against the natural order of things."
>
> – Douglas Adams, *The Salmon of Doubt*

Social media and networking comes naturally to teens in a particular way; a way that is difficult for those in the generation involved in structuring teaching, learning, research and administration within the university to understand.

The Digital Campus needs to work with and for multiple generations, with multiple points of view.

### 1.3. Skills and Capabilities

Different perspectives give rise to different skills and capabilities.  A lack of technical skill was identified by Kane, et al (within the Education sector) as the fifth greatest barrier to digital progress.  Appropriate training (not necessarily formal training), awareness and support systems need to be put in place to support the Digital Campus.

## 2. Process
### 2.1. Business Process Engineering

Historically, business processes have been manual and involved paper-based data and physical storage.  Early implementations of business technology automated *portions* of manual processes.  A completely digital environment re-implements processes without mimicking manual processes.

> "Customers have been spoiled.  Thanks to companies like Amazon and Apple, they now expect every organisation to deliver products and services swiftly, with a seamless user Experience."
>
> – 'Accelerating the digitization of business processes' (Markovitch and Willmott)

Business process engineering makes processes simple for end-users, but requires careful consideration of process in a manner that may be quite complicated.  A thorough understanding of processes is required, and agility may be reduced when changes are required.

### 2.2. Cyber Security

A digital campus is at significantly increased risk of data being inappropriately released and at greater speed.  While, technology is an enabler of this risk (allowing rapid disclosure, for example), the issue of cyber security is primarily an issue of process.

Careful consideration needs to be given to all aspects of security as automation increases on campus; as with many of the identified technical possibilities, increased digitisation increases complexity within the system, while decreasing complexity for the customer or end-user.

### 2.3. Shadow IT

'Shadow IT is a term used to describe IT systems and IT solutions built and used inside organisations without explicit organisational approval (Wikipedia).  It comes with both pros and cons; it may drive innovation, allowing quick and agile provision of services, but it may do so while increasing risk in a manner that may be unacceptable.

Shadow IT is an issue of compliance; agility can be created while maintaining compliance, provided the appropriate governance mechanisms are put in place.

## 3. Technology
### 3.1. Mobile

When Apple first released the iPad in 2010, there were certain technologies that weren't supported, most notably Adobe Flash.  Screen sizes and processing power limited what was possible with a mobile application, but over time mobility and convenience became more important.  Applications ('Apps') were redesigned to make use of cloud-based computing, and to ensure that they could do 'one thing well' rather than a multitude of things.

In 2015 it is more likely to find a feature or function that can only be done on a mobile device, be it iPhone, iPad, Android or Windows mobile.  'Mobile first' has been adopted as a catch-cry of governments, businesses and institutions worldwide.

On campus, institutions can assume that students, staff, researchers and the public are carrying a mobile device; it's the first choice of customers, and therefore the logical first choice for any new process.

### 3.2.  Cloud

Cloud computing is described in many ways, and can be very easily misunderstood.  A 'cloud-first' strategy, when considered in conjunction with a 'mobile-first' strategy can be more easily described.  A mobile App can be created, supported by compute and storage hosted by a third party with no dependence upon an institution's infrastructure.

Existing computing and storage infrastructure can also be moved to 'the cloud,' effectively outsourcing the provision of compute, storage and related services (to a greater or lesser extent).  Cloud computing may be considered as part of a 'digital campus' strategy, but it is an enabling technology, not an end in itself.

### 3.3.  Big Data and Analytics

"Big data is broad term for data sets so large or complex that traditional data processing applications are inadequate" (Wikipedia).  Data is generated by everything around us at all times.  As digitisation increases, so does the volume and complexity of data, and the potential for that data to hold hidden meaning.

New, large and automated data, in conjunction with new means of assessing and manipulating that data can lead to significant value from seemingly independent events and sources.

### 3.4.  Internet of Everything

The 'Internet of Things' or the 'Internet of Everything' refers to a future state where all objects, people, devices, animals and sensors are connected together and able to communicate data.  The inter-connection of so many devices compounds any issues above – mobile, cloud, big data and analytics may all be complicated where everything is a source and consumer of data.

The digital campus of the future will involve the *connection* of an increasing number of devices, producing more data containing increased value.

### 3.5.  Digital Signage

Digital signage displays content generated by other systems and may provide timely information to persons on campus.  A digital campus is able to create and consume data quickly, and digital signage (in conjunction with applications supporting mobile devices) may form part of a system to provide rapid feedback to students, staff, visitors and the general public.

## ACTIONS FOR CIOs

- Circulate to staff
- Access the interactive website
- Review digital strategy

## REFERENCES AND FURTHER READING

Boyd, D. 2015, *It's Complicated: The Social Lives of Networked Teens*, Yale University Press, Connecticut.

Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D. & Buckley, N. 2015, 'Strategy, Not Technology, Drives Digital Transformation', *MIT Sloan Management Review,* Deloitte University Press, July. http://sloanreview.mit.edu/projects/strategy-drives-digital-transformation/

Digital Maturity Across the Marketplace: 2015 MIT SMR/Deloitte Digital Business Global Executive Study and Research Project – interactive chart. http://sloanreview.mit.edu/2015-digital-business-interactive-tool/

Turkle, S. 2012, *Alone Together: Why We Expect More from Technology and Less from Each Other*, Basic Books, New York.

[1]Wojnarowski, S. 2015, 'Strategy Not Technology Drives Digital Transformation', *Tip of the Iceberg,* CAUDIT, 30 July.

## FOR FURTHER INFORMATION:

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