CAUDIT

2016 TOP TEN ISSUES

Focusing on the most significant technology-related issues for higher education in Australia and New Zealand

Introduction

Each year since 2006 CAUDIT has undertaken a survey of its members to determine the Top Ten Issues affecting the strategic utilisation of technology in support of their organisation's mission.

With funding pressures and increasing focus on successful student progress and completion, along with achievement of competitive research outcomes, Information and Communications Technology [ICT] plays a vital role in delivering key services, enabling digital capabilities and providing competitive advantage to each institution.

The disruption created by the transition to a digital society requires a digitally attuned university and research sector to provide the required skills and knowledge. [Disruption is not a distant rumble. It is upon us. Barney Glover, Chair, Universities Australia, May 2016][1] Universities are at the forefront of enabling people to re-skill, upskill and reinvent their jobs to embrace this transformation.

The ability to deliver effective, efficient services in a time-sensitive way is predicated by ICT partnering at a strategic level and aligned with the organisation's leadership and goals. The CAUDIT Top Ten Issues list is a vital tool highlighting the most significant areas of interest and opportunity for CDOs, CIOs, IT Directors and their institution.

1. Universities are essential to economic transition, Address to the FUTUREPROOF 2016 conference, 16 May 2016, https://www.universitiesaustralia.edu.au/Media-and-Events/media-releases/Universitiesare-essential-to-economic-transition#.V1plSP72VD8

2014–16 Overview

The most significant technology-related issues faced by universities in each of the past three years, and how and where they rated over this period, is summarised in the graphic on the following page. The ranking of each is denoted by the number in the coloured circle. Where an issue has been ranked in multiple years their rankings are linked.

Methodology

The 2016 Top Ten program commenced with a literature review by CAUDIT staff of higher education and ICT technology articles. An initial listing of 73 potential issues were identified. From this, a short list of 30 issues was determined by the CAUDIT Executive Committee for Top Ten ranking by CAUDIT member representatives.

To identify the nature of each issue primary and secondary key words were assigned to each issue. This facilitates tracking of trends over time, particularly where the description of an issue has evolved.

Overview

Most striking of the 2016 ranking is the lessening focus on Research Support – 'Developing a sustainable research support model servicing the needs of all researchers' – dropping from the top three in 2013 to 2015, to #9 in 2016. This may be a reflection of progress made in this area and engagement with the national eResearch Framework discussion.

Two new entries for 2016 were highly rated – issue #3 Information Security and issue #4 Education Technology. One impact was the drop of the associated security issue Secure Collaboration from issue #5 in 2015 to issue #22 in 2016.

Remerging as Top Ten issues after dropping outside the Top Ten ranking in 2015 were issue #6 Workforce Evolution up from #12 in 2015, and issue #7 Business Value, up from #14 in 2015.

Support for the core activities of teaching and learning remain at the top with additional issues relating to these also appearing.

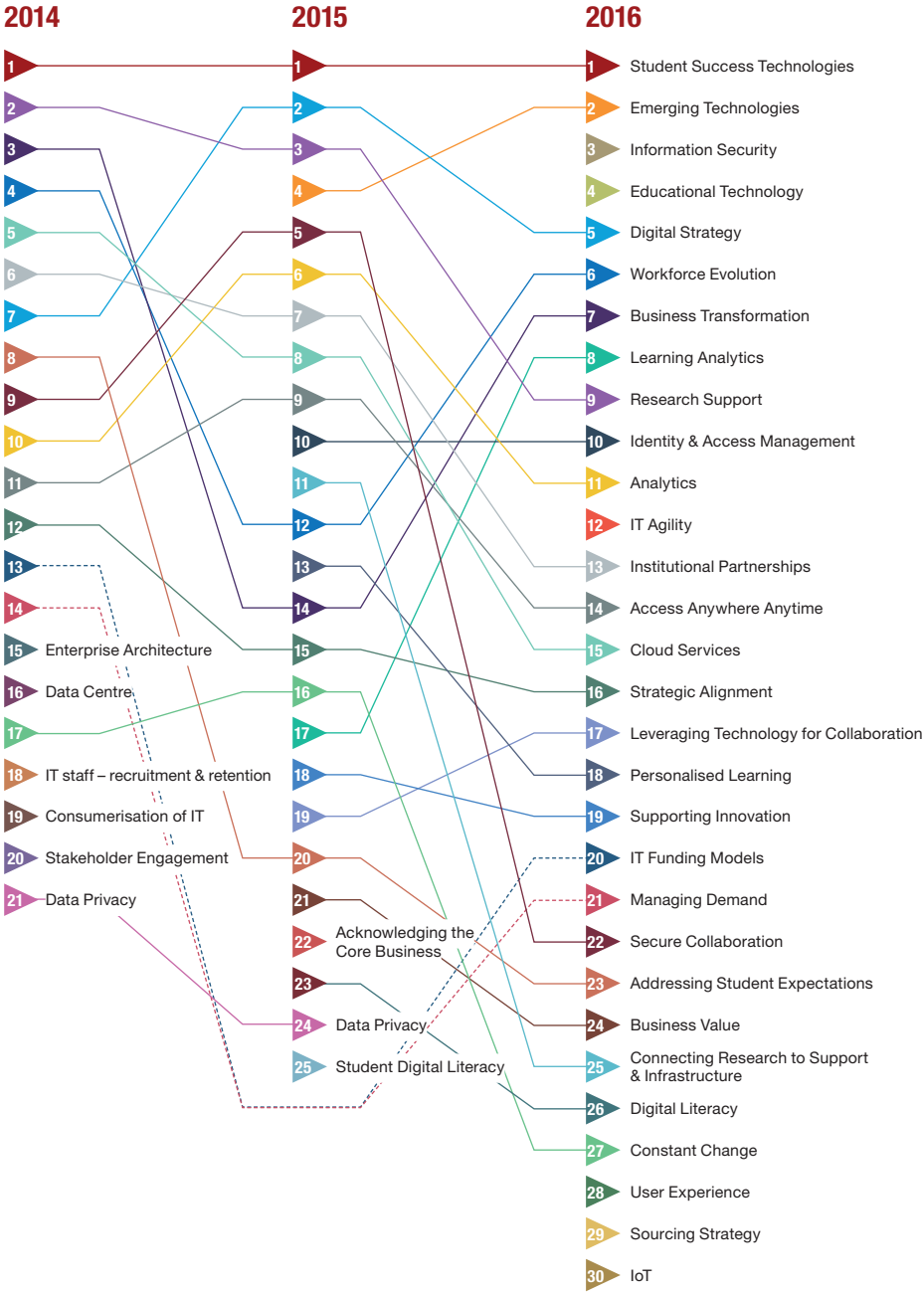
New or redefined issues in 2016 either in the Top Ten or on the fringe are:

#3. Developing a holistic, agile approach to information security to create a secure network, develop security policies, and reduce institutional exposure to information security threats

#4. Supporting the use of innovative technology in teaching and learning

#12. Creating structures, roles and development strategies that are flexible enough to support innovation and accommodate ongoing changes in higher education, IT service delivery, technology and analytics

Trends from 2014–16



Expanded explanation of 2016 issues (sorted alphabetically)

Access Anywhere Anytime	Providing access to on-campus learning and research applications off-campus, anywhere, anytime
Addressing Student Expectations	Understanding and addressing the expectations of a new generation of students
Analytics	Applying analytics to support strategic initiatives and change
Business Transformation	Positioning IT as a catalyst to transform the business functions of the institution
Business Value	Demonstrating business value to show how IT can help the institution achieve its goals
Cloud Services	Leveraging cloud services strategically for integrated services to students and staff
Connecting Research to Support & Infrastructure	Connecting the disparate research community to existing support tools and infrastructure by facilitating awareness and access
Constant Change	Managing and leveraging the confluence of megatrends - mobility, personalisation, collaboration, flexibility and big data
Digital Literacy	Increasing the level of digital literacy of staff and students
Digital Strategy	Developing a fit-for-purpose digital strategy for the institution's future
Educational Technology	Supporting the use of innovative technology in teaching and learning
Emerging Technologies	Facilitating and supporting the application of emerging and existing technologies to improve the 'University experience' for students and staff
Identity & Access Management	Effective and efficient Identity and Access Management to provision appropriate e-Services to students and staff
Information Security	Developing a holistic, agile approach to information security to create a secure network, develop security policies, and reduce institutional exposure to information security threats
Institutional Partnerships	Fostering the partnership between IT & institutional leadership to achieve a collective understanding of the capabilities of IT to support teaching, learning, research, engagement and administration
IoT	Update existing enterprise architecture and operating models to enable smart device usage developed through connecting things to capturing insights
IT Agility	Creating structures, roles and development strategies that are flexible enough to support innovation and accommodate ongoing changes in higher education, IT service delivery, technology and analytics
IT Funding Models	Developing IT funding models that sustain core services, support innovation, and facilitate growth
Learning Analytics	Supporting improved student progress through establishing & utilising learning analytics
Leveraging Technology for Collaboration	Leveraging and providing easy access to technology to enable greater use and increased collaboration
Managing Demand	Managing demand to deliver high quality services and projects
Personalised Learning	Paradigm shift to personalised learning with online, blended and hybrid learning, and collaborative models to better engage with students
Research Support	Developing a sustainable research support model servicing the needs of all researchers
Secure Collaboration	Balancing agility, openness and collaboration with security, risk and privacy in a hybrid environment
Sourcing Strategy	Sourcing technologies and services at scale to increase efficiencies (e.g. via cloud)
Strategic Alignment	Instilling effective governance structures for IT aligning with the strategic direction of the institution
Student Success Technologies	Improving student outcomes through an institutional approach that strategically leverages technology
Supporting Innovation	Facilitating and supporting innovation, wherever it may occur
User Experience	Ensuring consistent interface for all technologies used on and off campus
Workforce Evolution	Reshaping the workforce to position IT as an agile enabler and strategic business partner

The issues explained

1 Student Success Technologies

Improving student outcomes through an institutional approach that strategically leverages technology

Ensuring that technology actively supports the institutional strategic objectives to achieve improved student outcomes continues as the top issue for CAUDIT members in 2016. Staff and student ability to use existing and emerging technologies is an essential factor in their success and well-being.

Learning Analytics and Academic Analytics are gaining increasing prominence as applications to improve the university experience and enable better decision-making. As primary tools for faculty and administrators they provide real time evidence of student learning progress and support needs enabling early intervention to ensure academic completion as well as reporting teaching and learning staff performance.

Emerging technologies have potential to provide open and secure sharing of authenticated academic record and student progress as they earn credentials. To meet these demands ICT has a critical role in working with students and teaching and learning staff to identify, assess, implement and enable access to systems and applications best suited to achieving the institution's strategic goals and student success.

A coordinated, institutional approach leveraging technology effectively is essential.

Ranking Trend: 2014 #1 ▲ | 2015 #1 ▲ | 2016 #1 ●

2 Emerging Technologies

Facilitating and supporting the application of emerging and existing technologies to improve the 'University experience' for students and staff

New flexible ways of working and collaborating with their colleagues are expected by students, staff and management. Emerging technologies hold the promise of a more fluid work-study environment and engagement with quick-response interaction between student and instructor the norm.

Building on the foundation of complex systems such as Learning Management and Student Management Systems an enriched and informed university experience can be enhanced through personalised learning. In this environment a student can study and progress at their own pace, using both prescribed and non-prescribed technologies, when and where they choose. Video and non-prescribed material have come to the fore.

Emerging technologies also hold the promise of facilitating staff collaboration and enabling more effective, cost-efficient, work processes and a safer – both physically and virtually – campus.

Identifying these are key to improving the university experience.

Ranking Trend: 2014 #1 & #2 ▼ | 2015 #4 ▼ | 2016 #2 ▲

Legend: ★ New ● Stayed the same – Not listed ▲ Increased ▼ Decreased

3 Information Security

Developing a holistic, agile approach to information security to create a secure network, develop security policies, and reduce institutional exposure to information security threats

Universities face cybersecurity threats from ever increasing sources. With the vast range of access points across a campus and large number of critical data assets, personal information, valuable research and intellectual property are potentially vulnerable. ICT security needs to negotiate the traditional university values of openness, transparency and academic freedom.

Information security is dependent on people. Developing a culture of awareness through education and ongoing communication on security issues will help establish cyber security as the shared responsibility of everyone on campus to ensure university networks and system remain safe.

To mitigate cybersecurity threats technology needs to be current and continuously updated together with supporting technical knowledge. In defending against what is not known the CISO/ information security manager needs to be ever vigilant and communicate proactively with Council and broader university community.

Security cannot be an afterthought. It needs to be 'designed in' from the beginning of any activity.

Ranking Trend: 2014 — | 2015 — | 2016 #3 ★

4 Educational Technology

Supporting the use of innovative technology in teaching and learning

Technology plays an instrumental role in the education experience of students regardless of whether they grew up as digital natives or not. Students are "*connected, communicating, content-centric, computerised, community-oriented, always clicking*".[2] With devices a fixture in their learning experience, students are accustomed to leveraging technology. However there is a question as to their proficiency and understanding of technology within a university context.

At the same time, they expect technologies such as video, virtual and augmented reality, artificial intelligence, robotics and 3-D printing to deliver integrated personalised learning. Innovative and engaging interactive learning processes are sought. Students want to be able to decide for themselves their education needs and rate of progress.

Universities, in considering their role in the digital society, need to embrace and apply these emerging technologies in the design of learning spaces, virtual and remote laboratories and to provide interactive and collaborative blended and personalised learning.

For universities to compete and succeed in increasingly competitive conditions, enabling these technologies is a critical role for ICT.

Ranking Trend: 2014 — | 2015 — | 2016 #4 ★

2. Friedrich, R., Le Merle, M., Peterson, M., & Koster, A. (2010). *The rise of Generation C: Implications for the world of 2020*. London: Booz & Co.

The issues explained

5 Digital Strategy

Developing a fit-for-purpose digital strategy for the institution's future

Nearly every facet of daily activity is increasingly digital with the impact on universities becoming profound. The established higher education business model is being continually challenged – not only by funding source changes but also from innovative practices in teaching and learning, research and administration.

Digital technology is transforming organisation and business processes. By necessity, any digital strategy has to be incorporated in the institution's strategy and planning. Leaders, across the board, need to recognise why 'digital' is important and 'own' the transformation.

ICT is a key partner in the digital conversation and needs to be ever alert to disruptive technology trends, able to interpret and explain their potential application and demonstrate how it brings value to the university.

Digital acumen is a critical enabler.

Ranking Trend: 2014 #7 ▲ | 2015 #2 ▲ | 2016 #5 ▼

6 Workforce Evolution

Reshaping the workforce to position ICT as an agile enabler and strategic business partner

Technology advancements continue to accelerate at an unprecedented rate disrupting the current workforce and only those institutions that equip employees with new skill sets will be able to fully capitalise on innovation. ICT talent can play a key role in differentiating the institution in an increasingly competitive digital environment for students and staff.

The transition to XaaS will require resources dedicated to service contract and vendor management. In addition, strong analytical, engagement and negotiation skills will be required when engaging internally as collaborative partners in establishing new processes, systems and platforms across the institution. ICT leadership and staff have to be confident in dealing with disruption, embracing constant change, delivering outcomes and being digitally risk aware.

As institutions embrace a digital culture the ICT workforce is being reshaped and reskilled to become an agile enabler and ameliorate the shortfall in new ICT graduates.

Ranking Trend: 2014 #4 ▲ | 2015 #12 ▼ | 2016 #6 ▲

Legend: ★ New ● Stayed the same – Not listed ▲ Increased ▼ Decreased

7 Business Transformation

Positioning IT as a catalyst to transform the business functions of the institution

The business functions within institutions are now being reviewed and transformed more frequently than ever before in response to political and economic pressures and social change. Digital transformation invokes cultural change. Its value needs to be indicated, understood and accepted at all levels of the institution's community.

ICT needs to ensure trust is engendered across the institution in key areas such as security, information privacy and ethical data management practices. These should be integral in any new developments.

As a critical partner in transformation, ICT brings an awareness of innovation and the potential application of new technologies to improving the institution's internal functions and processes.

Ranking Trend: 2014 #3 ● | 2015 #14 ▼ | 2016 #7 ▲

8 Learning Analytics

Supporting improved student progress through establishing & utilising learning analytics

Anytime a student interacts with their institution – accessing the Wi-Fi network; university timetable; LMS or library; submitting an assignment electronically; receiving exam results – a digital footprint is made. Improving the student experience is a key factor in the recent emergence of Learning Analytics in higher education. Learning Analytics enables the systematic application of available data to understand and flag any need for early intervention in order to optimise student progress. By the context in which it takes place, teaching and learning performance can also be enhanced. Evidence from early adopters has confirmed applying learning analytics has resulted in improved student outcomes.

Establishing systems to manage the increased inflow of data provided in a multitude of formats from a vast range of sources on and off campus, initially undertaken in the infancy of this technology by the learning analytics start-up areas, is now being directed to ICT.

Collaborating with their teaching and learning and administrative colleagues, ICT needs to ensure the learning analytics system architecture is compatible with established university systems and processes while supporting new developments.

Ranking Trend: 2014 — | 2015 #17 ★ | 2016 #8 ▲

The issues explained

9 Research Support

Developing a sustainable research support model servicing the needs of all researchers

Increasingly research is global in extent and urgency. ICT is faced with keeping up with the speed of development and providing new realms of support generated by dynamic disruptive technologies.

ICT needs to become conversant with the changing eResearch environment and its various elements to understand and address these challenges within each institution. Establishing a sustainable support and service model for research specific technology based tools and services for a creative research environment is a complex issue for ICT. Researchers need user-friendly, seamless access to data and the supporting infrastructure whether that be national facilities, in-house, hybrid or cloud data centres, or the researcher's desktop. A shift from the desktop to a supported, secure, backed-up environment is a critical success indicator of a sustainable research support model.

Engaging with the Australian eResearch Framework and Road Mapping activity is one way of addressing these needs.

Ranking Trend: 2014 #2 ▼ | 2015 #3 ▼ | 2016 #9 ▼

10 Identity & Access Management

Effective and efficient Identity and Access Management (IdAM) to provision appropriate e-Services to students and staff

IdAM complexity has increased significantly at universities. Access to cloud services, the growing volume of mobile apps used in teaching and learning, as well as those developed for on-campus activity present risks to security and compliance. Effective and efficient IdAM must balance ease of use and appropriate access with the risk appetite of the institution. Improved student and staff experience is a constant driver.

With students increasingly off campus and staff less office bound, secure remote access from a host of devices to university networks and systems is paramount. Attribute-based access controls and multi-factor authentication are some of the measures being implemented to comply with evolving security policies and streamlining of ICT processes.

An effective and efficient means of securely managing the digital identity and access of staff and students is an imperative for the sector.

Ranking Trend: 2014 — | 2015 #10 ★ | 2016 #10

Legend: ★ New ● Stayed the same — Not listed ▲ Increased ▼ Decreased

On the fringe

Analytics

Applying analytics to support strategic initiatives and change

Ranking Trend: 2014 #10 ★ | 2015 #6 ▲ | 2016 #11 ▼

IT Agility

Creating structures, roles and development strategies that are flexible enough to support innovation and accommodate ongoing changes in higher education, IT service delivery, technology and analytics

Ranking Trend: 2014 — | 2015 — | 2016 #12 ★

Institutional Partnerships

Developing internal partnerships to achieve a shared understanding of technology capabilities to support teaching, learning and research.

Ranking Trend: 2014 #6 ★ | 2015 #7 ▼ | 2016 #13 ▼

Access Anywhere Anytime

Providing access to on-campus learning and research applications off-campus, anywhere, anytime

Ranking Trend: 2014 #11 ▼ | 2015 #9 ▲ | 2016 #14 ▼

Cloud Services

Leveraging cloud services strategically for integrated services to students and staff

Ranking Trend: 2014 #5 ▼ | 2015 #8 ▼ | 2016 #15 ▼

CAUDIT

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