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The Presidents' Conversation

The Role and Influence of Universities in the Digital Economy

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Insights from the second Presidents' Conversation

Introduction and context

This report presents an overview of the ideas, issues and insights from the Presidents' Conversation, a two-day higher education leadership forum hosted by Professor Peter Høj, Vice-Chancellor at The University of Queensland, and co-chaired by Ken Boal, Vice-President of Cisco (Australia and New Zealand) and President of the Business/Higher Education Round Table (B/HERT). The event was also supported by Deloitte.

The Presidents' Conversation was conceived to bring together like-minded vice-chancellors and presidents in a forum for peer-to-peer discussion about a range of challenges and opportunities relating to universities and the digital economy. The concept of a global conversation of this type was suggested by Professor Mo Qayoumi, who hosted the inaugural conversation at San José State University in Silicon Valley in his (then) capacity as university president. That conversation was based on the theme 'the role and relevance of universities in the digital economy', a title reflecting high levels of uncertainty whether universities had a sustainable future and would remain relevant. The San José conversation took place against a backdrop of anxiety related to the disruptive impact of MOOCs to the education business model and trepidation about cyber security. Some questioned whether universities would be able to adapt to changing conditions, and whether they would survive at all. The tone was defensive and reactive, but responses were beginning to be formulated.

At the conclusion of that prototype event, plans were developed to hold a second Conversation, this time hosted in Australia with a larger group of leaders from around the world.

In 2016, the debate has changed, with the central theme shifting from 'relevance' to 'influence', recognising that universities had assumed even greater importance as global economies turned to innovation for growth and the call for stronger collaboration between business and universities. Between the two Conversations a 'pivot' had occurred. The debate was about how universities could shape the world in which we live – including at the digital frontier – rather than simply responding to its contours.

Although few underestimate the magnitude of the digital economy's market, organisational, institutional and pedagogical impact on universities, there is a growing focus on the powerful ways universities can shape and influence the digital economy. Many already are, including those involved in this event. There is still nervousness about how universities respond strongly to the disruptive forces and there is legitimate focus on risks, including complacency and resistance to change. Nevertheless, there is also rising focus on opportunities to derive greater value from universities' role as incubators of knowledge and innovation.

On the subject of a third Presidents' Conversation – and most agreed there should be a third – it is worth contemplating how the conversation may shift again. The closing sessions of the event demonstrated clearly that another 'pivot' is needed, this time in the area of university and industry collaboration. The benefits of effective partnership are broadly recognised but the collaboration code, in Australia at least, has not been effectively developed. It was agreed that this issue needed to be taken up as a priority under B/HERT's auspices. In two or three years it is hoped that the conversation will have turned to how we scale and derive even greater value from partnerships, rather than reciting well-rehearsed descriptions of the barriers that exist.

The future is here, it's just unevenly distributed

The Australian economy is experiencing immense disruption: globalisation is threatening the competitiveness of our most labour-intensive industries, urbanisation is creating immense infrastructure challenges and digitisation is creating both opportunities and threats at an industry, institution and company level.

Australia's economic future requires more than the capacity to simply cope with disruption. If Australia is to emerge as an active and sustainable player in the digital economy, it needs to fully exploit its most precious assets: the knowledge and the capability of its people. Doing so will require innovation and collaboration on an unprecedented scale. The future role of universities in translating knowledge and capability into value will take several forms including universities as problem-solvers (as well as researchers), curators of data (as well as custodians) and architects of innovation ecosystems (as well as participants).

Some Australian universities are already performing these roles, but not at a scale or with the intensity required if the nation is to address its economic and social challenges. Universities need to move from having 'islands of innovation excellence' to creating a comprehensive impact on Australia's innovation DNA. In doing so, universities can ensure that innovation and its benefits are evenly and quickly distributed.

The need for a conversation about universities' role in the digital economy

Rather than being participants in a discussion about innovation and collaboration, universities convened the conversation. The second Presidents' Conversation was held in Brisbane in February 2016 and included higher education thought-leaders from four countries and more than a dozen institutions. The focus of the conversation was how universities could:

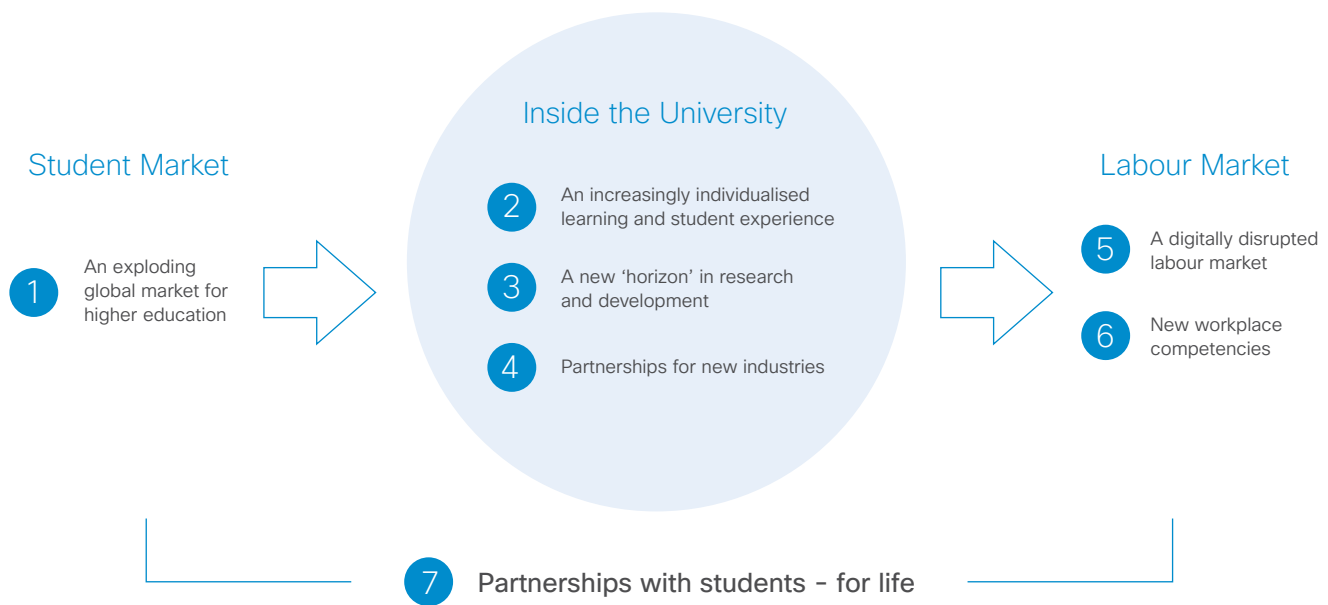
- Accelerate the pace of reform to the Australian economy;
- Catalyse and sustain networks of knowledge and innovation in cities and regions;
- Collaborate more effectively with industry, and extract more and different benefits from collaboration;
- Model innovation in their own institutions to ensure that university business models, operations and workforces are equipped for the challenges ahead;
- Fully exploit the opportunities presented by digital technologies to improve performance in research, teaching, student experience and administration.



The impact of digital on universities

The Presidents' Conversation was not about technology, but the implications arising from it. Only three years ago it would have been hard to imagine a dozen vice-chancellors and presidents from around the world setting aside several days to discuss the impact of a rising digital mindset and capability, and the underlying technology platforms, on their institutions. But in 2016 it is not only perfectly reasonable but inescapable, particularly when one considers the profound impact digital technologies are having on the student market, universities as institutions of teaching and research, and the labour market they serve (summarised in Figure 1).

Figure 1: A university model to meet the demands of students and industry for the digital economy



An exploding global market for higher education

Higher education is becoming a right, not a privilege. The forecast explosion in demand for higher education is driven by a range of factors, including technology. Digital channels are creating the potential to scale learning, and to provide flexibility in the way learning is delivered (i.e. more flexible, responsive and relevant to the learner's context) in a globally competitive marketplace. The university of the future should not distinguish between physical and digital reach. The digitisation of institutions and entire economies is also creating an explosion in digital-based undergraduate and postgraduate programs related to truly global competencies; bioinformatics, big data science, cyber security and visualisation. Increasing global demand for education is also increasing the responsibility of universities to educate citizens with a global perspective. King's College London President Ed Byrne suggested that universities are global citizens and must act accordingly; "our goal must be to produce truly globalised citizens".

An increasingly individualised learning and student experience

The consumerisation of technology has increased student expectations. Learners expect an engaging and 'friction-free' service from universities, from enrolment through to articulation. Technology is no longer augmenting pedagogy, it is changing the way students learn, consume content and interact with the curriculum and making the learning experience more individualised. One of the challenges for universities is exploiting the full potential of new technologies to improve learning – not just 'deliver teaching'.

Through digital assessment tools, universities can now undertake more effective and efficient formative assessments, allowing students to master core concepts over time rather than relying on binary point-in-time assessments to dictate whether a student progresses in their education. The focus is also moving to pedagogies that help learners ask the right questions, not just mastery of the process for getting the answers.

A new ‘horizon’ in research and development

The pace and scale of scientific discovery has accelerated immensely as technology allows data to be collected, codified and interpreted at a scale, pace and intensity we have not witnessed before. The new horizon of discovery is placing pressure on researchers to analyse huge data sets from a range of sources, not just their own primary data. Technology is also creating new roles in research – including those that can translate between the science and technology required to explore the science most effectively. Technology is also helping to create critical mass in specific disciplines, including the potential to crowd-source capability from outside traditional sources of domain knowledge (i.e. other universities and research institutions).

New industry partnerships for new industries

Digital technologies are affecting the core business and operating models of some of the world’s most valued emerging and entrenched industries. Consider, for example, the impact of technology on transport and logistics, banking and finance, travel, manufacturing and agriculture from an operational and market structure perspective. Firms are focused on new sources of competitive advantage and understand the imperative to innovate. The disruption of business and operating models demands different types of partnerships with industry, including the capacity to effectively harness the dynamism of start-ups. Data61 – an institution focused on turning big, complex data sets into knowledge – posited that new business opportunities will potentially emerge for universities to use data science as a source of competitive advantage and catalyst for industry collaboration. Digital technologies are also reducing barriers and increasing the efficiency of collaboration between researchers and industry. This is creating opportunities for more authentic collaboration, but also reducing time to benefit realisation.

A digitally disrupted labour market

Up to 40% of current jobs are at risk of digitisation, particularly process-oriented white-collar occupations that have been traditionally strong source markets for universities. According to experts, the occupation most at risk of digitisation is accounting. A major question for universities is what jobs will they be replaced with? We know there is a global skills shortage of 1.5 million jobs in cyber security today, but an even greater shortage of people with ‘cyber fluency’. The composition of the labour market is being affected in other ways. For example, there is a move away from ‘careers’ towards contract-based, limited-term employment. In 20 years’ time most jobs could be contract-based and learners will need to be equipped with entrepreneurial skills, not to start their own companies, but to navigate the job market as an ‘entrepreneur for hire’.

New workplace competencies

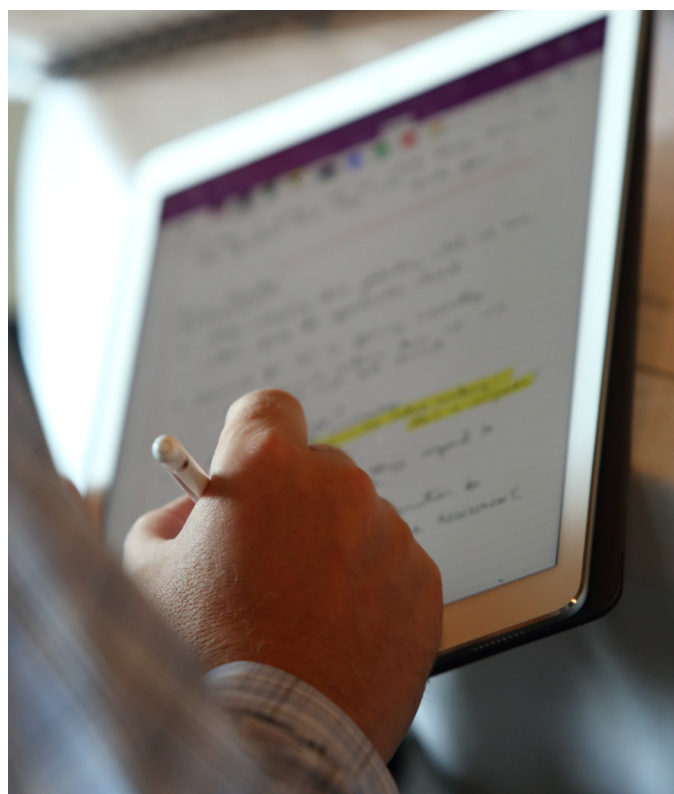
The role of a university is fundamentally to teach students to think. In 2016, technology-saturated graduates are also expected to be able to collaborate, communicate effectively, problem-solve and have basic standards of digital literacy to participate in the workforce. Demand for these competencies will become more important as two things occur: a) a higher value is placed on the speed of ‘transition’ to the workforce; and b) as more jobs require higher-level cognitive function, universities are increasingly expected to teach young people how to thrive in a digital workplace, not just how to think.

“Education is what remains after one has forgotten what one has learned in school.”

– Albert Einstein

Partnerships with students – for life

Access to student data and analytics is no longer a barrier. Universities have the capacity to predict student performance, make earlier interventions and make more informed (and individualised) decisions based on data from a range of sources. Sophisticated analytics are also being applied to maximising the lifetime value of students, including the ability to use data to provide students with relevant, compelling opportunities to deepen their relationship with the university.



Change is happening – but is it fast or profound enough?

As of 2016 we have connected less than 5% of all the ‘things’ that will be connected to the internet by 2020. This explosion in ‘connectedness’ is creating the capacity to collect and analyse rich and diverse data sets. As one of the speakers at the Presidents’ Conversation cautioned, “the collection of big data does not necessarily lead to big judgement”. Universities have a critical role to play in helping curate and make sense of data and content – most of which will not be produced by the university itself. As content is becoming universally accessible, universities must adapt their role to the curation of knowledge, rather than the creation of it. This new knowledge is creating more opportunities but also higher expectations. In this way digital technology is creating what Deloitte Centre for the Edge Co-Chairman John Hagel described as ‘mounting performance pressure.’ This pressure is being driven by:

Rising expectations of students

It is now understood that it is consumers – not producers – who are reforming industries. Students now expect outcomes beyond the credential, including an engaging learning experience, exposure to industry and the ability to form personal and professional networks. Students increasingly expect their study will provide opportunities to work on real-world problems and make an impact on the world around them.

The rapid pace of change in industry

Industry no longer sees universities as research partners alone. Innovation-driven firms rely on universities to provide workforce security, hard and soft infrastructure and innovation networks. Universities are also seen as critical to meeting the future skill needs of the economy, from ‘innovation economy’ skills such as initiative, leadership and collaboration to cross-sectoral ‘digital’ capabilities in areas such as cyber security and data analytics.

The transformation of communities and cities

As the economy shifts from labour to innovation as the primary economic input it is not surprising that universities are expected to drive city and regional transformation. Two examples of universities’ catalytic effect on cities featured at the Presidents’ Conversation:

1. *Malmö University* which helped to transform Malmö, Sweden, from a depressed, post-industrial port to Europe’s fourth-most innovative city in less than two decades (based on patent applications per 10,000 inhabitants). Malmö’s rejuvenation was driven by the university’s capacity to ensure that the knowledge created within the university was disseminated broadly, including through effective partnerships with industry.

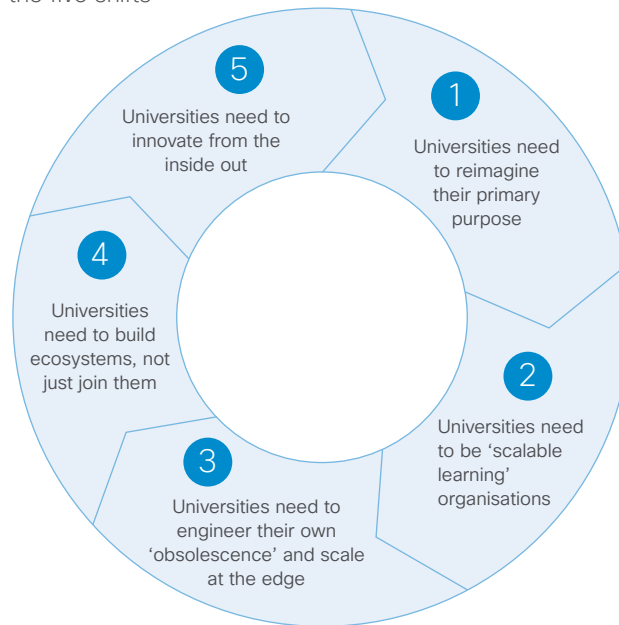
2. *The role of Case Western Reserve University in Cleveland, Ohio.* Cleveland was dealing with some of the United States’ highest levels of unemployment, chronic health issues and related challenges including high crime rates. The university recognised many of Cleveland’s problems could be traced to low levels of engagement and participation in social and economic structures by citizens, businesses and other institutions. The response was to co-found One Community to provide Ohio hospitals, schools, government, public safety departments and businesses with reliable, flexible and customised high-speed internet and data centre services, as well as intensive community outreach to ensure the benefits of digital technology translated into citizen services.

It is a challenge for universities to keep pace with the speed of change in society and the economy, let alone the speed at which technology is moving. The question is no longer whether universities need to embrace digital, but rather how fast and to what end.

Major shifts that need to occur in higher education

The conversation focused on five mutually reinforcing shifts (summarised in Figure 2) that need to occur if universities are to exert maximum positive influence.

Figure 2: University influence cycle: the five shifts



1. Universities need to reimagine their primary purpose

Many of the conversations revolved around two questions: what is the future role of universities and who should they serve. Who ultimately are universities for? There was recognition that universities were not as clear on the answer as they needed to be, partly because of uncertainty about their funding models, including deregulation. But if universities are to thrive in an era of digital disruption they cannot use the past as a proxy for the future. As one vice-chancellor put it: “Universities need to stop protecting what we have and start grabbing hold of opportunities.”

A salient example of how universities need to adapt is in the area of entrepreneurship. It was reported that up to 70% of students in some US universities want to start a company. This was reinforced by research at one Australian university that found 40% of students didn't want a job as such but rather to form their own business. The implication of a shift to a 'create your own job' mentality is potentially significant for how and what universities teach.

Another example of how universities' purpose might change is in the area of research dissemination. In a world where content is easily accessible some argue that the purpose of a university is not knowledge creation but rather to get knowledge out of the university to capture value. Universities have traditionally been regarded as having silos of deep domain knowledge. While this will

continue to have value, the focus is shifting towards universities as expert problem-solvers, including the capacity to make connections between 'problems' and networks of problem-solvers. Some suggested that the capacity to ask questions was a core competency of universities, as well as the capacity to answer the 'ungoogleable' questions.

In an innovation-driven economy do universities need to think of themselves as the Uber of problem-solving? If that's what our future role looks like then we are going to need to make it easy for industry or government to engage us for innovation and let go of some of the things we have held dear.

Yet another potential future role for universities was that of 'talent agent'. Universities are extremely well placed to understand and contextualise the capabilities and motivations of their students, including how those capabilities relate to the outside world. To date, universities have not necessarily played an active role in taking on the role of 'adviser' to students beyond their period of study or research.

And that shouldn't stop at graduation. Rather than thinking about alumni as potential donors and a lifelong learning pipeline, is there an opportunity for universities to assume a more holistic role? For example, is there an opportunity for universities to provide advice to students about the market for and currency of their skills, how to keep them current, how to develop other competencies required by the digital economy and advise students on career/life goals?

2. Universities need to become ‘scalable learning’ organisations rather than focus on scalable efficiency

In the quest to become more competitive and productive, universities have focused strongly on scalable efficiency. An organisation focused on scalable efficiency focuses on standardisation and commoditisation to reduce unit costs. The investments in student management and student administration systems are examples of how universities have sought to automate processes and reduce costs. However, John Hagel noted that scalable efficiency offers minimal additional benefits outside of a context of stability and predictability, and at worst was destroying what it is that makes universities valuable and unique. In a scalable efficiency model institutional leaders are the only ones who could change institutions, recognising that standardisation is a top-down approach.

So what is the alternative?

Put simply, the challenge for universities is to become scalable learning organisations: institutions that dynamically respond to new information and contexts. The speed and scale with which institutions learn, that is, bring the insights and assets often created at the edge of their world and embed them into mainstream business, is now the chief touchstone of success. A learning organisation is therefore constantly evolving and actively harvesting performance feedback from a range of sources. One of the most important sources of learning is from students themselves, or what Cecilia Christersson (Malmö University) described as ‘using students as change agents’. The capacity to have a conversation with students is not sufficient – a learning organisation needs to respond positively when armed with this information. Digital technology provides new types of infrastructure that allow people to interact and collaborate with a variety of sources, including those outside of traditional hierarchical organisations.



Cecilia Christersson, Deputy Vice-Chancellor, Malmö University

At the heart of a university is the capacity to pose intelligent questions, collect rigorous evidence and equip people to respond to new knowledge (teaching and learning). The challenge for universities is using these capabilities to learn from themselves.

3. Universities need to engineer their own ‘obsolescence’ and scale at the edge

Former Australian Finance Minister Lindsay Tanner suggested to vice-chancellors that higher education was one of the least disrupted sectors of the economy. This is not to suggest that universities have not changed; they have, and in quite profound ways. But it must be acknowledged that producers in other industries have had their control (and profit margins) eroded by new intermediaries seeking to own or at least share the relationship with customers. An example of the sort of fundamental reform that has not yet manifested in higher education – but conceivably might – is in the area of credentialing. University tuition fees are paid on the basis of a bundled service; students pay for the tuition and the credential. At least one vice-chancellor asked universities to consider whether this would remain true in the future, and the implications of a change. For example, if responsibility for credentialing were assumed by industry or intermediaries, would universities be able to justify their current tuition fees? And what are the implications for different types of institutions should the university of study be invisible to the assessor – i.e. in a move to more true ‘capability-based’ assessments?

In responding to this and other challenges it was argued that universities may need to do more of the disruption, rather than dealing with the consequences. But creating true disruption is extremely difficult to do from within the confines of a university hierarchy, which has a ‘complex set of antibodies’ designed to resist disruption. So if a university cannot disrupt from the core, is it possible to do so from the ‘edge’¹, including using those outside of the institutional structure? And assuming it is, how does a university develop the capability to scale from the edge? Deloitte’s Centre for the Edge has developed a framework for thinking about the process for developing ‘scalable edges’. The objective, however, is not to think of the edges as ‘test beds’ or pilots. A truly scalable edge is set up on the basis that the ‘edge’ could become the core of the institution. Strategies for ‘scaling edges’ are depicted in Figure 3, which was adapted from Deloitte Centre for the Edge².

4. Universities need to build ecosystems, not just join them

It is understood that collaborative innovation is more effective and produces higher economic output than siloed endeavour³. Collaborations that address some of society’s greatest challenges increasingly involve industry, government, the community and universities (think transport, public health and urban development), with universities particularly well-placed to broker partnerships and create connections.

¹ <http://www2.deloitte.com/us/en/pages/center-for-the-edge/articles/scaling-edges-methodology-to-create-growth.html>

² <http://public.deloitte.com/media/tmt/scaling-edges.html>

³ http://www.aheia.edu.au/cms_uploads/docs/aheia-higher-education-workforce-of-the-future-report.pdf

Figure 3: Adaptation of Scaling from the Edge Framework

	Getting started	Mobilising resources	Resources to draw on	Performance measurement
How can I maximise upside?	Focus at the edge rather than at the core of your organisation and on innovations that are transformative.	Select a leader with passion and conviction for change. Prioritise this over skills.	Embrace new technologies: • Predictive analytics • Social software	Use different measurements for the edge (where innovation is occurring) than the core.
How can I minimise investment?	Use crowdsourcing, competitions and innovation challenges to draw in resources from outside your organisation.	Require your innovators to be self-sufficient to drive creativity and discipline.	Connect with those outside your organisation that share a passion for your innovation. Ask them to contribute.	
How can I increase the pace of change?	Iterate in short cycles providing a frequent feedback loop.	Reflect often, fail fast.	Create shared platforms to encourage collaborative approaches.	Evaluate the rate of improvement: focus on progress and trajectory rather than position.

While universities have long thought of themselves as members of ecosystems (e.g. in different scientific domains), these ecosystems are now more distributed, complex and fluid. Universities are increasingly being expected to act as brokers and pressure will mount on universities to build and curate innovation ecosystems, not just participate in them. Part of the complexity is driven by the fact that collaborations are broader-based than research. A CEO who addressed the conversation spoke of their company's need to collaborate with universities on undergraduate scholarships, postgraduate research projects, industry placements and the workforce pipeline, as well as research.

While the profile and focus of these innovation ecosystems is changing, so are the processes for interacting with other members. There is an expectation that collaboration between various players is genuinely reciprocal and is open, rather than locked down. The momentum that has been generated around open innovation is an example of how university and industry processes and policies related to intellectual property and commercial arrangements are being challenged. New types of ecosystems require new models of collaboration and investment in personal relationships required to crack the collaboration code, with the Business/Higher Education Round Table as an important broker. Finding mechanisms for universities to effectively engage with SMEs (which represent 95% of Australian companies) and start-ups is also critical.

5. Universities need to innovate from the inside out

Universities' legitimacy as stewards of innovation is in part demonstrated by their own capacity for change. Universities need to honestly assess their strengths, challenges, risks and opportunities and accelerate programs of deep institutional reform. Near-constant innovation is the only way to respond successfully to near-constant disruption. In other words, the rate of learning, innovation, and performance improvement within the institution must match (or exceed) that of the surrounding environment if the institution is to thrive.

Universities are not going away, but as 'producers' in other industries have learned, complacency is dangerous. Expressed more positively, we are potentially entering an era where we will see a flight to universities that are innovative and dynamic. Students and researchers will see a university's capacity to learn and innovate as crucial to their preparation for life and career, rather than an institution's international ranking. The types of shifts that universities will need to embrace to become more innovative include:

- **Getting the human elements of change right**

Collaborative innovation is not all – or even mostly – about process. As several vice-chancellors noted, people-to-people interaction is critical. True collaboration and effective innovation requires trust and commitment, two very 'human' conditions.

- **Treating digital infrastructure as a strategic asset**

The relationship between technology and innovation is strong and any truly reformist university needs to ensure its infrastructure is scalable, secure and efficient. This is particularly true for universities with aspirations to be digitally enabled campuses.

- **Elevating cyber security as a strategic issue**

The economic opportunity presented by digital is enormous. The economic value of ICT is \$3.6T in 2016 and expected to grow to \$9T by 2020. This represents as much as 4% of the total GDP growth globally, and 10% of GDP growth in developing countries. Cyber crime has the potential to erode those gains, and more. The potential cost to economies – and for an individual university – from cyber security breaches is enormous. Sustained disruption of service, compromised student and industry data and other malicious attacks no longer qualify only as IT risks; they threaten the very core of what universities do and have the potential to wipe out hundreds of years of legacy value.

Conclusions

Universities have the capacity to sustain and extend their role as creators and disseminators of knowledge, insight and innovation across the economy and society. But for universities to achieve this in the digital future as well as they have in an analogue past requires three conditions:

1. Creating a renewed sense of urgency

Although the notion of near-constant disruption is acknowledged, the need for immediate action isn't. While the conversation demonstrated a general sense of urgency, there is a risk that universities may underestimate the speed and magnitude of what's coming. The longer universities wait, the more exposed they are to disruptive competitors that are more nimble. The response from universities needs to be measured and calculated, but the overwhelming sentiment from those involved in the conversation was that universities haven't got a decade to get it right.

2. Addressing core constraints

The conflict between some of the ideas for institutional change emerging from the 'scalable edge' and the underlying architecture of industrial arrangements for work and employment, including the way in which professional and academic esteem is earned and acknowledged, is acute and rising in its impact on the speed and sustainability with which universities can make some of the changes of culture, practice and operating models they need to thrive. Without requisite workforce capability frameworks in place, the potential change will be extremely limited.

3. Resolving the unhelpful 'stand-off' between industry and universities

The nature and impact of collaboration between universities, business, civil society and the rising networks of start-up innovators, investors and entrepreneurs is definitely changing. For the agenda to be driven harder and faster will require a complete 'pivot' in framing and attitude from an essentially negative and past-obsessed focus in relation to collaboration. While Australia's collaboration track record is poor, conditions are changing and the mindset and culture has to shift, too. Universities need to lead by example and set the agenda, rather than respond to it.

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