



TERTIARY TALK

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Introduction

Welcome to another edition of Tertiary Talk - a Deloitte perspective on topical issues in the tertiary sector.

Thank you for the positive feedback from our first Tertiary Talk. There were some excellent suggestions for keeping you informed on things happening in our sector both here and overseas.

In this edition, articles from our local sector group experts are supplemented by our Deloitte US education sector group who have provided us with insights into how we can use data in smart ways to improve student outcomes.

If you'd like further information on the topics discussed, or have suggested subjects for a future issue, get in touch with any of [the Deloitte tertiary team](#).

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Big payoffs from international collaboration

New Zealand universities are increasingly benefiting from international collaborations. A large share of research is undertaken across national borders and international students have become a valuable export earner. However, the public and the broader economy gain the most from universities collaborating across borders. These benefits suggest it is worthwhile for the government to have a bigger role in supporting international collaboration initiatives.

The public gains the most

The direct beneficiaries of international collaboration activities are the universities themselves and their private participants. Through staff exchanges and joint research projects, universities see higher patent production, an increased rate of research published, and a revenue boost from international student enrolments. Meanwhile, individuals reap rewards from overseas work placement and student exchanges.

However, research by Deloitte Access Economics for Universities New Zealand found **the public receive more financial value from international collaboration than the direct beneficiaries do**. Deloitte Access Economics estimates that every \$1.00 invested in international collaboration returns an average of \$2.50 in economic activity over 15 years.¹ Almost two thirds of this is accrued by the public (63%), a third to individuals (34%), and the remaining 3% to the universities.

Deloitte Access Economics assessed the benefits based on four different collaboration activities.

- **International research collaboration** - captures joint research between academics and researchers from separate countries.
- **Academic staff exchanges** - refers to academics and researchers conducting research in an overseas university and could include secondments and academic exchanges.

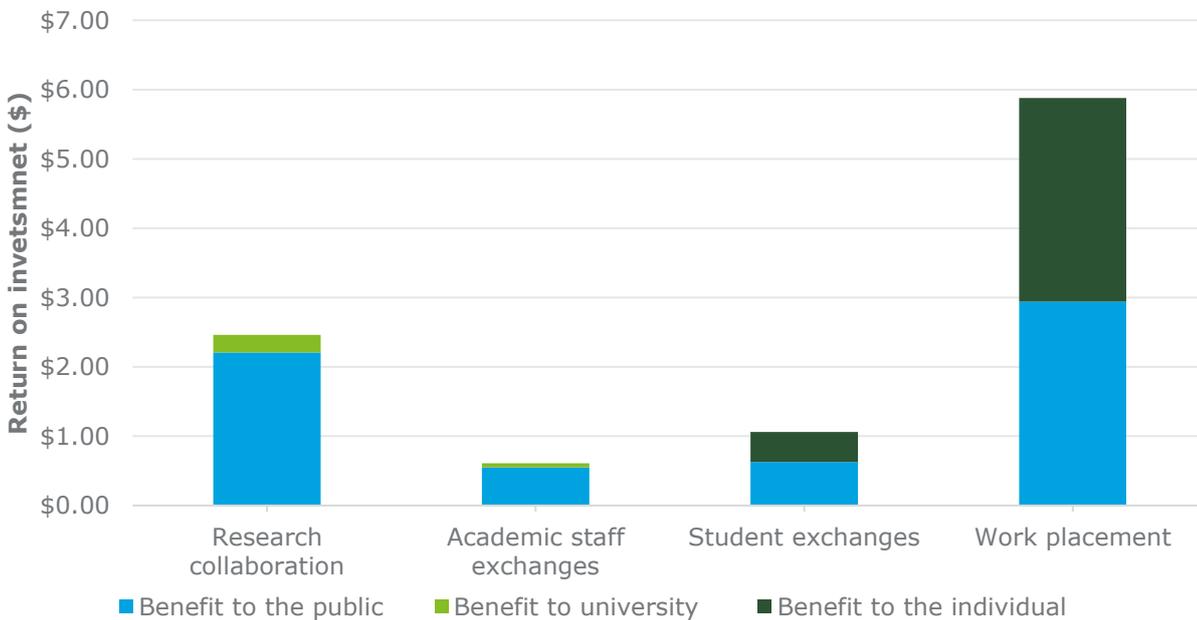
¹ The returns are measured through increases to Gross Domestic Product (GDP) in Net Present Value (NPV) terms over 15 years, from investing \$1.00 in collaborating with a country for each of the four broad initiatives. The annual discount rate is assumed to be 7%.

- **Student exchanges** - refers to students undertaking long-term and short-term study programs for either inbound international or outbound New Zealand students.
- **Work placements** - involves placing international students already studying in New Zealand (or New Zealanders already studying overseas) on short-term work assignments with local businesses.

Research collaborations and work placements are the best bet

Collaborative activities undertaken by universities are not equal, with benefits differing across initiatives. Figure 1 summarises the modelled results on the average returns to the New Zealand economy after 15 years.

Figure 1: Distribution of benefits from international collaboration by initiative



Net present value of increases in GDP after 15 years for every \$1.00 invested, annual discount rate of 7%.

Source: Deloitte Access Economics

The two activities generating the highest return are student work placements and research collaborations, averaging \$5.87 and \$2.46 in economic activity after 15 years for every dollar invested, respectively. Most of this benefit is distributed to the public.

The benefits of **work placements** are two-fold. New Zealand businesses directly benefit from the work produced by international students during their placement. Local business also gains from the diversified skills of returning New Zealand students who undertook work placement in partner countries. Work placements generally are internships with local business, which are jointly funded by the host and partner country.

Research collaborations support economic growth through generating knowledge and new ideas and through the transfer of these ideas to business, government and industry, which improves economic productivity,

according to research by Salter and Martin in 2001. The return on a \$1.00 investment in research collaboration for universities is only \$0.25 after 15 years, primarily due to new patents and additional international student enrolments. However, universities also gain through better research quality and improved university rankings.

The benefits extend beyond the quantifiable

Arguably of equal importance to the public and wider economy are the unquantifiable social and economic benefits of international collaboration. For example, cultural and soft diplomacy benefits are applicable across all initiatives. Returned international students bring with them trade and investment links as well as broader cultural understanding. Similarly, having a large proportion of international students abroad who have studied in New Zealand is likely to have important soft diplomacy benefits for New Zealand while the local population is likely to benefit from greater exposure to students from different cultural backgrounds.

The government could do more to support initiatives

Given a large share of the payoff from international collaborations are accrued by the public, the government could justifiably have a much bigger role in supporting international collaboration opportunities than it currently does.

The Government recognises the importance of fostering relationships between domestic universities and those overseas. The Education Minister has identified international collaboration as having a role in driving innovation, and continued support of Centres of Research Excellence (CoREs) - key funders of research collaborations between New Zealand and overseas universities. However, beyond this, there is much room for additional support. To capitalise on international collaboration, the government should focus funding efforts on encouraging high pay-off initiatives – such as work placement and cross-country research collaborations.

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Five essential principles for improving student success

Andy Clark, Cole Clark Deloitte Consulting LLP

Over the past decade, many US colleges and universities have invested in tools to address student success, particularly retention and completion metrics. Unfortunately, outcomes and student engagement measures show little improvement.

Predictors of student success

Even incremental improvements in retention and completion can have a profound positive impact on students' long-term earnings potential and career aspirations—as well as the economic health of the institution making the improvements.

Predictive analytics in higher education can help institutions measure student success factors and create college student success strategies that actually improve outcomes—but only by addressing both aspects of analytics:

1. **Rigour** around data collection and the insights that can be gained from analysing disparate data sets, specifically predictors of student success.
2. Taking these predictors of student success and establishing effective **action** as part of an overall student success strategy.

In other words, once you have applied analytics to student data to measure student success and gain insights into predictors of success, the hard work begins: Connecting these insights to actions that actually support student success.

Examples of actions include sending students an instant message reminder about an important test, pushing an adviser to reach out on a financial aid topic, or simply sending encouragement electronically during a particularly challenging course. Paired with consistent, persistent engagement with the student through other channels at the same time can be key to developing a pattern of success over time.

The five principles for improving student outcomes

College student success strategies are changing—predictive analytics in higher education is showing real promise as a tool for improving how we measure success and identify predictors of student success to achieve meaningful change. Deloitte recently published [Five essential principles for improving student outcomes](#) a high-level guide to help leaders understand the hallmarks of successful application of predictive analytics in higher education.

Five key principles can help us tap the full potential of predictive analytics to move forward and improve outcomes:

1. Student success should become central to the mission of your institution
2. Action taken is as important as the analytical insight
3. Understand the value and limits of technology to address student success
4. People investments are as important as technology investments
5. Improving student success does not equal reduction in quality

As we collaborate with clients and strategic partners on student success initiatives, all five of these principles continually prove crucial to successful application of predictive analytics in higher education.

Helping bring predictive analytics to college student success strategies

While technology sounds complicated, it is actually the less difficult aspect of the extremely complex challenge of student success. Institutional leadership, change management, and decisions about action elements of the solution are more difficult to get right.

To make meaningful progress in an area so vital to our long-term advancement as a society, all of these elements should be addressed with equal vigor.

By looking at current and upcoming trends in higher education, Deloitte helps to strategize more effective ways of reaching the students of today as well as recruiting the students of tomorrow.

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When it comes to Cybersecurity, do you have a resilience mind-set?

Digitisation of tertiary institutions is increasing and with this, so is the need for cybersecurity vigilance. The very innovations that drive efficiency and growth in an organisation are the same that create first order cyber security risks. If University College London, named a “centre of excellence in cybersecurity research”² by the GCHQ intelligence and monitoring service, can be hit by a ransomware attack, causing “very substantial disruption”, it’s clear that even the best prepared are at risk.

Deloitte’s report on ‘[Elevating cybersecurity on the higher education leadership agenda](#)’ explains why higher education institutions are (and will continue to be) vulnerable to cyberattacks. A combination of valuable data, de-centralised structures and widespread use of personal devices, makes the academic arena a prime target for cyber criminals. The frequency and increasing sophistication of cyberattacks is forcing organisations to be proactive when it comes to hackers – the alternative re-active approach is proving to be costly, disruptive and damaging to reputations.

It’s no longer an option to rely solely on vigilance and security software as protection - it’s not a matter of *if* you’ll be targeted, but *when*³. Simon Shiu, site director of HP Labs, a major research facility specialising in cybersecurity explains “if you haven’t been breached yet, you probably will be in future”⁴. This is where resilience comes into play, if we shift our mind-sets to assuming we will be targeted, we can put a plan in place to act, recover quickly and minimise the impact. Resilient capabilities are built through a focus on detection, incident management, simulation and training.

At the cyber security summit held in 2017 by CenturyLink⁵, experts advise that the best defence to a cyberattack is an active one. Cybersecurity experts are “sharing data in real time” and this can help institutions predict areas of vulnerability and therefore potential threats. This allows for a shift in focus and for organisations to build up resilience and prioritise areas of weakness. Predictive analytics is helping to shape the future of cyber security - machine learning powered solutions are helping organisations to

² <https://www.verdict.co.uk/top-uk-university-hit-by-major-cyber-attack/> (June 15, 2017)

³ <https://www2.deloitte.com/insights/us/en/industry/public-sector/cybersecurity-on-higher-education-leadership-agenda.html> (February 22, 2018)

⁴ <https://www.telegraph.co.uk/business/sme-home/hp-resilience-and-cyber-security/> (January 3, 2017)

⁵ <https://www.forbes.com/sites/centurylink/2017/03/15/in-cybersecurity-resilience-is-the-new-prevention/#4d5901016d15> (March 15, 2017)

speed up the rate at which they detect attacks. If you haven't yet invested in this space, it's important to make sure this is a conscious choice based on weighing up the likelihood and potential impact of an attack.

With continued spend scrutiny and budget constraints overwhelming the tertiary education sector, something you can do immediately and with minimal investment is to review your disaster recovery plan. Ask yourself, when was this written? Does it talk to your latest IT systems? Is it relevant, and do your staff know where to find it?

Simulating a high impact cyber threat is also a good way to increase awareness and put your disaster recovery plan to the test. With cyberattacks increasing in frequency and creativity, it is essential that your students and faculty are on board and working with you to prevent such attacks. A research bulletin by The Higher Education Information Security Awareness Programs⁶ outlined that from a study in 2016, 77% of US institutions have a budget of less than \$5,000 or 'don't know' their allocated budget for security awareness. When 91% of cyberattacks start with a phishing email, your users are your first defence and increasing awareness is a must.

From recent Deloitte cybersecurity reviews we note that most, if not all, local institutions here in New Zealand are aware of the risks and are on a similar journey to build resilience. They are focussing on sustainable and cost effective ways to reduce the likelihood of:

- Loss of confidential information, especially intellectual property and student and staff information;
- Opportunistic changing of critical information such as student marks; or
- Staff being unable to work due to system outages.

We understand that tertiary institutions want to allow academics to have the freedom to conduct research and experiment with new software and technologies. However, the risk tolerance of the institutions has not always been defined to validate that all parties understand how far this freedom should extend, and who ought to be responsible for protecting the university from the associated security risks.

So we're asking, do you have a resilience mind-set when it comes to cybersecurity? Being resilient doesn't mean you won't be targeted, it means that when you are, your team will be equipped to identify an attack quickly, contain the damage and reduce the impact.

If you would like to discuss this further you can contact Anu Nayar, Partner Cyber Privacy and Resilience at anayar@deloitte.co.nz or Crispin Deans, Associate Director Cyber, Privacy and Resilience at cdeans@deloitte.co.nz.

⁶ Joanna L. Grama and Eden Dahlstrom, [Higher Education Information Security Awareness Programs](#), research bulletin (Louisville, CO: ECAR, August 8, 2016)

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Seven key questions to ask your asset managers

By now many institutions will have completed their 2018 capital asset management (CAM) self-assessment and submitted this to the Tertiary Education Commission (TEC).

Treasury's Capital Asset Management Framework seeks to ensure that Universities, ITPs and Wānanga are effectively 'preserving and protecting' the Crown's investment in education facilities – some \$10b in the tertiary sector alone.

The Framework encourages governance and management teams to look at ways to better utilise their asset base to support educational success. The effective management of assets is therefore an essential business process, providing an opportunity to realise organisational efficiencies, improve asset utilisation, reduce operating costs and use capital more effectively.

While the overall results from the 2017 independent CAM reviews showed improvement from 2015 there are several areas that need continued focus. These include:

- *Asset management plans (AMP)* – focusing on how we tactically plan for managing the institutions infrastructure and other assets to deliver an agreed standard of service. Across the sector approximately 45% of institutions did not have a formal AMP or the existing plan was more than four years old - with many of the plans not adequately incorporating IT assets.
- *Financial and funding strategies* – ensuring we have robust processes and practices in place to plan for the funding of future capital expenditure and asset-related costs.
- *Asset management information systems* – with a focus on how we meet the information needs of those responsible for asset management.
- *Maintenance planning* – addressing how we plan and manage our maintenance activities in a manner that ensures we are attending to them proactively.

Asset management requires a lifecycle approach that recognises an asset's requirements will change during its lifespan. The focus is on ensuring capital assets are being **planned for, delivered and maintained** in the most cost effective manner.

Here are seven key questions we should be asking ourselves and our asset managers:

1. Have we got a strategy for the long-term sustainability of our assets?
2. Do we have good quality up-to-date AMPs for achieving our strategy?
3. Does our organisation have appropriate asset management skills and experience?
4. Do we have a structured approach to assessing the condition and performance of our assets?
5. Are we confident the capital planning process is linked to the organisation's strategy?
6. How well do we forecast future demand for the services that are delivered or supported by our assets?
7. Do we have a backlog of repairs, maintenance and / or asset renewals? If so, what are we doing about it?

Deloitte has recently assisted several institutions in reviewing their asset management processes and systems for assets that are deemed critical to the on-going operation of their organisation. These reviews have provided a good opportunity to: firstly, ensure there is consensus across the institution as to what assets are deemed critical and therefore warrant priority allocation of resourcing; and secondly confirm that these assets are being effectively managed to ensure the expectations of students, academics and other key stakeholders can be met.

Are you confident your institution understands what its critical assets are, and that these assets are being managed effectively?

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