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Science, Technology and Education News from Australia, September 2018

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1. Science and Technology Developments

Building a clear digital identity

The Commonwealth's Digital Transformation Agency (DTA) has been given the job of creating a digital identity framework for Australia. This Trusted Digital Identity Framework (TDIF) has several factors that will define its success, according to the DTA. This includes the ability to simply and securely establish a digital identity through a provider of choice, as well as the ability to reuse that identity to transact across all levels of government as well as the private sector, with privacy assured. The questions that remain to be answered about the TDIF are how well the program is being conducted, and what the TDIF will look like when it is eventually released to the public. Ping Identity regional director Geoff Andrews says that while there is still work to be done on the TDIF, Australia has a solid foundation in comparison to other like-nations when it comes to the formulation and establishment of digital identity.

Click here to read the article.

Australia's $315b digital opportunity

The CSIRO's data research group Data61 has taken a stab at quantifying the economy-wide opportunity for Australia presented by digital innovation and has concluded $315 billion in gross economic value can be added over the next decade. Data61 chief executive officer Adrian Turner unveiled the new Digital Innovation report at its D61+ LIVE event in Brisbane, outlining where the nation's next billion-dollar industries lie, and providing a strategic map where Australia can succeed in creating data-driven industries that will drive jobs and growth by building on core strengths. Australia might have enjoyed 27 years of continuous economic growth, but the report demonstrates a real need to increase productivity and to find new sources of export competitiveness that will secure prosperity in the future.

Click here to read the article.

Five Eyes' data access warning

The political leadership of the Five Eyes' law enforcement infrastructure has put the world's tech giants on notice that governments expect them to open up encrypted data – and build the means to do so into their products – where it involves serious crime or a threat to national security. A meeting of Home Security, Public Safety and Immigration ministers from Australia, Canada, New Zealand, the UK and US on the Gold Coast produced an official communique that effectively warns tech companies. The statement is clear: Cooperate with member governments voluntarily or mechanisms will be legislated. The statement of principles is a commitment by the Five Eyes member countries to harmonizing the policy intent. The governments warn there is an increasing gap between the ability of law enforcement to lawfully access data. The member groups also called for increased efforts to counter foreign interference and disinformation conducted via online platforms.

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Energy policy needs to board the renewable energy train

Analysis by the Australian National University shows Australia could have 100 per cent renewable electricity by the early 2030s if the current rate of installations by industry continues into 2020 and beyond. All the evidence points to Australia's capacity to be a renewable energy superpower, with all the economic and environmental benefits that come with that. The Australian renewable energy industry is unequivocally demonstrating that it has the technical capability to deliver vast quantities of cheap, reliable, secure and zero-emissions energy. Australia is installing wind farms and solar PV at a faster per capita rate than nearly every other country.

Click here to read the article.

ANU researchers help unlock the power of enzymes

New research led by the Australian National University (ANU) could hold the key to unlocking the power of enzymes, allowing them to potentially be used to break down toxic pollutants or heal wounds faster. Enzymes can help speed up - or catalyze - chemical reactions, making them an essential part of every living organism. The team looked at how to make designed enzymes more efficient. They focused on one of the first successful designs, called Kemp Eliminase, which was engineered using a process that mimics natural evolution. The research could be particularly significant in areas of medicine and environmental remediation.

Click here to read the article.

Supporting brace for historical steel bridges

Empa scientists are saving iron bridges from the 19th century from collapse. A supporting brace made of CFRP (carbon fiber-reinforced polymers), reversibly affixed to the bridge and in line with monument protection regulations, strengthens the resistance of the old structures, making them safe and helping them to survive day-to-day wear and tear better and for longer. A railway bridge in Switzerland and a road bridge in Australia have already been reinforced successfully. Many historical bridges could follow.

Click here to read the article.

New weapon in battle against space junk

Researchers from the Australian National University (ANU) and Tohoku University in Japan have found a new way of dealing with space junk - and it involves a new type of satellite powered by superheated gas. Space debris orbiting the earth has become a major problem in recent decades. If it collides with spacecraft it can cause serious damage, and create even more debris. Now a study has found has found a satellite could be sent up to seek out and shift this debris. It would work by shooting out a beam of hot 'plasma' - or ionised gas - from the opposite end of the satellite. This would allow the satellite to push the space junk down into a lower orbit so it eventually decays, or push it up to get it out of the way of other objects.

Click here to read the article.

2. Education and Science Policy

CSIRO launches ASEAN presence

Australian science and technology will be front and centre in the ASEAN region as Australia's national science agency, CSIRO, formally launches its presence in Singapore. The announcement coincided with Singapore-headquartered investment company, Temasek, becoming the third largest investor in the $232 million CSIRO Innovation Fund, managed by Main Sequence Ventures. The CSIRO Innovation Fund supports new spin-outs, start-ups, and Small and Medium Enterprises engaged in the translation of research generated in the Australian publicly funded research sector, including the CSIRO and universities.

Click here to read the article.

CSIRO asks space industry to support bold 'lunar' challenge

The latest industry roadmap published by CSIRO, Australia's national science agency, encourages the growing domestic space sector to join with international partners to adopt a bold challenge — providing technological expertise to help to establish a human base on the Moon. Launched by the Minister for Industry, Science and Technology, Karen Andrews at the 18th Australian Space Research Conference on the Gold Coast, the report – Space: A Roadmap for unlocking future growth opportunities for Australia – highlights Australia's unique strengths and geographic advantages to increase its share of the international space sector. The new roadmap was developed by CSIRO Futures, the strategic advisory arm of CSIRO, following extensive industry consultation with nearly 150 business, government and technology representatives.

Click here to read the article.
Click here to read the CSIRO's Space Roadmap.

Victoria makes space agency bid

The Victorian government has officially made its bid to host the Australian Space Agency, putting an emphasis on its advanced manufacturing and tech credentials. The state flagged its intention to heavily lobby to play host to the headquarters in June, a month before the Australian Space Agency opened its doors under interim CEO Dr Megan Clark. State government ministers have since met with former innovation minister Michaelia Cash and Dr Clark, and the government has now released a research paper that aims to prove why it is the best location for the agency. Nearly every state and territory has thrown their hat in the ring, with some committing significant funding to the cause.

Click here to read the article.

Deep tech faces skills gap

Australia's deep tech sector is facing a 'huge' talent gap as the country's biggest incubator in the space looks to keep promising companies from relocating overseas. Cicada Innovations, an incubator in Sydney for deep tech, science-based startups, held a careers fair with about 850 students, academics and industry newcomers getting a taste of what's on offer in the sector. The so-called skills or talent gap is widely discussed in the Australian tech and startup

sectors, with concerns that a lack of available talent, and restrictive skilled migration will inhibit local companies' ability to grow and scale while remaining in the country. The careers fair displayed some of the companies currently incubating in Cicada, including hydrogen cars, autonomous vehicles, mind-controlled drones and VR technologies.

Click here to read the article.

STEM diversity an economic necessity

Improving gender diversity in Australia's STEM workforce is an "economic necessity" that requires a "cohesive, holistic and sustained approach" to achieve, according to the Academy of Science. The Academy is in the process of developing a 10-year plan for girls and women in STEM with $600,000 in federal government funding. It is expected to hand the decadal plan to government by the end of the year. New Industry, Science and Technology Minister Karen Andrews said improving gender diversity in the sector was a priority for the government. The 10-year plan will provide a "roadmap for achieving sustained increases in women's STEM participation and retention from early school years through to retirement" and aims to deliver recommendations and pathways to remove these barriers. The paper describes a number of factors that have contributed to the lack of gender diversity in the field, including stereotypes, pay gaps and male-dominated workplaces.

Click here to read the article.

Global rankings display an Australian university system stagnating under pressure

The release of the Times Higher Education (THE) World University Rankings shows Australian university performance "stagnating" with a higher education sector under pressure from continual funding cuts and ever-increasing international competition. Go8 Chief Executive Vicki Thomson says that while the Group of Eight (Go8), Australia's leading research-intensive universities, once again has six members in the 'top 100' and all eight in the top 150, there are worrying signs of a system under pressure. In 2016 the Go8 alone had a positive impact of over $66 billion a year on the Australian economy including some $24 billion from research and $18 billion from international education exports. Times Higher Education (THE) summarised the Australian situation in its rankings release. 'As funding cuts take hold and pressure mounts to cap international student numbers – combined with intensifying competition from Asia – Australia's universities could well face an uphill struggle in the coming years.

Click here to read the article.