join a nationwide network of organisations and individuals, who drive university-industry engagement in Australia

www.australia.uiin.org
Join us in Helsinki at the University-Industry Interaction Conference on 18-20 June, 2019
Welcome to Australia!

Welcome to the Australian issue of the UIIN Magazine, published to coincide with the second University-Industry Engagement Conference for Asia-Pacific in Sydney. If it is your first time in the country, we know you will love it. If you are returning, we know why you are back... though, probably not for the Vegemite!

(R)evolution in the Australian university sector

Despite leading excellent academic assets, particularly in STEM disciplines, Australia has traditionally struggled to convert these strengths into strong technically-driven industries and a related long-term competitive advantage.

The launch of the National Innovation and Science Agenda (NISA in 2015), urged universities to adopt a ‘collaborate or crumble’ focus as an iteration on the traditional tenet of ‘publish or perish’. Never known to back down from a challenge, Australian universities have stepped up considerably, increasing their focus on external engagement as well as leadership in innovation precincts and entrepreneurship.

Indeed, in the last few years, Australia has embraced the need to create a more connected and functioning ecosystem comprising government, business and universities. With new academic and management positions opening up in areas such as entrepreneurship, innovation and engagement, as well as significant investment aimed at encouraging cross-sectoral cooperation, Australian universities, government and businesses are increasingly prioritizing university-industry engagement as a central engine for growth. One such initiative has been the launch of the UIIN Australia Chapter.

The Australian Chapter

The Australian Chapter was launched following the inaugural UIIN Asia-Pacific conference in Adelaide, in 2017. Aiming to support, encourage and develop engagement between universities, business and government for economic and societal benefit, the Chapter is open to anyone interested in jointly advancing university-industry engagement in Australia.

Some of the successes of the chapter have included Chapter forums in Sydney at the CSIRO and in Melbourne hosted by Deakin University, with both well attended by a passionate mix of engagement, knowledge transfer and entrepreneurship professionals; the publishing of the Future Universities Thoughtbook Australia to imagine the Australian university of tomorrow; and the publication of the State of University-Business Cooperation in Australia reports as well as a Report on the Future of University-Business Cooperation.

Currently counting 54 individual and 12 institutional memberships from Australia, the community is growing. If you are interested in being involved, please feel free to contact us for further information.

The Australian Edition of the UIIN Magazine

Reflecting the nodes of the UIIN Australia Chapter, this edition of the UIIM features some great insights into university-business cooperation, entrepreneurship involving universities, cooperation in higher education as well as a focus on innovation districts. Furthermore, it extends learning to our neighbours, as the University of Auckland reports on its efforts to develop disruptive innovators and entrepreneurs.

We trust you enjoy the edition as well as your time in Australia.

Carolin Plewa and Todd Davey
Inaugural Co-Chairs of the UIIN Australia Chapter

Cover Image: The Twelve Apostles, The Port Campbell National Park, Victoria, Australia
Deakin University is Supporting Advanced Manufacturing in Novel Ways
Australian manufacturing is passing through a major transformation phase, moving from traditional low value/high volume manufacturing to a model focused on design, innovation, smart solutions and global markets.

Geelong, Victoria’s largest regional city, has a long history in manufacturing, beginning with the establishment of the Wool Stores in 1926 and Ford’s manufacturing plant in 1927.

Manufacturing-related activity still accounts for around 40 percent of the Geelong region’s economic output and nearly 8,000 jobs [1]. But the Wool Stores is now Deakin University’s Geelong City Campus and Ford recently closed the car manufacturing side of its business in Geelong, resulting in the loss of more than 5,000 local jobs.

Creating new ways of making things is essential for Australian businesses to remain smart, globally competitive, and based in Australia. The way to create an internationally competitive, dynamic and thriving Australian advanced manufacturing sector is to build world class capabilities in our small to medium manufacturers through industry and university collaboration.

Two significant factors in the industry profile of the Geelong region are the high percentage of small businesses (non-employing and employing one to four staff) and the significant number of medium-sized businesses (employing 20 – 199 staff) relative to the general Victorian business profile.[2]

In partnership with Deakin, some of these businesses are harnessing their competitive advantage by combining their capabilities with the University’s creative imagination, industry-focused research strategies and smart business models.

They’re doing this at ManuFutures – a purpose-built hub for upscaling advanced manufacturing firms recently emerged from the start-up and/or incubation phase. This building, and the operational model it promotes, will become an exemplar of the way in which universities can support co-located emerging advanced manufacturing enterprises.

Developed in partnership with the Victorian Government, ManuFutures is designed to support emerging Australian advanced manufacturing and cutting edge technology enterprises with new-to-market products and to grow at an accelerated rate through co-location with the University.

Located at Deakin’s Waurn Ponds campus, in the heart of the Geelong Economic Futures Precinct, ManuFutures is part of a larger strategy to develop a sustainable economic future for the region [3]. The building, and the businesses within it, will become a local and national hub for innovation, productivity advancement, and job creation and an entry point to the larger innovation ecosystem surrounding the campus.

Tenant enterprises have access to the research, knowledge and student-base of the University and an extensive range of business support under the ManuFutures Export Acceleration Program (MEAP). The operational model implemented at ManuFutures is a blend of the skills development, business support, networking events and mentoring models used at two of the most consistently successful innovation hubs in the creation of viable companies that provide ongoing and further regional employment – the Cranfield University Business Park and Incubation Centre in the UK, and Kennispark Twente Novel T program in the Netherlands.
Driving industry growth and transformation

Currently home to 11 businesses in fields as diverse as carbon fibre, additive manufacturing, new construction technologies, using AR/VR for firefighter training, and polymer fibres, ManuFutures provides flexible, configurable spaces of up to 276m² in production space, with 58m² of mezzanine office space, as well as collaborative working areas and secured private suites.

The building also includes centralized corporate facilities, including meeting and presentation spaces, with front-of-office support and concierge services. The individual units are designed to enable advanced manufacturing and emerging technology enterprises to consolidate and advance to full-scale production. They are supported to achieve Technology Readiness Levels (TRL), adopted by the European Union in “Horizon 2020” from TRL7 to TRL9.1.

Prospective tenants apply via an expression of interest process that poses a series of weighted questions relating to their business model and their fit with Deakin’s agenda and their potential contribution to the regional economy. They are selected based on their plans to develop a new to-market product with significant market value and high potential for growth. In addition, they need to demonstrate that they are actively seeking new export markets for their product. Their entrepreneurial approach, the potential research and/or education linkages and relevance to Deakin, their potential for progression beyond ManuFutures within two to five years and their fit with the University’s ethics and risk profile are also taken into account.

Once an enterprise is accepted as a tenant, a maximum five year lease is negotiated, based on level of enterprise readiness for production. Tenants are required to fit out their space at their own cost, with the exception of hot-desks, which are leased at a higher rate. It is anticipated that within two to five years, the enterprise will outgrow the ManuFutures facility and relocate to the Geelong Future Economy Precinct, or move on to other places within the region. Consideration will be given to an extension of lease under appropriate circumstances, and where a clear exit strategy is charted.

As part of Deakin’s innovation strategy to rebuild manufacturing in the wider Geelong region, ManuFutures provides tenant enterprises with a creative enabling space, access to Deakin’s advanced research infrastructure and equipment, and multidisciplinary business and technical expertise to drive industry growth and transformation. This will facilitate the development of manufacturing technologies and skills to enable the production of high-added-value products, processes and services, and secure the high-skills employment critical for sustainable jobs and economic growth in the region.

NOTES:
3. Geelong Economic Futures Report: The Geelong Economic Futures Report is a collaborative effort between Deakin University, the City of Greater Geelong and the G21 Geelong Region Alliance to identify credible large-scale economic growth opportunities in the Geelong economic region.
CURRENTLY HOME TO 11 BUSINESSES IN FIELDS AS DIVERSE AS CARBON FIBRE, ADDITIVE MANUFACTURING, NEW CONSTRUCTION TECHNOLOGIES, USING AR/VR FOR FIREFIGHTER TRAINING, AND POLYMER FIBRES. MANUFUTURES PROVIDES FLEXIBLE, CONFIGURABLE SPACES OF UP TO 276M2 IN PRODUCTION SPACE, WITH 58M2 OF MEZZANINE OFFICE SPACE, AND COLLABORATIVE WORKING AREAS.

JASON STEINWEDEL is the Head of Industrial Innovation Unit at Deakin University. Jason is developing a framework to support emergent enterprises scale their operations to achieve export success.

MAUREEN REITZE is the Manager in the Office of the Vice-President Industry Engagement, Innovation and Commercialisation at Deakin University.
Universities teach history and share history via university museums, libraries and archives. We also know that as organisations, universities have been active participants throughout centuries; observing and reflecting, shaping and being influenced by the environment in which they operate and engage.

The fact that the University of Bologna founded in 1088 is today the oldest university in continuous operation is testament to the quote by Senator Daniel Patrick Moynihan “If you want to build a great city, build a great university and wait 200 years”. Nowadays this great ‘University City’ welcomes tourists and visitors not only because of the food, buildings and ambience but because of the ‘learning atmosphere’ and historical relevance – a town that nurtured Dante, Petrarch and Copernicus as former students.

My own city – Melbourne, Australia – is fortunate to have a collection of great universities (and notable alumni) that add to the collective strength of our liveable, loveable urban sprawl. Interestingly when my city was once the richest city on earth (1850s during the gold rush era) it had the foresight to future proof itself by investing in education. The University of Melbourne was founded in 1853 and within the first decade had created schools in engineering, law and medicine - disciplines to nurture and graduate talent that would – as per Warren’s quote - “give us a fuller understanding of ourselves... so we can face a better future”.

Ten minutes’ walk south from the University campus in 1908, my own organisation – GHD - was formed by University of Melbourne graduate Gordon Gutteridge and fellow co-founders Gerald Haskins and Geoffrey Davey. The fact that GHD turned 90 this year and is now a thriving business of over 10,000 people working across 200 offices globally is I believe a cause for celebration considering Forbes identified that 9 out of 10 major companies from 1955 were no longer “alive”.

That our founders are university graduates and engineers proves longevity is in our DNA and supports our mission to “with clients create long lasting community benefit”. An image I recently saw of a Roman engineering tomb from 1st century AD with set squares, plumb line and ruler also affirms that this profession alongside its sibling vocations like architects, urban designers, and planners have not only survived centuries, wars, revolutions and disasters but have thrived shaping cities and spaces above ground, below and beyond.

We know that engineers were one of the main shapers of the first industrial revolution with the creation and impact of the steam engine and steam machines. Now we find ourselves at the beginning of the 4th industrial revolution rooted in the technological concept of digitisation. Will we shape or be shaped? Rather than steam and manufacturing energy, the power of this revolution will be from tech and non-physical concepts like big data, petabytes, teraflops, IOT AI AR, VR, robots cyber and the cloud.

HOW we behave and respond will impact our legacy and determine our future. This challenge is one my own organisation understands as well as other organisations, universities, industry, government and community.
Disruption from the digital economy has meant a left turn for all of us uprooting and changing how we think, behave, do business and go about day to day. Clayton Christensen, Harvard Business School

So what is to be done? How should we as organisations, whether university or industry, respond to the pace and speed and style of change that is the 4th industry revolution that we find ourselves a participant of, willing or not?

There are many ways that we can build our capacity and ability to take advantage of change; one being to develop a ‘digital mindset’. This is about being trilingual – more than IQ and smarts, more than EQ (being able to engage with our clients, our communities and being responsive and aware) but also demonstrating what I have heard called AQ – ‘adaptable quotient’ – the ability to live with ambiguity and be comfortable and adaptable to the ‘moving goalposts’.

Another way is to know that innovation is a team sport and that collaboration is not just marketing ‘spin’ but impactful and relevant. The lone wolf “rock star” scientist is passé and industrial closed-door innovation is not “business as usual”. Now multi-disciplinary and multi industry teams are normalised, innovation challenges are open, calls for co-creation with clients are real, risks are shared and rewards jointly celebrated.

There are many examples including the Hadron Collider near the Swiss French border and the diverse university-industry teams within Silicon Valley, Boston or North Carolina’s Research Triangle Park. Closer to my home there are engineers, scientists, medical technicians and industry professionals working together in the Melbourne Biomedical Precinct on the bionic eye project; working in close proximity to labs focused on another Melbourne made university industry collaboration- the bionic ear.

Indeed the very foundations of the UIIN are based on interdependencies and opportunities that abound when universities and industry collaborate. Although much has been written about the challenges and hurdles of interaction between the sectors I believe history is our guide to prove and celebrate the benefits of collaboration we gain when universities and industry work together as partners; strengthening and supporting each other’s capabilities.

Only this way may we get close to creating great cities, places and societies, with universities and industry collaboration, where economic, social and cultural prosperity is created protected and celebrated through knowledge, networks and pioneering ventures. ■

JACYL SHAW is the Digital Innovation Lead at GHD Digital.

IMAGE CREDITS: GHD Digital
University-Based Entrepreneurial Ecosystems and their Visualisations

There are many decades-old quips about universities being nothing more than “a series of separate schools and departments held together by a central heating system” or “a series of individual faculty entrepreneurs held together by a common grievance over parking.”

To a great extent, that is how many universities have approached their support for entrepreneurship. Separate programs have mushroomed across separate faculties, despite there being better ideas generated and better economies of scale by diverse multi-disciplinary cohorts of students. It doesn’t have to be that way. Awareness of the fragmentation and replication across faculties is the first step towards a more holistic and coordinated approach.

Recent reviews of higher education in Australia feature statistics that confirm each university offers multiple programs that support entrepreneurship. For example, Maritz et al. (2015) finds that the approximately 40 “Australian universities offer 307 subjects about entrepreneurship and 277 subjects related to entrepreneurship.” On the extra-curricular side, Universities Australia (2017) scratches the surface by including over 100 programs across the sector, at least 2 per university, and numbers exploding in recent years (Bliemel, 2017, p. 25).

How can anyone possibly make sense of everything a university offers to support entrepreneurship? This question plagues students who crawl university handbooks for interesting subjects, university administrators who want higher level overviews of how the university strategy is being enacted, and also industry partners seeking to engage in the classroom. A map or visual directory of some sort is needed, ideally one that shows how parts of the system are interconnected, including course, subjects, pitch competitions, student societies, maker-spaces, labs, etc.

Inspired by visualisations with a similar purpose, but at regional level, I sought out to visualise an entire large university (over 50,000 students) with the help of a part-time research assistant who was deeply immersed in the university-based ecosystem. Such visualisations usually had a layout that followed a temporal sequence, following patterns of becoming inspired, gaining supporting experience, and then launching and growing new ventures. Before leaving one large university, I developed a map using simple rules and several rounds of feedback:

1. Left to right: people progress from learning to learning-by-doing, to doing
2. Hubs own or collaborate on initiatives
3. Nodes are initiatives.
   • Initiatives owned by only one ‘hub’ are on a spur line away from that hub.
   • Collaborative initiatives are on the lines connecting the collaborating hubs.

“The best way to get the right answer on the Internet is not to ask a question, it’s to post the wrong answer.” (Cunningham’s Law)
Cunningham’s law is a powerful tool. While there are risks of embarrassment by releasing an incomplete or inaccurate map, the benefit is the tidal wave of feedback to improve it. After 5 major iterations, this resulted in a map that simultaneously showed the plethora of activities, but also the lack of inter-faculty connections.

The impact of the StartRail was almost immediate. Beyond being downloaded or viewed several thousand times, it quickly appeared in presentations by Deputy Vice Chancellors about the state of entrepreneurship at the university. It was also turned into an interactive webpage by colleagues in the Business School’s marketing department. Other reactions included a recognition to offer more subjects to feed into the experiential zone, as indicated by recent additions like BEILOO17 and GSBE9445. These subjects were more like clones of MGMT2010 (my core subject). While imitation is a form of flattery, this replication creates a pool of subjects that is ‘a mile wide, but an inch deep’, compounding the lost opportunities to create a broad but deeper pool by an earlier to close the cross-university Diploma in Innovation.

Starting in 2017, I adopted a similar approach upon joining another large university, the University of Technology Sydney. Data was gathered from my new colleagues and a crawl of the online handbook for all subjects and courses related to entrepreneurship. After three iterations, the left-to-right temporal sequence had to be abandoned because UTS has over 100 coursework offerings and visualising them as an interconnected system was simply too complex, not to mention including all the co-curricular offerings. Simpler rules were adopted:

1. Inside-out: cross-faculty initiatives are in a common pool, faculty-specific initiatives radiate outwards
2. Each faculty represents one spoke, with an additional spoke for co-curricular initiatives relating to the Innovation & Entrepreneurship Unit (IEU)
3. Nodes are types of initiatives along each spoke

The first two steps were necessary to declutter all the interconnections. The latter step was necessary to reduce the number of dots or node on the map. The workaround was to make the map interactive, with mouse-over text and hyperlinks to more detail.

The faculty I am in, the new Faculty of Transdisciplinary Innovation (FTDI), presents an interesting, possibly unique situation. The majority of our students are in double degree programs, meaning that their ‘home’ faculty is another faculty and they join our programs to form multi-disciplinary cohorts of students. The other differentiator of our programs is that they consist of a coherent set of subjects, such as the Diploma in Innovation.

In that regards, the two universities

HOW CAN ANYONE POSSIBLY MAKE SENSE OF EVERYTHING A UNIVERSITY OFFERS TO SUPPORT ENTREPRENEURSHIP? [...] A MAP OR VISUAL DIRECTORY OF SOME SORT IS NEEDED, IDEALLY ONE THAT SHOWS HOW PARTS OF THE SYSTEM ARE INTERCONNECTED
FIGURE 2 The “UTS StartNet” (visit www.bliemel.com for an interactive version)
landscapes are almost completely opposite. UNSW had a coherent Diploma in Innovation but closed it, resulting in mushrooming of similar subjects in its vacuum. In comparison, UTS started with a mushrooming of similar subjects across multiple faculties, only to later launch multiple coherent university-wide programs. Recent reviews suggested ‘rationalising’ faculty-specific subjects if the cohorts could be bundled across faculties. However, there is also logic to offering discipline specific versions of subjects if they add to the cross-faculty offerings and they offer a greater range of options in terms of which semester students can learn entrepreneurship. In parallel with the transparency provided by the StartNet, academics at UTS have formed a community of practice to share best practices, share learning modules and to coordinate subjects and courses across all faculties.

Earlier prototypes of the UTS StartNet followed a similar approach to the UNSW StartRail, however the plethora of double degree programs made the ‘rail’ map too confusing and implied that students would only progress to the ‘experience’ zone by passing through the FTDI. Like the UNSW StartRail, these prototypes were downloaded or viewed several thousand times, indicating high interest in such a visual directory. The official version is not yet part of the UTS website, but is under consideration for how to embed it.

At the end of the day, universities are complex ecosystems of offerings that can resemble entrepreneurial ecosystems. I have yet to see a completely ‘designed’ ecosystem; they all emerge from the collective efforts of partially interconnected individuals. As a result, making sense of the whole system, navigating it, and coordinating it becomes a major challenge. My hope is that readers will find inspiration in mapping and navigating their own ecosystem with the above examples, to enable them to provide a more nuanced approach to coordinating the ecosystem and to avoid creating redundancies and confusion about what’s on offer. To find out more about these maps and universities as entrepreneurial ecosystems, please join us at UTS this February for the UIIN Asia Pacific.

MARTIN BLIEMEL is the Director of the Diploma in Innovation at the new Faculty of Transdisciplinary Innovation at the University of Technology Sydney (UTS).
Growing Innovators and Entrepreneurs at the University of Auckland

How we acted like a start-up and achieved phenomenal growth

In the last three years, the Centre for Innovation and Entrepreneurship (CIE) has been transformed. Individual participants in our initiatives have grown by 272% since 2015.

This growth has been driven in the same way a start up goes from a scribble on the back of a napkin to a fully funded venture. It’s been driven with a Big Hairy Audacious Goal, passionate entrepreneurial minded staff, a single minded vision, quick wins and funding.

Essentially the CIE was run like a start-up for the first two years of its transformation. Those of you working in a university may be wondering, ‘how is that possible within the confines of a large bureaucratic organisation like a university?’

Every start up founder has to have a dream, and a big reason why. To make a dent in the NZ economy, to assist it in moving from being based on primary industries, to one built on innovation and enterprise was ours. And with this motivation, our team then dreamt even bigger, and envisioned being the leader in innovation and entrepreneurship in the Southern Hemisphere. Great stuff for vision statements, but we knew our generous donors would want to be able to measure this. So we set a lofty target; that by 2020 we would have engaged with 10% of the university’s students. The University of Auckland has a student roll of 42,000, so we had to increase from 800 participants to 4,200 in five years.

Here’s the thing about Big Hairy Audacious Goals – when people first hear them, they look at you as if you are crazy, then they start to wonder, ‘imagine if’, their thinking then shifts to what could we do to get there, and the blue touch paper has been lit! Anything is possible, and a movement is born!

The target of 10% was chosen purposefully. Research and practice in Organisational Development shows that when 10% of the staff of an organisation start to change their attitudes and behaviours this becomes the tipping point for culture change. Aiming for 10% is designed to catalyse a culture change at the university.

10% of the student population engaged in innovation and entrepreneurship activities by 2020 is a also great sound bite. With such ambitious targets, we needed support from across the university. To gain this we socialised our new strategy and programmes widely across campus, faculties and disciplines. We also promoted our new approach to the entrepreneurial ecosystem, government and sponsors. It was easy for people to recite and remember, and as such the awareness of our bold objectives grew.

Culture was key. We grew our team from four to 14, and all new members were recruited for their entrepreneurial mind-set – being able to solve problems creatively, work in teams, deal with ambiguity, being tenacious, taking risks and persevering. As the majority of the team was new we invested time and energy in creating values to exemplify our approach, and also to support one another as we launched our new programmes and experienced high growth. And the inevitable stresses and
UNLEASH...

...YOUR PASSION

...YOUR IMAGINATION
strains of such rapid growth.

At the heart of the ambitious strategy to increase involvement is a comprehensive new programme offering. This is based on spanning the spectrum of ‘no awareness of innovation and entrepreneurship’ to ‘moving a successful venture off campus’.

The diagrams on the left-hand side show the growth of the programme offering. Diagram 1, show the programmes up to 2015, focussed mainly on the middle stage of the journey.

Diagram 2 shows the significant growth in programmes 2016 – 2017. We focused on creating early stage programmes to appeal to a broad range of students. We anticipated that by offering workshops and initiatives that focused on problem solving, innovation, design led thinking etc, instead of ‘starting a business’ as we had previously done, this would appeal to a wider range of students and thus be effective at increasing our numbers.

In late 2017, we opened a 900 square meter iconic innovation and entrepreneurship hub with a state of the art maker space in the heart of the university campus. The additional funding, space and resources allowed us to expand our range of programmes and we built out the latter stages of the journey. These new programmes are in diagram 3.

Our 2018 targets have been reached, and 2019 promises to be just as successful.

Like a start-up, it’s not just the product or service that creates the success, it’s the team that brings the strategy to life. We have been very fortunate at the Centre to have a passionate team prepared to take risks and drive towards our ambitious 2020 vision.

Student Testimonials – the impact of our programmes

“The Get Good Done programme unleashed my dormant potential in public speaking, team collaboration and project management, which has helped me gain confidence and developed skills that will last a lifetime.” Kyla Klintworth – Get Good Done 2018

“I’m now way more keen to get involved in business, which is something I never saw myself doing until now.” Katrina Dickins - Get Good Done 2018 and the Velocity Innovation Challenge

“My future is looking very promising and I am excited! Thank you CIE, and Idea Bootcamp 2017. You have transformed my life to be a game changer! I now believe I have the qualities to change my community and the world through entrepreneurship, impacting the lives of thousands, and become a game changer.” Lindy Maizambu Anthon – 2017 Ideate! Validate! Participant.

WENDY KERR is the Director of Centre for Innovation and Entrepreneurship at the University of Auckland.
In 2017, UNSW established an ambitious new initiative to embed entrepreneurship in every student’s experience. The Founders Program, a comprehensive suite of 10 initiatives that takes students on a clearly signposted journey from furtive tinkerer to Founder of a global startup, was launched in 2018. A year on, the Founders team reflect on the key insights gained thus far.

It will not be news to those in the innovation space that our university students are graduating into a complex world where work is being radically reshaped by technology and where pressing problems confronting the world demand global solutions.

The Australian Productivity Commission reports that over the next decade, 40 per cent of Australian jobs are at risk of being supplanted through automation, while almost half are at high risk from technology and innovation. The giants of Australian corporate life are already shedding workers in astonishing numbers. In 2018, NAB retrenched 20% of it’s workforce, while our largest telecommunications company shed almost 10,000 jobs.

At the same time, entirely new industries are emerging. Within the lifetimes of our current students, the majority of Australian workers will be employed in industries that don’t yet exist. Their working lives will also be
more volatile, encompassing on average 17 different jobs spanning 5 careers. At least one of those careers will be as the founder of a company.

A total reimagining of work is not the only challenge our students will face. The forces of globalisation and global risks will require our graduates to confront significant existential threats. The UN Intergovernmental Panel on Climate Change Special Report recently released indicates that if nation states do not collectively and immediately limit emissions, the projected 1.5°C temperature increase in the next 30 years will lead to increased risks to health, livelihoods, food security, water supply, peace and economic growth across the globe, with extended droughts and torrential rains devastating different parts of the world.

A Clearly Signposted Journey
As the sites of deep research capabilities and vocational training, universities are the natural linchpin to addressing these challenges. UNSW is particularly well-placed to drive change, being both the university of choice for Australia’s entrepreneurs and research leaders in the fields of energy, resources and security.

The Founders Program is UNSW’s new platform to embed entrepreneurial capabilities in all our students’ experience and to translate our research capabilities into the startups that will fuel the next wave of economic growth in Australia. Comprising 10 different initiatives, the program caters equally for the serial tinkerer in our makerspace and the student anxious to build job-ready skills as much as it is for our ambitious founders who are ready to take their startup global.

The Journey starts with foundational programming in the Michael Crouch Innovation Centre, where students can participate in hackathons, ideation workshops and meetups or tinker in our vast network of makerspaces. This end of our pipeline delivers entrepreneurship at scale; our team is on track to deliver 10,000 engagements with students, staff and alumni by year’s end.

Self-selected students with a bright idea can then access our Coach & Connect service which will pair them with a mentor to guide them through their entire journey with us. At this stage, if our aspiring founder has a great new platform idea but no technical expertise, they can apply to have it built by one of our
developers. If they’re a female founder, they can access our New Wave program to access support and tailored networking and mentorship opportunities.

From there, our aspiring founders can refine their ideas, test assumptions and access markets and networks through our pre-accelerators, Start, Launch and Grow. The entire journey culminates in the 10x Accelerator, which gives UNSW’s 10 most high impact startups an intensive ten-week program of masterclasses, networking, a trip to Silicon Valley and significant funding. Underpinning it all is the Founders Ethos; a commitment to diversity, collaboration, sustainability and excellence that informs our programming and is instilled in our startups.

The entire journey is supported by the Founders Fund, to ensure the financial sustainability of the program in the long term and by our Founders’ Pledge.

Key Lessons Thus Far
1. **Give students a clearly articulated journey**: students are overwhelmed with choice and with a range of extra-curricular activities. They need to understand how entrepreneurship programs complement their learning, continue to challenge them and enhance their employability.
2. **Build it and women will come**: building female engagement early in our pipeline by trialling an incubator for projects at an ideas-stage has proved successful in launching female-led startups. eXsight, an early-stage
startup that won the Peter Farrell Cup was one of 10 projects to come out of the incubator. At least three other projects are now applying for more advanced programs next year. One of the best insights we’ve had is that young women are engaging at a much higher rate responding in particular to language that emphasises skill-building. Once they’re in our programs and building confidence, the idea of being a founder is much less daunting!

3. **Pipelines are more challenging that they first appear:** all year the Founders team have wrestled with how to take our 10,000 MCIC Foundations participants and feed them into our pipeline which supports over 200 viable startups and to deliver a quality experience to all. We’ve learnt from our first year and continue to iterate to deliver something that will keep our pipeline healthy and balanced well into the future.

4. **Ethos Matters:** when we first launched the Founders Ethos and the Founders Pledge- asking our founders to give back at a time and in a manner that they found meaningful- we thought that students might find it a burden. The response has been overwhelmingly positive. For example, of the 10 teams through our last cohort of 10x Accelerator, 6 volunteered as mentors for our Peter Farrell Cup teams.

5. **Encouraging follow through:** Hackathons and meetups are generative of compelling new ideas, but without the resources and processes in place to follow up with students, engagement and enthusiasm wanes and the ideas never come to fruition.

6. **Faculty engagement is a challenge worth setting yourself:** when we established Founders we thought engagement with the university faculties might be one of our biggest challenges, and we were right! After trialling several different approaches, we found that communicating how we could support the delivery of teaching into their courses was the most compelling approach and as a result our programming is integrated into 16 different academic courses on campus.

2018 has been a year of challenges and opportunities as our assumptions have been tested and we’ve come to better understand our place in the university and the startup ecosystem. Our goal for 2019 is to iterate on this MVP and continue to build a unique model for embedding entrepreneurship into the university experience at scale. Watch this space!

**IMAGE CREDITS:** UNSW Entrepreneurship

**AMELIA OLSEN-BOYD** is a Senior Manager at Strategic Development at UNSW Entrepreneurship.

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Design Factory Melbourne: Charting the Pathway to Effective Co-creation

By bringing together a diverse group of passionate individuals who are determined to change the world for the better, Design Factory Melbourne (DFM) creates a fertile ground for creative problem solving and co-creation. At DFM, there is a belief that all people have a creative potential and it is the diversity of ideas that will generate greater insights as to the most effective way of tackling a problem.

DFM is part of the larger global network of innovative universities and organizations (i.e. Design Factory Global Network) scattered across five continents that aim to transform the learning and research landscape through cross-disciplinary and collaborative approach.

How does it work?

The first Design Factory was initiated by Aalto University, in 2008. The idea emanated from the full recognition that real-world problems are multifaceted and hence call for a collaborative approach. To this end, Aalto University aimed to design a co-creation space that is both physical and cultural, where students from diverse disciplines, along with academics and industry could jointly envision and implement innovative solutions to real problems affecting the industry and the community.

Hosted by Swinburne University in Melbourne, Australia, DFM nurtures entrepreneurial and creative behaviour mainly through educational programs jointly offered with the industry, interdisciplinary research, customized workshops & trainings, and innovation community building exercises in the city of Melbourne and beyond. The educational programs offered by DFM range from Bachelor to PhD level degrees. Regardless of the level of the degrees, however the driving principle remains the same: it is a problem-based, hands-on learning that truly unlocks the innovative potential of students. DFM has a core team of dedicated academic and professional staff who undertake the basic activities such as developing new pedagogy, delivering master classes, research projects, events, marketing the program, student recruitment & selection, and business development. Additionally, part time staff is co-opted depending on the need. DFM follows a low-hierarchy structure with self-organising teams.

DFM’s connection to the local ecosystem

With the whole idea of Design Factory underpinned
by the concept of “co-creation”, DFM is attempting to build synergetic relationships with the key actors in the local innovation ecosystem of Melbourne. This includes interconnection with Carlton Connect, ANSTO Innovation Precinct, CSIRO and other relevant business and knowledge institutions in the region. Moreover, by facilitating event organization and student volunteerism DFM also engages with the local non-for-profit associations such as TOM Melbourne, Service Design Jam, Gov-Jam and Code for Australia.

**Early success at DFM**

In a short period of time, the idea of Design Factory has quickly spread across the globe with 24 factories already established in five continents with 37 hugging points. DFM is one of the factories that has enjoyed substantial early success since its establishment late 2011. Broadly speaking the Design Factory is contributing to the development of user-centred, cross-disciplinary, and collaborative approach to learning and research. And this is allowing students to develop their creative problem solving capacity while at the same time providing a range of fresh ideas and opportunities for the industry.

In a more quantitative sense also the factory has been successful. More specifically, it has facilitated the undertaking of 84 joint research projects with over 54 industry partners and 15 universities. Moreover, 5 patent applications have already been filed, with an additional five concepts translated into market opportunities. The teaching program on the other hand has supported over 350 students at various levels who have expressed a significantly higher satisfaction compared to the average satisfaction of the university programs in general.

Lastly, it is important to mention that the research-
and leaders of the institute have collected a number of prestigious accolades for their contributions including Vice Chancellor’s Global Initiatives Award (2013), Faculty Award for Innovation and Excellence in Learning, Teaching and Assessment (2014), Executive Dean’s award for Leadership and Engagement (2015), Dean’s award for Academic Development (2017), Dean’s award for School Advancement (2017) and José Vasconcelos World Award of Education (2016) was awarded to Professor Kalevi Ekman, the founder of the Design Factory Global Network.

This article has been featured in the UIIN Blog on September 24, 2018


IMAGE CREDITS: Design Factory Melbourne

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Why Higher Education’s Role in Achieving Gender Equality is Fundamental to Australian Innovation and Entrepreneurship

Australian universities are continually faced with the changing needs of government, industry and community. The higher education sector has a key role in creating a relevant and responsive workforce which is able to meet, if not subvert, global challenges. In doing so, universities have a responsibility to remove the gender barriers faced by aspiring researchers, innovators and entrepreneurs. Not only does this recognise basic human rights, it improves our ability to develop organisational sustainability and national/global economic growth. Diversity is vital for the future of Australian innovation and it plays a key role in the development of entrepreneurship-based solutions to address current international issues.
In Australia, a recent shift of Federal research dollars has occurred from the humanities to engineering and medicine. This signals the Commonwealth Government's desire to set the broad research agenda and occurs at a time when both STEM, and increasing more women into STEM, are a cross-sectoral focus. Increasingly, we are seeing more examples of industry partnerships with universities that are delivering the desired results; a critical platform for the higher education sector in the quest for demonstrating relevance to achieve sustainability. The successful partnerships are a result of systematic relationship building and monitoring, clarity from the outset around expectations, and clear communication that is understood at all levels within both organisations.

Diversity of thought is vital to keeping up with the pace. By staying globally responsive to real world problems, research needs to translate into practical applications which feed entrepreneurship. ECU is committed to growing strategic partnerships with industry to ensure all students are work-ready. In December 2017, ECU’s Jondalup campus was announced as the location of the Western Australian Government’s first Innovation Hub. The Western Australian Node of the Federal-funded, industry-led AustCyber organisation will be located at the Hub, supporting growth of local cyber security industry driven by ECU’s expertise as a world leader in cyber security research. Also in 2017, ECU became one of only two designated Academic Centres of Excellence in Australia, receiving $900,000 from the Commonwealth Government to support students taking up studies and research in cyber security. Initiatives such as these will drive the creation of a diverse workforce capable of supporting cyber security in a digital era.

The University has also visibly made good progress towards achieving real change in equality through a range of initiatives in the past two years. This included providing a supportive network for women and gender diverse people, achieving greater visibility of female role models in STEM, the recruitment of real male champions for gender equality, and targeted actions which support junior female researchers. From ‘buddy’ programs that provide a forum for shared experiences to formalised sponsorship and mentorship programs, all aspects of the career journey are being considered. The threat of typical ‘exit points’ for women in their careers (i.e. parental leave is still dominated by women) needs to be addressed. For return-to-work parents, re-entry and re-adjustment strategies are necessary in ensuring the growth and retention of existing talent and potentially are yet to be realised.

It is vital that women receive the sponsorship they need to progress their education, careers and enterprises with the potential grow and build on their knowledge base.[1] Target areas including STEM where gender disparity is felt the most, need to be a key area of focus for growth in innovation. According to the Workplace Gender Equality Agency (WGEA), data continues to show women dominating Health Care and Social Assistance and Education and Training. While these are important areas of work, deeply embedded stereotypes are still inherent in our community and the status quo needs to be challenged more aggressively.[2] It’s unacceptable and abhorrent, that in 2018, there’s still a 14.6% gender pay gap equating to $17,500, which is a significant disincentive to women entering or remaining in STEM professions. Similarly, the lack of advancement is also forcing women out of STEM careers; and at a time that Australia needs to best and the brightest in management, leadership and senior STEM roles.[3] In the 2018 STEM Professional Survey Report, “a third of female engineers aged between 25 and 35 said they were intending to leave their profession in the next five years”[4]

ECU also strives to make a real difference in awareness raising and education within society. The University has numerous engagement activities in place to ensure male-dominated STEM-based subjects are made visible and accessible to female high school students during their formative years. One such program is the Girls’ Programming Network at ECU. This program aims to not only gauge the interest of young female students in coding and software development, but also enhance the profile of female industry partners who are then enabled to mentor and inspire girls (as well as boys) into innovation-led careers. As participants in the first tranche of the Australian Pilot of the Athena SWAN Charter hosted by the Science in Gender Equity initiative (SAGE), ECU is fully committed to redressing the barriers women and gender diverse groups’ face in academia and research where innovation flourishes.

While on a national scale, Australia is now making efforts to redress gender stereotyping, there needs to be a greater focus on the critical impact that diversity has on entrepreneurship and innovation, as existing approaches are not working fast enough. Decades of research show that diverse groups are more innovative than homogeneous ones as they provide different viewpoints.[4] For Australia to perform on the global stage for innovation, it needs to bring its entire pool of talent to the table. Millennials (and no doubt future generations) have very different drivers for success in comparison to their predecessors. Rather than security and stability, this generation is driven by professional development,
rapid career progression and inclusive environments.\textsuperscript{[6]} Universities must incubate the talents of this generation so they ultimately can realise the full breadth of their ability.

Any system that generates innovation and the potential for entrepreneurship and collaboration requires the equal participation of all genders. This must be realised across not simply the education sector but also broader communities and industry. The role of external engagement and robust and structured relationship management are vital and will significantly influence Australia’s ability to ensure an economy that flourishes. \textsuperscript{[6]} Efforts to achieve gender parity as part of this process should not be viewed as a cost but as an opportunity.\textsuperscript{[7]} By investing in greater avenues for women and gender diverse people to engage in entrepreneurship, and progress in their careers at the same pace as men, we will see tremendous strides in our ability to innovate. ■

Notes:
1. Australian female entrepreneurs, they have the why, now they need the how – virgin.com
2. WGEA media release – 2 August 2016: Stereotypes about women’s work, men’s work threaten innovation
5. Why is innovation increasingly becoming critical to entrepreneurship, July 2017 – entrepreneur.com

\textbf{ECU also strives to make a real difference in awareness raising and education within society. The University has numerous engagement activities in place to ensure male-dominated stem-based subjects are made visible and accessible to female high school students during their formative years.}

\textbf{IMAGE CREDIT}: Edith Cowan University in Perth, Western Australia.

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The ANSTO Innovation Precinct is Putting Science to Work
Putting science to work - by connecting industry with Australia’s best and brightest researchers and engineers, and providing unparalleled access to Australia’s landmark and national research infrastructure – is the premise of the ANSTO Innovation Precinct.

The vision for precinct is to create an innovation and science community by co-locating industry, universities and government organisations, anchored by landmark research infrastructure to drive economic development, create jobs and create positive economic and societal impact.
About ANSTO

ANSTO, Australia’s Nuclear Science and Technology Organisation, is the home of nuclear science and technology expertise, capabilities and infrastructure in Australia. ANSTO runs several businesses in the nuclear medicine, minerals and high value silicon for the semiconductor industry. The multi-campus organisation manages and operates most of Australia’s significant research infrastructure including the OPAL multipurpose reactor, the Australian Synchrotron, the Australian Centre for Neutron Scattering, the Centre for Accelerator Science, the National Deuteration Facility, and National Research Cyclotron, as well as specialist facilities in the radioimaging, radiobiology, sensitive materials handling, decommissioning and environmental monitoring.

Both ANSTO and its emerging innovation precinct are located at Lucas Heights in Sydney’s Sutherland Shire region which is approximately 20 km from Sydney Airport and half-hour from the Western Sydney Airport to be built at Badgery’s Creek.

Collaboration is in the fabric of everything that ANSTO does. Traditionally the land at Lucas Heights where ANSTO now resides was a meeting place where the coastal Indigenous people, the Darawal, and the highland people, the Gandangara, met to trade, collaborate and to share knowledge.

Moving forward to modern times, Lucas Heights continues that tradition as a rich place for collaboration. Today’s knowledge sharing is centred around landmark research infrastructure which serves as a catalyst for collaborative research and business engagement.

Research Infrastructure – an anchored triple helix innovation ecosystem model

The triple helix model of innovation ecosystems between research, business and government is well understood.

ANSTO through the development of its innovation precinct is amongst an emerging class of ecosystems where the triple helix is anchored by multi-user landmark research infrastructure as illustrated in the figure below.

The differentiator for this emergent ecosystem model is the creation of a unique knowledge destination as researchers travel from other knowledge centres to collaborate and access nuclear and accelerator based research capabilities. This infrastructure enables complex transdisciplinary projects such as the development of advanced materials, structure based drug development and climate science.

The capabilities and expertise available at ANSTO are used to solve problems from all scientific disciplines and industries. This powerful combination leads to innovation and transdisciplinary outcomes.

It has been shown that high levels of capital-intensive innovation focused infrastructure lead to an accelerated rate of deep technology innovation compared to other triple helix innovation ecosystems. Good examples of this emerging model of ecosystem include: GIANT Grenoble, France; Lund, Sweden; Chicago/Argonne, USA; Harwell Oxford, UK; Bariloche, Argentina; and Tsukuba, Japan.

Innovation Precinct driven by Economic Development

The ANSTO Innovation Precinct revitalises ANSTO’s Lucas Heights site which was established in 1953 with Australia’s first nuclear reactor HIFAR (High Flux Australian Reactor).

Originally located in a remote setting as an ex-urban science park, the area surrounding ANSTO has seen urban encroachment over time. It is now an urban science park located in outer suburban Sydney with close proximity to residential accommodation, shopping and other community amenities.

There are no major universities, or teaching hospitals within the Sutherland Shire in southern Sydney. In addition to the lack of public knowledge centres, knowledge-intensive industries such as Caltech, Johnson & Johnson and Toyota have ceased operations and left the region. As a consequence Southern Sydney, with 16% of Greater Sydney’s population, has only 10% of Greater Sydney jobs. More concerning is that these jobs only contribute 5% of the gross value added (GVA) for the whole of greater Sydney—evidence that the region lacks knowledge intensive employment opportunities. Counter to these figures, there is an upwards trend (from 19 up to 32% over the past 5 years) in knowledge workers who reside in the region. This suggests an available untapped resource with the potential for further economic growth. The revitalisation and development of the ANSTO Innovation Precinct presents an unrivalled opportunity for economic development.

Three Enabling Projects

To transition from the existing science-based community model to a connected outcome-focused innovation community, three new components of the ANSTO Innovation Precinct have been launched, a graduate institute, an innovation centre and a technology park.

Graduate Institute

Launching in early 2019, the Graduate Institute will offer a formal program of postgraduate training and...
development for students to undertake postgraduate research in collaboration with ANSTO and innovative businesses such as those located in the ANSTO Innovation Precinct. In addition to developing technical and research skills, students who take part in ANSTO’s Graduate Institute will develop ‘hard’ translational skills in innovation, entrepreneurship, and commercialisation—enabling them to pursue diverse careers beyond academia.

Innovation Centre

An Innovation Centre will provide hard innovation assets to boost innovation and entrepreneurship amongst the existing ANSTO community, local community entrepreneurs and startups as well as students from the precinct’s Graduate Institute.

The first of these hard innovation assets is the nandin Deep Technology Incubator which officially opened in November 2018. It is home to seven community startups and three ANSTO internal startups that are commercialising research outcomes. In addition to nandin, an advanced manufacturing centre, large infrastructure cybersecurity range, translational clinical development platform and a Sydney node of the Design Factory Global Network are currently under development.

Technology Park

A technology park will ‘crowd in’ and co-locate knowledge-intensive businesses, high-tech industry, and businesses that graduate from the nandin [1] deep technology incubator.

In addition to the existing business and science assets within the Innovation precinct, these three new projects will engender an innovation community that nurtures and drives technology development and transfer, commercialisation, entrepreneurialism, collaboration and market-ready postgraduates.

Notes:
1. Nandin means “look ahead” in the Dharawal language, the language spoken by the traditional people of the Sutherland Shire

THE DIFFERENTIATOR FOR THIS EMERGENT ECOSYSTEM MODEL IS THE CREATION OF A UNIQUE KNOWLEDGE DESTINATION AS RESEARCHERS TRAVEL FROM OTHER KNOWLEDGE CENTRES TO COLLABORATE AND ACCESS NUCLEAR AND ACCELERATOR BASED RESEARCH CAPABILITIES.

THIS INFRASTRUCTURE ENABLES COMPLEX TRANSDISCIPLINARY PROJECTS SUCH AS THE DEVELOPMENT OF ADVANCED MATERIALS, STRUCTURE BASED DRUG DEVELOPMENT AND CLIMATE SCIENCE

IMAGE CREDITS: ANSTO

TIM BOYLE is the Director of Innovation and Commercialisation at ANSTO
Macquarie Park Innovation District (MPID)

Macquarie University as one of Australia’s youngest universities, has a strong record of innovation, new age thinking and challenging the status quo. From its beginnings, it has defied the traditional boundaries of academia and industry engagement and has been a pioneer, challenging conventions and shifting traditional ways of thinking. This pioneering approach has led Macquarie to create the Macquarie Park Innovation District (MPID), a connected community of industry leaders within Macquarie Park to drive innovation as partners and co-creators. MPID is now one of Australia’s fastest growing innovation districts. It is where researchers, entrepreneurs and some of the world’s most recognised businesses work together to create innovative solutions to local and global problems.

MPID, an active precinct centred around Macquarie University that includes a state-of-the-art purpose-built incubator, as well as the Australian Hearing Hub and Macquarie University Hospital, encompasses more than 180 large international and 200 small businesses. An industry led initiative, MPID was established by key stakeholders in 2015 to leverage their competitive advantage in life sciences, health and pharmaceuticals, digital and bio-technology.

This initiative, to transform a traditional business district, into one of Australia’s premier innovation locations was a result of a new era of business, one of rapid disruption and technological change. This required new ways of thinking and MPID realised a vision, to transform Macquarie Park from a traditional business district into a globally recognised eco-system, creating innovative solutions to benefit local and international
communities. Conceived by this desire, Macquarie University brought together six founding partners; Abbott, Johnson & Johnson, Optus, National Australia Bank, AMP Capital and Konica Minolta, to commence the challenging work of boosting deeper collaboration between organisations within the Macquarie Park region.

Now in its third year, MPID runs regular initiatives to bring the community together to learn about the innovative activity taking place in the region. Notably, in 2017 MPID held its inaugural Global Innovation Summit. Over the two-day summit, 140 experts and practitioners from across Australia and the world gathered to share knowledge and experiences, and to discuss ways that Australia could strategically leverage the global phenomenon of the rise of innovation districts. The gathering heard the latest trends from experts from the Brookings Institution and New York’s Project for Public Spaces, who are leading the vanguard of thinking globally about the nexus of innovation and place. The summit also examined case studies from successful collaborative spaces in Singapore, Bristol and Boston. Key learnings from the Summit that went on to inform MPID’s development and strategy included:

- **Rate of convergence is accelerating:** industries and disciplines, talent and ideas
- **Collaboration is key:** across, between and inside organisations and individuals
- **Businesses, universities and governments need to collaborate to compete and remain relevant**
- **Thoughtful placemaking creates places for people to work, live and play**
- **Authenticity is essential to create meaningful innovation districts – need to co-create places with partners and participants**
- Community vibrancy and dynamism of an ecosystem must be measured along with economic impact
- Governance must be locally relevant and enable partner participation
- Emerging planning frameworks are sympathetic to innovation and placemaking

Also, in 2017, MPID held the 'HackMacPark Transport Hackathon' which brought together industry, entrepreneurs, students and researchers to enable greater mobility and connectivity for Macquarie Park. The shared problem of an upcoming railway shutdown in Macquarie Park was the catalyst for MPID to come together and leverage the strength of the network to look at solutions to benefit the Park both now and into the future. More recently, in September 2018 MPID held an Innovation Showcase. The initiative attracted over 150 industry experts, academics, government representatives and local start-ups, who attended to learn about the innovative activity taking place in Macquarie Park. The showcase served to increase B2B connections between MPID members, and introduce them to researchers and start-ups from the region.

Sitting in a region rich in economic and physical assets, MPID has faced challenges in regularly and meaningfully convening the community, notwithstanding the aforementioned major initiatives. However, Mac-
Macquarie University and MPID being bold, innovative and unconstrained by tradition, has taken a pioneering approach to address this situation by breaking new ground with Australia’s first partnership with Venture Café Global Institute. This strategic partnership will see the introduction of the required networking assets to galvanise MPID as a local and global innovation district leader.

Venture Café is a fast-growing, global network of independent organisations with a shared global mission; ‘connecting innovators to make things happen’. They currently operate in Boston, St Louis, Miami, Cambridge (USA), Winston-Salem, Rotterdam and Tokyo and have plans to open more sites in Asia and Europe within two years. Each café offers high-touch programming, collaborative spaces, storytelling, and broad innovation engagement, through three core programs, adapted to each location. At its core, Venture Café will provide the means to connect, uncover and link the various parts of the MPID ecosystem by amplifying the work of partners and by regularly convening the community.

Venture Café Sydney is due to launch in the first quarter of 2019 in the heart of Macquarie Park. Venture Café Sydney will form the connective tissue needed to ensure MPID’s continuing success, for in order for innovation districts to succeed they require better, tighter collaboration between all levels of government, business, researchers and start-ups - Venture Café Sydney will provide this.

It is also clear for MPID that there needs to be better and more collaboration on long-term strategy and placemaking. Innovation districts by their very nature, present policy makers, thought leaders, governments, organisations and education providers with an evolving environment in need of constant strategy re-direction, agile thinking and changes to reflect the preferences of the people and organisations within them. Furthermore, Australia overall needs to shift its thinking from siloed districts to cohesive districts with strong connections. A fractured system will not deliver the intended benefits of innovation districts. Australia at large needs to recognise difference and specialisations by pooling resources ultimately harnessing the power of the collective to ensure local and international benefits. In doing so, linking the permeable boundaries between study, work, research, education and collaboration spaces into a powerhouse of innovation and collaboration.

**IMAGE CREDITS**: Macquarie Park Innovation District

**MARGARET HUDSON** is the Director of Macquarie Park Innovation District.

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**SIMON COWMAN** is a Project Officer at Corporate Engagement.
RMIT University is an innovation of the city. Founded more than 130 years ago as a partnership between workers and industry, the original Working Men’s College was designed to create new educational opportunity and skills for the growing city.

The history and future of RMIT and the city are intertwined. RMIT is both a custodian of heritage buildings and cultural assets in Melbourne and an architectural innovator. RMIT practices what it teaches, protecting the city’s heritage while renewing our campus in ways that serve the whole community.

Today, we remain true to our original mission of ‘a skilled hand and cultivated mind’ through our Ready For Life and Work strategy. Our place-based approach to collaboration and innovation is at the heart of what makes RMIT distinctive; bringing the talents of our staff and students together with industry and community to renew ourselves and the city around us.

Melbourne in a time of transformation

Melbourne’s global reputation as a city of diverse, creative and inclusive communities – distinguished by culture, sport, food and lifestyle – attracts a flow of people, ideas and capital. Our city and our state are undergoing a moment of rapid change, transforming their urban, economic and social structures – evolving from a mid-sized international metropolis to a world city with a projected population of nearly 8 million by 2051. These patterns of growth, in turn, create new pressures and new possibilities for the city, for the state and for the nation.

Growth and change are not new for the city. Melbourne has been through similarly dramatic periods of change. From white colonisation, to the Gold Rush of the mid-19th century and post-World War Two population growth, to 1980s renewal and later waves of technology-driven change. Through our Bundji Girri strategy, RMIT seeks both to respect and protect the pre-existing rights, knowledge and practice of the traditional owners across all of the places in which we operate, and to help non-Indigenous members of our community to understand their role in supporting Aboriginal and Torres Strait Islander self-determination and recognition of sovereignty. The city today is layered with creative responses to change, as well as by the millions of contemporary everyday efforts taking place continuously around us.

Over the next generation, the whole structure of the city – financial, demographic, physical, environmental, technological and social, will change. Making this shift creates a series of challenges for urban and infrastructure design. It raises new questions about how best to provide housing and social services, health, education
and employment for our population and in so doing poses new questions about energy distribution and climate sustainability, social cohesion and culture, governance and democracy.

The importance of place and the centrality of collaboration

No stranger to experimentation, at RMIT we are focussed on exploring new ways to work with, and recombine our knowledge, physical assets, institutions and partners to create positive impact through innovation.

As part of this approach, since 2017 RMIT University has worked with the City of Melbourne and University of Melbourne, creating an agenda-setting partnership to develop urban innovation for Melbourne. Melbourne Innovation Districts (MID) is a partnership to initiate and support urban innovation for the benefit of the whole city. It will deepen our capacity for applied innovation and develop a foundation upon which a broad community of institutions, organisations and people can work together in new and different ways to enhance Melbourne and Victoria’s future.

The shared MID agenda stimulates and connects new ideas and practices through projects to link knowledge workers, researchers, start-ups, students, industry and the community. This includes the Melbourne Knowledge Week Festival, and shared projects on institutional innovation and enterprise activation for the city. A ‘Superstudio’ of 90 Masters students from RMIT and the University of Melbourne together are applying their disciplinary knowledge to the challenge of designing and developing the city’s ‘innovation spine’, exploring opportunities across city including Fishermans Bend, Arden Macaulay, Swanston Street, CBD North and Docklands.

The shared work program is built around five themes, all of which are essential to thriving urban systems: social innovation, enterprise activation, the public realm, digitally-enabled technologies and institutional design. We bring this evolving, collaborative approach to innovation across all of our locations. The University’s campuses are increasingly playing an anchor role amid the wider community of activity and enterprise surrounding us, offering opportunities for our students, staff, researchers and industry partners and improving the quality of place for everyone.

At RMIT’s city campus this includes developing a social innovation precinct, with a focus on justice, the social sector and the changing needs of our workforce to ensure we are meeting the training, education and research needs of the community as it grows. At our Brunswick campus we are embracing the historical role of design and manufacturing in the neighbourhood and partnering with government, community and industry to support the growth of the area as a locus of design innovation and enterprise for the city and the state.

Achieving impact and acting with purpose

RMIT University’s approach to place-based collaboration and innovation might be seen as a different model from the way that many universities have seen their role within a wider community and economy, but this approach harks back to RMIT’s purpose as a public institution and our imperative to create positive impact for our students and staff, working beyond the walls of our institution to serve the needs of the whole community. Achieving that impact means meeting people where they are, recognising that no one person or organisation has all the answers, using collaboration and creativity to achieve value for the whole community.

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IMAGE CREDITS: Karolina Bartkowicz, RMIT Shape Superstudio 2018
Today, Tonsley is a precinct with a heart and soul. More people are now employed on site than at the time it ceased being an automotive manufacturing plant. There are also 6,500 students on site throughout the year. A number of autonomous pods and shuttles cruising along the streets and pedestrian areas. The present and future is looking bright at Tonsley.

The origins of Tonsley Innovation Precinct
When Mitsubishi Motors ceased car production in Adelaide in 2008, there was a clear imperative for the South Australian Government to do something innovative and internationally significant at a site described as a ‘once in a lifetime’ redevelopment opportunity.

There was also a realisation that any redevelopment could not be a traditional science or office park. In an era where connectedness is paramount to drive innovation and entrepreneurship, the siloed science park seems outdated.

A visionary approach was required to address the major impact Mitsubishi’s closure would have on Southern Adelaide’s economy. There was a need for the response to Mitsubishi’s closure to be transformative; to help industry, particularly manufacturing, change and move to higher value products. Manufacturing is considered an essential element in a resilient and prosperous South Australian economy.

This need of renewal and growth was the origin of Tonsley Innovation Precinct.

Tonsley Innovation District’s vision is to be a place that creates high value jobs by co-locating world class research and education institutions and a related variety of innovative businesses alongside vibrant, modern residential living and retail space.

IN A COUNTRY LIKE AUSTRALIA THAT RANKS BEHIND MOST OTHER OECD COUNTRIES WHEN IT COMES TO INDUSTRY-RESEARCH COLLABORATIONS, TONSLEY IS A LEADING EXAMPLE HOW CO-LOCATION CAN ADDRESS THIS WIDER ISSUE IN A VERY EFFECTIVE WAY, EVEN BEYOND THE TONSLEY BOUNDARIES

Tonsley’s design principles and Innovation District model
What was initially described as developing Tonsley’s soft as well as hard infrastructure, incorporates bringing research and industry together; encouraging business-to-business collaboration; clustering activity from businesses with a shared industry focus in fields where South Australia has a comparative advantage; and creating an environment that supports entrepreneurial activity and a culture of innovation.

This is why Tonsley has been designed as a mixed-
use precinct that incorporates high density residential, retail, education, commercial and industrial land uses.

The model for achieving this vision has been based around a triple helix partnership between government, university and industry.

This model incorporates the development of high amenity, mixed use urban development (physical assets), populated with anchor businesses as well as research and training institutions (economic assets) in an environment that supports entrepreneurial activity and a culture of innovation (networking assets) to create an innovation district.

Tonsley, bringing Industry and Research together
Since the implementation in March 2012 of a 20-year redevelopment project, it is evident that the triple helix partnership is established and the vision for Tonsley is being delivered, particularly around industry-research collaborations.

With Flinders University, a tertiary education and research institution, and TAFE SA, a vocational skills training institution, both established on site, around 6,500 students are educated throughout the year.

More than 30 innovative businesses have invested and are operating on site, including companies such as Tesla, Siemens, ZEISS, Micro-X and more. In addition to that, Tonsley’s co-working spaces housing well over 100 businesses and associated business incubation and acceleration programmes all contribute to creating an entrepreneurial environment and culture of innovation. Combined, around 1,400 high-value jobs have been created at a site that saw 1,000 car manufacturing workers walking off the site ten years earlier.

With such a high density of Industry and academia in a defined urban space, new collaborations are formed almost by default with many businesses on site engaging with TAFE or the University in numerous ways from placements to research projects. Even broader precinct collaborations are occurring such as Flinders University’s FLEX autonomous shuttle, supported by the State Government, technology companies and the University for a ‘first mile – last mile’ research trial.

In a country like Australia that ranks behind most other OECD countries when it comes to Industry-research collaborations, Tonsley is a leading example how co-location can address this wider issue in a very effective way, even beyond the Tonsley boundaries.

Tonsley’s inspiring work and community space
High quality, mixed use, urban redevelopment progressed significantly with the heart of Tonsley, the Main Assembly Building’s (MAB) large roof structure refur-
TONSLEY’S CO-WORKING SPACES HOUSING WELL OVER 100 BUSINESSES AND ASSOCIATED BUSINESS INCUBATION AND ACCELERATION PROGRAMMES ALL CONTRIBUTE TO CREATING AN ENTREPRENEURIAL ENVIRONMENT AND CULTURE OF INNOVATION. COMBINED, AROUND 1,400 HIGH-VALUE JOBS HAVE BEEN CREATED AT A SITE THAT SAW 1,000 CAR MANUFACTURING WORKERS WALKING OFF THE SITE TEN YEARS EARLIER.

winning the 2015 World Architecture News Award for Adaptive Reuse.

Furthermore, Tonsley has been awarded a Six-Star Green Star – Communities accreditation by the Green Building Council of Australia and represents the highest level of leadership and innovation in high quality, sustainable urban renewal.

Tonsley’s MAB is not just designed as a place for the tenants on site, it truly is a community space that connects the people to science, research and innovation that is often hidden and inaccessible to the broader community. Exposing families, young and old to future trends that are tested and trialled and even incorporating them into the R&D process often referred to co-design and co-creation is what Tonsley aims for.

Events like Science Alive and Maker Faire attract more than 20,000 people to Tonsley per year, seeding the excitement of science and technology to a broad audience in a fun way.

The 61ha playground for Industry and Research

Tonsley is private land with public access. This allows us to use the precinct to test and trial global trends in a real world environment. Examples include:
- Autonomous mobility trials currently being undertaken on site by three international autonomous vehicle technology manufacturers.
- Gigabit speed internet is embedded across the site at very affordable costs, democratising ultra-fast internet connectivity.
- The “LifeLab” living laboratory at Tonsley to test and trial products and services for the expanding population of older people in Australia and globally.
- Also, Tonsley’s district energy scheme is an example of the future of de-centralised energy generation and distribution. This scheme will generate, store and distribute electricity through a smart grid embedded network at competitive prices to residents and businesses at Tonsley. The system will enable precinct scale energy management across the site, reduce greenhouse gas emissions and increase resilience of supply compared to the existing national electricity grid supply.

Australia’s largest gas distribution business, Australian Gas Infrastructure Group, have announced the country’s first hydrogen production and distribution facility will be developed at Tonsley. The power-to-gas demonstration plant will produce hydrogen from solar power produced at Tonsley, which will then be injected into the local gas distribution network to provide low-carbon gas to homes and businesses at Tonsley.

Trailing these future trends in energy, mobility, ageing and connectivity in one location creates significant opportunities through the multiple points of interconnection across these areas. Think about a hydrogen-fuelled autonomous vehicle, providing much needed mobility services for an ageing population in a sustainable urban environment. Tonsley is set to depict the future of how we work live and play.

Tonsley as an economic growth engine

Six years into a 20 years project, Tonsley will further establish itself as an economic growth engine for Australia as the precinct reaches a critical mass of industry, research, education and commercial activity collocated on the site.

The residential population on site will expand towards the ultimate target of 1,200 people to create a vibrant community that supports innovation and entrepreneurship.

In addition to continued business investment, other new developments about to begin include a retail precinct, multi-deck car park and short-stay hotel. The re-development of the site’s old Boiler House building into a microbrewery, bar and restaurant will provide a keenly anticipated social meeting place for Tonsley’s burgeoning community. Beer can foster collaboration they say.

At the completion of the project delivery phase, the intention is to leave behind a self-sustaining precinct governance model that will have ongoing responsibility for maintaining Tonsley’s culture of innovation, collaboration and entrepreneurial activity.

**IMAGE CREDITS:** Tonsley Innovation District

**JED GUNN** is responsible for the development and implementation of major elements of the Tonsley Redevelopment Project’s economic development and investment attraction strategy, as well as various property development activities.

**PHILIPP DAUTEL** is responsible for the delivery of the Tonsley Innovation Precinct vision, including facilitating collaboration between research institutions and industry to promote innovation and commercialisation opportunities.
Australia’s most awarded
Tonsley continues to receive recognition as a world-class innovation district.

19 awards and counting
- 2 National Good Design Awards.
- 1 Australian Urban Design Award.
- 2 Property Council of Australia Awards.
  - Sustainability
  - Best Overall for Architectural Design
  - Delivered Outcome Large Scale
  - State Development of the Year
  - Development Innovation

Overview
Tonsley is now home to:
- 32 businesses.
- 150 co-working members.
- 1,400 working individuals.
- 6,500 students each year.
- Over 300 classic Chryslers returned to Tonsley for the All Chrysler Festival in February.

Leased space equivalent to 1.5 times the floor area of the CBD’s 20 storey ANZ House.

Innovation for the future
In the past 12 months, many innovative projects commenced at Tonsley.

Future connectivity
GigCity launched, providing affordable internet speeds up to 100 times the national average.

Future energy
The Australian Gas Infrastructure Group committed to establishing an Australian-first hydrogen production and distribution facility at Tonsley.

Future mobility
Two autonomous vehicle trials are underway at Tonsley.

Future ageing
The Global Centre for Modern Ageing, a facility that will trial new technologies focussed on the ageing well principle, was completed.

Future manufacturing
Flinders University’s Tonsley Manufacturing Innovation Hub launched, assisting manufacturers to understand and apply Industry 4.0 technologies including robotics and automation.
WE THANK OUR ORGANISATIONAL MEMBERS
FOR THEIR CONTINUOUS SUPPORT!

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