

Foreword



The dedicated team at Adelaide Research & Innovation (ARI) have been commercialising research from some of the world's leading researchers for more than 25 years. This report contains only a snapshot of recent activities. Like me I hope you are impressed by the great results, reflecting the excellent and growing state of engagement between University of Adelaide researchers and the outside world.

I have recently been appointed Chair of ARI and look forward to working more deeply with its staff and its clients, within and beyond the University. I am still learning about the immense breadth and exciting depth of capacity and knowledge across the reach of what is done at the University of Adelaide and in conjunction with its partners in the public and private sector.

I come from a varied background in business and with close ties to government, and hope to apply my knowledge of client needs and my connections to the benefit of the valuable work that researchers are doing.

ARI needs to approach these issues sensitively and with due regard to the great relationships that have already been built up at the level of researchers and their peers in the broader community. However I am convinced that we can add value by supplementing those strong connections with other linkages

I would also like to acknowledge the considerable commitment of my immediate predecessor in the role of Chair, Mr Paul Duldig, who oversaw ARI's transition to its current position over nearly 9 years at the helm. The company owes a debt to him, and we are grateful to have his continuing presence on the Board.

I am excited about the future promise of what we can do to add more value and look forward to working with you and the team at ARI to achieve further and meaningful growth from what is already a strong base.

John Bastian
Chairman



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Accelerating the transfer of knowledge, innovations and services to a global market.



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The Board of Directors includes six participants comprising ex officio the University's Deputy Vice-Chancellor and Vice-President (Research), Vice-President Services & Resources and the Managing Director of ARI, together with three external Directors.



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ARI staff provide services to all areas of the University, and are either embedded in Faculty, or in daily dialogue on a myriad of projects.



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Future Change & Growth

- Innovating what we do and how we do it
- Saving trees... and cutting bureaucracy
- Developing business, growing engagement



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Contact Us

Connect with ARI today
www.adelaideresearch.com.au



**“Why are we here?
To connect with others and
collaborate to create a better
world”**

2010 saw further success for the University in demonstrating impact from its applied research and technology development and transfer, and work with business and government reached an all time high. This is reflective of the value that these partners perceive in the quality of research and work that the University is able to deliver. The University also benefits significantly from these engagements, learning from its partners and demonstrating value to the broader community. Adelaide Research & Innovation Pty Ltd (ARI) is proud and privileged to play a key role in supporting this activity. As the commercial development company of the University we act as a bridge between the University and the outside world to facilitate this important engagement.

We continued the theme established in 2010: ‘connect, collaborate & create’. Extending from our strong base in contract research and consultancy activity, we continued to network

and match University capability to industry and government need. But we also provided extensive support for University collaborative projects, joint ventures and alliance and strategic partnerships – indeed a significant portion of our effort is devoted to these important ventures. These do not show up in ARI’s results, but rather translate to direct benefit for our parent institution and its partners, and are a very important way in which we assist the broader endeavour of the University.

Selected examples of these different projects are provided throughout the rest of this report to give a picture of the important and diverse work the University does. However, highlighting individual projects is very much the tip of a much larger iceberg. There were many more projects at least equally worthy of promotion.

Technology development and commercialisation also saw significant advances. ARI completed the first triennium of its successful Commercial Accelerator Scheme, devoted to providing finance to University research with commercial potential. Several more projects were initiated in response to opportunities in Sciences and Engineering, and we have now achieved a great translation to market from the first project we funded (more details below). We also secured additional funding from the Trans Tasman Commercialisation Fund for an existing spinout company – SNAP Network Surveillance Pty Ltd.

Another important aspect of our work is in providing a wide range of

training and awareness programs to assist researchers with skills and knowledge to enable them to engage more effectively with commercial and collaborative projects. The ARI team is relatively small and we recognise that one of the most effective things we can do is to up-skill and inform researchers to assist them to better manage their activities. Last year we provided such training to nearly 700 attendees.

Connect

ARI is a focal point for collaboration between the great resources in the University and its partners in our community. The excellence of University of Adelaide researchers in individual disciplines, multidisciplinary and collaborative research is recognised not only by external evaluation (ERA results) but also by the strong growth in that applied engagement with the community.

ARI continued to push marketing, business development and networking opportunities to promote the research capabilities of the University to its stakeholders. This included involvement in a wide range of networking events addressing issues across the spectrum of University interest including health, water, the environment & clean technology, agriculture, engineering, IT, physics, economic and political issues.

Events included BIO 2010, Committee for Economic Development in Australia seminars, Ausbiotech, InnovateSA and other events, including some special sessions hosted by ARI itself. In December ARI hosted Christmas drinks for University’s researchers and their industry and government collaborators,

to celebrate the University of Adelaide's 2010 achievements, hosted by Marianne Demasi (ABC Catalyst presenter) as a draw card with more than 140 internal and external contacts registering to attend the function, held at the National Wine Centre.

We look forward to celebrating another great year in 2011, but we are looking at innovating the format of that celebration – stay tuned during the year for the detail of that event.

Collaborate

The figures on the contract research and consulting revenues facilitated by Adelaide Research & Innovation are only a very partial measure of activity and value, but pleasingly these grew to more than \$30 million, a very significant advance on the previous year and ahead of our targets. There was significant growth in Health and Engineering work in particular. The University's largest customers are State and Federal Government departments and agencies, but there is also a very healthy mix of local and international corporate clients, and we are keen to expand on this engagement in the coming years. The engine room of this work is of course the talented researchers of the University: they drive the consistent year on year growth in the number of government and industry funded projects, the total of which exceeds 500 agreements annually.

Collaborative research deals continued to increase, with ARI providing input into applications for varied funding programs including ARC Linkage and NHMRC Development Grants

(alongside our great partners in Research Branch, who administer these grants). My work on the NHMRC Development Grant panel in 2010 for the Commonwealth gave me a first-hand insight into how the grant processes work.

Through these applied research partnerships, and with the valuable support of partners and the Commonwealth Government, University innovations are delivering social, medical, economic and environmental benefits. In the Health area we assisted in the integration of additional research capacity into the University, and are working at the moment with the University on other growth opportunities.

Create

Activity in the University's IP portfolio has also continued to increase. Royalty income for 2010, which predominately comes from wheat and barley varieties generated \$3 million, funds which are fed back into the University to further research. We have now brought to a very successful outcome the first project we funded under our own Commercial Accelerator Scheme: Professor PJ Wormald's Chitosan based anti adhesion gel. Initial applications in sinus surgery have been assigned to Medtronic (a major healthcare multinational), and we are exploring further opportunities. Congratulations to PJ and his team and special thanks to Dr Matthew Chong from ARI who co-ordinated the commercial interaction with Medtronic and finalised the deal terms. Matt led this effort, teaming with joint venture partners in NZ.

The Commercial Accelerator Scheme provides researchers with funding to establish proof-of-concept or reach a development milestone necessary to attract a commercial partner. ARI have now invested nearly \$2 million across a dozen applied research projects seeking to achieve commercial proof-of-concept. Many other projects have also secured additional funding or made important advances with the assistance of this funding, and we look forward to promoting more of those success stories in the future.

Making things better

In 2010 ARI implemented a new University policy dealing with contract research and consulting (the policy also dealt with grant work administered by Research Branch). There was a lot of work involved in preparing for this implementation and in communicating this policy, which was designed to simplify the way the University does business and establish better incentives for researchers. One of the key aims of the policy was to increase the proportion of contract research vis a vis consulting activity, and in this aim the policy was even more successful than anticipated.

We see lots of potential for future growth - and we well appreciate that this can only be effectively harnessed by us working in harmony with researchers and external parties. As I said last year, for us to continue to deliver value, we need first and foremost to listen to and connect with you.

Robert Chalmers
Managing Director

it's about translating knowledge into benefits for the community



13 facts you might not have known about Adelaide Research & Innovation

1. We offer resources, support and commercial funding pathways to the researchers of the University of Adelaide, and provide a point of access for government and business to engage with academics on research, development and innovation.
2. We are South Australia's largest commercialisation office providing support to more than 1400 researchers across all disciplines of the University of Adelaide.
3. In any one year we facilitate more than 500 research projects across both the public and private sectors.
4. Total commercial income generated from ARI's activities was almost \$35 million in 2010 - nearly \$100,000/day - money which is fed back to the University to further research activities.
5. Royalty income predominately comes from wheat and barley varieties and generates around \$3 million annually
6. ARI represents the University at international conferences such as BIO, the world's largest biotechnology event and AUTM Asia.
7. Annually we deliver commercial awareness training courses to nearly 700 staff at the University
8. Since 2008 we have invested nearly \$2 million from our Commercial Accelerator Scheme across a dozen applied research projects seeking to achieve commercial proof of commercial concept
9. A major deal was struck in 2010 for Professor PJ Wormald's chitosan-based anti-adhesion gel. In partnership with New Zealand collaborators, this technology progressed through clinical trials to be successfully commercialised with US medical device giant, Medtronic.
10. ARI's legal team provide services to Research Branch, the Graduate Centre and the Office of the DVCR, advising on the funding terms and conditions related to all research and development transactions.
11. The ARI website receives more than 20,000 visitors annually in search of information on applied research.
12. ARI facilitate engagement with the Trans Tasman Commercialisation Fund (TTCF) which has provided \$700,000 funding to date for spinout company SNAP Network Surveillance Pty Ltd.
13. Our services are free to all University staff and students.

ARI actively assesses, protects, markets and commercialises ideas and inventions with commercial potential on behalf of the University.

Royalty Income

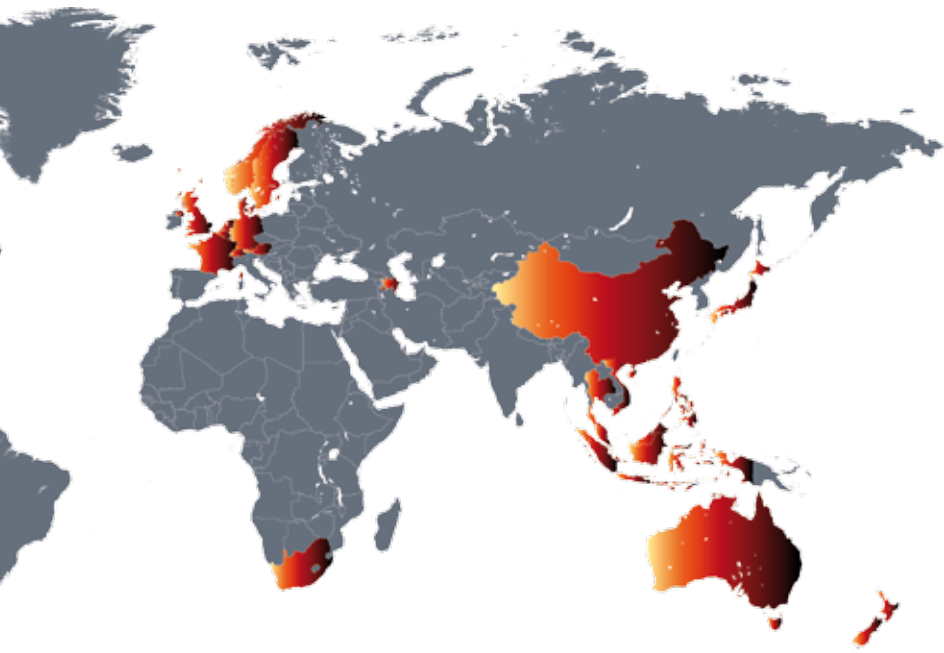
The majority of the University's royalty income is generated from agricultural innovations in particular Yitpi Wheat and Sloop SA Barley. University researchers together with spin-off company Australian Grain Technologies have successfully launched more than 50 varieties of wheat and barley.

In the engineering space, the University retains a small take in energy efficient air conditioning technology, now marketed by Dadanco.

Further returns are also received from sale of biological products developed by researchers, and from affiliations with the University start-up company, GroPep, which became part of international biotechnology company, Novozymes in 2006.

Education programs

ARI engages researchers through our introductory IP and commercial awareness courses to create a proactive commercialisation culture. Two flagship programs hosted each year are the Future Research Leaders Program and the Commercial Awareness Program, but ARI also tailors internal training sessions to encourage 'best practice' contract research and consulting activities. In 2010 nearly 700 researchers attended our training sessions.



Statistics

Commercial Revenue

Contract Research	\$30.7m
Royalties	\$3.03m

Technology Funding

Venture Funding	\$1.2m
Commercial Accelerator	\$2m

Industry Linked Grants

Defence CTD	\$2m
ARC Linkage	\$2.2m

Licencing Activity

CRC Biomarkers	April 2010
Optimatics	May 2010
Wolters Kluwer Health	Sept 2010
Medtronic	Mar 2011

Start Up Activity

SNAP Network Surveillance	Sept 2009
Muradel Pty Ltd	Dec 2010

Intellectual Property

Investment in IP Protection	\$170K
Patented Technologies	48
Plant Breeders Rights	21

Growing Engagement

No. Research Agreements	504
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Education & Outreach

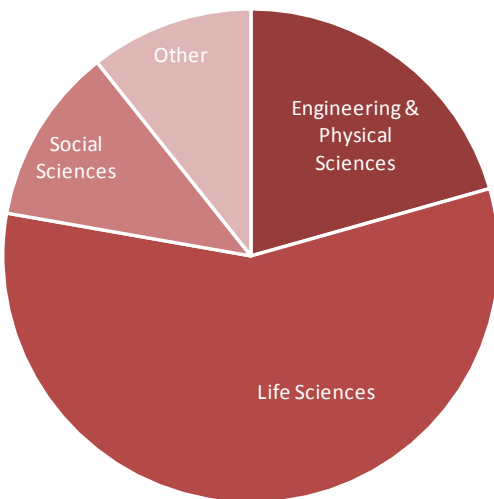
Participants	660
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Resources

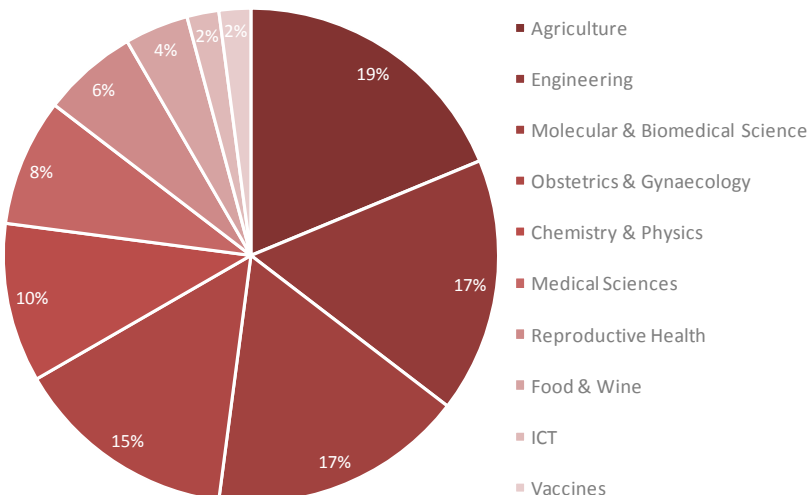
ARI Staff	21.8 FTE
Research Base	1400

Venture funding inc. 09 & 10. Commercial Accelerator inc. 08, 09 & 10. All other figures based on 2010 results.

Contract Research & Consulting \$Revenue



Technology Commercialisation Patent Portfolio



Faculty of Engineering, Computer & Mathematical Sciences

Overview

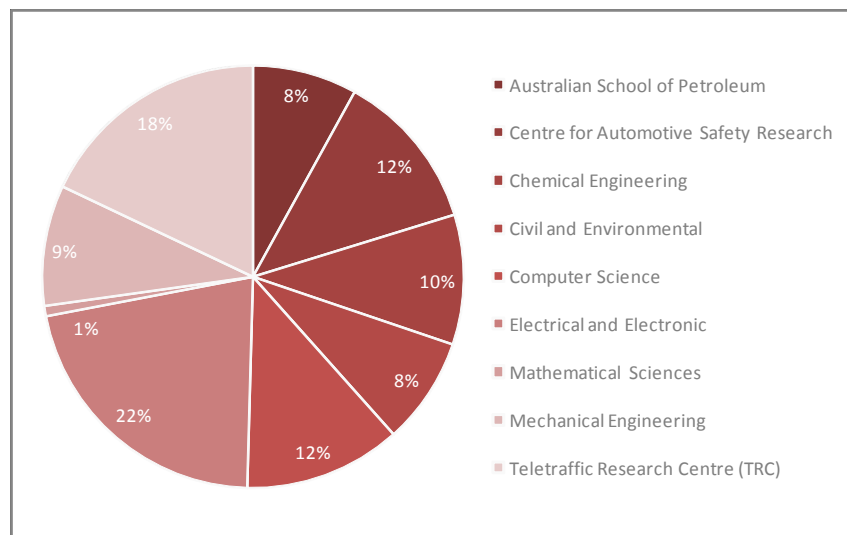
The Faculty of ECMS has a reputation for innovative applied research across a wide range of fields, with researchers based at the North Terrace and Thebarton Campuses, some of which are now housed in the new Innova21 Building which was officially opened in 2010.

Contract research and consulting activity in the Faculty intensified in 2010 resulting in an increase of \$1.35 million in revenue above 2009 results. The majority of this engagement is driven by the School of Electrical and Electronic Engineering who continue to maintain partnerships with customers in the defence and power industries.

Other highlights in 2010 included:

- The Teletraffic Research Centre (TRC) has maintained year on year growth in contract research engagement, and revenue from their partners in telecommunications and defence has nearly doubled in the past 4 years. TRC is also working on an exciting new wireless network technology in partnership with Telstra.
- The Faculty is providing innovative programs and research to enable development of long term solutions to meet the world's rapidly growing energy needs. Researchers in the School of Chemical Engineering in particular

Contract Research & Consulting Revenue



have consistently maintained partnerships with companies in the energy sector and these have contributed to a significant increase in contract research revenue for the School in 2010.

- Optimisation of water distribution systems continues to be a key focus for the researchers in the School of Civil & Environmental Engineering and a new technology in this space has now been successfully licensed.
- The establishment of the Institute for Mining and Energy Resources (IMER) provides for a particular focus on applied research for these industry sectors.

Some of the key researchers attracting applied research returns include:

- Dr Bruce Northcote, Teletraffic Research Centre (TRC)
- Prof Anton Van Den Hengel, Australian Centre of Visual Technologies (ACVT)
- Dr Robert Anderson, Centre for Automotive Safety Research (CASR)
- Matthew Trinkle, School of Electrical & Electronic Engineering
- David Vowles, School of Electrical & Electronic Engineering
- Dr Carl Howard, Mechanical Engineering



Development of Defence Concept Technology Demonstrators

The University has been particularly successful in engaging with Defence by way of the Concept Technology Development (CTD) Program. This program fosters developments ultimately intended to see operational use and so it is recognition of research undertaken at this University that has pull through to product and application in the marketplace. Two current examples (we have had 3 other successful CTDs) are the:

Adaptive Exhaust Silencer for submarine engines

Dr Carl Howard, Mechanical Engineering

The University has been awarded \$1,120,000 to develop an adaptive exhaust silencer to reduce the noise from the diesel engines used on submarines. Dr Howard has already successfully completed a previous CTD: Adaptive Tuned Mass Dampers for Submarine Engines, Value \$600,000.

Content Based Image Search Professor Anton Van den Hengel, Computer Science

This Project is being run out of the Australian Centre of Visual Technologies, which was originally established under the auspices of a Premier's Science Research Fund and shows the benefit of investment into an area where there is a market gap in technologies and a demand from industry for the technology. The ACVT has also initiated SNAP –a start-up company promoting video surveillance technology and itself the recipient of venture capital funds through the Tran Tasman Commercialisation Fund.

The total value of these two programs is just over \$2,000,000 allocated over a two year period.

The University Strategic Alliance with the Defence Science and Technology Organisation continues to be a source of research funds across a wide field: engineering, science, psychology, scholarship and staff exchange.

By Paul Arthur



First 6 star green rating for Adelaide education building

MEDIA RELEASE

The University of Adelaide's \$100 million Innova21 building has achieved Australia's first 6 Star Green Star Design, Education v1 environmental rating for an education building.

The nine level, state-of-the-art building has achieved the unique rating under the Green Building Council of Australia's Green Star - Education v1 Tool, which assesses the environmental attributes of new and refurbished education facilities in Australia.

Innova21 provides accommodation for the Faculty of Engineering, Computer and Mathematical Sciences offering improved student amenities including a cafe, computer labs, exhibition area, teaching spaces and 24-hour, seven-days-a-week access to major resources and support facilities.



University spinout takes control of video surveillance

Spun out of the University in September 2009, SNAP Network Surveillance Pty Ltd is building a dynamic team to commercialise world-leading research in large-scale video surveillance undertaken in the University's Australian Centre for Visual Technologies (ACVT).

SNAP enables CCTV operators to track targets from camera to camera around even the largest CCTV networks. The software automatically integrates data from thousands of security cameras in a video surveillance network into a single sensor, eliminating existing problems with huge information overloads. It automatically establishes camera relationships in large networks, dynamically adjusting those relationships as cameras are moved, added and deleted, and providing a user interface to navigate from camera to camera around a network. It also enables tracking of multiple targets of interest back and forth through the integrated video surveillance footage, and creation of video evidence for immediate operational use or retrospectively to settle disputes.

The technology helps solve the security dilemma currently facing airports, casinos, CBDs, shopping malls and large sporting and entertainment venues around the world. This includes situations like those experienced in a number of airports in Australia recently that had to shut down and rescreen

passengers following security breaches, leading to lengthy delays, losses of millions of dollars and threatened legal action.

The company has been supported with a \$700,000 investment from the Trans Tasman Commercialisation Fund (TTCF). TTCF is collaboration of South Australia's three public universities, Monash University in Victoria and the University of Auckland in New Zealand, with capital funding of \$30m from the WA-based industry superannuation fund Westscheme (now AusSuper). More recently a collection of SA based Angel Investors has also backed the venture, to the tune of more than \$170,000.

The company is now integrating its technology with other products from major multinationals that provide video management and analytics products and services to clients worldwide. It is also engaging in detailed trials of its software with prospective purchasers, and has received enquiries from around the world.

By Robert Chalmers



To learn more about SNAP and see its technology in action, visit

www.snapcontrol.com



Optimising Water Distribution Systems

A great deal of research has been carried out into the optimum design and operations of Water Distribution Systems. While evolutionary techniques such as genetic algorithms have proven to be extremely useful in solving these large non-linear optimisation problems, the computer run times can be very long. While this is fine for planning and design, it is unacceptable for operations where models need to run in few minutes. Professor Graeme Dandy from the School of Civil, Environmental and Mining Engineering is working to improve the operations of water supply systems throughout Australia and across the world using fast mathematical optimisation techniques. In May 2010 ARI entered into a licensing agreement with Optimatics Pty Ltd to commercialise a novel technique that optimises pump scheduling.

By Sanjee Peiris



Prof Graeme Dandy



Wireless Innovations

The Teletraffic Research Centre has been in existence for several years servicing the industrial market – major on-going services being offered to Telstra for their wireless technology requirements and more recently by the set-up of the Centre for Defence Communications and Information Networking (CDCIN) which has provided a focus for the Defence market.

CDCIN works in close cooperation with the Defence Systems Innovation Centre (DSIC) a Joint Venture between the University of Adelaide, The University of South Australia and the newest member The University of New South Wales.

Commercial activity has seen the TRC receive a Commercial Accelerator Scheme Award based on their previous work with Telstra (value

\$150,000) to further develop the Devil tool – which allows for analysis and synthesis of the wireless network and therefore management of the capital assets in a predictive manner.

The defence related activity continues to grow on all fronts with contracted work increasing, in particular with the force multiplier effect of DSIC. DSIC is backed by State Government funds – for every dollar earned we receive a dollar (DSIC) up to \$900,000 per annum. This fund is reinvested by way of research back into the joint venture partners.

By Paul Arthur



New company to become leader in algal biofuels

Australian researchers Dr David Lewis (University of Adelaide) and Professor Michael Borowitzka (Murdoch University) are world leaders in the development of biofuels from micro-algae.

Their research has led to the establishment of a new spin out company, Muradel Pty Ltd, as a vehicle to produce commercial

quantities of clean, “green” fuels from algae. The company is a joint venture of Murdoch University, Adelaide Research & Innovation Pty Ltd, and commercial partner SQC Pty Ltd.

The main focus of this new company is to bring to commercial reality a large-scale business that leverages the natural advantages of the Australian environment, producing algae for renewable fuel and co-products from the biomass.

Murdoch University’s expertise lies in commercial production of algae and algal products, while the University of Adelaide is contributing engineering expertise in algal processing. SQC Pty Ltd is a South Australian-based company whose mission is to develop commercial processing



of micro-algae biomass into renewable hydrocarbon products, especially fuels.

As part of collaborative activity, a \$3.3 million algae pilot plant has been established in Karratha, Western Australia.

Commercial partner SQC not only brings additional investment to the project, but perhaps more importantly, brings the project a step closer to market.

By Jane Rathjen

Dr David Lewis (Chemical Engineering), Mr Gerald Barker (General Manager, SQC Pty Ltd) and Associate Professor Peter Ashman (Chemical Engineering).



Institute for Mineral and Energy Resources (IMER)

In April 2010, internationally recognised metallurgical engineer, Prof Stephen Grano, was appointed Director of the University of Adelaide's new Institute for Mineral and Energy Resources (IMER).

The Institute was launched at the National Wine Centre in October by South Australian Mineral Resources Development Minister the Hon. Paul Holloway, in the company of 150 industry representatives.

In contributing to research-led solutions to improve the efficient use of the world's mineral and energy resources, IMER is fostering large-scale research projects of global significance to the mineral and energy resource industries through providing cross-disciplinary research teams to address a fusion of technical, social and environmental challenges. The full impact of the Institutes' activities are expected to transcend technical solutions to include greater benefits for society and the environment.

The institute brings together the core strengths of more than 150 research members –many affiliated with the:

- Centre for Energy Technology (CET)
- South Australian Centre for Geothermal Energy Research (SACGER)
- Centre for Tectonics, Resources and Exploration (TRaX)
- Resources Engineering Program, and
- Social, Economic and Environmental Program

Premier's Science and Research Fund supports laser imaging techniques to examine resource material compositions and more efficient and effective mineral exploration

Professor Martin Hand will lead a new project that will establish facilities utilising the latest laser imaging



techniques to examine the composition of material such as minerals, leaves and grains. This will lead to more efficient and effective mineral exploration, detection of geothermal resources, isolation of contaminants in soil and the development of salt tolerant cereal crops. The technology will also be used to detect trace elements in the ear bones of ancient fish to answer ecological and marine food security questions and has been identified as opening up new avenues in research in biomedical science and forensic dentistry. The project includes 8 other TRaX researchers and constitutes \$800,000 worth of funding over 3 years.

ARC LIEF Grant Successes

- Assoc Prof Joel Brugger and Prof Martin Hand - \$700,000 for a new high performance

electron microprobe facility for microanalysis of sulphides and heavy metals, to be administered by the University of Adelaide (partners include BHP Billiton, Monash University, Flinders University and UniSA)

- Dr Rachel Nanson, Dr Kathryn Amos, Assoc Prof Alan Collins - \$150,000 for sonic drilling equipment to provide contamination-free core sampling of rocks and unconsolidated sediments (partners are ANTSO, Griffith University, Macquarie University)
- Prof David Giles and Assoc Prof Alan Collins - \$420,000 for mass spectrometers to help build a new national argon geochronology network

By Simon Firth



Study of Aboriginal People of Central North, South Australia and Increased Mining Activity

A/Prof John Spoehr, Director of the Australian Institute for Social Research provides leadership to members of the institutes' Social-Economic Program. In 2010, John and his research team were engaged by a major Australian mining and resources company to undertake a baseline study into future planning and resourcing activities designed to maximise benefits for Aboriginal communities in the Central North region of South Australia. The methodology employed under the study will support decision making, as well as, provide a measure for the company to track success against failure.



Adelaide Airport Limited & the Centre for Energy Technology Platinum Partnership

In 2010, Adelaide Airport Limited (AAL) partnered with the Centre for Energy Technology (CET) through a strategic three year, \$750,000 investment in research and development of clean energy solutions. With aims to improving its own energy efficiencies and reducing its carbon footprint, AAL's investment demonstrates international leadership in environmental responsibility and supports AAL's efforts to become the most ecologically sustainable airport in Australia.

Faculty of Health Sciences



Overview

The Faculty of Health Sciences comprises 7 Schools, 13 Disciplines and 4 Units.

Applied research activities in the School of Medical Science and the School of Population Health & Clinical Practice increased significantly in 2010.

This, combined with the acquisition of significant new resources from the Joanna Briggs Institute, and the PROS Unit, contributed to a \$3 million increase in contract research and consulting revenue for the Faculty over the previous year.

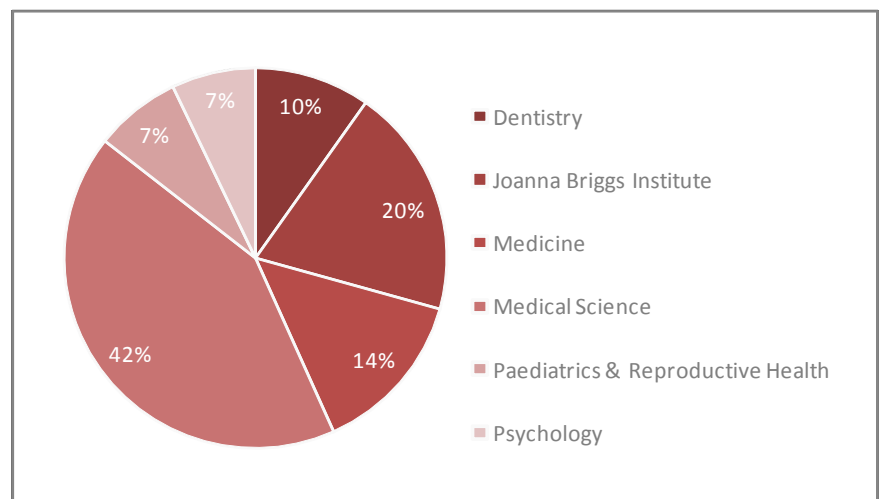
More than 350 of the Faculty's researchers also contribute to the research agenda of the Robinson Institute - specialising in fertility, pregnancy, the origins of healthy living and stem cell research to improve health and prevent disease across generations.

Led by Professor Rob Norman, the Robinson Institute bridges the gap between research discoveries and medical practice, with many of the Institute's senior researchers also leading clinicians in their fields. This enables a strong translation of research discoveries which provides immeasurable benefits to society and for future generations.

In 2010 the Institute launched the Robinson Foundation to drive donations into R&D.

Another important milestone was celebrated by the School of Medicine

Contract Research & Consulting Revenue



for the Medical Program - 125 years of teaching, learning, research and achievements that continue to transform health care in Adelaide and internationally.

Some of the key researchers attracting applied research returns include:

- Prof Sandy McFarlane, Centre for Military and Veterans Health (CMVH)
- Tracy Merlin, Adelaide Health Technology Assessment (AHTA)
- Prof Philip Ryan, Data Management & Analysis Centre (DMAC)
- Assoc Prof Robert Ali, WHO Collaborating Centre
- Prof Alan Pearson, Joanna Briggs Institute

Government departments and other research institutes continue to dominate the Faculty's list of key clients.





The Joanna Briggs Institute is an international research and development unit specialising in evidence-based resources for healthcare professionals in nursing, midwifery, medicine, and allied health.

ARI played a significant role in the transition of the Joanna Briggs Institute (JBI) into the University in May 2010 and is now handling membership income and negotiating potential IP licensing as well as additional contract research and consulting for the unit.

Originally established in 1996 at the Royal Adelaide Hospital, JBI is now a growing, dynamic international collaboration involving nursing, medical and allied health researchers, clinicians, academics and quality managers across 40 countries in every continent.

In September JBI signed an exclusive partnership with one of the world's leading providers of health products and services, Wolters Kluwer Health. Under the agreement, JBI will provide exclusive online access of its resources and information to the Netherlands-based company, which maintains operations in 35 countries.

JBI Executive Director Professor Alan Pearson said the partnership with Wolters Kluwer Health would enable them to reach more healthcare professionals than ever before.

"It will accelerate and strengthen the growth of our core content and tools delivered to our current and future members," Professor Pearson said. "We have major plans for the addition of new, previously unpublished resources so that our customers have access to the best available international evidence."

"The JBI approach to evidence-based healthcare is unique. It

considers research, the context in which care is delivered, individual client preferences and professional judgement in helping to inform clinical decision making processes," Professor Pearson said.

The President and CEO of Wolters Kluwer Health Medical Research, Karen Abramson, said the partnership was the first step in a deeper, long-term collaboration with JBI.

"The Joanna Briggs Institute is the acknowledged leader in translational research in clinical care and therapeutics, including the creation of systematic reviews, evidence summaries and the tools needed to embed these into health processes. We are delighted to be partnering with them," she said.



Dr Matthew Chong at the 2010 BIO Convention, Chicago

BIO 2010 International Convention, Chicago

This global biotechnology, showcase boasts a broad array of top-level speakers addressing critical global challenges and the top issues in biotech.

ARI's Commercial Development Managers, Dr Matthew Chong and Duane Rivett attended the event in 2010, which drew 15,322 industry leaders from 49 states and 65 countries.

ARI secured a number of meetings with current and potential commercial partners from around the world, and also used the opportunity to continue late stage commercial negotiations with Medtronic, the world's largest medical technology company.



Duane Rivett & Dr Matthew Chong at Medtronic Headquarters, Jacksonville, FL

Surgeons announce new advance for sinus sufferers

Researchers at the University of Adelaide have jointly developed with colleagues at the University of Otago and Wellington-based Robinson Squidgel a new wound dressing gel which improves healing, controls bleeding and prevents adhesions (scars that can form at the surgical site) following sinus surgery. Following years of effort, the gel has been successfully commercialised in a deal with the world's largest medical technology company, Medtronic, who purchased the patent for the nasal dressing. The translation of this research from laboratory to the clinic is potentially of great benefit to many sinus sufferers around the world, reducing the number of post-operative complications which frequently occur following sinus surgery.

World-renowned ENT surgeon Professor PJ Wormald from the University of Adelaide has led the development of the product alongside his New Zealand colleagues Emeritus Professor Brian Robinson from the University of Otago and his son, ENT surgeon Mr Simon Robinson. Work began on the project after Professor Robinson's son and ENT surgeon Mr Simon Robinson challenged his father to come up with a biological substance to help solve the disheartening problem of post-operative complications after sinus surgery.

Professor Wormald says the medical gel, which has important blood clotting abilities, forms a coating over the wound to prevent scarring. "Currently, up to one third of all people who undergo sinus surgery experience blocked nasal passages afterwards due to scarring and this requires further surgery to correct," Professor Wormald says.

The new gel is expected to benefit millions of people around the world who undergo endoscopic surgery for blocked sinuses. Approximately 18% of the general population suffers from chronic sinusitis, many of whom undergo surgery to correct the problem. "In the past, surgeons



Prof PJ Wormald

would pack the nose with ribbon gauze to stop the bleeding and prevent adhesions. Unfortunately, this was very uncomfortable and painful for patients. This new gel is placed into the sinuses after surgery and is very effective in controlling bleeding. The gel slowly dissolves over two weeks, allowing the sinuses to heal properly, preventing scar tissue from forming in the nose."

The development of the gel, derived from a polymer named chitosan and extracted from crab shell and squid, was aided by funding from the inaugural round of ARI's Commercial Accelerator Scheme, a proof of commercial concept scheme open to staff of the University of Adelaide – to provide the necessary funds to conduct a pilot clinical study. The successful application was assessed by a highly experienced external panel of people with a variety of backgrounds. The study funded by the Commercial Accelerator Scheme demonstrated the clinical efficacy of the gel and was instrumental in attracting an appropriate commercial partner.

Whilst ARI had the commercial lead in negotiations, support from the other parties, including the tech transfer office at the Uni of Otago, Otago Innovation Limited was critical in seeing this deal through to completion. This was truly a collaborative effort. Rob Chalmers, Managing Director of ARI says, "This is an outstanding result for the University of Adelaide and its New Zealand colleagues and demonstrates the power of collaborative expertise".

The commercialisation of this research by no means marks the end of this successful trans-tasman collaboration – the researchers hope to continue with the further development of the gel – particularly its use following other types of surgery. In addition, the group is planning other projects aimed at addressing other, unmet surgical needs.

By Dr Matthew Chong

Robinson Institute

By focusing on the earliest stages of life, the Robinson Institute is seeking to prevent disease and promote health in children and adults across generations.

The Institute brings together a unique blend of clinical, scientific and research leaders with wide-ranging expertise, from epidemiology through to genetics and molecular biology.

Consisting of more than 350 researchers the Institute concentrates on fundamental clinical and scientific discoveries. Their research focuses on the health of women & babies, origins of diseases, reproductive health and stem cell research.

In the area of paediatrics and reproductive medicine, the University of Adelaide has been ranked as highest in the nation under the Excellence in Research Australia (ERA) process.

In 2010, members of the Robinson Institute generated over \$380,000 in contract research and consulting income through relationships with a wide variety of industry partners. This income supplements the extensive competitive grant funding that the Institute attracts and allows researchers to benefit from commercial engagement, intelligence and feedback.

Development of diagnostic for pregnancy complications

As part of the SCOPE (Screening for Obstetrics & Pregnancy End Points) Program, Institute researchers Professor Gus Dekker and Professor Claire Roberts in the Research Centre for Reproductive Health have formed several commercial development collaborations with the intention to developing and commercialising diagnostic tests to predict pregnancy complications such as preeclampsia, preterm birth, gestational diabetes and fetal growth restriction.



Professor Sarah Robertson

IVF breakthrough

Professor Sarah Robertson has partnered with a Danish company to develop a product which improves IVF embryo implantation rates for some women by up to 40%. In the world's largest clinical trial on IVF media, Professor Robertson and ORIGIO a/s - a European company specialising in assisted reproductive technologies - have shown for the first time that growth factor molecules are critical to ensuring optimal embryo development. The resulting product, EmbryoGen, to be released in 2011, contains a signalling molecule called GM-CSF found naturally in the mother's tissues which protects the embryo from stress, making it stronger and more robust in the early implantation period. The product is mainly effective in women who have previously miscarried, where an impressive 40% increase in implantation success was shown.

Embryo selection technology for IVF

Dr Darryl Russell and Ms Kathryn Gebhardt have developed an embryo selection test designed to identify IVF embryos which have the best developmental potential. This technology was protected by a provisional patent and a development relationship was established with an IVF provider to validate the technology in the commercial IVF setting.

Expert Panel to the NHMRC

An Australian Research Centre for Health of Women and Babies (ARCH) team was appointed to an NHMRC Panel of Providers with Expertise Relevant to the Development and Presentation of Evidence Based Health Advice. ARCH are developing dietary guidelines for pregnant and breastfeeding women and are providing support on obesity guidelines.





IVF Vet Solutions

The IVF Vet Solutions business unit, led by Associate Professor Jeremy Thompson, provides various services to the IVF market, including the mouse embryo assay (MEA), which is a quality assurance test for media and other products used in IVF. The unit is also developing a suite of bovine IVF media, supported by Adelaide Research & Innovation's Commercial Accelerator Scheme. Under the development program IVF Vet Solutions is producing and supplying research media to collaborating commercial bovine IVF providers, with the goal to validate the media suite in a commercial setting.

Collaboration with Cook to improve in vitro maturation of oocytes in humans

A collaborative relationship is ongoing between Associate Professor Jeremy Thompson, Dr Robert Gilchrist and Cook Medical on technologies to improve the in vitro maturation of oocytes in humans.

Clinical Trials

Robinson Institute researchers are conducting sponsored clinical trials with several pharmaceutical companies.

IVF Media additive to improve implantation and placentation

A collaborative developmental program investigating the use of IGF-II to improve implantation and placentation, is ongoing between Associate Professor Claire Roberts and ORIGIO a/s.

By Duane Rivett



Prof Justin Beilby, Nhan Thanh Truong & Greg Macpherson

Research Expo

The Faculty of Health Sciences runs an annual Postgraduate Research Expo where students present their research through a poster session and the 3 minute thesis competitions.

ARI joined a range of corporate and private sponsors to award prizes to students. Seventy four poster abstracts were reviewed by ARI and shortlisted to a top 10.

Staff attended the expo to interview students at their posters. We were impressed by the quality of the research and the interest in commercial applications.

The winner, Nhan Thanh Truong, impressed us with his work on growth factors in brain tumours and his understanding of the potential for a platform technology.

By Greg Macpherson

Faculty of Humanities & Social Sciences

Overview

Research in Humanities and Social Sciences encompasses a wide variety of disciplinary approaches to evidenced-based social innovation.

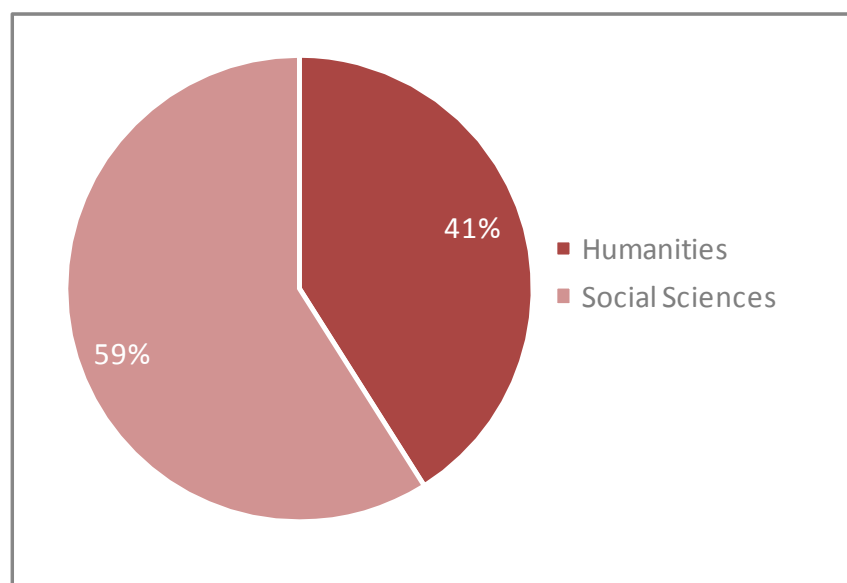
The researchers in this Faculty are tackling major issues, such as how we respond to climate change, migration, social diversity, the social impact of health outcomes, changes in media and technologies, global financial performance and infrastructure, as well as energy demands, access to natural resources, food security and regional politics.

Most of the research outputs from this Faculty are aligned within research centres and institutes including the:

- Australian Institute for Social Research (AISR)
- Fay Gale Centre for Research on Gender
- J.M. Coetzee Centre for Creative Practice
- National Centre for Social Applications of Geographic Information Systems (GISCA)
- Centre for Housing, Urban and Regional Planning (CHURP)
- Indo Pacific Governance Research Centre

Key clients and partners working with the Faculty include Federal and State Government Departments, global food companies, aid agencies, community associations and private industry.

Contract Research & Consulting Revenue



Some of the key researchers attracting applied research returns include:

- John Glover, Public Health Information Development Unit (PHIDU)
- Associate Professor John Spoehr, Australian Institute for Social Research (AISR)
- Professor Graeme Hugo, National Centre for Social Applications of Geographical Information Systems (GISCA)
- Dr Robert Amery, Linguistics - Australian Indigenous languages
- Dr Deane Fergie, Locus of Social Analysis and Research





Understanding the attitudes of women to genetically modified foods

Research has shown that in Australia, women are still primarily responsible for household food purchasing decisions. With increasing pressure on agriculture to provide more food using less resources, it is likely that innovations in food production will continue.

Understanding the attitudes of women to genetically modified foods will provide valuable insight into attitudes to other innovations in food production in the future and have implications for regulation and labelling.

Assoc Prof Rachel Ankeny in collaboration with Dr Heather Bray from the School of Agriculture, Food

and Wine, have undertaken this research project with funding from the Commonwealth Department of Innovation, Industry, Science and Research.

The aim of the project is to further investigate the diversity of women's attitudes to genetically modified foods and to explore the relationship between these attitudes and their values and roles.

As part of the project Assoc Prof Ankeny and Dr Bray will seek to clarify if these attitudes are related to other factors for example education, personal and professional roles and socio-economic status.

They will also examine if these attitudes are more related to food or technology.

By Oana Manole



Concentrations of applied research capability within the Faculty of Humanities & Social Sciences have been highlighted in a new brochure

These capabilities include:

- demography, population and migration
- housing, urban and regional planning
- workforce and industry trends
- regional and global governance
- public health information
- geographical and environmental studies
- media and communications in health, social change and development
- linguistics of endangered and migrant languages
- sustainable communities and socio-economic impact assessment
- native title and heritage assessment
- gender studies
- social inclusion
- creative practice

Check out this brochure to learn more about applied research strengths in the Faculty of Humanities & Social Sciences



Demand for governance in the Pacific

Dr Andrew Skuse providing services for AusAID

The Pacific Media Assistance Scheme (PACMAS) is a 10 year program with the goal to support better governance in the Pacific region, and to contribute to the development of a diverse, independent and professional Pacific Media system that informs all the peoples of the Pacific and gives them a voice in public life at local, national and regional level.

Given the long term approach of this Scheme, the Program Design included two phases with a review after the first two years, to determine any necessary revisions to the program, and its future direction.

Dr Andrew Skuse from the Discipline of Anthropology began this project in June 2010 and has since maintained an ongoing relationship with AusAID.

Natural resource management

Dr Douglas Bardsley providing services for Awnrm Board

This purpose of this project is to review the exposure of the Alinytjara Wilurara natural resources management region to projected climate changes and outline opportunities to adapt to those changes.

The outcomes of the research will provide a baseline of information for the Alinytjara Wilurara Natural Resources Management Board on climate change impacts and opportunities, which will be used to begin to identify gaps in knowledge and direct planning and investment into vital areas for adaptation.

There has been a significant amount of work undertaken by researchers and government on the climate change impacts on South Australian environments. Relevant research outputs would be combined with information derived from published

materials and initial discussions with key stakeholders on the natural resource management systems of the Alinytjara Wilurara region, to critically examine the vulnerability of local systems to project change.

Priority will be on the top 5 fauna and flora species and top weed and vermin species in the region and the possible impact of climate change on these species. A review of key bush tucker species and the effects of possible climate change will also be included.

By Oana Manole

Faculty of Professions

Overview

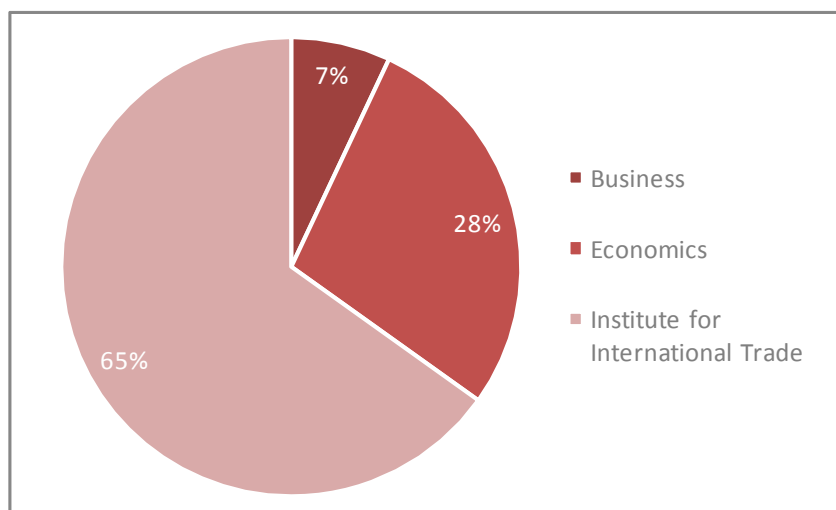
The Faculty of Professions is best known for its reputation in the provision of high quality education, however there is still a significant focus in this Faculty on applied research, originating from the Business School, the School of Economics and the Institute for International Trade.

Led by former WTO Deputy Director-General and international trade expert, Andrew Stoler, the Institute for International Trade has a broad research remit. This includes the implications of trade agreements and reforms for developing countries, the challenges of participating in a complex international trading environment and how modern approaches to customs matters and border controls can speed international trade flows.

Responsible for contributing a dominant portion of revenue through its contract research and consulting activities, the Institute continued with a strong performance in 2010, delivering comprehensive training and support to regional, developing nations through a variety of projects, including but not limited to Trade Initiatives helping to achieve the Millennium Development Goals and a series of projects looking into the implications of PACER Plus for Niue, Nauru and Tonga.

In 2010, the University of Adelaide's Business School accomplished some great achievements. Most notably

Contract Research & Consulting Revenue



the School attracted approximately \$1 million in research grants from the Australian Research Council.

In parallel, faculty researchers also undertook a number of applied research activities to address research challenges associated with consumer choice in the wine industry, sustainability and adequacy of self-managed superannuation funds and corporate social responsibility in marketing, to name a few.

Some of the key researchers attracting applied research returns include:

- James Redden, Andrew Stoler & Keith Wilson, Institute for International Trade
- Prof Christopher Findlay, School of Economics
- Dr Cate Jerram, Business School



Survival of Family Farms: Capital Raising and Credit Access

The University's Business School have partnered with the Australia and New Zealand Banking Group Limited (ANZ) to conduct a study into the issues impacting the future of Australia's family-run farms.

The three-year research project, 'Survival of Family Farms: Capital Raising and Credit Access', focuses on succession planning for family farms, the development of options to ensure their sustainability and farmers' access to credit and appropriate financial management practices.

Under the supervision of Professor Ralf Zurbrügg, the outcomes of the study are expected to form the basis of advice to farmers on how to manage succession planning, how to better access capital and how to increase awareness of good financial management practices that will lead to a long term future for their business.



By Simon Firth

On the move >

Congratulations to Professor Pascale Quester who has been appointed to the position of Deputy Vice-Chancellor and Vice-President (Academic).



Risk Perception and Attitudes towards Information Security

This project marks a second phase of collaboration between the Business School and the Defence Science and Technology Organisation (DSTO) concerning how personality affects attitudes towards information security. Notably, the study seeks to determine how attitudes towards information security affect behaviour and compliance and further identify training options and actions to ameliorate weak behaviours.



How Trade Initiatives are Helping to Achieve the MDGs

In 2010, the Institute for International Trade were commissioned to analyse how trade initiatives are helping to achieve the Millennium Development Goals - eight international development goals that all 192 United Nations member states and at least 23 international organizations have agreed to achieve by the year 2015.

Research findings from the project found that trade is a potentially useful tool for developing countries in seeking to achieve the Millennium Development Goals, while well-planned and strategically executed trade policy initiatives positively impact on sustainable poverty reduction.

In addition, the results highlighted importance in, the reduction of tariff barriers and non-tariff barriers in developed countries, as well as, providing countries with supply capacity to take advantage of trade opportunities.



*Prof Andrew Stohler, Director
Institute for International Trade*

ASEAN+1 FTAs and global value chains in East Asia

Through support from the Economic Research Institute of ASEAN and East Asia, this substantial research project aims to provide implications for the development of global value chains in the East Asian region and draw strategy for region-wide economic integration based on analysis of ASEAN + 1 Free Trade Agreements.

Regional experts have been engaged to undertake and target specific sectors through case study assessments, to support a review on the barriers to trade and the impact of the FTAs on such barriers and to competition in services markets.

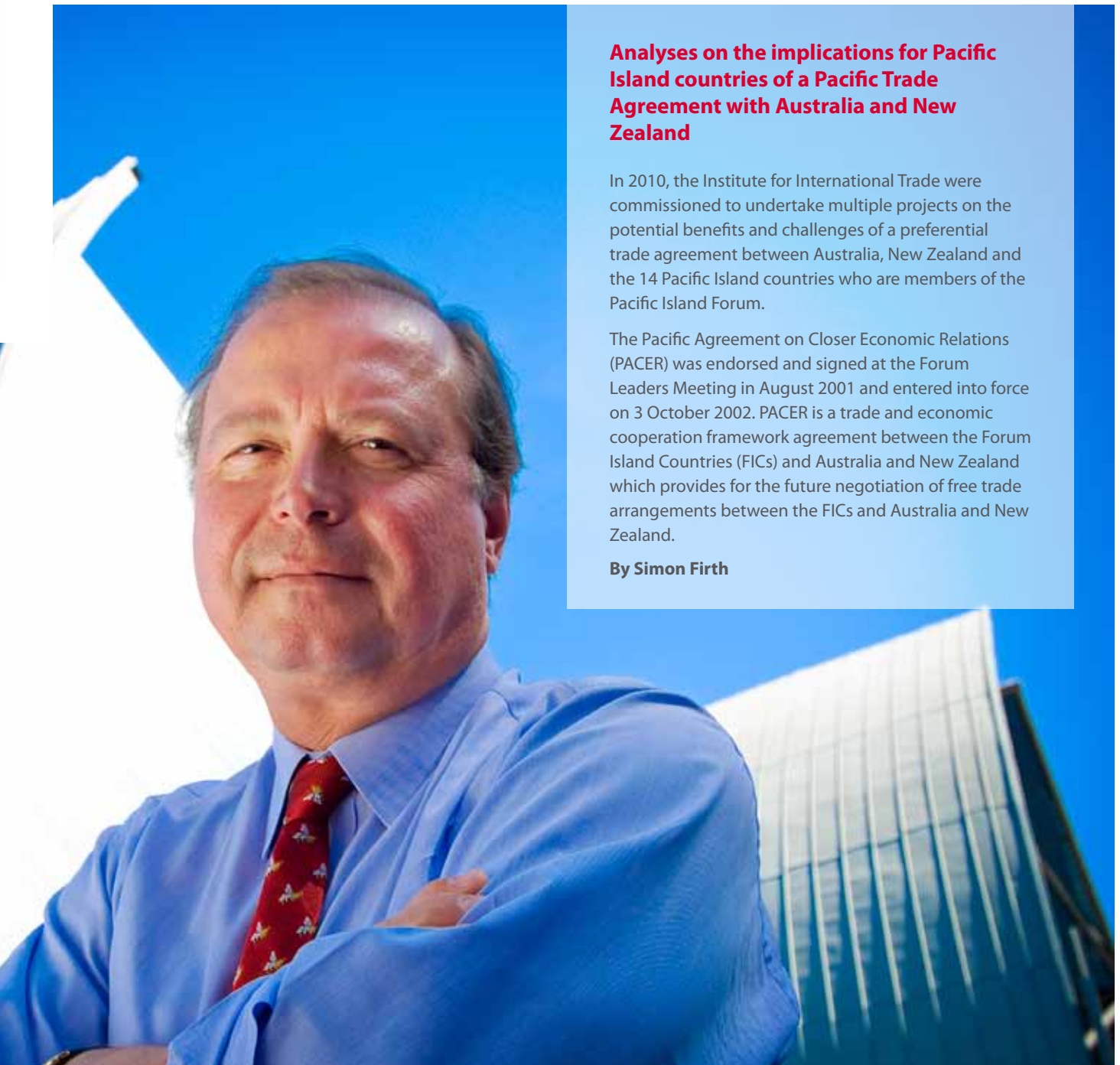
Combining an impressive track record and a world class reputation for economic research excellence, the University is proving instrumental in the development of economic policy and reform throughout the Asia-Pacific.

Analyses on the implications for Pacific Island countries of a Pacific Trade Agreement with Australia and New Zealand

In 2010, the Institute for International Trade were commissioned to undertake multiple projects on the potential benefits and challenges of a preferential trade agreement between Australia, New Zealand and the 14 Pacific Island countries who are members of the Pacific Island Forum.

The Pacific Agreement on Closer Economic Relations (PACER) was endorsed and signed at the Forum Leaders Meeting in August 2001 and entered into force on 3 October 2002. PACER is a trade and economic cooperation framework agreement between the Forum Island Countries (FICs) and Australia and New Zealand which provides for the future negotiation of free trade arrangements between the FICs and Australia and New Zealand.

By Simon Firth



Faculty of Sciences

Overview

The Faculty of Sciences has weathered the GFC and adverse climatic conditions to maintain consistent growth in its contract research and consulting services. Likewise, in the commercialisation of new technologies, mainly plant breeders rights, growth has been steady.

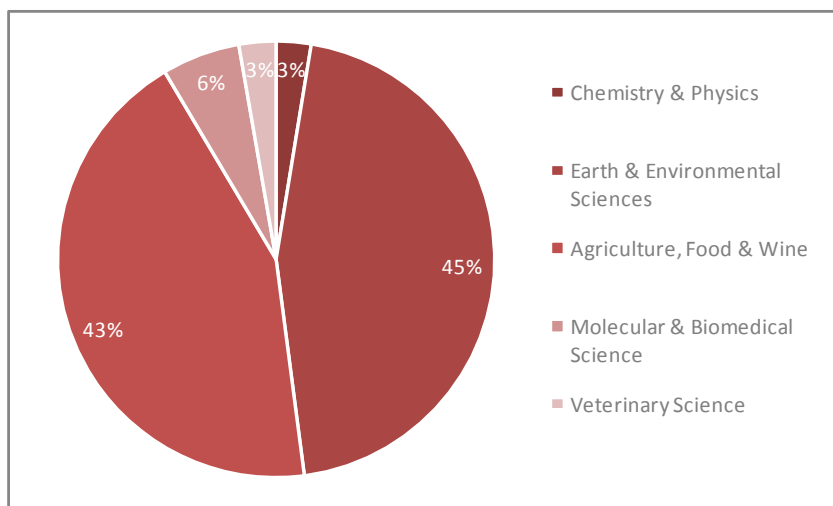
Most revenue is generated by the School of Earth and Environmental Sciences, and the School of Agriculture, Food & Wine.

The Faculty is home to three of the University's Institutes, the Environment Institute, the Institute of Photonics and Advanced Sensing and the Waite Research Institute. These Institutes foster research and development across the Faculty, University and into the wider community.

Faculty highlights from 2010 include:

- SA's first veterinary science school, launched in 2008, is now generating contract research and consulting returns with clients including Pfizer and Semex.
- There is an increased focus in Chemistry and Physics on applied research activities.

Contract Research & Consulting Revenue



- Professor Shaun McColl's work with TransBio Limited has contributed to a significant increase in commercial revenue for the School of Molecular & Biomedical Science.
- We're seeing good commercial returns from the Adelaide Proteomics Centre.
- The Goyder Institute, a partnership between the State Government, CSIRO and SA's three Universities, was launched in May 2010. This Institute is opening up challenges and opportunities for researchers in the water sector.

Some of the key researchers attracting applied research returns include:

- Dr Jason Eglinton, School of Agriculture, Food & Wine
- Associate Professor Justin Brookes, School of Earth & Environmental Sciences
- Associate Professor Susan Carthew, School of Earth & Environmental Sciences
- Dr Mike McLaughlin, School of Agriculture, Food & Wine
- Dr Samuel Stacey, School of Agriculture, Food & Wine

South East Water Science Review

The State Government of South Australia has formed a Taskforce to address water over-allocation in the Lower Limestone Coast region of the South East.

The Taskforce engaged the University of Adelaide to undertake a review of the available science to inform the Water Allocation Plan process for the South East region generally and the Lower Limestone Coast in particular.

The project was funded by the Department of Water and was undertaken during the period of March 2010 to July 2010 by a team of researchers led by Associate Professor Justin Brookes from the Environment Institute at the University of Adelaide.

The main objectives of this project were to:

- develop a global water budget for the region;

- review the assumptions in science and policy pertaining to forestry water use;
- predict the future availability of water; and
- determine the implications of falling groundwater levels on groundwater dependent ecosystems.

By undertaking the South East Water Science Review, the research team showed that water resources are under pressure in the south east of South Australia as a result of land use change and an extended period of low rainfall. Blue-gum plantation forestry in the area has been a direct cause of groundwater decline.

The review also identified that further research needs to be undertaken in several areas of limited understanding such as the water balance in the south east, relationship between groundwater and surface water, determination of losses in the

stream and drain systems, the impacts of development in Victoria on groundwater flows in South Australia, lack of a method for allocation that is based on ecological requirements, how landholders value their water allocations, and appropriate governance on water allocation.

In conjunction with the findings of this review the Taskforce will develop a framework to assist in the development, by the South East Natural Resources Management Board, of a new or revised water allocation plan for the Lower Limestone Coast that can be used as a basis for consultation with key stakeholders.

By Sanjee Peiris

References: Department for Water, 2010, South East Water Science Review, Lower Limestone Coast Water Allocation Plan Taskforce, Adelaide.





Ornamental Eucalypt Development Programme

The Ornamental Eucalypt Development Programme (OEDP) is a native tree breeding and development initiative situated at the University of Adelaide's Waite Campus, which has been researching and cultivating ornamental flowering eucalypts for over twelve years.

Australian native trees (and our flowering eucalypts in particular) have inherent properties such as drought resistance, stunning floral displays and attractive year-round foliage that will enable them to compete very favourably in a number of target market segments in different territories throughout the world.

However, hybrid trees must be clonally propagated to ensure genetic integrity. This has proven to be difficult to achieve, but has been shown to be possible on a very large commercial scale with some forestry species. To this end, ARI has entered into collaborations with three major commercial nurseries to investigate different propagation techniques with commercial application.

Our collaborations with these industry partners was recognized in 2010 with the award of a grant from Horticulture Australia which provides for combined funding of almost \$2 million over 3 years for research into ornamental eucalypt propagation techniques. This funding will allow ARI and our industry partners to develop a pipeline of potential clonal varieties, which will be available for commercialization through partnerships with nurseries in overseas territories such as the west coast of the USA and southern Europe on completion of the grant.



Dr Kate Delaporte

Humphris Nursery

Humphris Nursery is the commercial partner for development of grafting propagation techniques and marketing in Australia.

The nursery was established in the mid 19th century, and is a long standing producer of potted plants for the nursery and landscape industry. Producing around 2 million plants annually, and supplying retailers, chain stores and landscapers nationally, Humphris have introduced many new release and PBR plants to the Australian marketplace.

In recent years, they have introduced a range of nine grafted eucalypts to the south-eastern Australian nursery market, including some PBR varieties. Humphris sees the eucalypts developed by UA's OEDP as a natural progression from their current grafting program, and believe there is demand for up to 100,000 units per year of this product in the domestic market.



Yuruga Nursery/Clonal Solutions

Yuruga Nursery is the commercial partner for the development of large-scale micropropagation techniques using tissue culture for domestic and export markets. Yuruga Nursery is Australia's largest tropical native plant nursery, located on the Atherton Tablelands in north Queensland. Since establishment in 1985, Yuruga has introduced over 1,000 tropical native plants into horticulture. Yuruga Nursery is at the fore-front of the mass-production of new clonal varieties of forestry and agricultural crops. Clonal Solutions Australia is a wholly-owned spin-off company of Yuruga Nursery and has a state-of-the-art Tissue Culture Laboratory, and cutting houses totalling 2500 sq metres of floor space, with full climate control and total production capacity of 1 million cuttings per month. The purpose-built Tissue Culture Laboratory has 3 growth rooms, 10 inoculation stations and production capacity of over 1 million plantlets per year.

Narromine Transplants

Narromine Transplants is the commercial partner for the development of large-scale propagation techniques using cuttings for domestic and export markets. Established in Narromine, NSW in 1982 by the Yates Seeds Group as a vegetable seedling nursery, Narromine Transplants commenced the production of forestry seedlings in 1992, following a management buyout of the Yates operation. Since then the nursery has converted to pure forestry, and has expanded to become one of the largest containerised tree seedling growers in Australia, on a site consisting of over 61 hectares, with the capacity to supply 18 million tree seedlings annually.

By Dr Justin Rigden

\$31 million biotech centre to benefit crops, food, energy

MEDIA RELEASE

Australia's crop and food industries will benefit from a new \$31 million biotechnology Centre of Excellence to be headquartered at the University of Adelaide's Waite Campus.



The University has been awarded \$19.25 million in federal funding from the Australian Research Council (ARC), with an additional \$12 million of support from partner institutions.

The University's new ARC Centre of Excellence in Plant Cell Wall Biology will build an international team of researchers with strong industry links.

Their research will significantly enhance biotechnologies that underpin Australian crop industries valued at more than \$8 billion per annum, associated food industries valued at \$40 billion per annum, and emerging industries related to renewable transport fuels and biomaterials.

The Centre of Excellence will be led by the University of Adelaide and involves collaboration with the universities of Melbourne and Queensland, and with major research institutions and industry partners in Australia, Scotland, Sweden, Germany and the United States.

The Director of the new Centre of Excellence is Professor Geoff Fincher, who has many years of experience in agricultural and biotechnology research. He will work with senior colleagues Dr Rachel Burton (University of Adelaide), Professor Tony Bacic (University of Melbourne) and Professor Mike Gidley (University of Queensland).

Goyder Institute for Water Research

The Goyder Institute is a new water research institute which was launched by the State Government of South Australia in May 2010. This is a partnership between the State Government of South Australia, CSIRO, Flinders University, the University of Adelaide and the University of South Australia.

The State Government has committed \$25 million over five years, with CSIRO and the three universities providing matching contributions to create a \$50 million research Institute.

The Goyder Institute aims to support world leading water resource policy and management in South Australia through scientific research and in doing so, underpin the sustainable development of the State.

The Institute has four Research Programs:

- Urban Water
- Industry Development
- Environmental Water
- Climate Change



Projects funded under the Goyder Institute are integrated, involving multiple organisations and interdisciplinary research.

Some of the projects currently underway include:

- Development of an agreed set of climate projections for South Australia
- Murray flood ecology

- FLOWS (Facilitating Long-term Outback Water Solutions)
- Sustainable management of water in the South-East
- Ways of using wetting events to detect salinity thresholds for aquatic plants in the South-East.



Heterodimeric Receptor and Cancer

Over the last several years, researchers led by Professor Shaun McColl in the School of Molecular and Biomedical Science, have been investigating the relationship between receptors on cells for messenger molecules called chemokines, and cancer.

Dr Marina Kochetkova, a researcher in the group, discovered that the presence of an unique heterodimeric receptor (one made up of the components of two separate receptors) was correlated with breast cancer cells in mice that had strong metastatic properties.

This observation, if validated in humans, opens the way to the potential development of both diagnostic tests for metastatic disease, and also the development of therapeutic agents that might target such cells and destroy them.

A patent application was filed in April 2010, and the technology was then licensed to the CRC for Biomarkers and their associated company TransBio Ltd. An exclusive license agreement was signed with TransBio, in return for royalty returns on developed products.

Additionally, TransBio and the CRC have sponsored and funded a contract research and development programme in Professor McColl's laboratory, to allow Dr Kochetkova to continue studies into developing and testing possible therapeutic agents.

By Dr Paul Tolstoshev



The Institute for Photonics & Advanced Sensing (IPAS) brings together physicists, chemists and biologists to pursue a new transdisciplinary approach to science.

IPAS was founded on the success of the Centre of Expertise in Photonics, a joint centre of the University of Adelaide and DSTO and the recognition of the importance that new forms of Advanced Sensing will play in the world.

Part of this recognition has been the award of \$29m from EIF for the construction of a new facility to house IPAS. This has been further supplemented by \$5m from Government of South Australia and other monies from DSTO and NCRIS schemes.

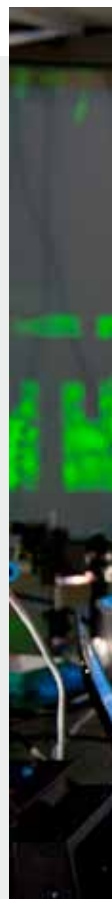
Their world class facilities enable the production of novel soft and silica fibres, surface functionalisation and sensor development. IPAS research targets applications in four key market areas: Defence and national security; environmental monitoring; preventative health; and food and wine.

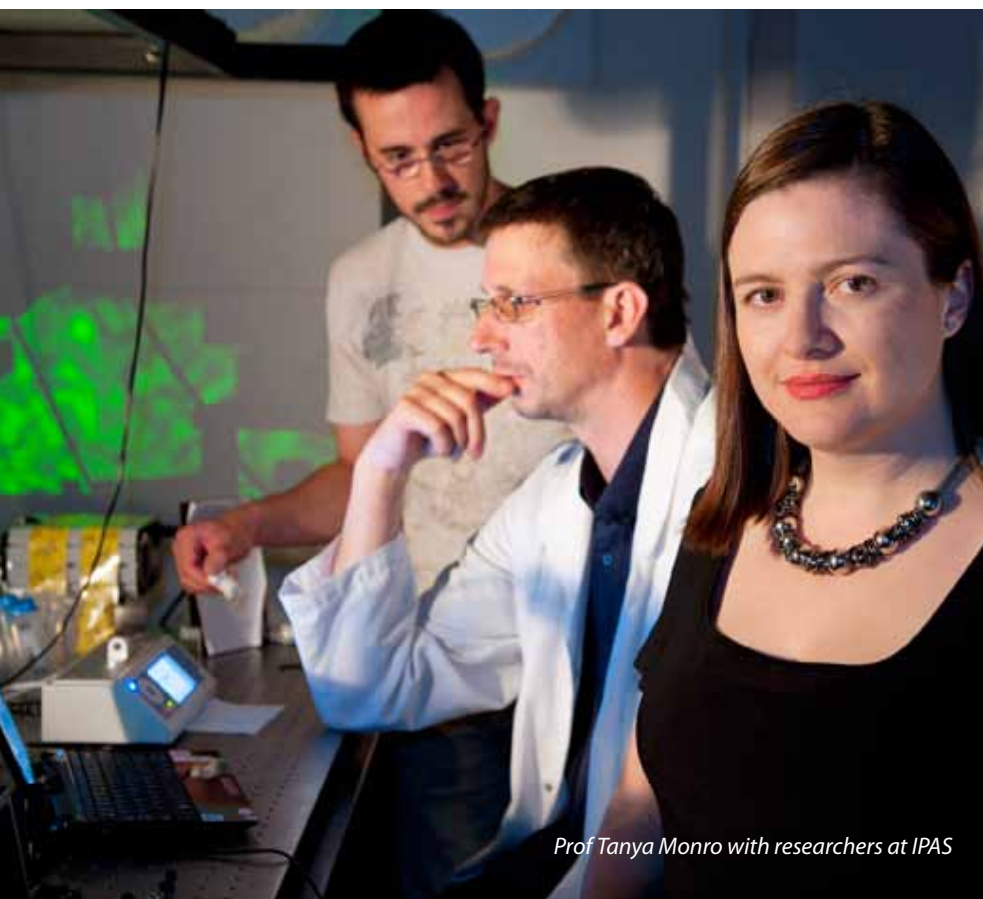
Silica Fibre Fabrication Facility

IPAS have recently manufactured preforms and fibre from silica using state of the art equipment set-up on campus. The facility is now up and running and already manufacturing silica fibres for research and collaborations outside of the University. As part of this service they can design, develop and fabricate a wide range of speciality rare-earth doped and passive silica fibres for research purposes.

Lasers

Lasers have been a traditional area of strength for the University. The coherent laser radar project is





Prof Tanya Monro with researchers at IPAS

developing an eye-safe laser radar, or lidar, for coherent remote sensing of atmospheric wind fields. This system will be able to predict and monitor dispersion of pollutants in the planetary boundary layer, and detect clear-air turbulence and wind-shear in front of aircraft. The Optics and Photonics research group is one of the leading groups in advanced solid state laser research and precision laser sensing in Australasia. It is also collaborating with others to develop advanced waveguide lasers.

Soft Glass Fibre

Associate Professor Heike Ebendorff-Heidepriem continues to lead research into new glass recipes and production techniques. Collaborations around microstructured optical fibres have been established with DTU Fotonik in Denmark, Peking University in China, Macquarie University, and the University of Melbourne.

Sensing

Researchers are developing novel photonic, sensing and measurement technologies that will change the way science is done within traditional discipline areas, stimulating the creation of new industries, and inspiring a new generation of scientists to be engaged in solving real-world problems. Applications include:

- Smart Bung Sensing to measure levels of analytes in wine
- Measuring corrosion in aircraft
- Dip sensing
- Versatile Enhanced Surface Plasmon Resonance sensing (see below) - with applications from environmental contaminant detection to sensing key indicators of embryonic health

Luminescence Facility

The IPAS Luminescence Facility use Optically Stimulated Luminescence techniques to provide dating

information of archaeological samples through a business unit ARI has set up. These techniques have applications in defence, mining, geology and palaeontology.

Virus Detection

Dr Alexandre Francois leads the research on a fibre based form of Surface Plasmon Resonance for use in the bio industry, known as Versatile Enhanced SPR or VESPR. Unlike conventional SPR, VESPR does not require a prism, temperature control, or require high quality control of the deposition of the metal surface layer. VESPR is potentially capable of detecting pathogens in small sample volumes, quickly and with high specificity, successfully achieving the proof-of-concept stage for the detection of model flu virus samples (inactivated, purified virus).

ARI has provided Commercial Accelerator Scheme funding of \$150,000 towards further testing and portability for the VESPR testbed to improve commercial traction. This would enable it to fill a niche in point of care diagnosis as it offers the benefits of SPR sensing (indeed in many ways performing better than standard SPR) in a platform that can be priced for point of care work. It offers significant sensitivity benefits over current point of care technologies like lateral flow and enzymatic platforms. Discussions with CSIRO for virus detection have been established. University researchers Professor Tanya Monro and Dr Peter Hoffman from the Adelaide Proteomics Centre, received \$630k from NHMRC grant with Adelaide Proteomics Centre to detect early gastric cancer. In addition to the CAS funding, ARI have sourced \$50,000 from the Researcher in Business scheme as part of Enterprise Connect.

By Ruth Shaw

Commercial Accelerator Scheme

2008 Funding



VideoTrace

Professor Anton van den Hengel

3D modelling technology which has potential application in fields including film, architecture, gaming, resources and home video.



Wound Treatment

Professor Peter-John Wormald

A study into the effect of a novel chitosan gel on wound healing following endoscopic sinus surgery. In partnership with New Zealand collaborators, this technology progressed through clinical trials to be successfully commercialised with US medical device giant, Medtronic in January 2011. See page 17 for details.



Biotin Protein Ligase

Professor John Wallace, Dr Steven Polyak, Professor Andrew Abell, Dr Grant Booker & Associate Professor Matthew Wilce

A new class of antibiotics for the treatment of *Staphylococcus aureus*. The project is also funded by an NHMRC Development Grant that was awarded late in 2008.

Accelerating the transfer of knowledge, innovations and services to a global market

ARI's Commercial Accelerator Scheme, launched in August 2007, aims to make more research projects "market ready". It addresses the gap in funding (known as the "valley of death") between research grants and commercial opportunity.

In its first 3 years of operation the scheme awarded a total of \$2m to nearly a dozen projects with commercial potential. It demonstrated clear success in translating projects to market and assisting to leverage other funding (see the Chitosan success story on page 17 for one prominent example). As a result the Scheme has been refunded and will be relaunched in the second half of 2011.

ARI is delighted with the progress that this funding has enabled and looks forward to supporting many more worthy projects. This scheme is a great example of what can be achieved when research and commercial talent are combined and underpinned with tangible support - in a traditionally underfunded part of the development chain that delivers innovation to impact in the market.

2009 Funding



Embryonic Stem Cells

Associate Professor Mark Nottle

A novel method to isolate embryonic stem cells from mammalian species which has applications in animal breeding and treatment of human disease.



IVF Vet Solutions

Associate Professor Jeremy Thompson & Dr Robert Gilchrist

A project to commercially develop new technologies for the in vitro maturation of oocytes, which aims to significantly improve in vitro production of animal embryos.



Pregnancy Complications

Associate Professor Claire Roberts

As part of the international SCOPE program (Screening for Obstetrics & Pregnancy End Points) which aims to recruit 10,000 patients globally, taking samples from mother, baby and father to build a pregnancy biobank, new genetic markers to predict pregnancy complications in first time mothers are being identified.



Microbial Tools for the Wine Industry

Professor Vladimir Jiranek

The research of the Wine Microbiology and Microbial Biotechnology Group is aimed at understanding the metabolism and genetics of industrial microorganisms and improving their performance in the winemaking brewing and food industries.



Versatile Enhanced SPR (VESPR)

Institute of Photonics & Advanced Sensing (IPAS)

A new form of Surface Plasmon Resonance Sensing (SPR) which has successfully achieved the proof of concept stage for the detection of model flu virus samples and is potentially capable of detecting pathogens in small sample volumes, quickly and with high specificity.



WCDMA Network Dimensioning Tool (Devil)

Teletraffic Research Centre

Devil brings to the market a novel tool that allows for active management and synthesis of the network allowing for network capacity expansion.



Geostatistics for Windows

Professor Peter Dowd

Software package for geostatistical modelling and prediction in mineral resource, petroleum reservoir and environmental applications.



New micronutrient fertilisers for alkaline soils

Professor Mike McLaughlin & Dr Sam Stacey

This study has identified two novel sequestering agents for use on alkaline and calcareous soils.

Board of Directors

Established in 1983 (as Luminis Pty Ltd) ARI is a wholly owned subsidiary company which acts as trustee of the ARI Investment Trust the sole beneficiary of which is the University of Adelaide. The Board of Directors includes six participants comprising ex officio the University's Deputy Vice-Chancellor and Vice-President (Research), Vice-President Services & Resources and the Managing Director of ARI, together with three external Directors. The Board meets bi-monthly.



John Bastian

Director
TGR BioSciences Pty Ltd,
Dairy Farmers Milk Cooperative &
Austraining International

Senior industry executive, John Bastian was appointed to the ARI Board in December 2009.

John has been a director/advisor for a range of organisations in both the public and private sectors involved in agribusiness, food, wine, biotechnology and engineering. He has also served as Deputy Chair of the SA Economic Development Board, and is a past recipient of the BRW Magazine National Business Leader of the Year Award.

Past roles have included International Marketing Manager and then Managing Director of Sola Optical, during which the company underwent rapid growth and eventually listed on the New York Stock Exchange.

Current roles include directorships with Adelaide based biotechnology company TGR BioSciences, the Sydney based Dairy Farmers Milk Cooperative, and Austraining International, an overseas aid consulting company owned by the SA Government.



Robert Chalmers

Managing Director
Adelaide Research & Innovation Pty Ltd

Rob has been Managing Director of ARI since 2007. He started his career with the Australian Government Solicitor (1989-1998), then worked in private practice until 2002. From 2002-2004 he worked with CSIRO, moving to ARI in 2005. Rob has also held an academic role with the University's Law School, where he taught IP and Technology Law electives.

Throughout these different roles Rob has worked closely with researchers in the development and application of technology, through contract and collaborative deals as well as commercialisation. He has worked on a broad range of matters, including within the fields of defence, agriculture and human health. In 2005 he was awarded a CSIRO medal for business excellence.

Rob is a Vice Chair of Knowledge Commercialisation Australasia, and a long standing member of the Intellectual Property Society of Australia and New Zealand.



Fiona Pak-Poy

General Partner
Innovation Capital

Fiona is a General Partner of Australian venture capital fund Innovation Capital, which specialises in helping build world class companies based on innovative Australian technologies. She has experience in a wide spectrum of companies from start-ups to large corporates. Prior to joining Innovation Capital in early 2002, she co-founded a catalogue and e-commerce retail business. Before this Fiona worked with The Boston Consulting Group in the US and Australia, and prior to that she practised as a Consulting and R&D Engineer.

Fiona is a director of various Innovation Capital investee companies. She is a Councillor for the Australian Private Equity and Venture Capital Association and has been a member of various Committees and Boards associated with Innovation Australia. Fiona has represented South Australia, New South Wales and Australia in hockey.



Prof Mike Brooks

**Deputy Vice-Chancellor & Vice-President (Research)
The University of Adelaide**

Professor Brooks is a leading international researcher in computer vision and image analysis. His work has seen wide commercial use in the security and defence industries and has resulted in international awards.

At the time of his appointment to DVCR in July 2008, Professor Brooks held the position of Pro Vice-Chancellor (Research Strategy), following on from his successful role as Chair of the Research Quality Framework Board, where he played a major part in auditing the University's research capability.

Professor Brooks is Research Leader of Video Surveillance within the Australian Centre for Visual Technologies at the University of Adelaide and is a former Head of the School of Computer Science, where he held the Chair in Artificial Intelligence.

He has published numerous influential papers in the field of computer vision, image analysis and surveillance and has won many Australian Research Council (ARC) Discovery Grants for his research. Professor Brooks is a Fellow of the Australian Computer Society, Co-Investigator with the ARC Research Network for a Secure Australia, Associate Editor of the International Journal of Computer Vision, and serves on the Board of National ICT Australia.



Dr Graham Mitchell AO

**Principal
Foursight Associates Pty Ltd**

Dr Graham Mitchell is recognised as one of Australia's leading biological scientists. He is a veterinary graduate and University gold medalist of the University of Sydney. At the Walter and Eliza Hall Institute of Medical Research (WEHI) he made discoveries in immunology and obtained a PhD in 1969. After post-doctoral experience in California, England and Switzerland he returned to Australia in 1973 and established a new program in the immunology of parasitism at WEHI.

In 1990 Dr Mitchell was appointed Director of the prestigious Royal Melbourne Zoological Gardens where he introduced a number of new initiatives in local and regional conservation. In 1993 he returned to biomedical research as Director of Research in the R&D Division of CSL Limited.

Dr Mitchell is an author of more than 350 publications, has received numerous awards for scientific achievements, and in 1993 was appointed an Officer in the Order of Australia for services to science. Dr Mitchell is a non-executive Director of Antisense Therapeutics Limited, Compumedics Limited, AgVic Services Pty Ltd, Avipep Pty Ltd and Walter Eliza Hall Institute. He has been a Principal of Foursight since 1996.



Paul Duldig

**Vice-President Services & Resources
The University of Adelaide**

Mr Paul Duldig holds a Master of Economics from the University of Adelaide and Flinders University and a Bachelor of Economics (Hons.) from the University of Adelaide.

In his current position for the University of Adelaide, Paul is responsible for providing financial control, asset management, IT, leadership and vision in achieving the University's strategic goals. His portfolio of responsibilities extends across more than 400 buildings over four campuses, and various land holdings across the State.

He was formerly the Department of Treasury and Finance's General Manager (Finance) responsible for the development of the State's \$7 billion Budget, performance monitoring of government business and departments, development of the State's \$1 billion capital investment program, steering of major projects, and providing strategic advice on policy and corporate governance.



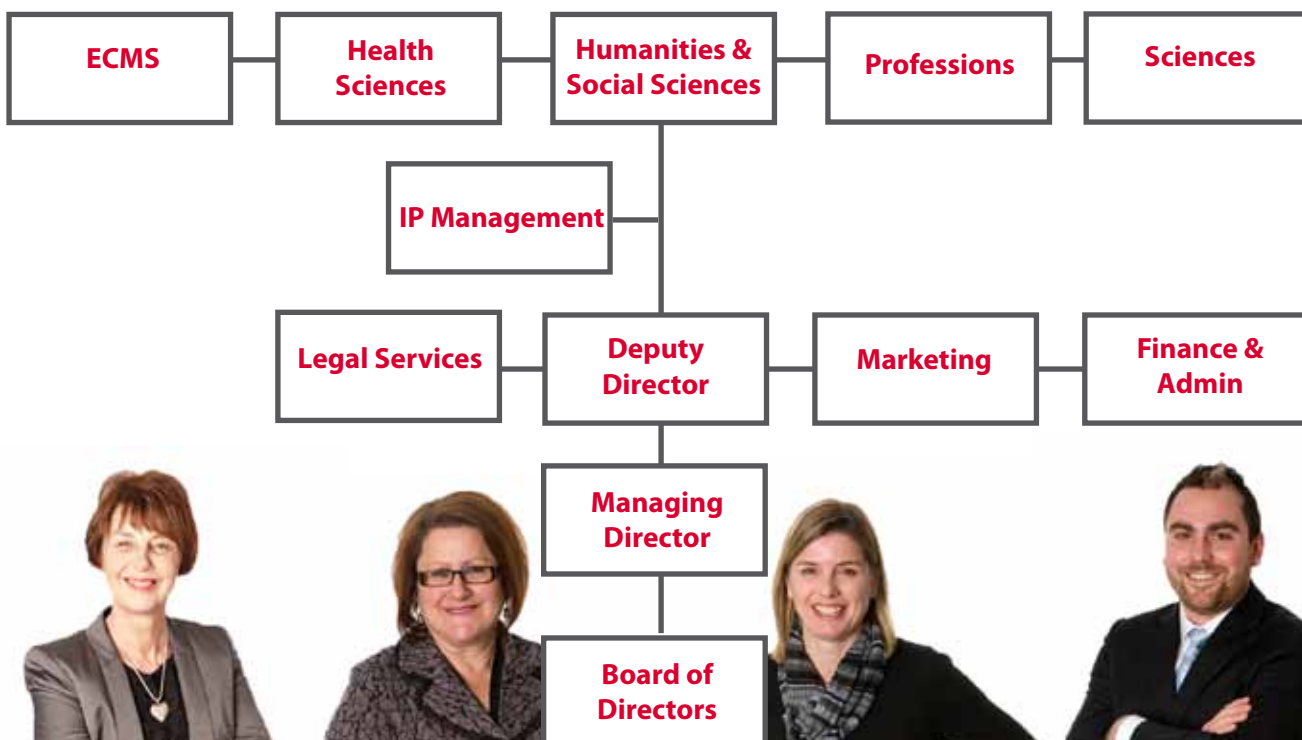
Your Team

ARI staff provide services to all areas of the University, and are either embedded in Faculty, or in daily dialogue on a myriad of projects.

Collectively they have a vast pool of talent, with our group of commercial managers, corporate lawyers, accountants, marketing and skilled support staff.

Our services are free to all university staff, so the more you use us, the better value you receive. We encourage contact at the earliest possible opportunity so that we can be of more assistance. Let us help you: together we can connect, collaborate and create.

Commercial Development



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Adelaide Research & Innovation

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