2010 B-HERT AWARD WINNERS

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- University of Wollongong
- ECU: Edith Cowan University
- QUT
- RMIT University
- Engineers Australia
- Conneq: Infrastructure Services
- TAFE Development Centre
- CPA Australia
- Global Philanthropic
**Awarded to:** Queensland University Of Technology, Commonwealth Scientific and Industrial Research Organisation, Boeing Research and Technology (Global) and Boeing Research and Technology (Aust)

**Project:** The Australian Research Centre for Aerospace Automation

The Australian Research Centre for Aerospace Automation (ARCAA) is a collaboration between two world class research organisations - the Queensland University of Technology (QUT) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) ICT Centre and Autonomous Systems Lab. In 2003 the collaboration was an informal agreement to co-supervise PhD students, however from this grew ARCAA, a Research Facility comprising over 40 researchers, engineers, students and support staff which has attracted over AUD$21M in project funding since 2005.

ARCAA conducts world class research into all aspects of aviation automation, with a particular research focus on autonomous technologies which support the more efficient and safer utilisation of airspace and the development of autonomous aircraft and on-board sensor systems for a wide range of commercial and civilian applications. ARCAA’s research is advancing Australia’s vibrant aviation and aerospace industry.

ARCAA’s core activity is the Smart Skies Project, a three-year $10M research project in partnership with Boeing Research and Technology (Global) and Boeing Research and Technology (Australia). The objective of the Smart Skies Project is to research, develop and flight test aviation separation management technologies which could facilitate the safer and more efficient use of the aerospace environment. The Smart Skies Project has achieved international recognition. The multi-national project team have taken research concepts from paper to prototype in under two years, generating significant and valuable intellectual property, research publications and established a reputation as being a world leading, highly innovative and highly dependable research team.

The objective of the Smart Skies project is the safe, efficient and routine operation of UAS in non-segregated airspace. The aim is to develop and demonstrate future aviation technologies which will promote the more efficient utilisation of airspace by both manned and unmanned aircraft, and to disseminate the information and experiences gained to support the further development of standards, regulations and safe operating practices for civil UAS.

The three high-level objectives of the project are to research, develop and flight test:
1. A mobile aircraft surveillance system;
2. Autonomous onboard systems for detecting and avoiding ground-based obstacles and other aircraft;
3. A global and automated air traffic separation management system.

Since 2008, the Smart Skies project has achieved world firsts in civilian aerospace research by demonstrating the autonomous control of multiple aircraft, both manned and unmanned, in the same airspace from around the world using a public data network, and the conduct of vision-based dynamic sense-and-act midair collision avoidance trials.

The Smart Skies project has been successful in realising its own aims and achieving significant milestones as well as making contributions towards ARCAA Research Programs including the CRC for Spatial Information, the CRC for Plant Bio-Security, marine mammal research, agricultural phenotyping for CSIRO, and support for ARCAA PhD students. The Smart Skies project has been instrumental in a successful Australian Research Council Linkage Grant application. This AUD$1M linkage project between ARCAA and Boeing Research and Technology (Australia) aims to leverage off the valuable flight data collected as part of the Smart Skies project to further the research and development of a vision-based collision avoidance system.

The legacy of the Smart Skies project is a unique flight-testing capability established in Queensland.

**Honourable Mention:** RMIT University, BlueScope Steel

**Project:** COLORBOND® meets Nanotech
Awarded to: La Trobe University, City of Greater Bendigo, Coliban Water, CPG Consulting, Foundation for Rural and Regional Renewal, Grampians Wimmera Mallee Water, Rural City of Wangaratta, SJE Consulting, Vic Roads, Chris Smith & Associates, Goulburn-Murray Water, GHD Consulting, Hindmarsh Shire, North East Water, Shire of Campaspe, Coleambally Irrigation, Queanbeyan City Council, Murray Irrigation

Project: Regional Civil Engineering Cadetship Program

The project is based around garnering regional support for civil engineering, and so far the course has received extensive support in the form of scholarships from regional organisations, including a major scholarship program from the Foundation for Rural and Regional Renewal, for the Murrumbidgee River Catchment in NSW. The total value of this project being ~ $568,000 over five years. Further details on this project are available at www.latrobe.edu.au/frrr. In addition, schools are being actively engaged through talks on engineering to prospective students; attendance at careers expos and targeted on-campus programs for prospective students. Furthermore the Science and Engineering Challenge program aimed at students in years 9 and 10 is very successful and is considered a vital component of the project. Improvement in the quantity and quality of students is correlated to all of the abovementioned activities.

The Civil Engineering scholarship project commenced in 2002 with the early recognition that there was a shortage of civil engineers, especially in the regional areas, and the only way regional organisations were going to meet the challenge of supply of professional engineers was to influence demand through collaboration with higher education. Multi-layered agreements were put in place where organisations would provide financial support as well as work experience, mentoring, guest lecturing and in many cases employment upon graduation to students who chose to study civil engineering at the Bendigo campus of La Trobe University. Currently, there are 16 organisations participating in the scheme and 32 sponsored students.

The program developed and delivered a solution that served a regional need by linking regional students with regional employers. It provides real world practical experience for the students and benefits the organisations in the long term. Students and graduates are involved in high profile projects such as the Wimmera pipeline and large complex projects at Goulburn Murray Water.

Participant organisations are actively involved in selecting the students and they are not under an obligation to take students each year. In some cases however, organisations will take more than one student per year, as is the case with CPG Consulting awarding three civil engineering scholarships worth up to $27,000 each in 2010.

The significant Foundation for Rural and Regional Renewal (FRRR) grant of $159,000 over six years indicates that the program is considered of vital importance to the challenge of providing professionals to rural and regional areas.

The Department of Civil Engineering and Physical Sciences runs an extensive outreach program to encourage students to study civil engineering. For example, the Department coordinates the annual Science and Engineering Challenge in conjunction with Rotary International. This event is designed to raise the aspirations of high school students to study science and engineering. Bendigo hosted the Science and Engineering Grand Challenge in 2009 (www.latrobe.edu.au/scitecheng/challenge). This was a two day event with schools from all over Australia participating. The Grand Challenge is held at a different location each year.

Honourable Mention: School of Art, RMIT University, Siemens Aust & NZ, RMIT Gallery – RMIT University

Project: Siemens RMIT Fine Arts Scholarship Partnership
Awarded to: Energy Australia, TAFE NSW – Sydney Institute, Petersham College
Project: Energy Australia Indigenous Pre-Apprenticeship Programme

Since 2005, EnergyAustralia has worked in partnership every year with TAFE NSW - Sydney Institute to address the significant challenges the organisation faces in meeting targets set in their Indigenous Employment Strategy. The result has been the development of a unique and innovative training program and human resource strategy with record success by EnergyAustralia in the recruitment and retention of Indigenous apprentices in its organisation. Each year, since 2005, the EnergyAustralia Pre-Apprenticeship training program has produced increasingly more Indigenous students with the skills, knowledge, experience and confidence to again an apprenticeship as a line worker, cable jointer or electrical mechanic. This program differentiates itself from other Indigenous Pre-employment Programs which generally fail to deliver long term employment outcomes and hence often generate cynicism and further marginalisation of Indigenous communities. The EnergyAustralia program’s record of success stems from its absolute customisation towards skills development for successful recruitment rather than a total focus on preparation for the job. EnergyAustralia’s willingness to share corporate knowledge with Sydney Institute underpins this successful strategic partnership, with other industry groups seeking their advice to replicate the program for their own organisation.

Outcomes:

1. This program has achieved unprecedented employment outcomes for Indigenous apprenticeships in the Electrical Supply Industry. Over the past 5 years, thirty-one of the program participants have been offered these highly sought after apprenticeships with EnergyAustralia. In addition, one student elected to take up an alternative, but highly sought after position, in another major organisation closer to his home. Twenty-seven Indigenous apprentices are still employed, demonstrating EnergyAustralia’s unique capacity to work with TAFE NSW staff, mentor organisations and their own Indigenous employees in a highly effective case management approach.

2. As a result of the success of the 2009 program EnergyAustralia has introduced expanded delivery to include its Hunter facility in 2010. This extension of the program is being managed from Petersham TAFE and delivered at Maitland TAFE. This speaks volumes for the credibility and high expectations of this course from EnergyAustralia management, who are so confident in the program’s success that they have set higher strategic targets for Indigenous employment across their whole organisation. In addition, they are keen to focus on the retention of the program’s successful graduates, and with Petersham TAFE have developed, and recently implemented, two government funded programs to support Indigenous Apprentices in their first year of training.

3. Included in the success reported above has been an increasing proportion of participants originally presenting with poor foundation maths skills who have been able to demonstrate high level competence at Advanced Year 10 level maths and pass the EnergyAustralia Screening test at course completion. This successful outcome often lays to rest the frustrations, anxieties and resultant low self esteem resultant from past school maths experiences. For the majority of students the realisation of untapped potential in this area has been one of the underpinning factors in a growth of self esteem and a turning point in their belief that they can actually gain a successful career.
4. A key result of the program has been the increasing number of students achieving success in the EnergyAustralia apprenticeship selection interview process. In the early life of the program much was presumed by both EnergyAustralia and TAFE NSW about the cultural aspects of the selection process that worked against Indigenous success. In the last three years extraordinary effort has been made by all stakeholders to better understand cultural issues and increase cultural awareness.

5. As a result of this program and the relationship built between TAFE NSW – Sydney Institute and EnergyAustralia, EnergyAustralia reported in their November 2009 newsletter “Inside Energy”:
   - EnergyAustralia has a 95% retention rate for Indigenous apprentices; and
   - 6.2% of EnergyAustralia’s apprentice intake for 2010 is Indigenous.

6. In the same article, Tom Emelius, EnergyAustralia’s Learning and Development Manager said “We are committed to increasing the diversity of our workforce and we are very proud that the pre-apprenticeship program is delivering genuine career opportunities for the Indigenous community.”

The 2010 program (currently being delivered) marks a significant expansion of the program whereby EnergyAustralia has commissioned Sydney Institute to project manage the program’s delivery at two separate locations: the Sydney metro program being delivered at Petersham TAFE and the same program replicated for EnergyAustralia’s Hunter region, being delivered by TAFE NSW – Hunter Institute, at its Maitland and Tighes Hill Colleges.

Broad and longer term outcomes of the EnergyAustralia/TAFE NSW partnership include:

- The development of a ‘best practice’ teaching model for Indigenous Pre-employment programs that can be adapted for other organizations’ recruitment processes e.g. Commonwealth Bank of Australia, RailCorp, Integral Energy.
- Deep respect for this program from within the Indigenous community, which often exhibits understandable cynicism around the failure of these types of programs - who trust EnergyAustralia and Sydney Institute to deliver ‘the goods’ for community members
- The development of program champions across different management levels in EnergyAustralia, who foster the acceptance of Indigenous employment growth into corporate culture
- The growing desire of other Electrical Supply Industry organisations across Australia to replicate the strategy and success of this program

Honourable Mention: TAFE NSW – South Western Sydney Institute: Faculty of Tourism, Hospitality, Primary Industries & Arts, Sydney Turf Club, Dooley’s Lidcombe Catholic Church, Club Marconi

Project: The Clubs Project
Connected Lives is a Victoria University research innovation project funded by The Victorian Health Promotion Foundation (VicHealth) and supported by Telstra and four disability partners in Gippsland and Melbourne. Running from June 2009 to June 2010, it aimed to discover if and in what ways technologies such as virtual worlds, the Internet and free software (filmmaking, image processing, comic creation etc) might improve the social connectedness and well-being of young Victorians living with multiple layers of disadvantage, particularly disability and geographical, cultural and socio-economic factors. (Note: a VicHealth-created video summary of the project’s initial aims can be found at: http://www.youtube.com/watch?v=eXbC73oGq3A)

Working collaboratively with two Gippsland-based specialist schools for children with disabilities as well as two community disability organisations, the project ran series of workshops tailored for each setting, including all-day classroom activities, individual one-on-one mentoring sessions and Saturday drop-in workshops. Workshops were run by VET multimedia specialists from VU with previous expertise in working with disadvantaged young people. As a result of undertaking these intensive collaborations with project partners, the team learned a huge amount about how disadvantaged young people use technology and what might work best in different circumstances. All sites reported significant benefits from the project’s activities, but in different ways. The end result has been two distinct areas to follow up in future investigations: the use of technology mentoring in workshop settings to effectively work with young people who have Asperger’s Syndrome, and a concept entitled *Digital Respite*, which involves the use of free, fun and easy to access online tools by young people with various forms of disability, their families and workers. This concept has been formalised into a website portal with categorised lists of these tools: www.digitalrespite.com

The Connected Lives project aimed to discover how new technologies may be deployed to improve the lives of disadvantaged young people. By collaborating closely with four disability partners in Gippsland and Melbourne, and leveraging the hands-on skills of VET multimedia practitioners, the Connected Lives project has generated new approaches to working with young people disadvantaged through disability and other factors such as socio-economic status and geography. This includes a wide range of ages, circumstances and disability types ranging from Down Syndrome and significant intellectual disorders to highly-functioning young adults with Asperger’s Syndrome. The result has been a range of workshop models that leverage existing interests and aptitudes of participants and are tailored for specific participants and settings: individual, one-on-one mentoring, classroom work, intensive day-long activities and weekly hour-long meetings. In each of the four settings, participants, teachers, disability workers and families have reported improvements in personal agency and esteem, media creation ability, engagement with life and school, and communication with peers and family.

Achievements and outcomes from these activities include:
- the formation of strong relationships with all project partners, and the potential to expand activities into the future
- creation of the Digital Respite approach and associated web portal
- series of successful workshops in a range of varied settings, and continuing contact with participants
- development of workshop models based on our workshops and deploying the following principles:
  - *Object centred sociality* – a way of working where disadvantaged young people use third-party activities and media objects to generate positive social interaction indirectly
  - *Engaging activities* that leveraging young people’s existing interests and aptitudes, especially in technology
and media creation (thereby supporting the approach undertaken by leading educationalists working with technology, such as Henry Jenkins, Greg Ulmer and Axel Bruns)
- **Tailored activities** particularly suited to young people with Asperger's Syndrome, including one-on-one weekly mentoring with technical experts and opportunities to meet others with Asperger’s
- **The Digital Respite principle**, or the introduction of a range of suitable, filtered online tools that are free and easy to use for young disabled people who might otherwise never be exposed to these tools. Filters include: one or two-handed operation, whether winning or losing is part of the game, dexterity and skill level
- The development of new research knowledge on how to use technology effectively with disadvantaged youth
- Forthcoming guides for teachers who may want to experiment with the use of technology in their practice.

**Honourable Mention:** Victoria University International, ISANA
**Project:** Integrated Community Initiative to Promote Student Safety, Wellbeing & Inclusiveness
**Best Collaboration with a Regional Focus in R&D or Education & Training**

**Awarded to:** Victoria University, Integrated Management Information Systems, Shipping Australia Limited Victoria, Victorian Transport Association, Victorian Freight and Logistics Council, Custom Brokers and Forwarders Council of Australia, Victorian Employers Chamber of Commerce and Industry

**Project:** Port of Melbourne Corporation and Dynon Rail Terminals 2009 Container Logistics Chain Study

The Port of Melbourne Corporation is Australia’s largest container and general cargo port, handling 37% of the nation’s container trade. Forty-two container shipping lines, as well as a number of other general cargo carriers, make around 3200 ship calls a year to Melbourne, providing services to ports in all major parts of the world.

The Port of Melbourne Corporation predicts that, as total port container throughput rises from just over two million twenty-foot equivalent shipping units (TEUs) per annum in 2007 to eight million TEUs by 2035, the metropolitan container distribution task will increase from about 1.6 million TEUs per annum to some six million TEUs. This equates to an increase from the current level of about 6,000 truck trips per day to 12,000 trips per day to and from the Port (Melbourne Intermodal System Study 2008).

Logistics is ubiquitous. Modern logistics involves planning, creating and monitoring flows of goods and information. To carry out these jobs, logisticians need to understand and conceive business processes. Although these complex structures may often remain hidden from consumers, logistics has long been an indispensable part of daily life. Across industries, it ensures that goods and merchandise are always where they are needed. Logistics fuels innovation and creates jobs around the world. “The logistics and supply chain industry is often described as the ‘engine room’ of the nation’s economy, providing a medium for business to business transactions within Australia and supporting our capacity to successfully engage with the international economies of the world.” (TLISC – Facts and Statistics, April 2010)

The objective of this project was to measure accurately a statistically significant sample of container movements to and from the Port of Melbourne Corporation and the Dynon Rail Terminal to annualise the results and develop a 30 year forecast. The Port of Melbourne Corporation requested a methodology including IT solutions that would accurately identify and track 2 million TEU containers.

The project included 38 importers and exporters, 34 transport operators, 9 empty container parks, 10 freight forwarders, Australian Customs and Border Protection Services, Australian Quarantine Inspection Service, 4 stevedores and 7 rail operators. The cooperation and collaboration that was achieved by ILSCM is impressive, as the Port of Melbourne Corporation has no regulatory influence or authority to collect data from the 10 different sectors that impact the landside logistics chain.

As a result of this project the total logistics chain was documented from origin to destination for over 250 separate logistics stages in the logistics chain. This is a unique achievement as the organisations in the logistics chain often have conflicting objectives, are commercial competitors and are normally reluctant to share sensitive commercially confidential information. Additionally the funding bodies required the collection of the data during the Christmas peak that is the busiest time of the year. The collaborative cooperation ILSCM engendered this objective research to be truly representative of activity which directly impacted the veracity of the study.

The final report provides information critical to the development of public policy and strategies designed to reduce:

- Logistics chain inefficiencies
- Congestion in the Western Suburbs and the negative impact freight (truck) transport on Amenity.
- The environmental impact of the Port of Melbourne Corporation intermodal road/rail transport.
Ongoing analysis of the data from this study will enable businesses and government to improve their planning processes which will result in productivity gains. It will also significantly contribute to community and social benefits due to improved understanding of the actual freight task, reduced traffic congestion and a reduction in the output of greenhouse gases.

Government will be able to develop policies for infrastructure developments with confidence. Government were determining a 30 year major road and rail infrastructure strategy and companies were making key business investments based on 2002 outdated data which resulted in questionable policy and infrastructure spending.

**Future outcomes**
The movement of import, export and domestic containers at the port and through to the freight rail terminal will form the authoritative basis for strategic public and private sector, policy, strategy forecasting, implementation and investment for the next 30 years.

The success of this project in Victoria resulted in recommendations to undertake a similar study for Sydney Ports Corporation at Port Botany (Australia’s second largest container port). Other port authorities interstate have expressed interest. Projected timeframes are as follows:

- Sydney Ports Corporation (Port Botany) – the project is almost complete and the draft report will be issued soon.
- Discussions are being held with other government agencies in South Australia, Western Australia, New Zealand and private operators.
Mr Poche was nominated by senior academic leaders from four Australian universities (Charles Darwin University, Flinders University, The University of Melbourne and The University of Sydney).

In 2005 Mr. Poche donated $40 million of his personal funds to Sydney’s Mater Hospital to establish the Melanoma Institute of Australia which is affiliated with The University of Sydney. This was reported at the time to have been the largest donation by a single donor to a single cause in Australia’s history. The Melanoma Institute of Australia is now a world class cancer research and treatment facility. As a result of Mr Poche’s donation, the institute has moved into a purpose-built building in North Sydney. Given that Australia has the highest melanoma rate in the world, this is a critical advance with provides opportunities for world class research and education as well as treatment and care.

Mr Poche also donated substantial funds to support improvements in Indigenous Eye Health by clinicians and researchers with The University of Melbourne. This initiative is led by Professor Hugh Taylor AC.

In 2008, Mr. Poche donated $10 million to The University of Sydney to establish the first Poche Centre for Indigenous Health. This groundbreaking research and education centre for Indigenous Health also provides outreach clinics to Aboriginal communities across western New South Wales in Broken Hill, Wilcannia, Dubbo, Bourke and Brewarrina and provides clinical experience working with the members of these communities for students of medicine and other health professions.

In 2010, Mr Poche made a $10 million endowment to Flinders University to establish two new Poche Centres for Indigenous Health, one based in Alice Springs and the other in Adelaide. The two centres will contribute towards “closing of the gap” in Indigenous health.

The Adelaide Poche Centre will undertake research to guide the development of health services more effectively tailored to meet the needs of Aboriginal and Torres Strait Islander peoples. It will also work to improve the understanding of the health and wellbeing of Aboriginal and Torres Strait Islander peoples by all health professionals, foster health research by Aboriginal and Torres Strait Islander researchers and health workers, and increase research that leads to improvements in the mental health and social and emotional wellbeing of Aboriginal and Torres Strait Islander peoples. Indigenous mental health vies with cardiovascular disease as a pressing health issue for many Aboriginal and Torres Strait Islander people.

The Poche Centre in Alice Springs, in partnership with the Charles Darwin University in the Northern Territory, will support and develop the knowledge and skills of health professionals working with Indigenous communities.

The funding provided by Mr Poche for the Poche Centres at The University of Sydney and at Flinders University has been provided to allow the centres to continue in perpetuity. The funds are held by the university and the interest is used to fund the education and research activities of each centre.

In 2009 Mr Poche was made an Officer in the General Division of the Order of Australia for his “service to the community through philanthropic contributions to medical, aged care and sporting organisations, and to the freight transport industry through the introduction of innovative business practices”.

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Nominated by: Flinders University, Charles Darwin University, The University of Sydney, The University of Melbourne
Awarded to: Mr Greg Poche AO
Project: Poche Centre for Indigenous Health
Edith Cowan University is the recipient of the 2010 Ashley Goldsworthy Award for its long term collaborative arrangements with a range of businesses, government departments, professional bodies and community groups. These cover an impressive variety of activities including research, education and training and community engagement and include State-wide, national and international initiatives. The University has been a long term supporter of the BHERT Awards and has been successful on several occasions.