GLOBAL
CONNECTIONS
FUND

ATSE

INNOVATION STORIES: PRIMING GRANTS 2016

Australian Government

NATIONAL
INNOVATION &
SCIENCE AGENDA

AUSTRALIAN ACADEMY OF
TECHNOLOGY AND ENGINEERING

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PROFILE INSERTS

2018
GLOBAL CONNECTIONS FUND
Innovation Stories: Priming Grants 2016

Profile author: Anthea Batsakis
Design and production: Coretext, www.coretext.com.au

ATSE

Australian Government

NATIONAL INNOVATION & SCIENCE AGENDA

The Global Connections Fund is a project of the Australian Academy of Technology and Engineering (ATSE) and is supported by the Australian Government. This program forms part of the Global Innovation Strategy under the Australian Government's National Innovation and Science Agenda.

MINISTER'S FOREWORD

The Australian Government is committed to ensuring Australia's economy remains internationally competitive. We must embrace new ideas to deliver new sources of growth, maintain high-wage jobs and seize the next wave of inclusive economic prosperity for Australia.

We are significant contributors to the world of knowledge creation. However, we live in an increasingly competitive global digital economy. We need to work harder to be world-leading in turning research into real world products and services.

Increasing our international collaboration and improving our research-industry links is necessary for us to realise the economic, social and environmental benefits of our world-class research.

The Australian Government's National Innovation and Science Agenda (NISA) is the cornerstone of our commitment to turbocharge Australia's innovation system so that we continue to compete and excel globally.

The Global Connections Fund, as part of the Global Innovation Strategy under NISA, is directly supporting new ideas by incentivising vital international industry, science and research collaboration.

This publication celebrates the success of Australian SMEs and Australian researchers who have received the Fund's Priming Grants to date. These stories demonstrate the diversity of Australian innovation and the exciting potential that can be unleashed when we support Australians to seize global collaboration opportunities.

I congratulate the recipients of the Priming Grants for their work, and look forward to seeing the continued success of international partnerships established through this initiative into the future.

SENATOR THE HON MICHAELIA CASH
MINISTER FOR JOBS AND INNOVATION

GLOBAL CONNECTIONS FUND

The Global Connections Fund (GCF) is an initiative within the Global Innovation Strategy – a component of the Australian Government's National Innovation and Science Agenda.

The purpose of the program is to transport research and technology innovation out from the walls of academia and apply it to real-world settings.

Essentially, the GCF links researchers and SMEs on a global scale – Australian researchers meet with international SMEs, and Australian SMEs meet with international researchers. And the outcomes from 2016 were eminently successful.

GCF activities accelerate research-business relationships with more effective strategic network formation.

Collaborative relationships produce higher quality research and optimise the environment for innovation breakthroughs. Leveraging one another's strengths benefit both Australia and partner economies, assisting their development as technology leaders.

Cooperation in science, technology and innovation at the international level is a key element in national science and innovation systems. It is vital in supporting economic growth in Australia.

The many direct and indirect economic benefits of international collaboration include:

- *Bringing skills and access to research infrastructure*
- *Facilitating the participation of experts in research activities of global significance*
- *Enhancing the reputation of Australian science and technology*
- *Providing a stimulating environment to trigger new ideas*
- *Opportunities for SMEs to add value to products or services by adopting innovative research outcomes*
- *Sharing costs and risks*
- *Facilitating access to new funding opportunities*
- *Increasing opportunity for the cultural and professional development of Australian scientists*

The GCF comprises of two types of grants: Priming Grants and Bridging Grants.

Priming Grants are small grants of $7,000 enabling Australian SMEs and Australian researchers to physically meet with their international partners and develop their respective ideas. Designed to "prime" the commercialisation or application of a particular idea, in most cases the meetings sparked ongoing collaborations.

Bridging Grants are larger funds of up to $50,000, intended as seed funding capital to grow viable projects in scope and to test commercialisation and proof of concept activities. They support international partnerships beyond the Priming Grant's initial level of engagement.

The GCF priority areas align with key industry sectors for Australia as announced by the Government in 2014:

ADVANCED MANUFACTURING

MEDICAL TECHNOLOGIES AND PHARMACEUTICALS

MINING EQUIPMENT, TECHNOLOGY AND SERVICES

OIL, GAS AND ENERGY RESOURCES.

FOOD AND AGRIBUSINESS

These areas are broad in scope, which means the ideas embraced by the 2016 Priming Grant partnerships are diverse. They ranged from developing a more accurate way to analyse 3D printed medical implants, to helping solve the mining waste crisis.

www.globalconnectionsfund.org.au

PRIMING GRANTS CONCEPT DRIVES INTERNATIONAL ENGAGEMENT

DR MARK BRADLEY
mark.bradley@atse.org.au

Dr Mark Bradley is ATSE's Manager International Innovation Programs.

Priming Grants demonstrate that relatively small grants provided in a timely manner can have real impacts and outcomes for awardees and the innovation ecosystem in Australia.

Cooperation in science, technology and innovation at the international level is vital in supporting economic growth in Australia.

Collaborative relationships leverage one another's strengths, producing benefits for both Australia and partner economies and assisting both in their development as technology leaders.

A significant barrier to the translation of research intellectual property into commercial products or services has been the ability of researchers and small-to-medium enterprises (SMEs) to form productive dialogues.

If these potential collaborations are across international jurisdictions then often the difficulties in establishing and maintaining them make it just too hard to bother.

Recognising this difficulty, the Australian Government – under a bilateral partnership with the European Union (EU) – trialled a new program in 2013: Connecting Australian-European Science and Innovation Excellence (CAESIE).

An innovative feature of this program was the concept of very early stage commercialisation engagement grants, called Priming Grants. They were developed and administered by the Australian Academy of Technology and Engineering (ATSE) to support contacts between businesses and researchers open to a collaborative partnerships, between Australia and EU countries.

These grants, over a two-year period, delivered 58 new SME-researcher partnerships, yielded four patents and sought more than $16 million in funding from an initial $1.9 million of European and Australian Government funding (an eight-fold multiplier).

Building on the success of these activities, the Australian Government's National Innovation and Science Agenda has invested $36 million over four years in a Global Innovation Strategy to improve Australia's international science, research and innovation collaboration.

Within this program, a $4.9 million Global Connections Fund (GCF) provides grant support for global SME-to-researcher collaborations to enable viable projects to grow and test commercialisation in industries of strategic growth in Australia.

The GCF Program consists of two forms of funding: Priming and Bridging Grants.

Both grant schemes, administered by ATSE with a particular emphasis on translational activities and commercialisation outcomes:

> seek to increase collaborations with 17 key global economies;
> promote researcher-industry engagement and knowledge transfer; and
> encourage translational activities and end use development and commercialisation outcomes.

PRIMING GRANTS

The Priming Grants take a unique 'hands on' approach. They provide bespoke expert advice and direction during the application process and a 'light touch' online application system, reducing red tape so it's quick and easy for applicants to use.

Successful SME or research applicants are awarded a Priming Grant to fund face-to-face engagement with prospective partners to establish if a long-term working collaboration can be formed.

The application process has been designed to be fast and simple with a minimum of fuss, which is widely appreciated by applicants.

The first round of Priming Grants was conducted during April-May 2016 and results were announced in June 2016, with 73 grants proceeding to final reporting status. All grantees provide a report on outcomes of their project and complete an online survey run by ATSE.

The results of the survey and reports have seen a high level of successful outcomes: 87 per cent classified their collaborative projects as very successful, 11 percent of grantees regarded their projects as partially successful and a work in progress, and one project was not successful in establishing a collaboration (Figure1).

The outcomes far exceeded the original expectations of the program with most grantees taking the opportunity (Table 1) to:

1. identify ongoing funding sources to develop their projects further (49 per cent);
2. identify new additional collaborative partners (65 per cent); and
3. develop additional business or research opportunities (62 per cent) in addition to those proposed originally.

CATALYTIC ENABLERS

The Priming Grants were shown to be catalytic enablers, with 74 per cent responding that the grants accelerated the pace these collaborative arrangements occurred.

Importantly, 21 per cent of those surveyed said without the Priming Grant funds, these interactions would not or may not have taken place.

Priming Grants lay the groundwork for the eventual realisation of translational activities from basic research into the commercial arena, if a solid collaboration is formed.

Apart from developing the proposed partnerships, a number of other benefits accrued to those participating, including:

1. bringing participants into contact with other organisations;
2. an increased likelihood of working with additional partners; and
3. (modest) enlightenment of the grantees from an international science commercialisation perspective.

Grantees were able to raise working capital exceeding $2.3 million – meaning that every government dollar was immediately leveraged 4.4-fold. Further, 37 per cent of grantees reported that, on the basis of the engagement activities under the grant, they were applying for additional grant funds totalling $16,608,223 – potentially a 32-fold multiplier of the original grant investment of $518,000 for this round.

The Priming Grant helped speed up our collaboration agreement by supporting a visit to the SME and allowed me to focus on the collaboration for a period of time.

– PARTICIPANT FEEDBACK

OTHER BENEFITS

10 per cent of respondents reported they had applied for a provisional patent with their collaboration partner; 82 per cent indicated that the generation of new IP was a possible future event; others considered that their works could generate copyright and trade secrets. They were clearly cognisant of the IP considerations around their projects, looking to future developments and the need to secure the IP benefits that may accrue from international collaborations for Australia.

Respondents reported 396 people were involved in the grant activities – 149 in Australia and 247 internationally. 61 per cent of the grants generated new employment opportunities, including student positions. Grantees considered the program excellent and rated GCF highly in terms of delivery of the program and meeting their requirements during the process.

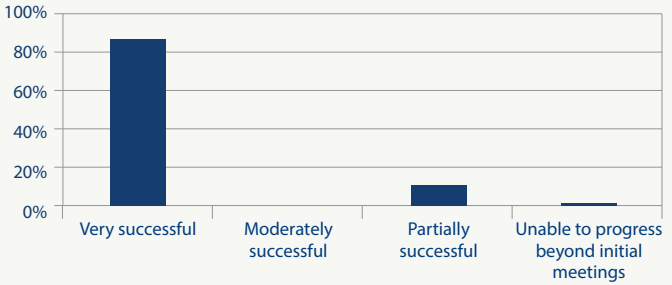
Virtually all respondents indicated they were very satisfied with the Priming Grants as a support initiative and liked the 'light touch' administration, including short application times, brevity of applications and of reporting requirements.

When asked to rank the various type of international connector services, the most recommended programs/services under the current GCF were Priming and Bridging Grants. There was less interest in undertaking trade missions, online partnering or matching services.

Priming Grants were seen as a very cost-effective and continue to be a successful early stage engagement instrument. The first round under the GCF demonstrated that the program has global applicability in supporting engagement between SMEs and researchers.

The profiles in this booklet are a snapshot of some of the researchers and SMEs who have been supported by the GCF.

Priming Grants 2016 survey results:
'Overall, was the collaboration you originally proposed successful?'



Priming Grants 2016 survey results: opportunities realised.

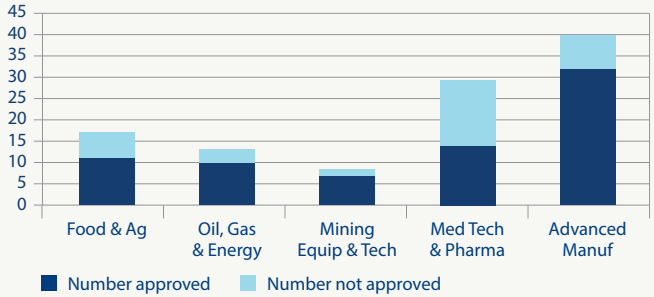
Opportunity	Outcome (%)
Implemented our ideas as a research–industry collaboration	84.1
Applied for additional funding (AU or EU sources)	49.2
Commercial investment from another party	9.5
Identified additional collaborative partners or individuals	65.0
Progressed our products or services to prototype status	25.4
Developed additional business or research opportunities	62.0
None of the above	1.6

BY THE NUMBERS

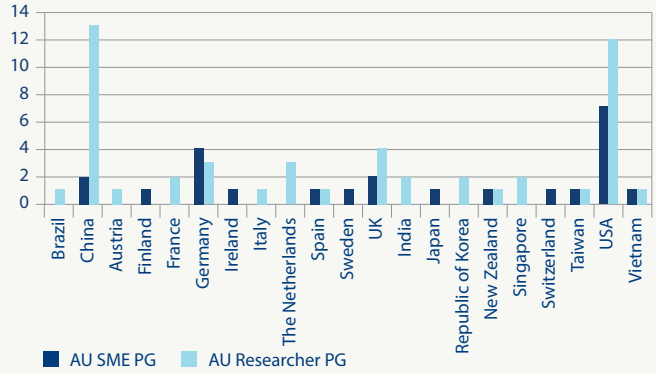
Overall Summary

	Number
EOI submitted	172
EOI approved	123 (EOI approval rate ~ 72%)
EOI rejected	49
PGA Submitted	108 (88% of approved EOI). (Note 1 withdrawn as duplicate project.)
PGA to assessment	107 (87% of approved EOI)
PGA approved	74 (69%)

Priming Grants Call 1



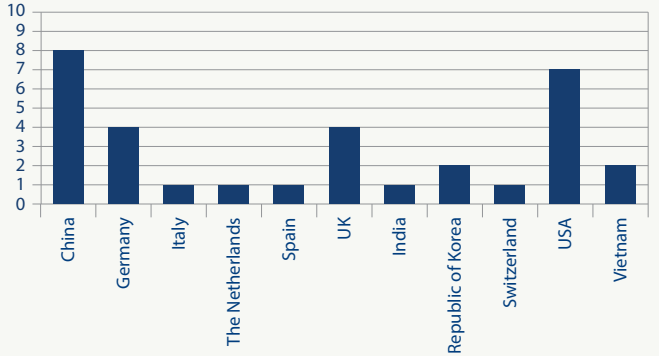
Priming Grants by SME/Researcher and country of engagement



Summary Data from PGA Assessment

	Food and Agriculture	Oil & Gas, Energy	Mining Equipment & Technology	Medical Tech & Pharma	Advanced Manufacturing	Totals
Total applications received	17	13	8	29	40	107
Approved	11	10	7	14	32	74
Percentage approved	65	77	88	48	80	69%
Not approved	6	3	1	15	8	33
Percentage not approved	35	33	22	52	20	31%

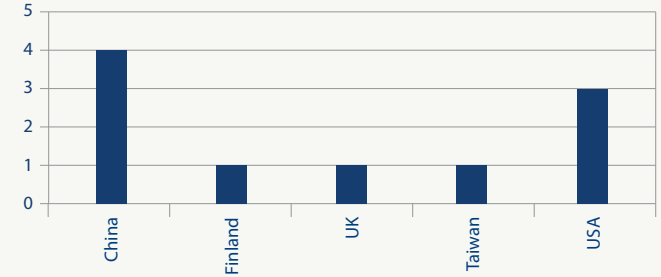
Priority topic area – Advanced manufacturing



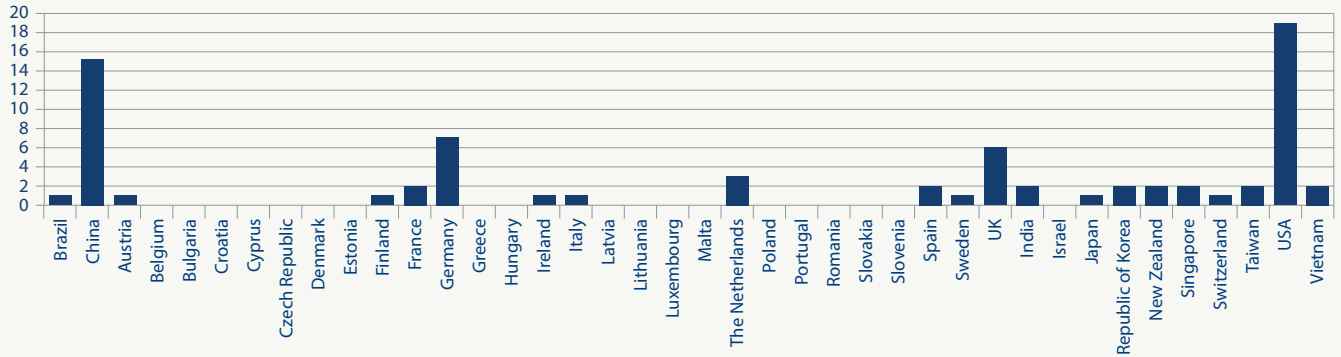
The outputs far exceeded our expectations here … we ended up with a program of international importance, spin off of a new start up and financial contracts.

– PARTICIPANT FEEDBACK

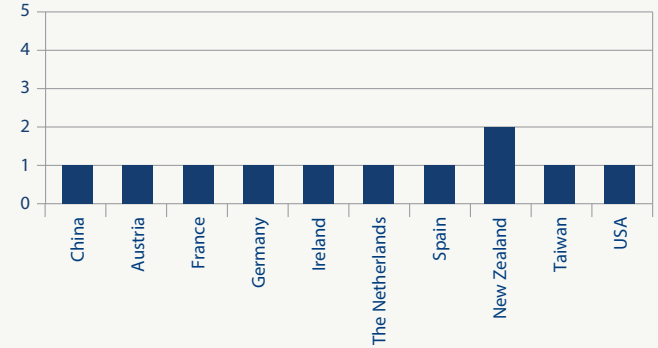
Priority topic area – Oil, gas and energy



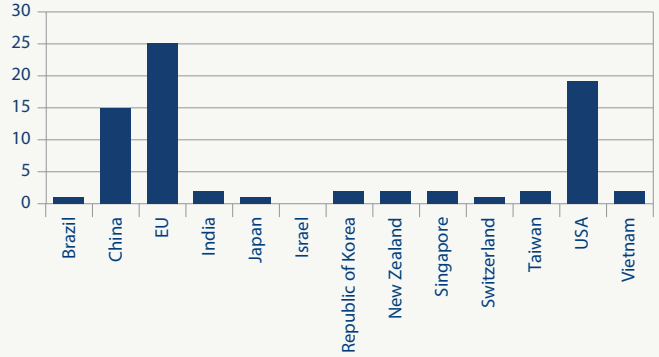
Number of Priming Grants by all individual priority economies



Priority topic area – Food and agribusiness



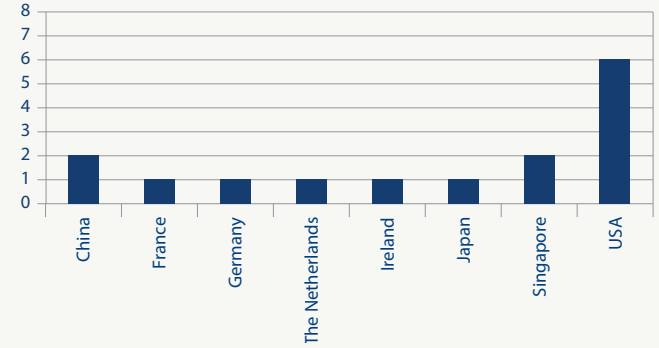
Priming Grants by 17 priority economies



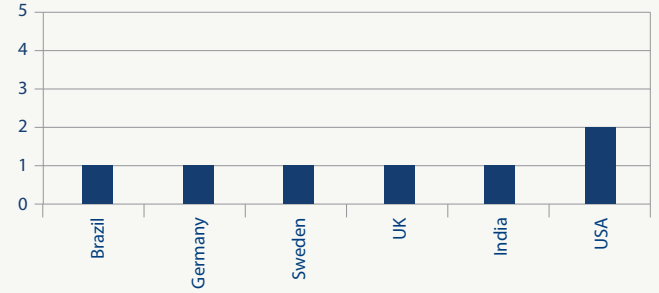
The grant has allowed us the time to define project challenges and ideas for progress in research, as well as to reflect on possibilities for commercial interaction.

– PARTICIPANT FEEDBACK

Priority topic area – Medical tech and pharma



Priority topic area – Mining



GLOBAL CONNECTIONS FUND
PRIMING GRANT AWARDEES (JULY 2016)

NAME	SURNAME	ORGANISATION	PARTNER ECONOMY	ACTIVITY
ADVANCED MANUFACTURING				
Naomi	MATHERS	Australian National University	USA	**NAOMI MATHERS** a researcher from Canberra will engage with a USA based SME. This partnership will develop low cost, high performance instruments for Tyvak's existing high performance small satellite platform, leading to the development of highly capable commercial satellites and the establishment of a Tyvak office in Australia.
Yixia (Sarah)	ZHANG	The University of New South Wales	China	**YIXIA (SARAH) ZHANG** a researcher from New South Wales will engage with an SME based in China. The project will explore avenues for research collaboration and commercialization on a new construction material with superior material properties developed by the researcher. This will bring significant innovative design to civil infrastructures.
Francesco	FIORITO	The University of New South Wales	Italy	**FRANCESCO FIORITO** a researcher from NSW will engage with an SME based in Italy. The project aims at partnering with an overseas SME, which has developed sustainable and energy efficient prefabricated buildings. The collaboration is envisaged to foster R&D in building construction- one of the most promising areas in Australian manufacturing sector.
Jae Sung	YUN	The University of New South Wales	Republic of Korea	**JAE SUNG YUN**, a research from NSW will collaborate with a Korean SME. The partnership is working on the new generation solar cell called "perovskite solar cell" to be commercially manufactured within next 10 years. This Australian-Korean partnership seeks to develop pilot scale systems for the technology and move towards larger scale adoption.
Matthew	HARRIS	Clarity Pharmaceuticals	USA	**MATTHEW HARRIS**, from an Australian SME (Clarity) based in NSW will engage with a researcher at Idaho State University, USA. Clarity and Idaho State University are initiating a collaborative Advanced Manufacturing research project in radiopharmaceuticals with the Coper 67 isotope. Clarity hopes to treat neuroendocrine tumours and neuroblastoma with the technology gained through this partnership.
Qing Nian (Shaun)	CHAN	UNSW Australia	China	**QING NIAN (SHAUN) CHAN**, a researcher from NSW will partner with an SME based in China. The partnership aims to develop next-generation engine management systems for hybrid gasoline-electric vehicles. The new technologies will enable strong efficiency improvement, emission reduction, and will lead to the manufacturing of high-tech engine components.
Zhiyong	CHEN	The University of Newcastle	China	**ZHIYONG CHEN** a researcher from NSW will engage with an SME in China. The proposed collaboration will bring advanced control technologies to commercialization of nano-micro positioning systems with higher speed and accuracy. It will contribute to commercial success of future nanotechnology products.
Zhaojun	HAN	CSIRO	China	**ZHAOJUN HAN** a researcher from NSW will engage with a manufacturing SME in China. The collaboration will enable researchers from Australia to be connected to the graphene market in China through the engagements in graphene production at the industrial scale and the application of graphene for energy storage devices.
Jason	HELD	Saber Astronautics Australia, Pty Ltd	USA	**JASON HELD** from an SME based in NSW will engage with a researcher in the USA. This will see a joint training program between US and Australia to leverage new methods of space mission control pioneered by the Australian SME. Seminars will build the collaboration and training which can be rolled out nationally.
Mahyar	SHIRVANIMOGHADDAM	The University of Newcastle	UK	**MAHYAR SHIRVANIMOGHADDAM** a researcher from NSW will engage with an SME based in the UK. This project aims at developing novel communication strategies for the Internet of Things, which connects everything, everywhere, and anytime. This is an essential part of advanced manufacturing, aiming at increasing revenue and service.

CONTINUED / **GLOBAL CONNECTIONS FUND** / PRIMING GRANT AWARDEES (JULY 2016)

NAME	SURNAME	ORGANISATION	PARTNER ECONOMY	ACTIVITY
Allan	MANALO	University of Southern Queensland	USA	**ALLAN MANALO**, a researcher from Queensland is partnering with an SME in the USA. This project will establish an effective partnership between Australian research and US manufacturer in the area of fibre composites - enabling a better response to global demand for innovative and cost-effective bridge deck replacement systems.
Payam	MOUSAVIOUN	Ozran Scientific Pty Ltd	UK	**PAYAM MOUSAVIOUN** from an Australian SME (Ozran Scientific Pty Ltd) Queensland is partnering with a researcher at Oxford University in the UK. Ozran Scientific Pty Ltd has developed a unique low energy technology for generating ultrasonic waves to agglomerate noxious particles emitted from diesel engines. The company is seeking to establish a validation and collaborative partnership with Oxford University.
Mohit	CHHAYA	Biofabrication Design Solutions Pty Ltd	Germany	**MOHIT CHHAYA** from an SME based in Queensland will engage with a researcher based in Germany. The proposed collaboration aims to introduce innovative structural testing know-how, equipment and custom software for analysing mechanical properties of 3D-printed medical implants to the Australian advanced manufacturing sector.
Heike	EBENDORFF-HEIDEPRIEM	The University of Adelaide	USA	**HEIKE EBENDORFF-HEIDEPRIEM** a researcher from SA will engage with an SME based in the USA. This Project will result in a new class of microstructured mid-infrared transmitting fibre which has significant global market potential for laser machining using CO2 lasers
Martin	O'CONNOR	Institute of Photonics and Advanced Sensing, The University of Adelaide	USA	**MARTIN O'CONNOR**, a research from SA will partner with an SME in the USA. Under a new strategic partnership, advanced manufacturing techniques will be applied to Cryogenic Sapphire Oscillator technology to produce field deployable precision frequency systems for phased-array radar, microwave and RF wireless applications
Peipei	JIA	University of Adelaide	China	**PEIPEI JIA**, a researcher from South Australia will be partnering with a Chinese SME. A gold nanomembrane will address image blurring in electron cryomicroscopy by eliminating sample motion during electron irradiation. This would enable structure determination of smaller and more dynamic proteins at higher resolution.
Paul	BURNS	Simplexity Communications Pty Ltd	UK	**PAUL BURNS** from an SME based in SA will engage with a researcher in the UK. The project will involve a low cost wearable antenna platform for wireless Medical Vital Sign Monitors manufactured using advanced techniques and materials. The improved wireless performance will ensure robust and reliable delivery of crucial patient information.
Anton	BLENCOWE	University of South Australia	USA	**ANTON BLENCOWE** a researcher from South Australia will engage with an SME based in the USA. The University of South Australia is partnering with a US based company to bring innovation in the field of 3D bio-printing. This collaboration is expected to support advanced manufacturing and bring new solutions to medical and pharmaceuticals challenges.
Kirsten	ORR	University of Tasmania	Vietnam	**KIRSTEN ORR** a researcher from Tasmania will engage with an SME in Vietnam. A new Australia-Vietnam partnership will be formalised to share cross-cultural ideas about how digital design and advanced manufacturing can add value to architecture in timber and bamboo, addressing issues of environmental and social sustainability.
Michael	BREADMORE	University of Tasmania	UK	**MICHAEL BREADMORE**, a researcher from Tasmania will partner with an SME based in the UK. 3D printing is changing large-scale manufacturing with unprecedented space, but has yet to be translated to small high precision manufacturing. New capability will be developed for millimetre scale integrated components to advance precision manufacturing.
Rebecca	YEE	Biofuel Innovations	Switzerland	**REBECCA YEE** from an SME based in VIC will engage with a researcher from Switzerland. The Research Director from BFI will travel to Zurich to discuss enzymatic catalyst technology capable of processing waste by-products from biodiesel manufacturing. This biotechnology will integrate new product lines in their manufacturing plant
Mark	BOLAND	Australian Synchrotron	The Netherlands	**MARK BOLAND**, a researcher from Victoria will partner with an SME in the Netherlands. This project will contribute to developing precision manufacturing for the next generation compact particle accelerators for the benefit of society.
Jian	FANG	Deakin University	China	**JIAN FANG**, a researcher from Victoria is partnering with an SME in China. This project is aimed to develop advanced manufacturing technology for producing high performance electrically conductive elastic fibres for emerging applications such as health monitoring devices, and flexible and wearable electronics.

CONTINUED / **GLOBAL CONNECTIONS FUND** / PRIMING GRANT AWARDEES (JULY 2016)

NAME	SURNAME	ORGANISATION	PARTNER ECONOMY	ACTIVITY
Karl	POMORIN	KarlTek Pty Ltd	Vietnam	**KARL POMORIN** from an Australian SME is partnering with a researcher in Vietnam. Providing fish passage and monitoring fish movement through man-made barriers such as dams is important in Australia and globally. The partnership will apply technology to permanently monitor fish movement through dams and other structures.
Mladenko	KAJTAZ	RMIT University	Germany	**MLADENKO KAJTAZA** a researcher from Victoria will engage with a German SME. This project aims to improve the rehabilitation of limb and joint injuries by providing an advanced exoskeleton as a technological assistance and enabler to increase mobility and load-carrying capacity of the injured limbs and joints.
Sridhar	RAVI	RMIT University	Germany	**SRIDHAR RAVI**, a researcher from Victoria will engage with an SME based in Germany. Drones are the fastest growing sector of aviation with applications in wide ranging industries. This project aims to significantly improve the aerial prowess of drones by implementing bio-inspired solutions for obstacle detection and navigation.
Tony	DUNCAN	Circa Group	Spain	**TONY DUNCAN** from an SME based in Victoria will engage with a researcher in Spain. This project will investigate the potential for a new sustainable dipolar aprotic solvent to effectively disperse graphene at higher concentrations and lower defect levels than the currently used state-of-the-art solvents
Rangam	RAJKHOWA	Deakin University	India	**RANGAM RAJKHOWA**, a researcher from Victoria will engage with an SME in India. The project will address processing problems of luxury Australian cashmere and alpaca fibres and create ultrafine products for high end international fashion market. It will also produce advanced functional fabrics using Eri silk and animal hairs.
Richard	ALORRO	Western Australian School of Mines, Curtin University	Republic of Korea	**RICHARD ALORRO** a researcher from Western Australian will engage with an SME based in the Republic of Korea. A selective purification stage is required for a new gold recovery technology in Korea to be applied in low concentration wastewater containing base metal impurities. The use of magnetite is envisaged to provide solution and process flexibility.
Kit Yan	CHAN	Curtin University	China	**KIT YAN CHAN** a researcher from WA will engage with an SME in China. This project will develop precise technologies for electronic packaging which is essential in semiconductor/LED products, microchips, printed-circuit boards and integrated circuits. The technologies will promote manufacturing of electronic products
Jochen	FRANKE	Treadlie Engineering Pty Ltd	Germany	**JOCHEN FRANKE** from an SME based in WA will engage with a researcher in Germany. The collaboration relates to the development of surface engineering (tribology) characteristics envisaged for Treadlie Engineering's novel friction based V-belt transmission system
Kamal	ALAMEH	Edith Cowan University	China	**KAMAL ALAMEH** a researcher from the Edith Cowan University, WA will engage with the Rocky Development Co., Ltd an SME based in China. ECU will collaborate with Qingdao Rocky Development Co. China on the manufacture of energy-harvesting clear glass panels for use as windows, skylights and facades for green buildings, and for the implementation of sustainable solar glass greenhouses.
MEDICAL TECHNOLOGY AND PHARMACEUTICALS				
Robert	DAVIDSON	University of Canberra	The Netherlands	**ROBERT DAVIDSON** a researcher from Canberra will engage with an SME based in the Netherlands. The project will develop a new method to evaluate image quality in computed tomography (CT) using a contrast-detail phantom and software. The use of this technology will reduce radiation dose and risk to patients undergoing medical CT scans.
Colin	DENVER	SpeeDx Pty Ltd	USA	**COLIN DENVER** from SpeeDx Pty Ltd, an SME based in NSW will engage with a researcher in the USA. SpeeDx develops tests for diagnosing infectious diseases and determining antibiotic resistance. The company is seeking help to collaborate with Key opinion leaders in the USA to validate clinical utility and define the US regulatory approval pathway.
James	WELSH	University of Newcastle	Singapore	**JAMES WELSH**, a researcher from NSW will engage with an SME based in Singapore. Technology based on ultrasound will be developed for powering, communication and control of an active intramedullary bone implant for therapeutic limb lengthening. This will produce better patient outcomes with less hospitalisation required.

CONTINUED / **GLOBAL CONNECTIONS FUND** / PRIMING GRANT AWARDEES (JULY 2016)

NAME	SURNAME	ORGANISATION	PARTNER ECONOMY	ACTIVITY
John	CANNING	Australian Sensing & Identification (AusSI) Systems	Germany	**JOHN CANNING** from Australian Sensing & Identification (AusSI) Systems, an SME based in NSW will engage with a researcher in Germany. AusSI Systems has pioneered unique smart-device, smartphone diagnostics to analyse test strips used in medical and food health. It will team up with global leaders in test strip research to grow new global opportunities in new sectors worldwide.
Ramin	ROHANIZADEH	University of Sydney	France	**RAMIN ROHANIZADEH** a researcher from NSW will engage with an SME based in France. The project will develop a bone substitute material loaded with an anti-cancer drug that will replace cancer-damaged bone tissues. This provides mechanical strength and kills remaining cancer cells, preventing cancer from spreading.
Xiaowen	LIANG	The University of Queensland	USA	**XIAOWEN LIANG** a researcher from Queensland will engage with an SME based in the USA. This project focuses on collaborate with a leading medium genetic analysis company to develop and optimize ctDNA detection nanoprobes which could be commercialized and routinely applied clinically to diagnose and monitor diverse malignancies.
Yan	LI	University of Southern Queensland	China	**YAN LI** a researcher from Queensland will engage with an SME based in China. This project will enable an international collaboration to develop and commercialize an advanced medical technology. The research translation relates to an intelligent "depth of anaesthesia" monitor using brain modelling and medical imaging and signal processing techniques.
Yin	XIAO	Queensland University of Technology	China	**YIN XIAO** a researcher from Queensland will engage with Asia Biomaterials (Wuhan) Co.Ltd an SME based in China. QUT researchers intend to travel to Wuhan, China to work on the collaborative development of a novel design for bone biomaterials recently developed in Prof Xiao's laboratory in partnership with Asia Biomaterials Co. Ltd. China.
Mark	BLASKOVICH	The University of Queensland	USA	**MARK BLASKOVICH** a researcher from Queensland will engage with an SME based in the USA. This project will tackle the growing threat of antimicrobial resistance by combining the killing power of antibiotics with the selective targeting capability of antibodies, creating a 'guided-missile' to seek and destroy drug-resistant bacteria.
C Philip	GABEL	Advise Rehab Software PL	USA	**C PHILIP GABEL** from an SME based in Queensland will engage with a researcher in the USA. The project seeks collaboration on tools that measure function and risks of delayed recovery in musculoskeletal injured individuals in hospital and rehab centres. By analysing tool accuracy, cost and time efficiency is determined and optimal tools recommended.
Els	MEEUSEN	CancerProbe	Japan	**ELS MEEUSEN** at CancerProbe an SME based in VIC will engage with a researcher in Japan. Ovarian tumours are the most lethal of all female reproductive cancers. CancerProbe Pty Ltd in collaboration with gynaecological experts in Japan aims to develop a blood test for the early detection of ovarian cancer.
Tuck Wah	NG	Monash University	Singapore	**TUCK WAH NG** a researcher from Victoria will engage with an SME based in Singapore. The project aims to establish a synergistic partnership to extend a new paradigm in microplate technology using an effective cell based assay mode.
Glenn	TONG	Gordagen Pharmaceuticals Pty Ltd	USA	**GLENN TONG** from an SME based in Victoria will engage with a researcher in the USA. We are developing a natural product which assists in muscle recovery by significantly reducing exercise induced muscular pain and improving exercise endurance.
MINING TECHNOLOGY AND SERVICES				
Maya	SYDNEY	Geo9 Pty Ltd	Germany	**MAYA SYDNEY** from an Australian SME based in NSW will engage with a researcher based in Germany. This project is a world-first experiment utilising GRACE satellite data in association with newly developed ground-based surveying techniques on the 'Narraburra' mineral (critical metals) exploration project.
Shuhong	CHAI	University of Tasmania	India	**SHUHONG CHAI** a researcher in Tasmania will engage with an SME based in India. Development of a miniature remotely operated dredging/ mining tool, working like an underwater ROV, but with a mining cutter and suction system, in crawler or open-frame form operating on the seabed and being controlled by a pilot at the surface.

CONTINUED / **GLOBAL CONNECTIONS FUND** / PRIMING GRANT AWARDEES (JULY 2016)

NAME	SURNAME	ORGANISATION	PARTNER ECONOMY	ACTIVITY
Kevin	COOK	The University of Sydney	Brazil	**KEVIN COOK** a researcher from NSW will engage with an SME based in Brazil. The aim is to improve the maintenance and safety of rail lines that service the mining industry. By careful monitoring of rail strain and temperature, rail deformations can be detected early and train derailments therefore avoided.
Nathan	FOX	University of Tasmania	USA	**NATHAN FOX** a researcher from Tasmania will engage with an SME based in the USA. This collaboration will apply portable laser induced breakdown spectroscopy (LIBS) for chemical and mineralogical characterisation to improve mineral exploration, mineral processing and the environmental management of current and future mines.
Jonas	LINDHOLM	KingHill Pty Ltd	Sweden	**JONAS LINDHOLM** from an SME based in NSW will engage with researchers at Luleå University of Technology in Sweden. Luleå University of Technology's eMaintenance Lab facilitates international research in mining and rail maintenance. The engagement will discuss how their heavy haul eMaintenance systems can be adapted to Australian conditions – with trials tentatively planned 2016/2017.
Todd	ERICKSON	The University of Western Australia	USA	**TODD ERICKSON** a researcher from Western Australia will engage with an SME based in the USA. Seed enhancement technologies involve engineering solutions to enhance plant recruitment success in rehabilitation programs. This project aims to advance a recent invention that removes seed appendages that restrict automated seeding of native seeds.
Anita	PARBHAKAR-FOX	University of Tasmania	UK	**ANITA PARBHAKAR-FOX** a researcher from Tasmania will engage with an SME based in the UK. This project will establish a new global best practice standard for kinetic tests by integrating mineralogy, texture and chemistry data. The result will be improved mine waste characterisation and the reduction of environmental mining footprints.
OIL, GAS AND ENERGY RESOURCES				
Gang (Kevin)	LI	The University of Western Australia	China	**GANG (KEVIN) LI** a researcher from Western Australia will engage with DKT Energy Technology Co., Ltd. an SME based in China. The collaboration will see a demonstration of Australian technology for natural gas separation in an industrial relevant scale with DKT Energy who have completed engineering tests of our patented Ionic Liquidic Zeolites.
Hua	LI	The University of Newcastle	China	**HUA LI** a researcher from NSW will engage with an SME based in China. The proposed collaboration aims to start a joint project "Selective adsorption of NO from flue gas using advanced solvents".
Gavin	LOYDEN	Queensland Energy & Minerals Pty Ltd	China	**GAVIN LOYDEN** from an SME, Queensland Energy & Minerals (QME) Pty Ltd will engage with a researcher in China. QEM seeks to investigate the use of supercritical water as a method of producing hydrocarbon products or energy from its Julia Creek oil shale resources. The process produces zero emissions and uses very little water and no soil contaminants.
Michael	WOODWARD	University of Tasmania	Taiwan	**MICHAEL WOODWARD** a researcher from Tasmania will engage with Oceanlinx Group, an SME based in Taiwan. Research collaboration between Oceanlinx and the Australia Maritime College is for technological advancement of oscillating water column marine renewable energy devices.
Vanessa	LUCIEER	University of Tasmania	UK	**VANESSA LUCIEER** a researcher from Tasmania will engage with Cellula Robotics an SME in the UK. The University of Tasmania's polar class, deep-water Autonomous Underwater Vehicle will be used to answer key scientific questions and through a strategic partnership with Cellula Robotics will develop physical seafloor sampling technology.
Gary	LYNCH	Air-Gro Pty Ltd	USA	**GARY LYNCH** from an Australian SME based in Queensland will engage with a researcher in the USA. We have developed a patented method to contain, monitor and recover toxic fugitive gases and liquids from leaking coal seam gas wells. We will use computer modelling to refine our system to develop a solution to a potential environmental disaster.
Ashleigh	COUSINS	CSIRO	USA	**ASHLEIGH COUSINS** a researcher from Brisbane will engage with an SME in the USA. This collaboration will enable the development of a sophisticated process modelling tool incorporating a novel liquid absorbent technology developed for removal of CO2 from a variety of gas streams in collaboration with US-based small specialist company.
Paul	FERON	CSIRO Energy	USA	**PAUL FERON** a researcher from NSW will engage with an SME in the USA. This project entails collaboration between an Australian research organisation and a US-based small enterprise with the aim to further develop and commercialise CO2 capture technology for gas treatment and emissions reductions in the energy sector.

CONTINUED / **GLOBAL CONNECTIONS FUND** / PRIMING GRANT AWARDEES (JULY 2016)

NAME	SURNAME	ORGANISATION	PARTNER ECONOMY	ACTIVITY
Karne	**DE BOER**	Enerbi Pty Ltd	Finland	**KARNE DE BOER** from an Australian SME will engage with a researcher in Finland. The proposal is to visit a world leading research organisation in Finland with the purpose of establishing a collaborative relationship to assist in the delivery of demonstration project of a novel biomass to electricity technology.
Lian	**ZHANG**	Monash University	China	**LIAN ZHANG** a researcher in Victoria will engage with an SME in China. The proposed project aims to establish the collaboration with an industrial partner in China, so as to scale-up a novel pyrolysis technology to valorise brown coal and waste tyre into diverse, value-added export-grade products.
FOOD AND AGRIBUSINESS				
Peter	**SOLOMON**	The Australian National University	New Zealand	**PETER SOLOMON** a researcher in the ACT will engage with a NZ based SME. Weeds are the single most important reason for crop losses globally, causing high management costs and threatening food security. This project will develop sustainable bio-herbicidal solutions for improved weed management to ensure food security.
Zamira	**GIBB**	The University of Newcastle	The Netherlands	**ZAMIRA GIBB** a researcher in NSW will engage with an SME based in the Netherlands. The contribution of the stallion to early embryonic death (the most common cause of pregnancy failure in the horse) will be characterised and biomarkers identified to allow breeders to implement targeted strategies to significantly improve fertility
Gregory	**LOWE**	Lowes TC Pty Ltd	Ireland	**GREGORY LOWE** from an SME based in NSW will engage with Researchers from Ireland. The collaboration will aim to introduce novel selected clones and tissue culture technology for Smallanthus sonchifolius, Yacon, production for the Australian Horticulture Industry
Simon	**SOUTHERTON**	Gondwana Genomics Pty Ltd	China	**SIMON SOUTHERTON** from an SME based in NSW will engage with a researcher in China. Australian-developed DNA selection tools will be demonstrated in eucalypt trials of the China Eucalypt Research Centre. The project will lift the awareness of the technology in China and assist the Chinese eucalypt industry to adopt the technology.
Bernadette	**McCABE**	National Centre for Engineering in Agriculture	Germany	**BERNADETTE MCCABE** a researcher from QLD will engage with an SME based in Germany. Ultrasound technology based on German know-how will be transferred to Australian food and agricultural industries to boost the efficiency of biogas from waste, resulting in improved waste management and productivity in the food and agribusiness sector.
Jill	**HOUSER**	Australian Lychee Growers Association	Taiwan	**JILL HOUSER** from an SME based in QLD will engage with a researcher/technical specialist in Taiwan. Australia has the geological strength that can supply 'off-season' lychee to Asian & Northern markets. This Taiwan-Australian Co-op Project provides opportunities of agricultural collaboration on lychee issues including with the introduction into Australia of new cultivars from Taiwan.
Simon	**TANNOCK**	STTI PTY Ltd	New Zealand	**SIMON TANNOCK** from an SME based in QLD will engage with a researcher in New Zealand. The collaboration will aim to develop a novel aeration and mixing system with a 36 per cent energy efficiency that is suitable for the aquaculture and wastewater industries.
Scott	**CHAPMAN**	CSIRO	France	**SCOTT CHAPMAN** a researcher from QLD will engage with an SME based in France. This collaboration will improve utilisation of UAVs (drones) to develop new varieties and better irrigation decisions for growers in the $2.5 billion Australian sugar and cotton industries and later into fruit and vegetables.
Roger	**STANLEY**	University of Tasmania	USA	**ROGER STANLEY** a researcher in Tasmania will engage with 915 Laboratories, an SME based in USA. Collaboration will be established with 915 Labs to access the expertise and IP that has gone into the development of microwave sterilisation technology for prepared foods and meals in order to add value to Australian local agricultural products.
Christoph	**RUDIGER**	Monash University	Austria	**CHRISTOPH RUDIGER** a researcher from Victoria will engage with an SME based in Austria. The project: Towards a climate-smart Australian agriculture - will aim to provide innovative solutions using Sentinel satellites data in the areas of food security, precision agriculture, crop health monitoring, drought and yield forecasting, and climate change risk mitigation and adaptation.
Jorge	**PAZ FERREIRO**	RMIT University	Spain	**JORGE PAZ FERREIRO** from Victoria will engage with an SME based in Spain. This project aims to improve waste management and soil quality in vineyards. Waste will be pyrolyzed to be transformed in a charcoal. Economic return will be achieved through the diversion of waste from landfills and an improvement in crop yield.

AUSTRALIAN GOVERNMENT: OVERSEAS INNOVATION COUNSELLOR NETWORK

The Department of Industry, Innovation and Science has dedicated staff located in five key overseas posts:

> Beijing, China
> Brussels, Belgium (covering Europe)
> New Delhi, India
> Tokyo, Japan
> Washington DC, USA

Global Connections Fund Awardees have access to the assistance of the Counsellors to advise them as they engage and develop commercialisation arrangements with their overseas partners.

The role of departmental Counsellors at these posts is to support the department's key strategic international engagement objectives for industry, resources, science and innovation in their respective countries and/or regions.

The Counsellors engage with host country governments, other key partner countries, businesses, peak bodies and research organisations, to establish and maintain relationships that support Australia's innovation ecosystem and facilitate growth and productivity for globally competitive industries.

The Counsellors also play an important role in advising the Australian Government about relevant policies and initiatives in their host countries, provide support for visiting Australian Ministers or departmental staff, and represent the department at key engagements and events.

The department's Counsellors also support broader portfolio objectives and implement strategies to strengthen Australia's engagement with global industry, resources, science and innovation systems.

Contact details for the Overseas Counsellors can be found at:

https://industry.gov.au/AboutUs/OverseasCounsellorNetwork/Pages/default.aspx

The meeting was critical in developing the initial relationship from which to build the collaboration. The Priming Grant funds were very helpful in funding this meeting.

– PARTICIPANT FEEDBACK

ATSE

Being on the ground and having several days to learn, discuss, plan and get to know researchers and companies in your field are invaluable to realising your research dreams.

– PARTICIPANT FEEDBACK

GPO BOX 4055
Melbourne, 3001
Victoria, Australia

T +613 9864 0900
F +613 9864 0930
E info@atse.org.au

www.atse.org.au

DESIGN AND PRODUCTION: www.coretext.com.au