

Minister's Approval for Linkage Projects 2024 Round 1 for Funding Commencing in 2025 Schedule

Approved Organisation, Leader of Approved Research Program	Approved Research Program	Estimated and Approved Expenditure (\$)		Indicative Funding (\$)					Total (\$)	Partner Organisation(s)
		2024-25 (Column 4)	2025-26 (Column 5)	2026-27 (Column 6)	2027-28 (Column 7)	2028-29 (Column 8)	2029-30 (Column 9)		(Column 10)	(Column 11)
(Columns 1 and 2)	(Column 3)									

Australian Capital Territory

The Australian National University

LP240100348	Delivering Anindilyakwa data governance	39,180.00	127,532.00	179,468.50	128,245.00	37,128.50	0.00	511,554.00	ANINDILYAKWA LAND COUNCIL
Houle, A/Prof Brian	Achieving self-determination for First Nations peoples requires empowering communities in the collection and application of their own data for evidence-based decision-making. This project aims to provide an exemplar model of Indigenous data governance for the Anindilyakwa people in Groote Eylandt. Using innovative research methods and partnership models, the project will develop and evaluate a community-governed information platform and the means to leverage it for sustained, targeted, community-led interventions. Expected outcomes include enhanced Anindilyakwa self-determination, and new best practice knowledge for implementing such platforms elsewhere—providing a potential model for other First Nations communities across Australia.								
	National Interest Test Statement								
	The recent review of the National Agreement on Closing the Gap recommended that First Nations communities need to govern the collection and application of data about them to support self-determined pathways to better social and economic outcomes. Currently, those data are held mostly by governments and are outdated and generalised. This project will demonstrate a way for First Nations communities to compile and govern their own statistical data to provide real-time information they need for local decision-making. The project is a partnership with the Anindilyakwa Land Council representing the 2,000+ Traditional Owners of the Groote archipelago in the Northern Territory. It will adapt world's best practice in demographic information systems to co-design and apply a data platform that evaluates progress on socio-economic outcomes. The Land Council's use of this longitudinal, real-time evidence will support them in local decision-making to better understand and influence the underlying causes of social change. As a model of data governance that advances self-determination, the findings from this project have potential to benefit the multitude of other First Nations communities across Australia.								
	The Australian National University	39,180.00	127,532.00	179,468.50	128,245.00	37,128.50	0.00	511,554.00	
	Australian Capital Territory	39,180.00	127,532.00	179,468.50	128,245.00	37,128.50	0.00	511,554.00	

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New South Wales

Australian Catholic University

LP240100286	Deadly Home Reading: Enabling Indigenous Children's Literacy & Wellbeing	104,617.50	206,283.50	200,199.50	199,725.50	197,712.00	96,520.00	1,005,058.00	WONNARUA NATION ABORIGINAL CORPORATION
Craven, Prof Rhonda G	This project tests the effectiveness of a new parent/carer phonics, oral language and self-concept enhancement home reading intervention on young (K-2) Indigenous children's literacy, oral language and self-concept. The project expects to generate new knowledge about effective home reading strategies for Indigenous children by capitalising upon interdisciplinary advances from "The Science of Reading", research on home reading and the wisdom of Indigenous communities. Expected outcomes include salient intervention and advances in Indigenous education. Benefits are identifying interventions enhancing Indigenous literacy, oral language and self-concept, and delivering successful Indigenous-led research to address community-identified needs.								
	National Interest Test Statement	One in five Indigenous children in Year 3, are below minimum standards in reading. Effective home reading is a game changer but little is known about what works for Indigenous children. This project tests the effectiveness of a new home reading intervention that capitalises upon Indigenous wisdom; advances in home reading which demonstrate teaching parents how to tutor their children is effective; and The Science of Reading which emphasizes phonemic awareness, phonics, fluency, vocabulary, and comprehension are essential for learning to read. The project contributes to wellbeing by enabling literacy which underpins completing high school, further education and employment. Economically, our research aims to enhance literacy and facilitate children's full potential, adding materially to Indigenous community and Australia's socioeconomic wellbeing. Socially, the research will identify policy and strategies that improve literacy and cultivate capability to contribute to closing the gap and breaking intergenerational cycles of unemployment. Our team offers a rich network of relations with Indigenous, government, education and parent organisations boding well for wide dissemination and translation of the research findings into cross-sectorial policy and practice. Intervention materials will be publicly available. Annually, we will invite stakeholders to a knowledge sharing online workshop to optimize research impact and end-user's uptake of findings.							
	Australian Catholic University	104,617.50	206,283.50	200,199.50	199,725.50	197,712.00	96,520.00	1,005,058.00	

Macquarie University

LP240100018	A Digital Literacy Program Empowering Seniors with Sensory Loss	47,034.00	113,220.50	105,533.50	39,347.00	0.00	0.00	305,135.00	YOURLINK PTY LTD, SOUNDFAIR AUSTRALIA LTD, HEARING MATTERS AUSTRALIA INC, MEALS ON WHEELS NSW LTD, BLIND CITIZENS AUSTRALIA, COLLECTIVE LEISURE PTY LTD, COMMUNITEER PTY LTD
Gopinath, Prof Bamini	Current Australian programs that build digital confidence of seniors have overlooked sensory loss challenges. This study will tackle this gap by aiming to merge cognitive resources from different disciplines and organisations, to develop a digital literacy program that caters to the needs of seniors with sensory loss (vision and/or hearing loss); and then enable its delivery by staff and volunteers from consumer groups and social enterprises, who will be digital mentors. Resulting knowledge and digital inclusion tools will advance ongoing work on accessibility requirements for seniors with sensory loss and best practices. Direct benefits include increased digital participation of these seniors, enhancing their social and economic inclusion.								
	National Interest Test Statement								

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LP240100541 Gu, Prof Tao	Over 3.5 and 13 million Australians have hearing or vision loss, respectively. Seniors with sensory loss (vision and/or hearing loss) access and use online information and services less than those without sensory deficits. As society advances towards a fully digital paradigm, these seniors face exclusion from vital aspects of daily life such as banking and shopping. Current programs in Australia that build the digital confidence and online safety of older adults do not address the challenges and needs of seniors with sensory loss. This innovative project aims to close this growing digital divide, by adopting a participatory approach and developing a novel conceptual framework to guide the co-design and delivery of a bespoke digital literacy program that meets the needs and preferences of seniors with sensory loss. The resulting digital inclusion tools and resources will be embedded into existing services offered by 7 partner organisations who are community-based charities, social enterprises and small business, thereby, ensuring long-term adoption of study findings and uptake on a national scale. This Australian-first project has economic benefits, including addressing the high costs of online fraud by empowering these seniors with the skills to navigate the internet safely; and by leveraging digital technology and accessibility tools, seniors with sensory loss can maintain independent living, reducing residential numbers and leading to substantial government cost savings.								
	Reliable and Efficient Massive Long Range Connectivity	82,458.50	169,992.00	172,537.00	85,003.50	0.00	0.00	509,991.00	ECOT PTY LTD
This project aims to revolutionize Internet of Things (IoT) gateways for next-generation citywide long range networks to keep pace with rapid advancements introduced by Artificial Intelligence of Things (AIoT). The project will generate new knowledge in three domains: full duplex communication, downlink beamforming, and resource-efficient on-device AI processing. Outcomes will reshape the current design of IoT gateway to significantly improve the transmission reliability, downlink efficiency, and lightweight the model deployment for future applications. This provides significant benefits to Australian IoT industry, broader manufacturing, and even application-oriented services by getting them ahead with IoT products for the future AIoT era.									
National Interest Test Statement									
The Internet of Things (IoT) has been embraced as a means of reducing costs and increasing competitiveness in industries such as advanced manufacturing. However, technical challenges exist in developing advanced IoT gateways which require massive transmission of multimodal sensory data. This project aims to improve transmission reliability and processing efficiency in long range networks to meet the increasing demand for massive connectivity. The outcomes will significantly improve the existing design of IoT gateway in long range networks regarding transmission reliability, downlink efficiency, and lightweight model deployment. With successful commercialisation, this project will gain significant benefits in new lines of hardware and software products.									
Macquarie University		129,492.50	283,212.50	278,070.50	124,350.50	0.00	0.00	815,126.00	
The University of New South Wales									
LP240100123 Chen, Dr Da	Developing sustainable graded porous cementitious structures	59,222.50	129,430.00	134,408.00	64,200.50	0.00	0.00	387,261.00	CONTEGRITY BUILDING SOLUTIONS PTY LTD, ARUP AUSTRALIA PTY LTD
	This project aims to pioneer innovations in green civil engineering by developing first-of-its-kind porous structures for Australian sustainable environment. It establishes novel graded porous geometries in cementitious structures for superior stiffness and thermal insulation. The lightweight yet robust structures with minimal cement usage are crucial to mitigating carbon footprints in civil construction and building operation with huge emissions. The project expects to develop new knowledge and advanced simulations in porous composites. This will help Australia growing green civil industries with significant economic benefits and achieving the Net Zero Plan via saving building operation energy and reducing construction emissions and waste.								
National Interest Test Statement									
This project, supported by two industrial partners, will provide new design techniques for green sustainable structures in Australia. The current knowledge gap, resulted from the difficulties of adopting porous materials in construction due to their low load-carrying capacities, will be bridged by the proposed strong and porosity-graded cementitious structures. Such structures are featured by lighter and stronger traits, less environmental impact, excellent quality									

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LP240100383	<p>control, rapid manufacturing process, great cost effectiveness, as well as superior thermal insulation, energy efficiency, durability and safety. They can be used in energy-efficient durable buildings and infrastructures, reducing emissions and operational costs for a resilient living environment. They are applicable in various civil engineering projects for components such as thermal insulating walls and deck panels. Thus, this project will contribute to Australian environmental sustainability by reducing waste and emissions from construction, and mitigating the building energy consumption during service life. Its outcomes will benefit the building and infrastructure sectors from construction/renovation to operation/maintenance, as well as stimulating a growing market of green construction and advanced manufacturing with new job opportunities. The team will design systematic fabrication trials, apply the developed techniques in real-world projects, consolidate and disseminate new findings to broader audiences.</p> <p>Connecting changing sub-daily precipitation extremes to flash floods</p> <p>This project proposes to use a combination of observations and high-resolution climate model simulations to better understand historic and future changes to sub-daily rainfall extremes for the eastern seaboard of Australia. This improved understanding of rainfall changes will help quantify future flood risk in this densely populated region. This is important because only simplified estimates of future rainfall changes are currently used in industry for flood design. In partnership with the NSW Department of Climate Change, Energy, the Environment, and Water and the NSW State Emergency Service, the project will inform updated design flood guidelines improving floodplain management and emergency response in New South Wales.</p> <p>National Interest Test Statement</p> <p>Flooding in Australia causes extensive damage, with the 2022 floods costing \$4.8 billion. Flash floods, caused by storms in which large amounts of rain fall in a short time, are especially dangerous. Climate change is increasing flash flood risk, by increasing the intensity and frequency of heavy rainfall events, with greater increases for shorter events. However, our understanding of these changes is limited. Knowledge gaps include how changes may differ by region, how the area or direction of storms might change, or whether the most intense rain can be expected at the start or end of an event. We cannot yet provide detailed guidance for future engineering flood design meaning decision-makers lack the information they need for future planning. This project will increase our understanding of historical and future changes to rain events and their implications for flood risk. We will combine new high-resolution climate model simulations for the eastern seaboard of Australia with data from weather radars and rain gauges to understand changes at the fine time and space scales required for urban/flash flood modelling. This knowledge will increase the safety of Australian communities through improved flood design, and contribute to more resilient infrastructure and efficient use of government resources for disaster risk reduction. The findings from the project will be used in developing updated guidelines for engineers and governments.</p>	61,944.50	131,729.50	137,707.50	67,922.50	0.00	0.00	399,304.00	NSW DEPARTMENT OF CLIMATE CHANGE, ENERGY, THE ENVIRONMENT AND WATER, STATE EMERGENCY SERVICE (NSW)
Johnson, A/Prof Fiona									
LP240100386	<p>Composite 3D Printing through Sensor-Guided Collaborative Robots</p> <p>The project aims to develop a collaborative, sensor-guided robotic 3D printing technology to fabricate complex structures using continuous carbon fibre-reinforced composites. This innovative technology features two robotic arms, each equipped with different tools. One arm carries two extruders, one dedicated to printing continuous carbon fibre-reinforced filaments and the other for printing sacrificial moulds that can be dissolved afterwards. The other robotic arm uses a compaction roller to apply a consolidation force to the printed region. This novel technology will enable the fabrication of high-performance composite structures with intricate geometries with large overhangs that would be unattainable using conventional methods.</p> <p>National Interest Test Statement</p> <p>The project aims to develop a robotic composite 3D printing technology to fabricate complex structures using continuous carbon fibre-reinforced composites. This novel technology will enable Australian companies to fabricate high-performance composite structures with intricate geometries that would be unattainable using conventional methods. The outcomes of this project will create a significant technology that will enable Australian companies to manufacture advanced carbon fibre-reinforced composites faster, at lower cost, and reduced waste, such as aerostructures, automotive wheels, rockets, hypersonic vehicles, maritime vessels, and transportation. By partnering with industry partner Fordyno, this project will develop the necessary processes, software, and prototyping methods for other Australian companies to adopt the new robotic 3D printing technology.</p>	41,666.50	83,333.00	83,333.00	41,666.50	0.00	0.00	249,999.00	FORDYNO PTY LTD
Wang, Prof Chun H									
LP240100542	<p>Circular Economy Driven Sustainable Green Hydrogen Energy</p>	67,880.50	138,251.50	143,229.50	72,858.50	0.00	0.00	422,220.00	CSD WATER SERVICE,

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Ni, Prof Bing-Jie	This project seeks to pioneer a Circular Economy-Driven Sustainable Green Hydrogen Energy technology for a sustainable energy system. Through developing electronic waste-derived catalysts for urine wastewater electrolysis, the project aims to revolutionize hydrogen production processes, solid waste utilization, and wastewater management practices. Anticipated outcomes include innovative approaches to creating efficient catalysts from electronic wastes and establishing a cost-effective method for producing hydrogen fuel from urine wastewater. These advancements are poised to deliver substantial benefits to the Australian academic communities and industries involved in hydrogen energy, water management, and resource sustainability endeavors.								SOUTH EAST WATER CORPORATION
	National Interest Test Statement								
	Australia's transition to a sustainable, low-carbon energy future hinges significantly on green hydrogen energy. Despite its promise, the high hydrogen production cost of conventional water electrolysis poses a challenge to the development of hydrogen energy systems. This project seeks to revolutionize the landscape by introducing a groundbreaking technology that slashes hydrogen production costs through developing electronic waste-derived catalysts for urine wastewater electrolysis. Beyond cost reduction, this initiative promises substantial benefits for solid waste utilization and eco-friendly wastewater management practices. By conducting real-field investigations, the project aims to showcase the efficiency and scalability of this technology, setting a global benchmark for adopting sustainable hydrogen production methods in wastewater treatment facilities. Through close collaboration with key Australian water utilities, this project holds the potential to deliver tangible benefits to Australian communities, aligning with their aspirations for a sustainable energy system.								
The University of New South Wales		230,714.00	482,744.00	498,678.00	246,648.00	0.00	0.00	1,458,784.00	
The University of Sydney									
LP240100299	RESPECT Against Racism: Advancing new anti-racist educational e-modules	54,730.00	104,484.50	119,608.00	69,853.50	0.00	0.00	348,676.00	THE TRUSTEE FOR THE COOL AUSTRALIA TRUST
White, Prof Fiona A	This project aims to develop and evaluate a new set of RESPECT e-modules, underpinned by leading anti-racism approaches integrated into a single guiding framework for the first time. The RESPECT e-modules will generate knowledge about the best-practice content needed to successfully expand school students' inclusive thinking and racism reduction in both the short- and long-term. Expected outcomes of this project include the development of stand-alone RESPECT e-resources that can be used to support teachers' delivery of a national anti-racism curriculum that is novel, engaging, and educational. Targeting the thoughts and actions of young people will have significant national benefits by creating a more culturally inclusive future for all.								
National Interest Test Statement									
Australia is at a cultural turning point, as evidenced by the rejection of the 2023 Voice to Parliament Referendum and the racial vitriol it engendered. In fact, racism and its negative mental health outcomes, costs the Australian economy approximately \$38 billion annually. There is a renewed sense of urgency to foster greater intercultural respect amongst our future decision-makers by equipping them with the right set of educational tools. This project aims to develop and evaluate seven RESPECT Against Racism e-resources to reduce school students' racism. Primary school children provide an excellent starting point, as research shows that racism emerges in children at an early age and continues throughout their lives. These e-resources will generate new knowledge integrating best-practice principles needed to successfully expand students' inclusive thinking and reduce racism. These research aims can be achieved through our partnership with Cool.org, a leading education not-for-profit organisation that creates high quality, curriculum aligned lesson plans to help students understand complex topics such as racism. The RESPECT e-resources will be freely available to support teachers' delivery of a national anti-racism curriculum that is novel, engaging, and educational. With access to Cool.org's national school database, targeting the thoughts and actions of young people, we have the opportunity to future-proof Australia's agenda of respect, a significant national benefit.									
Towards Formal-Sector Employment for People with Disability in Timor-									

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LP240100311	Leste	64,480.50	93,590.00	54,469.00	25,359.50	0.00	0.00	237,899.00	NATIONAL DISABLED PEOPLE'S ORGANISATION IN TIMOR-LESTE., TIMOR LESTE DEFICIENCY ASSOCIATION, UNION AID ABROAD-APHEDA, THE ASIA FOUNDATION
Ford, Prof Michele T	This project aims to identify, and find ways to overcome, barriers to formal-sector employment for people with disability in Timor-Leste. The project expects to generate new knowledge about how ableism affects the employment prospects of people with disability. Expected outcomes include a robust evidence base to help our partners, including Timor-Leste's leading Disabled People's Organisations, in their policy advocacy and training work with government and large employers. This should provide significant benefits assisting Timor-Leste to meet its obligations under the United Nations Convention for the Rights of People with Disability and supporting Australia's commitments to support the rights of people with disability in our region.								
	National Interest Test Statement								
	International donors provide extensive support to the Timor-Leste government to help it meet its obligations under the United Nations Convention on the Rights of Persons with Disability, which it ratified in 2023. Australia is the largest international donor to Timor-Leste, where it dominates support for disability programming, and gender and disability are identified as cross-cutting issues in every Australian-funded aid project. Yet, people with disability in Timor-Leste continue to experience blatant discrimination in all aspects of their lives. When it comes to employment, the government and international donors alike promote income-generation through micro-enterprise, an approach that requires people with disability to secure their own economic future and absolves employers and government of the responsibility to create inclusive workplaces. The project team, which includes Australia's Union Aid Abroad-APHEDA and leading Disabled People's Organisations in Timor-Leste, will identify pathways for people with disability to jobs that provide security, a safe workplace, sick leave and other benefits. The Partner Organisations will then lobby and support government and employers to establish more inclusive workplaces. Since hiring people with disability has demonstrated benefits for employers, the proposed project will encourage better business practices in Timor-Leste. These activities will also help Australia meet its international policy and human rights objectives.								
LP240100339	Young people and chronicity: Growing up well in precarious times	35,100.50	70,135.00	69,606.50	34,572.00	0.00	0.00	209,414.00	EPILEPSY ACTION AUSTRALIA, ASTHMA AUSTRALIA LTD
Lewis, Dr Sophie	The cost-of-living crisis and surging healthcare costs have had a disproportionately damaging effect on young people. This impact has been especially pronounced for the one in three young Australians aged 15 to 24 with a chronic health condition. In partnership with Epilepsy Action Australia, Asthma Australia, and young people, this project will examine, from multiple perspectives, how young people and their families navigate the social, educational and financial aspects of growing up while living with a chronic condition. Findings will be used to co-develop publicly available resources to support young people, families and other key stakeholders such as educators, advocates and care providers.								
	National Interest Test Statement								
	Around one in three young Australians aged 15 to 24 live with a chronic health condition. Growing up with a chronic condition can be very challenging for these young people as they navigate towards adulthood. Compared to their peers, they experience increased social exclusion, mental health difficulties, housing stress, educational disruption, and unemployment. Yet to date, research has focused on improving how young people 'self-manage' their chronic conditions, leaving an important gap in understanding of the complex social dimensions of growing up with chronic ill-health. This project aims to explore what is important to these young people, including how to meaningfully respond to the various social, financial and interpersonal aspects of growing up with a chronic condition. For example, how young people navigate friendships, education, and employment while also managing their chronic condition. This project will be co-designed in collaboration with young people, their families and with Partner Organisations, Epilepsy Action Australia and Asthma Australia. Findings will be translated into a suite of co-created, publicly available educational and support resources for young people, families and other key stakeholders such as educators and care providers. In doing so, this project will address the unmet social support needs of young people with chronic conditions, and their families, provide resources for their teachers and health professionals, and contribute to policy.								
LP240100378	Real-time correlation of aerosol flow and surface deposition	66,909.50	138,981.50	147,180.00	75,108.00	0.00	0.00	428,179.00	PROVERIS SCIENTIFIC CORPORATION
Kourmatzis, A/Prof Agisilaos	This project aims to define how the dynamics of transient aerosols are linked to the growth and homogeneity of droplet or particle clusters developing on a target surface. The project expects to generate new knowledge in the fluid								

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	<p>mechanics of particle and droplet laden flows, as well as deliver a new platform technology for the real-time characterisation of turbulent aerosols. Expected outcomes of this project include a new imaging capability for industries that work with particulate systems, as well as a far more refined understanding of the drivers behind aerosol deposition. This should provide significant benefits in the design of aerosol systems as relevant to applications ranging from additive manufacturing, to coatings and Agritech.</p> <p>National Interest Test Statement</p> <p>Aerosol sprays are a central part of developing new Agritech, pharmaceutical, additive manufacturing, or coating technologies, all of which are a core part of Australia's critical industries. Despite the central importance of these industries, technology that is currently available for monitoring and controlling the delivery and effectiveness of aerosol coatings remains poor. These deficiencies can lead to issues ranging from unwanted spray drift in Agriculture, to poor targeting of aerosolised drugs in pharmaceuticals, or non-even spray coating of surfaces as relevant to solar panel manufacture. There is no commercial capability that can provide the necessary real-time monitoring of aerosol flow dynamics and aerosol targeting at the same time. Technology that can achieve this would unlock a critical capability for Australia as it would provide the much needed knowledge that would help define how a particular aerosol generation system is likely to behave for a particular application. The development of Australian IP in this space requires partnership with providers of Aerosol diagnostic instrumentation who have global reach. Proveris Scientific is world renowned for its technology development in this area and is an ideal partner. The investigators have a track record of success in developing joint IP with this partner and in conducting fundamental research with them, forming the ideal team to translate outcomes to benefit the Australian economy.</p>								
LP240100451	<p>Efficient Intelligent Omni-Surfaces for Enhancing Mine Wireless Coverage</p> <p>WiFi is the most commonly deployed wireless technology for underground mines. However, existing mines face significant limitations in wireless coverage due to the prohibitive costs associated with deploying numerous access points across vast and intricate tunnel networks. Our project aims to address this challenge by developing an innovative and cost-effective solution based on Intelligent Omni-Surfaces to seamlessly extend wireless coverage across vast underground mines. By significantly expanding wireless coverage, our project will revolutionise mine communications, paving the way for the digital transformation of mine operations. This advancement will enhance mining activities' productivity, efficiency, and operational safety.</p> <p>National Interest Test Statement</p> <p>Wireless communication is crucial for the safe and efficient operations of mines. However, current underground mine setups suffer from limited wireless coverage due to the high costs of deploying multiple access points throughout intricate mine tunnels. The project will address this challenge by developing a cost-effective, unpowered Intelligent Omni-Surfaces (IOS) system, enabling a rapid extension of WiFi coverage in underground mines. The project's success will facilitate seamless data transfer and real-time monitoring in previously unreachable areas. This technological leap will enhance productivity and operational safety in the mining sector and position Australia at the forefront of the digital economy transformation. By collaborating with our industry partner, we will translate our research outcomes into commercial products, empowering Australia to lead wireless technology innovations. Through retrofitting existing processes and developing further industrial innovations, this project will make Australia an early adopter and beneficiary of innovative wireless technologies.</p>	125,489.00	254,826.00	268,393.00	139,056.00	0.00	0.00	787,764.00	ROOBUCK PTY LTD
Li, Prof Yonghui									
	<p>The University of Sydney</p>	346,709.50	662,017.00	659,256.50	343,949.00	0.00	0.00	2,011,932.00	
University of Technology Sydney									
LP240100028	<p>A 3D Integrated Radar Terminal with Beamforming Metasurface Lens Antenna</p> <p>The project aims to develop a novel metasurface lens antenna-inspired radar sensing system, taking advantage of CIs' preliminary inventions in lens antennas, 3D printed antenna arrays, and microwave circuits. An aperture-</p>	103,687.00	192,500.50	178,773.00	89,959.50	0.00	0.00	564,920.00	FRONTIER INSTRUMENTS PTY LTD
Yang, A/Prof Yang									

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	<p>shared dual-polarised antenna architecture will enhance the sensing resolution of our partner organisation's cleaning robot. The applied sensing system can recognise human presence and movement in all-weather conditions for safe disinfection in public sectors, such as hospitals, shopping malls and public transport systems. The project outcomes will advance the knowledge in microwave antennas and wireless sensing and increase international recognition for Australian researchers and businesses.</p> <p>National Interest Test Statement</p> <p>Autonomous disinfection robots can efficiently sanitise public places with high volumes of foot traffic, keeping the public safe from the spread of viruses such as COVID-19. This project will develop radar sensors that are integrated into the disinfection robot of our industry partner. These sensors will enable the robots to operate more efficiently and in more complex environments than existing technology. These smart sensing and smart city technologies will enable the cleaning crews to be deployed to perform other sanitation tasks as well as making public spaces safer. The intended research outcomes contribute to two National Science and Research Priority areas: in Health by addressing the prevention of emerging local and regional health threats, and in Transport and Advanced Manufacturing in the niche area of autonomous vehicles in sensor technology with real-time data analysis for disease prevention. Working with our industry partner and our established industry networks, we'll ensure that the outcomes of the project are made available and can be adopted beyond academia in the future.</p>								
LP240100414	Neuro-AI for Personalised Image Generation	60,126.50	118,091.50	118,068.50	60,103.50	0.00	0.00	356,390.00	POSITIVE PRIME TECHNOLOGY PTY LTD
Singh, Dr Avinash K	<p>This project aims to develop an AI model integrating neuro features from human affective states to generate emotion-eliciting images and incorporate them into machine learning models. Expected outcomes include new knowledge on human affective states evoked due to image properties and new models and algorithms. This research is a significant step towards creating a personalised and effective approach to the generation of images that can positively affect human emotions, with potential benefits in training and education, while advancing scientific knowledge about the relationship of image features and cognitive processes and machine learning.</p> <p>National Interest Test Statement</p> <p>Artificial Intelligence (AI) image generation has experienced an exponential boom recently. However, while its use is increasingly prevalent, limitations still exist. This project proposes a significant advancement to address the capacity of existing models to elicit emotions successfully. This project incorporates a novel approach using brain signals and feedback to show how humans respond emotionally to images, with the aim to develop a new AI model that could positively influence human cognition, mood, behaviour and performance. This advancement has applications for technology in various industries including education, training, advertising, entertainment and mental health. The development of this new technology would contribute to Australia's position in AI research and innovation, an area of increasing national importance. The knowledge, methods and algorithms developed in the project offer commercialisation opportunities for innovative Australian companies, and broader social benefits. The project, in its current stage, is a collaboration between a university-based team focused on AI and an Australian company that currently provides a tool that uses curated visual content to invoke positivity among users. They have more than 40,000 subscribers globally, indicating significant potential for further product development opportunities.</p>								
	University of Technology Sydney	163,813.50	310,592.00	296,841.50	150,063.00	0.00	0.00	921,310.00	
University of Wollongong									
LP240100523	Blockchain Based Quantum Safe for Secure Digital Medical Passport	66,500.00	143,083.00	158,666.00	82,083.00	0.00	0.00	450,332.00	SAMPLE ASSIST PTY LTD, VIMY SERVICES LLC
LE, Dr John	<p>The project aims to revolutionise healthcare data management by developing a secure digital medical passport system, leveraging blockchain and post-quantum cryptography to ensure tamper-proof record-keeping, data integrity, and resistance against emerging threats. This innovative solution saves time and costs for the parties involved. Expected outcomes include widespread adoption of blockchain and quantum-safe technologies in Australia, positioning the nation as a leader in secure healthcare data management and</p>								

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(Columns 1 and 2) (Column 3)									
	fostering sustainable practices. Furthermore, the project enhances Australia's blockchain and quantum-safe technology research capability, directly benefiting the nation.								
	National Interest Test Statement								
	The project aims to modernise healthcare data management through a secure digital medical passport system, utilising blockchain and post-quantum cryptography for tamper-proof records with enhanced data security. This initiative benefits Australians by safeguarding personal health data and reducing data breach risks. Additionally, the widespread adoption of these technologies positions Australia as a global leader in healthcare data management, driving innovation and economic growth. Our research enhances healthcare security against data breaches and cyberattacks economically. Socially, it bolsters online privacy and trust in digital health services, while environmentally, it contributes to sustainability and a greener economy. Commercially, it empowers Australian firms to lead in applied quantum blockchain for healthcare sector security, aligning with the \$2.4 billion cybersecurity strategy budget in 2022. To ensure effective dissemination of research outcomes, we will collaborate with industry partners to facilitate widespread understanding, translation, and research application. This project aligns with national interests by reinforcing Australia's healthcare cybersecurity, driving economic growth, enhancing social well-being, and fostering digital innovation.								
	University of Wollongong	66,500.00	143,083.00	158,666.00	82,083.00	0.00	0.00	450,332.00	
Western Sydney University									
LP240100433	Engaging Digital Objects	45,641.00	151,113.50	207,450.00	132,464.50	30,487.00	0.00	567,156.00	MUSEUM OF APPLIED ARTS AND SCIENCES
Quek, Dr Genevieve L	This project aims to improve digital accessibility of the Powerhouse Museum's collection using gamified online data collection and neurocomputational analysis methods. Our interdisciplinary approach will model how public users intuitively categorise objects in the online collection, enhancing the Powerhouse database with novel, user-relevant terms that improve search performance and enhance connectivity between objects. Outcomes include a more engaging online experience that benefits diverse audiences by enabling both visual and text-based exploration. Enhancing Powerhouse's capacity to inspire audiences will contribute to an energised national science system essential for Australian wellbeing and the growth of a STEM-skilled workforce.								
	National Interest Test Statement								
	As the Powerhouse Museum establishes new roots in the rapidly growing and culturally diverse city of Parramatta, improving the online accessibility of the nation's largest and most significant collection of science, technology, and design ingenuity for the broader Australian community is the next challenge on the horizon. In partnership with Powerhouse, this project will work directly with the public in a series of online studies to reveal how non-specialist audiences intuitively perceive and understand objects in the Powerhouse collection. Findings will enrich the museum's database with new, user-relevant terminology to enhance online search and enable a more intuitive, visual exploration of the collection that benefits diverse viewers. Empowering the museum's mission to expand digital access to its valuable collection of cultural heritage is expected to particularly benefit those less able to visit physical Powerhouse premises (e.g., regional communities), invigorate economic potential in a new era of digital cultural experiences, and increase the museum's capacity to inspire curiosity about science and related fields in a new generation of thinkers and innovators prepared to tackle the challenges of tomorrow.								
LP240100448	Child-centred evidence to drive meaningful social change for children	113,533.50	160,478.00	158,625.50	170,429.00	58,748.00	0.00	661,814.00	UNICEF AUSTRALIA, CHILD FUND AUSTRALIA, SAVE THE CHILDREN AUSTRALIA, SNAICC - NATIONAL VOICE FOR OUR CHILDREN (ABORIGINAL AND TORRES STRAIT ISLANDER CORPORATION)
Third, Prof Amanda J	Robust, child-centred evidence is needed to drive targeted policy and prompt action for children in Australia and the Pacific. A unique collaboration between ChildFund, Plan International Australia, Save the Children, UNICEF Australia, SNAICC, and child rights research leaders from 5 universities, this project will generate a toolkit to engage children in generating evidence about child rights issues (e.g. child-centred indicators; child storytelling tools), new data sets, and a sustainable implementation model. Toolkit adoption will drive increased civil society coordination and evidence-based policy and services. Key benefits will accrue to children, children's services, and child welfare								

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(Columns 1 and 2) (Column 3)									
organisations nationally and across the region.									
National Interest Test Statement									
This project will conduct research with children in Australia and the Pacific, to generate much-needed new data sets and tools to guide urgent systemic change to realise children’s rights. The project will develop a child-centred, child rights data generation toolkit, data observatory, research translation guidance and industry training to empower child rights organisations to engage children in generating necessary evidence about their rights. Leading child rights organisations are committed to adopting this research, its outputs and capacity building program, which promise to strengthen sector collaboration, to minimise duplication, to maximise resources, and to drive child-centred, evidence-based systems strengthening targeting child rights. Promoting the Toolkit and training through partners’ networks will produce a stronger, more efficient civil society sector, yielding better outcomes for Australian children and reducing pressure on government services. Engaging children on issues of concern to them promises to build their trust in Australian democratic process. Evidence generated with children will support the Australian Government to address its priorities of health, food, environmental change and cybersecurity, as Government shifts to wellbeing-oriented policy and budgeting processes. Supporting Pacific nations to channel children’s perspectives into systemic change initiatives will ensure Australian Government investment in Pacific children genuinely impacts them.									
Western Sydney University		159,174.50	311,591.50	366,075.50	302,893.50	89,235.00	0.00	1,228,970.00	
New South Wales		1,201,021.50	2,399,523.50	2,457,787.50	1,449,712.50	286,947.00	96,520.00	7,891,512.00	

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Queensland									
Central Queensland University									
LP240100228	Unlocking the potential of optimised crop height	131,526.50	259,391.50	257,237.50	129,372.50	0.00	0.00	777,528.00	BAYER RESEARCH AND DEVELOPMENT SERVICES LLC
Brewer, Prof Philip B	This project aims to understand how crop hormone pathways intersect to regulate plant height. The project expects to use newly developed technologies and genetic resources to discover genes and regulatory elements that control crop height, tiller number and yield in sorghum and maize, to improve protection from storm damage and lodging, and reduce dwarfing side effects. Expected outputs include enhanced understanding of growth responses that determine crop height, and analysis of crop varieties to help breeders develop cultivars that are more resilient to climate extremes. This should provide significant benefits to agricultural productivity and help train and educate future researchers of agri-tech industries in regional Australia.								
	National Interest Test Statement								
	Wind damage to crops such sorghum and corn is increasing due to climate change, resulting in major grain losses. The ability of plants to resist damage (such as toppling over) during these adverse events is known as 'lodging resistance'. Lodging resistance is significantly greater in crop plants that have semi-dwarfing genetics. However, semi-dwarf varieties often have other detrimental side effects, due to plant hormone deficiencies. This project seeks to uncover new ways to improve lodging resistance in corn and sorghum by optimising plant height while avoiding plant hormone side effects. Our partner organisation, Bayer, has developed new short-stature varieties in North America, but they are transgenic (i.e. genetically modified) and not commercially viable for world-wide sales. Bayer has partnered with us to gain the new knowledge and genetics that is needed to develop non-genetically modified, short-stature corn and sorghum. This initiative will boost agricultural output (aligning with the National Science & Research Priority of Food and the National Farmers Federation's ambition to increase annual agricultural productivity to \$100B by 2030). Information and beneficial genetics will be released through the breeding pipelines of our industry partners. Resultant crop varieties will save growers millions of dollars in storm damage, and improve farming income reliability and social stability.								
	Central Queensland University	131,526.50	259,391.50	257,237.50	129,372.50	0.00	0.00	777,528.00	
Griffith University									
LP240100066	Addressing the Gender Knowledge Gap in Disability Sport Participation	42,973.50	135,472.50	166,800.00	74,301.00	0.00	0.00	419,547.00	AUSTRALIAN SPORTS COMMISSION - AIS, AUSTRALIAN SPORTING ALLIANCE FOR PEOPLE WITH A DISABILITY LIMITED, TENNIS AUSTRALIA, WATER POLO AUSTRALIA LTD., GOLD COAST CITY COUNCIL, SPORTING WHEELIES & DISABLED SPORT & RECREATION ASSN OF QLD INC, ABLE DIGITAL WELLNESS PTY LTD
Fullagar, Prof Simone P	This project aims to close the persistent 'gender gap' in Australian disability sport participation to improve opportunities and benefits for over two million women, girls and nonbinary people. Women with disability experience considerably lower rates of physical activity and sport participation with greater psychological distress, compared with nondisabled women and men with disability. Informed by a feminist methodology and disability-led design thinking the project draws on the lived experience of end users to improve the capacity of sport organisations to effect change. Individuals and sport organisations will benefit from the co-creation of policy and practice resources for gender and disability inclusion.								

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	Over two million Australian women, girls and nonbinary people live with disability yet they continue to experience inequity and exclusion from the benefits of community sport involvement (health/mental health, social and economic). Limited national data highlights the problem of lower rates of physical activity and sport participation and greater psychological distress for women with disability in general, compared to both nondisabled women, and men with disability. This project will identify the factors contributing to the persistent 'gender gap' in disability sport and physical activity by collaborating with self-identifying women/girls, nonbinary people and leading sport organisations to improve policy implementation approaches. Bringing a unique gender lens to improving disability sport participation, the project contributes to national policy priorities focused on health, emotional wellbeing and social inclusion benefits. Collaborating with the Australian Sports Commission, Australian Sporting Alliance for People with a Disability, Gold Coast City Council, Sporting Wheelies, Tennis Australia, Water Polo Australia and Able Digital Wellness and co-researchers with lived experience, the project will co-create new resources, such as, best practice guidelines, digital stories and visual media, volunteer training and coach education, to increase capacity across the sport and disability sectors.								
LP240100130	Building integrity into the Nature Positive promise	123,367.00	245,367.00	245,500.00	242,000.00	118,500.00	0.00	974,734.00	WORLD WIDE FUND FOR NATURE AUSTRALIA, AUSTRALIAN AGRICULTURAL COMPANY LIMITED, ACCOUNTING FOR NATURE LIMITED, BUSH HERITAGE AUSTRALIA
Ward, Dr Michelle	Rampant deforestation, spreading invasive species, and climate change is causing mass biodiversity loss. This natural crisis poses a threat to human and planetary health. Many nations, including Australia, committed to the Global Goal for Nature, aiming for nature positive status by 2030. However, stakeholders including government and businesses lack clarity on how to achieve this goal. This project, a world-first in its comprehensive approach, aims to understand the state in which nature was in, as well as the trend of nature's health over time. The outcomes include a framework for how nature can be measured and a decision-making tool to identify actions, as well as demonstrate progress towards nature positive success.								
	National Interest Test Statement								
	In response to decades of biodiversity decline, Australia has embarked on a pioneering journey, committing to a nature-positive future, bolstered by private sector investments. Addressing the urgent need for a robust mechanism to track progress and evaluate action efficacy, this project introduces a revolutionary suite of tools and frameworks for nature assessment. Traditional methods, focusing mainly on vegetation and specific threatened species, fall short of providing a comprehensive nature health baseline. Aiming to establish a nationally consistent nature positive index, along with conservation actions required to become nature positive, this initiative represents a world-first in its scope and potential for global adaptation. Through partnerships and extensive networks, the developed baseline and actionable strategies will be applied to monitor biodiversity progress within both governmental and private sectors. We will translate results to policy makers and practitioners using established links with government, the NGO sector, and the agricultural sector using an online tool, online workshops, factsheets, and reports. We also plan to publish our research in major interdisciplinary peer-reviewed journals, partner reports, and speak at national and international conferences.								
LP240100141	Addressing reproductive violence in migrant and refugee communities	70,868.50	168,369.50	209,777.00	112,276.00	0.00	0.00	561,291.00	MULTICULTURAL CENTRE FOR WOMEN'S HEALTH INC, CHILDREN BY CHOICE ASSOCIATION INCORPORATED, MSI REPRODUCTIVE CHOICES, MIGRANT WOMENS EMERGENCY SUPPORT SERVICE INC, THE FAMILY PLANNING ASSOCIATION OF WESTERN AUSTRALIA (INC)
Sheeran, Dr Nicola J	This project aims to address a critical gap in knowledge about migrant women's experience of a serious form of family violence: reproductive coercion and abuse. Through a mixed methods design this project expects to advance understanding and identify opportunities to increase the safety of survivors. Expected outcomes include a new conceptual model, co-designed, culturally responsive resources for communities and health professionals, and recommendations for legislative and policy change. The results should benefit migrant communities, legal and health professionals working with migrant communities, and policy makers through improved conceptual knowledge, suggestions for legal reform, and evidence-based resources for workforce training.								
	National Interest Test Statement								
	Family violence is recognised as an issue of national importance due to the significant negative effects it has on health and well-being. Reproductive coercion and abuse is an understudied form of family violence that causes significant harm. There is little knowledge or data available about the experiences of reproductive abuse in the community and there is a critical gap in knowledge regarding migrant and refugee communities. Because of this lack of knowledge and data we cannot appropriately shape policies and practices in health and law. Upcoming reforms in reproductive healthcare, such as universal access to abortion, could create additional risk for migrant and refugee communities if our evidence base and laws are not advanced and inclusive. This project will provide world first knowledge to extend our conceptual understanding of reproductive abuse, allowing us to make recommendations for legislative change to support appropriate policing and justice responses, and develop community led, culturally responsive resources for health professionals and migrant and refugee communities,								

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	ensuring Australia upholds its responsibilities to keep migrants safe and that they can access their human rights.								
LP240100198 Leusch, Prof Frederic D	Mitigating disinfection by-products - are we creating more toxic chemicals? Disinfection is an essential barrier to pathogenic microorganisms in drinking water. However, disinfectants such as chlorine can react with natural precursors in water to produce toxic disinfection by-products (DBPs). This presents a complex challenge for water utilities as some mitigation strategies can unintentionally produce more toxic DBPs. This project aims to refine water treatment strategies to minimise formation of toxic DBPs in drinking water. The project will combine advanced chemical and bioassay methods to evaluate DBP formation and toxicity. The outcomes will enable water utilities to identify treatment processes to reduce DBP formation and toxicity, thus ensuring ongoing provision of safe drinking water for all Australians.	74,999.50	218,327.00	253,298.50	238,252.00	128,281.00	0.00	913,158.00	SEQWATER, SOUTH AUSTRALIAN WATER CORPORATION, SYDNEY WATER CORPORATION, CITY OF GOLD COAST, WATER RESEARCH AUSTRALIA LIMITED
	National Interest Test Statement Disinfection of drinking water is a cornerstone of public health, ensuring that it is safe from disease-causing pathogens. However, disinfectants such as chlorine can react with precursors naturally present in water and create toxic disinfection by-products (DBPs), which can have serious adverse health outcomes including cancer. Most problematic is the fact that mitigation strategies can unintentionally lead to the formation of even more toxic DBPs. Water utilities in Australia are actively seeking solutions to this complex problem. This project aims to apply a new approach to this challenge, bringing together leading researchers and key industry partners to exploit recent scientific advances in the field. The project will use both chemical and novel toxicity testing methods to develop clear guidance on which treatment strategies best reduce the collective toxicity of DBPs in drinking water. This will benefit water utilities by developing new treatment strategies to protect water quality and will deliver important health and societal benefits for the Australian public by ensuring the ongoing safety of drinking water. Through partnering with key Australian water utilities and peak bodies, the outcomes of this project are expected to be directly adopted by industry. The new knowledge developed will be available for wider adoption through industry factsheets, guidelines, and scientific publications, further benefiting water utilities and health regulators worldwide.								
LP240100224 Chang, Prof Elizabeth J	Conjoint Network and Host Intrusion Detection The proposal aims to develop a novel methodology for Intrusion Detection to advance cyber situational awareness and protection by addressing the Integrated Network and Host conjointly with stratified contextual information reasoning for anomaly detection and data fusion from multiple data sources at different levels of abstraction. This extends the capability to detect sophisticated attacks like the lateral movement attack from Host to Host exemplified by the Medibank attack. Expected outcomes include new techniques and tools to minimize the number of false alarms, reduce the human effort to find intrusions, and enhance the ability to capture unknown attacks. The outcome will benefit government, industry, and consumers.	93,064.50	185,281.50	185,540.00	93,323.00	0.00	0.00	557,209.00	BLUEBRICKS PTY LTD, TOHU PTY LTD, UNIVERSITY OF MILANO-BICOCCA
	National Interest Test Statement Recent cyber-attacks in Australia such as on OPTUS, the Australian Parliament, Community Clubs, and Medibank, emphasize the need for improved cyber-security techniques and tools. This project aims to develop Intrusion Detection Systems that address Integrated Network and Host systems conjointly rather than separately as they have in the past. The use of a context-based approach and data fusion will reduce the number of false positive intrusion alarms and provide semantics for human IT analysts to validate the alarms correspond to real threats and intrusions. These innovations will provide protection for Australia's IT systems and data against a much broader class of future sophisticated attacks. The expertise developed will be essential to Australia's competitiveness which is currently lacking in academia, government, and industry, both in high-tech methods, techniques, and tools as well as highly qualified human resources. This is not the case in USA, China, Russia, Israel, and North Europe. Therefore, the development of cyber-security professionals and cutting-edge cyber-defense technologies for intrusion detection will address the severe dearth of capable cyber-security experts in Australia for both the public and private sectors. The universities and the industry partners will protect IP and promote the outcomes through industry networks, engineering societies, and other technical professional bodies to help disseminate the knowledge to the general public.								
LP240100388 Gunalan, Dr	Innovations to Enhance Sustainability and Resilience in Building Façades This project aims to foster innovations to enhance sustainability and	39,341.00	83,182.00	72,169.00	28,328.00	0.00	0.00	223,020.00	G JAMES GLASS & ALUMINIUM PTY. LTD.

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Shanmuganathan	resilience in building façades. The project proposes to develop a novel composite façade frame using aluminium and timber through detailed experimental and advanced numerical studies. The proposed frame will be energy efficient, cost effective, durable, sustainable, and aesthetically pleasing while having the coupling mechanism for effective installation in curtain wall and window wall applications. Suitable design rules and detailing guidelines will also be developed for safe and economical design of these new façade frames. This should provide significant benefits to façade industry by mitigating environmental impacts and striving towards carbon neutrality.								
National Interest Test Statement									
The project addresses a critical research gap in Australia by focusing on the development of novel facade systems that improve sustainability and resilience in the built environment. By integrating advanced materials and design strategies, the project seeks to address the growing demand for environmentally friendly and resilient building solutions, filling a gap in current building practices that often prioritize aesthetics over sustainability and resilience. The research outcomes have the potential to benefit Australians across various dimensions. Economically, the development and commercialization of innovative facade systems can stimulate growth in the facade and timber industries, creating job opportunities and enhancing competitiveness in global markets. Socially, sustainable and resilient buildings contribute to healthier and more liveable communities, improving quality of life for building occupants. Environmentally, the project's focus on energy efficiency and carbon neutrality helps mitigate climate change and reduce environmental impacts associated with building construction and operation. Commercially, the adoption of sustainable facade systems can enhance Australia's reputation as a leader in sustainable construction. Dissemination strategies will include engaging with industry stakeholders through workshops, conferences, and industry publications, and collaborating with government agencies to incorporate research findings into building codes and regulations.									
	Griffith University	444,614.00	1,035,999.50	1,133,084.50	788,480.00	246,781.00	0.00	3,648,959.00	
Queensland University of Technology									
LP240100200	Advancing Digital Innovation in the Australian Live Performance Sector	39,415.00	96,139.50	101,509.50	44,785.00	0.00	0.00	281,849.00	SYDNEY THEATRE COMPANY LTD, SYDNEY DANCE COMPANY, BLACK SWAN STATE THEATRE COMPANY LTD, QUEENSLAND PERFORMING ARTS TRUST, GEELONG PERFORMING ARTS CENTRE TRUST, LUCY GUERIN ASSOCIATION INC, PERFORMING ARTS CONNECTIONS AUSTRALIA, METRO ARTS, NORTHERN RIVERS PERFORMING ARTS CENTRE
Gibbs, Dr Elizabeth C	This project will advance digital adoption and best practice (such as live stream, AR/VR, AI) for the benefit of the live performance sector. Post COVID-19, there is an urgent need to grow audiences, to reach diverse and remote communities and broaden the impact of the proven benefit of arts and culture to well-being. In partnership with nine of Australia's leading performing arts institutions, the research will establish a picture of current digital performance and co-design exemplars for practice, policy settings and scholarship. Through a qualitative, multi-method approach the research will generate resources for industry, case studies, policy reports for Creative Australia, scholarly and media articles and convene two signature events.								
National Interest Test Statement									
According to the Australian Census, cultural and creative sectors contributed \$112.7B to the Australian economy or 6.4% of GDP (A New Approach, 2022). The live performing arts sector is a substantial part of this economy, with 24 million attendances in 2022. This project advances the capacity of arts and cultural organisations to engage, develop and improve practices in digital making, content and distribution, providing considerable benefit to all Australians by extending the reach and inclusiveness of the current substantial public investment in the live performance sector. Doing so expands audiences and broadens proven impact on well-being (Creative Australia, 2023) for audiences who have historically experienced accessibility obstacles to engaging with live performances, including regional Australians and those with disabilities. The project also helps to future-proof the Australian cultural sector, addressing the negative impact on Australian audiences post COVID-19, ensuring the live performance sector has capacity to respond to future digital disruption and unexpected global impacts, creating content									

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LP240100202	<p>for future generations who have a stronger interest in engaging through the digital. Research outcomes have direct sector impact beyond academia through outputs (frameworks and industry-informed best practice models). Research dissemination is directly translated for industry access via their national peak body to use, adopt and apply into the future.</p> <p>Low-Cost Carbon Materials from Agricultural Biomass for Battery Anodes</p> <p>Agricultural biomass is an abundant, renewable, low-cost carbon source for producing sustainable products. This project aims to convert renewable agricultural biomass into sustainable low-cost carbon materials for high performance sodium ion battery applications. It will generate new knowledge and low-cost innovative approaches for large-scale synthesis of carbon materials from agricultural biomass. Expected outcomes include advanced multi-product biorefinery and manufacturing technologies and enhanced capacity for research collaborations. These outcomes will accelerate the development of a new, low-carbon manufacturing industry for producing sustainable chemicals and carbon materials from agricultural biomass in regional Australia.</p> <p>National Interest Test Statement</p> <p>Establishing a new thriving manufacturing sector in Australia through the utilisation of low-value agricultural biomass, such as sugarcane fibres and rice husks, has the potential to significantly bolster income in regional Australia. This project seeks to harness agricultural biomass to produce sugars for sustainable building block chemicals and synthesise high-performance carbon materials for low-cost sodium ion battery applications. By developing multi-product biorefinery technologies and advanced carbon synthesis approaches, the project aims to unlock the full value of agricultural biomass, fostering the growth of a sustainable, low-carbon manufacturing landscape in Australia. This new manufacturing sector will not only create jobs and increase income in regional Australia, but also enhance supply chain resilience. In addition, the development of a sustainable manufacturing industry based on the utilisation of renewable agricultural biomass will make a substantial contribution to Australia's goal of achieving net-zero emissions.</p>	75,865.00	154,730.00	162,230.00	83,365.00	0.00	0.00	476,190.00	UPALA PTY LTD
Zhang, A/Prof Zhanying									
LP240100406	<p>Real-time control of the localized body temperature, along with efficient and effective first aid, can alleviate discomfort and enhance productivity in industries. The project aims to develop a lightweight, energy-efficient, and durable wearable smart fabric for localized and controllable heating or cooling with ultra-low power input, catering to individual needs in sectors like construction and mining. By integrating device design and materials engineering strategies, the goal is to achieve rapid, precise, and controllable thermal regulation for specific body area for alleviating the hurt and damage. The expected outcomes will bring healthy and wealthy benefits for Australian industry.</p> <p>Weavable thermoelectric textile for body heat management</p> <p>National Interest Test Statement</p> <p>To overcome bulky, energy-intensive heating and cooling systems with poor wearability, the project aims to develop an innovative woven thermal management system using advanced functional materials. Eco-friendly, woven thermoelectric fabrics will integrate to provide smart localized heating or cooling with ultra-low power input for personal thermal regulation, significantly reducing energy consumption and combating global warming. Such groundbreaking technology and innovation will advance scientific insights, enhancing Australia's international prominence and influence in smart cooling technology. The developed technology applicable across industries for personal cooling management promises new job opportunities and economic, commercial, and environmental benefits for Australia.</p>	97,950.00	194,275.00	197,325.00	101,000.00	0.00	0.00	590,550.00	WOOLTECH GROUP PTY LTD
Chen, Prof Zhi-Gang									
LP240100544	<p>This project aims to develop an experimental and computational platform to simulate the dynamic interaction between blood flow and heart valves. This project will significantly improve our understanding of the fundamental mechanisms governing heart valve function. Therefore, the outcome of this</p> <p>Advanced Heart Simulator: Unveiling the Fluid Dynamics of Heart Valves</p>	61,987.50	98,846.50	68,828.00	31,969.00	0.00	0.00	261,631.00	TAVR AI PTY LTD
Li, Prof Zhi-Yong									

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	project is an state-of-the-art heart simulator, a critical tool for assessing and refining innovative heart valve designs, characterising how they perform under realistic physiological conditions. The deep understanding and robust experimental capability delivered by this platform are essential to the future development of safer, more effective prosthetic heart valves in Australia, thus improving the lives of patients with heart valve disease.								
	<p>National Interest Test Statement</p> <p>This project aims to develop a novel human heart simulator for testing and characterising safer, more effective prosthetic heart valves. The current absence of heart valve-specific experimental infrastructure in Australia makes it difficult for researchers to capture the fundamental understandings and data required to improve the state of the art for these complex, fault-intolerant devices. The proposed heart simulator will enable the design and validation of novel prosthetic heart valves in Australia. This time-consuming and expensive development process is often undertaken overseas, stifling innovation and sending profits and skilled workers offshore. This project will fill a critical local capability gap at a time when Australian cardiovascular engineering is generating headlines worldwide. Future improved heart valve designs enabled by this project will reduce the growing economic burden of repeat surgeries on the health system and improve the lives of patients. To maximize the impact of this platform and ensure its relevance to medical device innovators, industry partners beyond academia will be intrinsically involved in its development. The broader community will be educated and informed about the benefits of this research through media outreach, public seminars and digital platforms. This promotion of local, cutting-edge medical device development capabilities will boost adoption and accelerate the translation of novel ideas to functional medical devices.</p>								
	Queensland University of Technology	275,217.50	543,991.00	529,892.50	261,119.00	0.00	0.00	1,610,220.00	
The University of Queensland									
LP240100060	Combating pathogens from biofilms in premise plumbing systems	93,325.00	171,400.00	157,650.00	79,575.00	0.00	0.00	501,950.00	QUEENSLAND HEALTH, MGI AUSTRALIA PTY LTD, CETEC PTY. LTD., METRO NORTH HOSPITAL AND HEALTH SERVICE
Guo, Prof Jianhua	Health care facilities can be susceptible localities for disease outbreaks from harmful pathogens, where the problem source is attributed to biofilms persistent in the premise plumbing. These pathogens, such as Legionella, cause significant disease with high mortality rates (up to 50%) and high hospital inpatient costs, estimated at \$600 million AUD/year in the US alone. The project aims to improve the understanding of harmful pathogens in biofilms persistent in plumbing systems and to develop efficient water treatments that reduce their incidence in the biofilms. The project will bring significant environmental and economic benefits to Australia by removing potentially harmful reservoirs of pathogens from in situ water supplies.								
	<p>National Interest Test Statement</p> <p>Opportunistic pathogens persistent in biofilms in plumbing systems can cause disease in susceptible patients. By developing an advanced and innovative water technology that abates pathogens in plumbing systems, this project aims to lessen the risk of infectious disease transmission from premise plumbing systems and drinking water distribution systems. The improved technology would be applicable to premise types other than health care facilities, e.g. large premises such as apartment buildings. The technology may create a competitive edge for the Australian plumbing industry by dramatically reducing costs of expensive and repetitive treatments and be a suitable export for international application.</p>								
LP240100243	Unleashing the biocontrol potential of venom peptides with cyclotides	148,914.00	297,828.00	297,828.00	148,914.00	0.00	0.00	893,484.00	SYNGENTA CROP PROTECTION
Craik, Prof David J	The project aims to revolutionize protein-based bioinsecticide development by harnessing the power of animal toxins and engineered plant cyclotides. This innovative approach promises to increase potency and production yield while offering a sustainable and environmentally friendly solution to pest control. By developing recombinant production methods and optimizing cyclotides for performance using high-throughput microfluidics, the project seeks to design novel protein-based bioinsecticides with diverse modes of action and selectivity. The expected outcomes include the creation of biopesticides that are effective, industrially applicable, and environmentally								

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(Columns 1 and 2)	(Column 3)								
	sustainable.								
	National Interest Test Statement								
	Australia is a major agricultural producer and exporter, with over 300,000 jobs directly in agriculture and 1.6 million additional jobs if accounting for the complete agriculture supply chain. In 2023, the agriculture sector represents 5% of the GDP and a gross value of \$80 billion, more than 2/3 of which is from export. Given its importance to the economy, a strong agricultural sector benefits not only producers but wider society. This project will result in a new eco-friendly insecticide technology, which will support the growth and sustainability of the Australian agricultural industry and, at the same time, will be safer for the environment, farmers and the Australian population at large. Our technology is based on peptides that have an excellent safety profile for human use and degrade in the environment into their constitutive amino acids, which are the simple building blocks of life. The environment is an important source of revenue for Australia, with the tourism industry worth 2.5% of the GDP and is also important for the well-being and way of life of the Australian population.								
LP240100343	Chemical and mechanical modification of starch-based packaging materials	123,900.00	256,565.00	270,165.00	137,500.00	0.00	0.00	788,130.00	INTERTAPE POLYMER GROUP
Whittaker, Prof Andrew K	Starch, an abundant and biodegradable polymer, is an attractive alternative to petroleum-based plastics in many applications, including packaging adhesives. However, the complex nature of starch and tendency to degrade during processing pose significant challenges to developing advanced adhesives. The goal is to gain a deep understanding of how starch changes during processing at a molecular level, and how additives influence these changes. The project will further study a novel processing method for starch, and its effect on starch structure, which remains unexplored. This project has potential to generate valuable IP, produce new environmentally sustainable materials, and contribute to the growth of bioplastics industries in Australia.								
	National Interest Test Statement								
	The increasing amount of plastic waste and our challenges in establishing effective plastic recycling industries have made it urgent to develop sustainable and biodegradable plastic materials. Packaging plastics contribute significantly to this waste, with for example Intertape Polymer Group (IPG), a leading global adhesives company, producing over 23,000 tonnes of adhesive tapes annually. In response to these environmental challenges, this project aims to generate knowledge that will assist IPG and the packaging industry more broadly to transition to starch-based adhesives. Starch is fully biodegradable, however, processing starch presents challenges that require innovation solutions. Our project aims to develop a detailed understanding of starch properties to enable effective and energy-efficient processing of new starch adhesive materials with improved properties. This work aims to benefit both IPG and, through intellectual property agreements, the growing number of bioplastics industries in Australia. It is anticipated that this project will ultimately lead to significant environmental benefits through elimination of non-degradable/non-compostable plastic waste. Importantly, the project will train the next generation of researchers to support Australia’s national transition to sustainable materials.								
LP240100511	Sustainable scaled-up production of high-quality nanosheets	121,000.00	242,000.00	233,500.00	112,500.00	0.00	0.00	709,000.00	GRAPHENEX PTY LTD
Zhang, Prof Xiwang	This project aims to expand a sustainable mechanical exfoliation method for producing high-quality two-dimensional (2D) nanosheets to a ton-scale annual output. It integrates membrane separation processes to recover raw materials, thereby minimising waste and achieving zero effluents. Expected outcomes include the scalable production of various high-quality 2D nanosheets and the development of assessment guidelines for their suitability in advanced applications. This initiative is designed to significantly enhance Australia’s capabilities in advanced manufacturing and materials technologies, delivering substantial economic benefits and promoting environmental sustainability through waste elimination.								
	National Interest Test Statement								
	Two-dimensional (2D) materials are pivotal for a variety of applications, including energy conversion, storage and semiconductor technologies, surpassing traditional materials in enhancing the performance of batteries, electronic devices, circuits, and microchips. Despite Australia’s rich reserves of necessary raw materials, the country lags in domestic production of these advanced materials, primarily due to existing manufacturing limitations like low product quality and significant environmental burdens. This project aims to scale up an innovative method for the mass production of high-quality low-dimensional materials to a ton-scale annually, effectively bridging a significant research gap in Australia’s advanced manufacturing sector. The new method incorporates membrane separation processes, enabling the recovery and reuse of raw materials, which not only minimizes environmental impact but also offers substantial economic benefits. The anticipated technological advancements from mass-producing high-quality nanosheets will position Australia as a leader in advanced manufacturing technologies for								

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	critical functional materials.								
		The University of Queensland	487,139.00	967,793.00	959,143.00	478,489.00	0.00	0.00	2,892,564.00
		Queensland	1,338,497.00	2,807,175.00	2,879,357.50	1,657,460.50	246,781.00	0.00	8,929,271.00

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South Australia										
Flinders University										
LP240100073	Improving ecosystem restoration under climate change	102,421.50	207,477.00	212,926.50	107,871.00	0.00	0.00	630,696.00	DEPARTMENT OF BIODIVERSITY CONSERVATION AND ATTRACTIONS, TRONOX MINING AUSTRALIA LIMITED, HANSON CONSTRUCTION MATERIALS PTY LTD, AUSTRALIAN GENOME RESEARCH FACILITY LIMITED	
Breed, A/Prof Martin F	Ecosystem restoration is a key nature-based solution for addressing the global challenges of the Anthropocene: biodiversity loss, climate change and human well-being. Restoring diverse native plant communities into highly disturbed areas following mining remains challenging. Our project's goal is to enhance our understanding of the synergies between native seed sourcing, climate change, degraded substrate conditions, and land-use legacy effects, all critical issues that impact successful restoration. Expected outcomes include restoration practitioner guidelines on seed sourcing and substrate manipulation for restored communities that are more resilient to changing climate and degraded substrates.									
National Interest Test Statement										
Australia's ecosystems are valuable assets, supporting our nation's biodiversity plus supplying important social, cultural and recreational benefits. However, vast areas of Australia's ecosystems have been severely degraded by human activities, especially those associated with mining, forestry, and agriculture. This degradation is further exacerbated by climate change. Efficient and effective restoration of these degraded ecosystems is thus highly important, however, a knowledge gap exists as to which seeds are most optimal for effective restoration plantings. This project will address major hurdles to effective restoration of extensively disturbed landscapes. We will achieve this by identifying suitable native seeds at a large scale, with consideration of plant performance relating to soil quality, water and nutrient availability, resilience to climate change, and seed sourcing practices. Our research will benefit Australians through improved ecosystem restoration, focussing primarily on improving mine closure practises and providing on-ground solutions to the economic, environmental, cultural and social threats associated with climate change and ecosystem degradation. We will engage directly with the restoration industry, land managers and the broader community to ensure rapid translation and adoption of research findings.										
LP240100242	Social prescribing: linking Australian social, health and community sectors	108,275.50	225,775.00	215,258.50	97,759.00	0.00	0.00	647,068.00	DEPARTMENT OF HUMAN SERVICES, ANGLICARE SA LTD., ADELAIDE PRIMARY HEALTH NETWORK LIMITED, CITY OF ONKAPARINGA, CORPORATION OF THE CITY OF MARION, SEMANTIC CONSULTING PTY LTD	
Bogomolova, Prof Svetlana	This project aims to co-design, implement and evaluate a novel evidence-based social prescribing model for Australia—a crucial referral pathway spanning the social, health and community sectors to tackle growing unmet social needs of those experiencing vulnerability. The team, including six Partners across the three sectors, will use an innovative living-lab approach to tackle Australia's highly fragmented services and funding models. Expected outcomes are a new social prescribing model and referral tools fit for the Australian context, to enable more efficient, effective and connected social, health and community services. Key benefits are enhanced support and wellbeing for the significant numbers of Australians experiencing disadvantage.									
National Interest Test Statement										
The increasing cost of living and other social challenges are having negative effects on the lives of many Australians. With support programs existing in silos and having poor system integration, people find it difficult to navigate and access services to tackle their complex social needs. Instead, people are visiting health professionals in ever-increasing numbers to address their social needs; but these professionals are ill-equipped to support this, leading to compassion fatigue and burnout. Our solution is to co-design, implement, and evaluate a new social prescribing model, creating an effective referral pathway spanning health, social services, and community sectors. The project will provide essential research-based evidence to advance the explicit aim of Australia's National Preventive Health Strategy to embed social prescribing in the health and social care systems by 2030. The medium- and long-term benefits will be decreased social need and enhanced well-being for the many Australians who live in disadvantage. Knowledge translation will begin during co-design by bringing together key stakeholders across siloed sectors. Translation of outcomes will be facilitated by Partners' leadership roles in primary care (Adelaide PHN), social care (Department of Human Services SA), and community (NGOs, local councils). Strong relationships with Australian social prescribing networks and the Deeble Institute for Health Policy will support national promotion of outcomes.										
Flinders University		210,697.00	433,252.00	428,185.00	205,630.00	0.00	0.00	1,277,764.00		

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(Columns 1 and 2)	(Column 3)								
The University of Adelaide									
LP240100413	Real-time detection of Asbestos in the field	105,365.00	228,386.50	232,543.00	109,521.50	0.00	0.00	675,816.00	LOUGHAN TECHNOLOGY GROUP PTY LIMITED, ASBESTOS AND SILICA SAFETY AND ERADICATION AGENCY, RIO TINTO EXPLORATION PTY LIMITED
Spooner, Prof Nigel A	This project will develop a new technique for reliable, real-time detection of Asbestos. Despite being banned for 30+ years asbestos remains an outstanding health issue, with no reliable method for identification without samples needing to be sent to a lab for analysis. Utilising new optics and fluorescence detection techniques along with machine-learning analysis, we will develop and validate a portable device that can be used to detect asbestos in real-world scenarios where it may be encountered, such as within homes, workplaces, customs inspections, material and mulch recycling centres and mining operations. This has the potential for significant public health and economic benefits through reduced exposure to hazardous asbestos dust.								
National Interest Test Statement									
Asbestos is a fibrous mineral widely used in building materials before a ban in Australia in 2003 due to severe health issues caused by inhalation of fibres. Real-time detection of asbestos in homes, construction, mining sites and border control is critical to protect the health and safety of both workers and the general public. Real-time identification of asbestos on-site is currently impossible: licensed professionals rely on time-consuming and expensive specialised laboratory testing, required under Work Health Safety legislation as existing hand-held devices using near infrared light fail Australian standards. In partnership with the Australian Government Asbestos and Silica Safety and Eradication Agency, Loughan Technology Group and Rio Tinto Exploration we propose a new fluorescence and machine learning based technique to identify asbestos and enable development of a next generation hand-held asbestos analyser. Social benefits are protection of public and employee health and wellbeing. The proposal aligns with the Asbestos National Strategic Plan to eliminate asbestos-related diseases, providing health, commercial and economic benefits by changing the way asbestos risk is managed. Outcomes will be promoted through professional journals and beyond academia to end-users by social and mainstream media outreach. Translation will be fuelled by engagement with potential end-users and government departments ensuring a user-friendly and fit for purpose device is developed.									
The University of Adelaide		105,365.00	228,386.50	232,543.00	109,521.50	0.00	0.00	675,816.00	
South Australia		316,062.00	661,638.50	660,728.00	315,151.50	0.00	0.00	1,953,580.00	

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		(Column 4)	(Column 5)	(Column 6)	(Column 7)	(Column 8)	(Column 9)	(Column 10)	(Column 11)	
(Columns 1 and 2) (Column 3)										

Victoria

Deakin University

LP240100315	Ensuring reliable deployment of deep neural network models	69,000.00	140,500.00	145,500.00	74,000.00	0.00	0.00	429,000.00	DHCC AUSTRALIA PTY LTD
Xiang, Prof Yong	<p>This project aims to develop novel techniques for the reliable deployment of deep neural network models in machine learning as a service. It addresses the important and urgent problem of how to ensure secure and flexible model access and robust model infringement tracing. The project will result in a set of innovative methods involving deep neural network model access control, model piracy detection and model ownership identification. This should provide significant benefits by empowering Australia's leading position in artificial intelligence security research, enhancing the competitiveness of the local artificial intelligence industry, and preventing cyber crimes and huge financial and job losses caused by model infringements.</p> <p>National Interest Test Statement</p> <p>Machine learning is the driving force behind artificial intelligence. Deep neural network models that enable computer systems to learn from data like the human brain are the backbone of machine learning. However, developing such models requires resources which are beyond the reach of most businesses. In response, companies provide machine learning as a service to deliver tailored deep neural network models to users. Reliable deployment of deep neural network models requires access control, piracy detection and ownership identification methods that do not yet exist. By developing such security tools, this project will enable the Australian artificial intelligence industry and other related high-tech sectors to prevent financial and job losses caused by unauthorised use of deep neural network models. These advances will ensure a safer cyberspace, bring tremendous benefit to Australia's economic growth and cybersecurity, and enhance our competitiveness on the global stage. To demonstrate these outcomes in a real-world setting, a prototype machine learning service system will be developed and then deployed by our partner organisation. The research outcomes will be shared through workshops, industry meetings and industry networks such as the Australian Industry Group and Australian Information Industry Association to promote this essential technology.</p>								
	Deakin University	69,000.00	140,500.00	145,500.00	74,000.00	0.00	0.00	429,000.00	

La Trobe University

LP240100314	Critical moments in responses for children affected by family substance use	69,149.00	140,170.00	147,053.50	76,032.50	0.00	0.00	432,405.00	ALCOHOL AND DRUG FOUNDATION INCORPORATED, YOUTH AFFAIRS COUNCIL OF VICTORIA INC, VICTORIAN ALCOHOL & DRUG ASSN INC, YSAS PTY LTD, UNITING, QUEEN'S UNIVERSITY BELFAST
Laslett, A/Prof Anne-Marie L	This project aims to study the experiences, trajectories and risks for the one in five Australian children who are affected by substance misuse in their families. Using a multi-method approach including linked data, qualitative and economic analyses, it is expected to identify critical opportunities for supporting children and their families in systems such as child protection and justice. Expected outcomes include knowledge of factors and responses associated with children's trajectories and estimation of benefits of reducing family substance use. This should provide evidence to support significant improvements and cost reduction in services and systems engaging with children in Australia and elsewhere.								
	National Interest Test Statement								
	In Australia, multiple systems are involved when children are harmed by their families' alcohol and other drug misuse. The critical moments where opportunities exist for supporting children and their families in these systems are								

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	unclear. This project will study the experiences, trajectories and risks for children from families with substance use problems. Using a range of approaches, we will study service systems, and children's experiences of them, alongside children's conditions and contexts of life to provide a holistic understanding of interventions, costs and impacts. Our evidence will inform crucial improvements to services and systems and inform policies to prevent further harm, in turn benefitting Australian children and their futures. This will bring long-term national economic, social and health benefits for children by improving family, substance use, health, justice and child protection services and reducing service need for the one in five children affected by familial substance misuse in Australia. Our established strong links with key service organisations and young people will ensure dissemination of recommendations through reports, workshops and media. This project will inform national strategies seeking to improve the care economy and the wellbeing of children and young people. Australian insights will inform development of best-practice services and policies to reduce harm from family substance misuse cross-nationally.								
	La Trobe University	69,149.00	140,170.00	147,053.50	76,032.50	0.00	0.00	432,405.00	
Monash University									
LP240100189	Customized advanced aluminum alloys for additive manufacturing	57,953.00	122,584.50	131,037.00	66,405.50	0.00	0.00	377,980.00	AUSTRALIAN ADDITIVE ENGINEERING PTY LTD
Zhu, Dr Yuman	This project aims to establish the comprehensive profiles of Al-Mn-Sc alloys specifically for 3D printing by advancing their alloy design, processing and mechanical performance. The project expects to generate new knowledge in the area of aluminium alloys utilising additive manufacturing. Expected outcomes of this project include enhanced capacity of industrial partner to deliver a variety of superior aluminium powder alloys to 3D-print diverse products for different application scenarios. This should provide significant benefits, such as improving industrial partner's competitiveness, boosting economy and environmental sustainability and enhancing Australia's international standing in cutting-edge research on advanced manufacturing.								
	National Interest Test Statement								
	The project aims to create a class of superior 3D-printed aluminium materials for use in industries such as transportation. Currently, the commercially-available 3D-printed aluminium alloys are limited, making it challenging to meet the rapidly growing demands from the industry to make important parts for cars, trains, and airplanes. This project will help to broaden the types of commercial aluminium alloys for use in these various applications. This will be highly beneficial for end-users who need diverse high-quality aluminium powder for 3D printing to make competitive and customizable products for their customers. By being able to make customizable parts, end-users can save time and money, while also having the ability to create more intricate and customized designs. The project includes a partnership between industry and research which will directly lead to adoption of the research outcomes into local manufacturing. This will lead to economic benefits through better products, and help boost innovation and the economy in Australia.								
LP240100204	Engineering the Future: Safety Risk Intelligence in Early Childhood	100,472.50	159,595.00	108,556.00	49,433.50	0.00	0.00	418,057.00	K.I.D.S. FOUNDATION
Fleer, Em/Prof Marilyn	Knowing how safety risk intelligence develops and is used in practice has become increasingly important for keeping people safe at work. This study aims to investigate children's capacity to read their environment for risks, engineer solutions to problems presented, and develop safety risk intelligence. Bringing imagination, play and engineering together in a SeeMore Engineering PlayWorld is an innovative approach for researching safety risk intelligence that offers different insights for pioneering future research in workforce safety. An intended outcome of the project is for robust empirical evidence to be generated; significantly contributing to the development of safety standards and evidence-informed practice for engineering education.								
	National Interest Test Statement								
	Little is known about how children develop the capacity to read their environment for risks and respond safely ('safety risk intelligence'), particularly in engineered contexts such as farm machinery, sheds and dams. Research shows that children as young as 5 can develop road safety awareness, but we do not know beyond this area. The project extends this understanding; bringing in partnership the Monash PlayLab's Conceptual PlayWorld model of teaching								

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	and KIDS Foundation's SeeMore safety education program. A safety risk intelligence intervention program will be developed, leveraging infrastructure (e.g. mobile classroom, app, resources), where children recreate their real-life environment digitally, and reinforce understandings of safe and unsafe scenarios. With injuries being a leading cause of death among youth and a major cause of hospitalisation among children, this research makes a step change in supporting children to know how to keep safe, thereby potentially reducing injuries, and affording immediate and long-term economic benefits for Australians. Results will inform best practice to support children in Victoria, and be scaled up, offering purpose designed resources and an evidence-informed program to support stakeholders nationally. Our partnership ensures that evidence-informed knowledge, resources, and infrastructure will be delivered at scale, positioning Australia as a leader in safety risk intelligence in early childhood.								
LP240100506	Accessible Mathematics for Students who are Blind or have Low Vision	108,704.50	226,803.50	226,672.00	108,573.00	0.00	0.00	670,753.00	DEPARTMENT OF EDUCATION, NSW DEPARTMENT OF EDUCATION, QUEENSLAND, SPEVI INC, ROUND TABLE ON INFORMATION ACCESS FOR PEOPLE WITH PRINT DISABILITIES INC., VISION AUSTRALIA
Marriott, Prof Kimbal G	This project aims to create an accessible digital workbook that supports participation in mathematics by students who are blind or have low vision (BLV). Difficulty accessing visual materials, graphing calculators and sharing materials with teachers and peers has led to low participation rates by BLV students in secondary school mathematics, limiting future employment opportunities. By applying human-centred co-design methods, an innovative digital workbook will be created that allows mathematics and graphics to be manipulated and shared by BLV students, educators and their peers. This should provide significant benefits to Australia by ensuring greater equity of access to education and employment for people with disability.								
	National Interest Test Statement								
	The academic achievement of students who are blind or have low vision (BLV) is lower in mathematics compared with other academic subjects and BLV students are choosing not to undertake mathematics and related Science, Technology, Engineering and Mathematics (STEM) fields in upper secondary school. Not only does this impact educational opportunities, it severely impacts future employability, where the current employment rate for BLV Australians is only 24%, and the cost of this reduced employment to the Australian economy is estimated to be \$2.3 billion per year. This project aims to overcome current barriers to collaboration and access to graphics and calculation that face BLV students studying mathematics by creating the world's first accessible multimodal digital mathematics workbook. Co-designed with project partners the workbook will facilitate the accessibility of mathematics and collaboration in the classroom between BLV students, peers and their teachers. Dissemination of the research through workshops and training for educators and building a community of practice around the workbook is a key focus of the project. The Australian Government's Disability Strategy (2021-2031) calls on all Australians to “ensure people with disability can participate as equal members of society”, and by tackling mathematics accessibility, this project can play an essential role in supporting the career options of BLV students as well as promoting broader social inclusion.								
	Monash University	267,130.00	508,983.00	466,265.00	224,412.00	0.00	0.00	1,466,790.00	
	RMIT University								
LP240100007	A novel speed amplified linear generator for wave energy conversion	84,189.50	169,709.00	172,315.50	86,796.00	0.00	0.00	513,010.00	WAVEX
Wang, Prof Xu	This project aims to develop a modular speed amplified linear generator-based wave energy conversion technology. The unique speed amplified linear generator consists of double Halbach magnet arrays, a coil armature, and fixed pulleys which are sealed above the waterline. This project expects to generate new knowledge about mechanical, electrical and control attributes of the wave energy converter and linear generator to improve their performance. Expected outcomes include enhancing research capacity and industrial collaborations and paving the way for sustainable, efficient utilisation of wave energy along the Australian coastline. This should reduce energy cost and greenhouse emissions, benefiting the economy and environment.								
	National Interest Test Statement								
	The project will study how to utilise Australia’s rich offshore wave energy resources to generate electricity through a novel linear generator technology. Currently, existing linear generators have low performance and Australian								

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(Columns 1 and 2)	(Column 3)	2024-25 (Column 4)	2025-26 (Column 5)	2026-27 (Column 6)	2027-28 (Column 7)	2028-29 (Column 8)	2029-30 (Column 9)	(Column 10)	(Column 11)
	offshore wave energy faces many challenges - this project intends to address these gaps. The outcomes of this project will advance knowledge in an under-studied area of wave energy conversion. It will deliver a cost-effective and environmentally friendly power generation technology, and a novel high-performance linear generator for many applications. The success of the project will expand the sector of wave energy conversion in Australia and cultivate competencies that will elevate the local industry. The new intellectual properties, technical patents, and know-how stemming from this research will propel further development of wave energy converters and their applications within the local industry, delivering economic, commercial, and social benefits to Australia. Commercialisation of the technology will be implemented by collaborating with industrial partners, stakeholders, and the Australian government through following-up research and development. Based on the research outcomes of this project and a feasible business plan, a full-scale physical prototype will be constructed and tested in targeted wave tanks and ocean sites, leading to the eventual commercialisation of the technology and delivery of the benefits.								
LP240100251	Next-Gen Miniaturized Implants Using All-Optical Power and Data Interfaces	79,379.00	158,567.00	152,629.50	73,441.50	0.00	0.00	464,017.00	BRAINCONNECT PTY LTD
Ahnood, Dr Arman	<p>This project aims to deliver an all-optical power and data interface to a miniaturised EEG recording implant. While challenges in the miniaturisation of electronic medical implants have been largely met by progress in the very-large-scale integration (VLSI) technology, wireless power and data links between the implant and the outside world have not kept pace with this size reduction. We are at a point where wireless power and data interface constitute a significant portion of the implant's volume. The project's outcome is an implant housed entirely within a wireless, all-optical self-contained transparent ceramic capsule. This approach may enable a safe and robust power and high-speed data link to the implant at a millimeter-sized package.</p> <p>National Interest Test Statement</p> <p>There is a current lack of suitable wireless power/data interface technologies for miniature medical implants. This project, therefore, aims to develop a new way of powering and communicating with medical implants. We aim to increase the power of miniature implants using safe light wavelengths and intensities and deliver data at sufficiently high rates using optical pulses. A new miniature implant with the possibility of continuous brain-monitoring provides a pathway to enhance the potential for patient-specific therapies and improve patient outcomes. In particular, treatment and monitoring of neurological conditions could benefit from a minimally invasive, highly reliable, and accurate recording system such as epilepsy and traumatic brain injury. This project also allows for the future realisation of devices and advanced manufacturing capability using high-performance materials that enable ultra-thin implants for interfacing with the body. These technologies are essential for developing brain-machine interfacing devices and can attract funding to start-ups in the rapidly growing neural interfaces field, providing commercial benefits to Australia. As well as commercialisation of our findings through the project's industry partner in the brain-machine interfacing area, we will promote our findings to the wider MedTech community in Australia with a focus on miniature implants such as retinal stimulators and insulin pumps, which may benefit from the outcomes of this project.</p>								
LP240100279	Next-Generation Grease Interceptors for Minimisation of Sewer Blockages	78,139.00	158,508.00	162,964.50	82,595.50	0.00	0.00	482,207.00	SOUTH EAST WATER CORPORATION, VICTORIAN WATER INDUSTRY ASSOCIATION INC., WATER RESEARCH AUSTRALIA LIMITED, BARWON REGION WATER CORPORATION, QUEENSLAND URBAN UTILITIES, ACO PTY LTD
Pramanik, Dr Biplob	<p>This project aims to address the persistent issue of sewer blockages caused by fat, oil, and grease (FOG) from food service establishments. Such blockages contribute to environmental hazards and public health risks, and managing them incurs significant annual costs for water utilities. The project expects to develop an advanced grease interceptor capable of effectively removing small FOG particles under varied flow conditions. Supported by computational fluid dynamics and field trials, the outcome will be a technologically and economically sustainable solution to mitigate FOG-related sewer blockages. This advancement has the potential to greatly reduce the environmental and infrastructure impacts associated with sewer management.</p> <p>National Interest Test Statement</p> <p>This project addresses the critical issue of sewer blockages in Australia caused by fats, oils, and grease (FOG) from food service establishments (FSEs). These blockages not only strain water utilities but also pose substantial environmental and public health risks. The research gap lies in the inefficient removal of small FOG particles under varying water flow conditions. This proposal aims to develop an advanced grease interceptor (GI) to enhance sewer management systems, thereby reducing annual maintenance costs and mitigating risks of environmental contamination. The project's innovative approach, supported by computational fluid dynamics and field trials, promises a</p>								

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LP240100417	Federated Fine-Tuning Framework for Secure and Collaborative GenAI Models	59,500.00	124,500.00	130,500.00	65,500.00	0.00	0.00	380,000.00	SERENDIB SYSTEMS PTY LTD
Khalil, Prof Ibrahim	<p>This project aims to develop a federated fine-tuning framework for Large Language Models (LLMs) and Multimodal Foundation Models (MFMs), utilizing distributed and private data. By incorporating a strong focus on security and privacy, this project seeks to generate new knowledge in the area of federated fine-tuning techniques for LLMs/MFMs. Expected outcomes of this project include the creation of a versatile framework for federated fine-tuning that prioritizes privacy and security. The project's advancements will significantly benefit sectors like healthcare, energy, and finance, by offering reliable, secure, and privacy-assured solutions through Generative AI to enhance Australia's workforce capabilities and drive economic growth.</p> <p>National Interest Test Statement</p> <p>The project fills a vital research gap on generative AI benefits for the Australian economy. The 'Australian Generative AI Opportunity' report highlights a potential \$115 billion annual economic boost from increased productivity. Yet, widespread adoption encounters hurdles like computing power constraints and concerns over security, privacy, and data and model risks. This endeavour seeks to pioneer new methods and explore various fine-tuning techniques for Large Language Models (LLMs) and Multimodal Foundation Models (MFMs). The main objective is to create a reliable, secure, and privacy-focused federated framework for fine-tuning LLM/MFMs. Expected outcomes include enhanced workforce efficiency in sectors such as healthcare (clinical decision support systems), energy (smart grid optimization), and finance (algorithmic trading/investment systems) with GenAI-based solutions adoption. The proposed framework will notably contribute to Australia's National Science and Research Priority, focusing on Enabling a Productive and Innovative Economy. This project holds significant potential for delivering economic and social benefits to Australians, positioning Australia as a leader in the realm of GenAI. The project's outcomes could lead to significant savings for taxpayers, advancing national interests. We aim to collaborate with our partner organisation to adapt the project outcomes and extend benefits to the wider public through application development.</p>								
LP240100504	Radiatively cooled high-performance solar cell	78,139.50	158,509.00	162,965.50	82,596.00	0.00	0.00	482,210.00	INNOFOCUS PHOTONICS TECHNOLOGY PTY LTD
Lin, A/Prof Han	<p>This project aims to develop a novel type of flexible solar cell (FSC), which integrates microstructures for radiative cooling and nanostructures for light trapping. The project expects to develop the first self-cooling FSC and generate new knowledge in renewable energy and advanced manufacturing. The expected outcome is increased conversion efficiency through enhanced absorption of solar energy and lower energy consumption through more efficient cooling during operation. Self-cooling of the FSC can minimise heat-introduced degradation and extend its lifetime. This project should provide a revolutionary solution to the bottleneck of the thermal instability of FSCs and increase their cost effectiveness, promoting commercialisation.</p> <p>National Interest Test Statement</p> <p>Australia has invested heavily in renewable energy development, and the Australian renewable energy industry accounted for 32.5% of Australia's total electricity generation in 2021. Due to their high efficiency and broad application schemes, flexible solar cells (FSCs) using perovskite materials have great potential in the Australian renewable energy industry. However, the bottleneck issue with FSCs is their poor stability caused by the high working temperature under strong sunlight, compromising their efficiency. This project will develop a self-cooling FSC, improving its efficiency and longevity. The technology developed in this project will solve this problem and improve the efficiency and lifetime of FSCs, promoting their use in real-life applications. The FSC designs developed in this project can potentially be manufactured at a large scale in Australia for use in new solar electricity power plants and household applications. We will work with our industry partner to commercialise the FSCs and demonstrate the applications in various scenarios in Australia. This will provide commercial benefits to the Australian solar energy manufacturing industry, helping to expand the industry. This can provide economic and environmental benefits by making solar energy cheaper for Australians and contribute to Australia's efforts to become carbon neutral.</p>								

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(Columns 1 and 2) (Column 3)										

	RMIT University	379,347.00	769,793.00	781,375.00	390,929.00	0.00	0.00	2,321,444.00	
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Swinburne University of Technology

LP240100489	Multi-feed system for 3D printing of fibrous earth for social housing	78,500.00	145,500.00	139,500.00	72,500.00	0.00	0.00	436,000.00	LUYTEN 3D PTY LTD
Gomaa, Dr Mohamed	This project aims to develop systematic methodologies for processing fibrous earth materials for 3D construction printing by utilising a multi-feed extrusion approach for engineered earth mixtures. This project expects to overcome current commercialising limitations in 3D earth printing using novel techniques for printing replicable engineered earth mixtures with on-demand fibre mixing feature. Expected outcome includes developing standardised methods for 3D construction printing of earth houses in Australia that can substitute conventional concrete construction. This objective addresses the pressing housing crisis and the critical demand for affordable and sustainable dwellings, especially in regional Australia and remote communities.								
	National Interest Test Statement								
	Construction is a vital component of Australia's economy, representing 10% of GDP. Despite its economic importance, the construction sector has struggled to improve productivity compared to other industries, largely due to slow adoption of automation technologies (e.g., 3D printing). On the other hand, the demand for affordable dwellings has intensified, driven by population growth, urging Australia's National Housing Accord to target building 1 million new houses by 2029. Meeting this target will lead to an increased use of cement-based products and raw materials, raising concerns about the impacts on Australia's economy and environment. 3D Earth Printing offers an efficient solution for affordable and sustainable housing with significant economic, societal, and ecological benefits. Earth houses are traditionally affordable, thermally efficient, and recyclable compared to other construction methods. They enable the utilisation of by-products from other industries, such as plant-based fibres and soil waste from mining, contributing to a circular economy. The project aims to develop standardized methods for the construction of 3D-printed earth houses in Australia, unlocking affordable and sustainable dwellings, especially in regional Australia. The construction industry, represented by our partner Luyten 3D, is keen to invest and adopt in this research, as it will generate high-tech manufacturing capability, create hundreds of skilled jobs and add value to Australian economy.								
	Swinburne University of Technology	78,500.00	145,500.00	139,500.00	72,500.00	0.00	0.00	436,000.00	

The University of Melbourne

LP240100097	Assessing resilience of building glazing systems in a changing climate	110,500.00	210,500.00	200,000.00	100,000.00	0.00	0.00	621,000.00	ATLITE (AUSTRALIA) PTY LTD, AIBUILD PTY LTD, ELIM TECHNOLOGY PTY LTD, AFRC LAB PTY LTD
Zhang, Prof Lihai	Performance of glazing systems in buildings is being impacted by the effects of climate change with existing designs being compromised by more extreme weather. This project aims to develop technology to precisely evaluate the long-term performance of glazing systems during intense winds and storm events. Significantly, this will help protect the integrity of the system and increase the resilience of buildings against extreme weather events. The expected outcomes will substantially enhance the sustainability, comfort, and resilience of buildings amid climatic changes. This will benefit asset managers, homeowners, the insurance sector, and the building and construction industry, potentially averting billions of dollars in economic losses.								
	National Interest Test Statement								
	As climate change is increasing extreme weather events globally, Australian buildings must increase their weather resilience and utility. Glazing systems are popular in modern building designs because they protect from weather events and conserve energy. Yet, we have no standardised testing protocols or analytical models to evaluate their long-term durability and resilience under diverse environmental conditions. This project aims to develop								

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	experimentally validated assessment models to predict system deterioration under extreme weather conditions. It will identify vulnerabilities and failure mechanisms in structural integrity, water tightness, and thermal insulation to develop targeted mitigation strategies that will improve the quality of these systems. More durable and longer lasting glazing systems with better insulation will meet market demands offering market differentiation and revenue growth for companies adopting this technology. These systems will contribute to sustainability and innovation in the construction industry. Australia will benefit commercially economically, socially, and environmentally through cost savings, improved safety and well-being of inhabitants, reduced greenhouse gas emissions, and resource conservation. The project outcomes will be disseminated to the building industry through workshops and articles in industry magazines.								
LP240100101	Optimising Predictive Analytics for Water Consumption Across Time and Space	25,000.00	50,000.00	50,000.00	25,000.00	0.00	0.00	150,000.00	SOUTH EAST WATER CORPORATION
Byrne, Prof David P	This project aims to investigate the value of Big Data from a world-leading smart meter rollout for understanding and predicting water consumption. The project expects to create novel econometric and machine learning methodologies, applying them to build state-of-the-art water consumption models that allow for arbitrary time frequencies and spatial aggregation. Expected outcomes include interdisciplinary partnerships to inform and deploy targeted and timely water grid maintenance, investments, and behavioural programs to enhance societal water usage efficiency. This should provide significant benefits, including lower water bills, greater grid resilience, better-informed grid investment, and more cost-effective adaptation to climate change.								
	National Interest Test Statement								
	Water scarcity in Australia is rising due to climate change and a growing population, underlining the need to identify and address vulnerabilities across our water grid infrastructure and discover new ways to curb water demand. Australian-made smart water meters generate a substantial amount of data to help us address these sustainability challenges, but we lack the Big Data methods needed to harness these data toward these ends. This project will develop the methods needed to leverage smart water meter data to inform strategic investments in water grid infrastructure and enable the discovery of behavioural water conservation strategies. The project aims to position Australia as a global pioneer in smart water meter analytics by combining homegrown smart water meters and cutting-edge machine learning models. The project proposes to create a digital dashboard powered by our models to facilitate the widespread adoption of smart meter analytics. It will provide visual resources to track the evolution of water demand across time, space, and into the future, to equip water utilities with tools to predict immediate and long-range effects of grid investments, behavioural trials, and policies on water conservation and affordability. The dashboard's ability to enable business decisions will be communicated to utilities through industry workshops to champion the adoption of smart meter analytics to optimise water infrastructure investment and conservation practices across Australia.								
LP240100177	Cell death pathway – a novel target for anthelmintics for livestock	148,506.00	297,253.50	297,613.50	297,766.50	148,900.50	0.00	1,190,040.00	OZ OMICS PTY LTD
Gasser, Prof Robin	Parasitic worms cause major economic losses due to the diseases that they cause in livestock animals. Drug resistance in parasites and treatment failures now compromise parasite control. Thus, there is major demand worldwide for new treatments. Extensive preliminary work by our investigator team has shown that parasitic worms have an intrinsic B-cell lymphoma 2-mediated cell death pathway that is essential for development and survival. This interdisciplinary project aims to develop small molecule antagonists that target this pathway and function as competitive inhibitors. Major benefits should include the development of an entirely novel drug class to specifically kill worms of livestock for subsequent translation and commercialisation.								
	National Interest Test Statement								
	Parasites of animals and plants cause losses of hundreds of millions of dollars per year to the agricultural sector in Australia. This project is aimed at preventing the spread of parasites and associated diseases through better treatments for animals. The project uses a combination of advanced technologies (medicinal chemistry, structural biology, cell engineering and parasitology) to explore and develop novel drug treatments against parasites. This project works toward alleviating parasite disease problems in animals, resulting in better outcomes due to healthier animals and increased revenue. In working with industry and academic groups, this project will ensure the use of the latest technologies to discover and develop new tools and products against parasites to help the livestock and animal health industries, and the agricultural sector. To help bring communities on board with this endeavor, showcasing the technology, new drug treatment options and effects on animals will be implemented. Through the more efficient, effective and safe treatment of livestock, we can ensure a better agricultural future for Australia, and								

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(Columns 1 and 2) (Column 3)									
	for many other countries around the world.								
LP240100404	Next-generation electrolysis: towards low-cost green hydrogen at scale	66,552.00	137,144.00	144,702.00	74,110.00	0.00	0.00	422,508.00	HYSATA PTY LTD
Li, Dr Mengran	<p>This project aims to probe and exploit the complex transport phenomena at high temperatures and pressures in water electrolysers - the key technology for green hydrogen production. The novelty lies in the use of a globally unique testing platform that enables direct bubble imaging and comprehensive electrolysis characterisations under extreme conditions up to 200 deg C and 200 bar. Through advanced characterisation and modelling, this project will develop a reliable framework of the transport mechanisms under wide electrolyser working conditions, and produce new knowledge for industrial electrolyser design. This will increase the commercial viability of green hydrogen, thereby empowering Australia's transition to a net-zero economy.</p> <p>National Interest Test Statement</p> <p>Green hydrogen, made from water in an electrolyser using energy from renewable sources, will play a vital role in transforming our global energy infrastructure. Yet, the production of green hydrogen is limited by the prohibitively low rates and energy efficiencies of current electrolysers. Increasing the working temperatures and pressures in electrolysers can improve these rates and efficiencies, but cause undesirable energy loss, unsafe operation, and system instability. This project will investigate how advanced electrolysers behave over a wide range of operating conditions and will use this new knowledge to inform the designs of novel electrolysis cells and systems for low-cost hydrogen production. The resulting new insights into low-cost green hydrogen production will be conveyed to governments and companies through workshops, seminars, and media articles. Australia will benefit economically, environmentally, and socially. Local access to low-cost green hydrogen supply will reduce energy costs for all Australians and efficient clean energy exports will provide revenue. The improved efficiency in hydrogen production will increase profitability for companies involved in the hydrogen value chain accelerating wide adoption of clean energy technologies. Ultimately, the increased use of hydrogen across industries and communities will decarbonise our economy and provide profound social benefits.</p>								
LP240100432	The mechanism of relaxin, a novel Glucocorticoid Receptor modulator	82,790.50	183,067.50	196,152.50	95,875.50	0.00	0.00	557,886.00	RELAXERA PHARMAZEUTISCHE GESELLSCHAFT MBH & CO. KG
Bathgate, Prof Ross A	<p>The project aims to determine how the peptide hormone relaxin binds to the glucocorticoid receptor, a cellular protein that regulates many key functions and is a key cause of inflammation. This project expects to guide the design of new ligands that will direct what genes the receptor activates and thereby control inflammation. Expected outcomes of this project are new knowledge on controlling the function of the glucocorticoid receptor and potentially modulating inflammation. This should benefit Australian scientists in seeking ligands to modulate the activity of the receptor, provide excellent training in molecular sciences and consolidate long-term international collaborations.</p> <p>National Interest Test Statement</p> <p>The glucocorticoid receptor (GR) is an important regulator of inflammation. While glucocorticoids are the primary activators of the GR previous studies have shown that the peptide relaxin can also activate the receptor and exert potent anti-inflammatory actions. Currently, there are no structures of any activating peptide bound to the GR. This proposal aims to determine the structure of the relaxin-GR complex which will unveil a completely novel mechanism of nuclear receptor activation. To solve the structure, the project will apply state-of-the-art structural biology techniques providing essential training to the next generation of researchers. Identification of this structure will also provide essential molecular insight for the design of novel peptide leads for the treatment of inflammation. Findings in this area will increase Australia's international reputation and competitiveness in the GR field and generate intellectual property ensuring significant commercial and economic benefits. In the long-term, mechanistic understanding of this process could be used to establish new ways of treating debilitating inflammation, but without the side effects seen with glucocorticoids, and so enable Australians to work and play more productively. The outcomes of the project will be protected by patent applications and be communicated through University media releases, newspaper articles and social media (e.g LinkedIn, Twitter).</p>								
	The University of Melbourne	433,348.50	877,965.00	888,468.00	592,752.00	148,900.50	0.00	2,941,434.00	
	Victoria	1,296,474.50	2,582,911.00	2,568,161.50	1,430,625.50	148,900.50	0.00	8,027,073.00	

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(Columns 1 and 2)	(Column 3)									

Western Australia

Curtin University

LP240100108	Perovskites for thermochemical energy storage and greenhouse gas conversion	105,000.00	202,500.00	200,000.00	102,500.00	0.00	0.00	610,000.00	WOODSIDE ENERGY TECHNOLOGIES PTY LTD
Shao, Prof Dr Zongping	This project aims to develop a novel thermochemical looping method for converting methane and carbon dioxide, two prominent greenhouse gases, into value-added synthesis gas using renewable solar as energy input. The key lies in the exploitation of an innovative class of self-regenerative, nanoparticles-modified perovskite oxides with excellent activity and superior stability to serve as bi-functional catalysts for both methane partial oxidation and CO2 splitting. This project is expected to achieve both thermal energy storage and greenhouse gas upgrading with commercial opportunities. This should provide significant benefits to realise energy and environmental sustainability for Australia.								
	National Interest Test Statement								
	The growing global energy demand and pressure to reduce greenhouse gas emissions are driving the development of clean energy materials and efficient energy conversion technologies. While natural gas is a well-endowed resource in Australia, the processes for converting it into more valuable chemicals while reducing CO2 emissions from the direct combustion of methane, are still lacking. In this project, by developing a novel chemical process called thermochemical looping, natural gas together with CO2, the two prominent greenhouse gases, will be converted into value-added synthesis gas which is a useful raw material for chemical productions. This proposed looping process is particularly valuable to Australia because Australia has abundant natural gas resources but is less competitive in the production of synthesis gas. The highly effective use of natural gas will enhance the long-term viability of resources and contribute to sustainable development in Australia. It will also offer significant environmental benefits to Australia by employing renewable solar power as the energy input and by reducing greenhouse gas emissions from the direct combustion of natural gas. Further technology adoption in subsequent research projects for scale-up production will extend the capacity of the Partner Organisation for cutting down CO2 emissions while producing value-added synthesis gas. The project outcomes will help Australia's energy industry to transform toward a more sustainable pathway.								
	Curtin University	105,000.00	202,500.00	200,000.00	102,500.00	0.00	0.00	610,000.00	

Murdoch University

LP240100345	Community completeness in monitoring of post-mining restoration success	49,500.00	99,000.00	99,000.00	49,500.00	0.00	0.00	297,000.00	ILUKA RESOURCES LIMITED, ALCOA OF AUSTRALIA LIMITED, UNIVERSITY OF TARTU, UNIVERSITY OF CAMERINO
Mucina, Prof Ladislav	This project will investigate why particular plant species and plant functions are absent from post-mining vegetation using the ecological concepts of species pools, dark diversity, and community completeness. This collaborative research between ecologists, statisticians and the mining industry will develop AI-driven tools to more effectively monitor the vegetation against restoration targets and deepen our understanding of how a community reassembles after disturbance by mining. Such tools will benefit both industry and regulators by enhancing the on-ground decisions and practices applied in ecosystem rehabilitation.								
	National Interest Test Statement								

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	desire from the rehabilitation of mine sites are achieved – that is, knowing which species most clearly need to be established in mine site restoration to ensure the ecosystem can become biodiverse, functional, and resilient, or what intervention is required to allow that development. The industries and academics taking part in this project are committed to publicly communicating these research outcomes and tools so they may be adopted in ecological restoration projects in Australia beyond the mining industry.								
	Murdoch University	49,500.00	99,000.00	99,000.00	49,500.00	0.00	0.00	297,000.00	
The University of Western Australia									
LP240100463	Anchoring Australia's future in floating offshore wind	148,796.00	297,916.00	298,797.50	149,677.50	0.00	0.00	895,187.00	TEXAS A&M UNIVERSITY, SHELL AUSTRALIA PTY LTD, INTERMOOR, TOTALENERGIES, RWE OFFSHORE WIND GMBH, EQUINOR AUSTRALIA B.V., 2H OFFSHORE ENGINEERING LTD , EDF RENEWABLES AUSTRALIA PTY LTD
O'Loughlin, Prof Conleth D	This project aligns world leading academic and industry expertise in offshore engineering to undertake research with the aim of developing design guidance for the adoption of Suction Embedded Plate Anchors (SEPLAs) on floating wind energy developments in Australia and globally. Geotechnical centrifuge modelling and field testing will enable validated installation techniques to be developed for a variety of seabed types, while also demonstrating the anchor reliability needed for safe adoption of this technology. Representing a significant portion of overall project cost, the use of the cheaper SEPLA technology means this project can significantly improve the economics of floating wind, supporting Australia's target of net zero by 2050.								
National Interest Test Statement									
Achieving Australia's target of net zero by 2050 will require a mix of renewable energy sources, including the installation of hundreds of floating wind turbines around our coasts, in order to produce enough affordable electricity to power all the homes across the country. This scale of offshore wind energy will require thousands of anchors to keep floating wind turbines in position. However, anchoring costs are a barrier to Australia's offshore wind energy ambitions – given they represent a large proportion of the upfront capital investment. This project will produce outcomes that will enable the use of much smaller (and therefore less expensive) anchors on Australian offshore wind energy developments. These outcomes include software and design recommendations for direct adoption in engineering practice by the industry partners, as well as the requisite validated evidence to support development of associated (industry wide) design guidelines. The timing of this project is optimal as feasibility licences for offshore wind zones are now being awarded, requiring developers to consider technologies that will improve the economics of floating wind farms. This project will result in economic, environmental and societal benefits for Australia through the generation of affordable clean energy, bringing with it the generation of sustainable jobs, while training the next generation of engineers for this industry.									
LP240100507	Enhancing Antimicrobial Activity Using Synergistic Resistance Mitigation	112,500.00	225,000.00	225,000.00	192,500.00	80,000.00	0.00	835,000.00	NEOLIXIR LIMITED
Swaminatha-Iyer, Prof Killugudi L	This project aims to combat antibiotic resistance by developing synergistic compounds targeting the extracellular polymeric substance in biofilms. Utilizing Neolixir's NeoX-101 platform, compounds will be screened to identify combinations disrupting the extracellular polymeric matrix. New insights into nanoscale extracellular polymeric matrix interactions will be generated using metabolomics and high-resolution imaging. Outcomes include an extracellular polymeric matrix-targeting toolbox for potentiating antibiotics and a robust screening pipeline. Benefits include accelerating novel antibiotic resistance strategies and fostering polymer and nanoscale imaging innovation against biofilm infections.								
National Interest Test Statement									
This project tackles the growing threat of antibiotic resistance, a critical challenge facing Australia and the world. By developing innovative compounds that target the protective layer around bacterial communities called biofilms, this research aims to make existing antibiotics more effective. The project combines cutting-edge imaging techniques and advanced analysis methods to understand how these compounds interact with biofilms at the nanoscale level. Successful outcomes could lead to new strategies for treating persistent infections, reducing the impact of antibiotic resistance on healthcare and agriculture in Australia. This could result in significant economic benefits by lowering healthcare costs, improving productivity, and creating opportunities for the development of new products and technologies. The research team will actively engage with industry partners, policymakers, and the public									

Minister's Approval for Linkage Projects 2024 Round 1 for Funding Commencing in 2025 Schedule

Approved Organisation, Leader of Approved Research Program (Columns 1 and 2)	Approved Research Program (Column 3)	Estimated and Approved Expenditure (\$)		Indicative Funding (\$)				Total (\$)	Partner Organisation(s)	
		2024-25 (Column 4)	2025-26 (Column 5)	2026-27 (Column 6)	2027-28 (Column 7)	2028-29 (Column 8)	2029-30 (Column 9)	(Column 10)	(Column 11)	
through workshops, media outreach, and community events to ensure that the findings are widely understood and can be translated into practical applications. By raising awareness of this important issue and promoting the adoption of new solutions, this project has the potential to make a tangible difference in the lives of Australians.										
	The University of Western Australia	261,296.00	522,916.00	523,797.50	342,177.50	80,000.00	0.00	1,730,187.00		
	Western Australia	415,796.00	824,416.00	822,797.50	494,177.50	80,000.00	0.00	2,637,187.00		
		4,607,031.00	9,403,196.00	9,568,300.50	5,475,372.50	799,757.00	96,520.00	29,950,177.00		