

Minister's Approval for Industrial Transformation Research Hubs for Funding Commencing in 2021 Schedule

Approved Organisation, Leader of Approved Research Program	Approved Research Program	Estimated and Approved Expenditure (\$)				Indicative Funding (\$)		Total (\$)	Industrial Transformation Priorities	International Collaboration	Partner Organisation(s)
(Columns 1 and 2)	(Column 3)	2020-21 (Column 4)	2021-22 (Column 5)	2022-23 (Column 6)	2023-24 (Column 7)	2024-25* (Column 8)	2025-26* (Column 9)	(Column 10)	(Column 11)	(Column 12)	(Column 13)

New South Wales

The University of New South Wales

IH210100040	ARC RESEARCH HUB FOR CONNECTED SENSORS FOR HEALTH	500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00	Medical Technologies and Pharmaceuticals, Advanced Manufacturing, Cyber Security	United States of America	ROOBUCK PTY LTD, NEURA, NUTROMICS PTY LTD, SANTEVATION PTY LTD, HUNTER MEDICAL RESEARCH INSTITUTE, DAVID PENN CONSULTING PTY LIMITED, PRINCE OF WALES HOSPITAL, MINIFAB (AUST) PTY LTD, SENSORIA HEALTH, VLEPIS PTY LTD, NTHALMIC PTY LTD, ANDHEALTH, AUSTRALIAN RED CROSS LIFEBLOOD, PRIMESTONE CAPITAL, AUSTRALIAN ADVANCED MATERIALS PTY LTD, TIGER PHARM PTY LTD, SOFT SENSE PTY LTD, SYDNEY PAIN MANAGEMENT CENTRE, FLAME SECURITY INTERNATIONAL PTY LTD, GENESYS ELECTRONICS DESIGN PTY LTD, GLOBAL EDGE MEDTECH CONSULTING, GLIA DIAGNOSTICS PTY LTD, WALKING TALL HEALTH PTY LTD, VITALCARE PTY LTD, STMICROELECTRONICS PTY LIMITED, NSW SMART SENSING NETWORK, NSW INSTITUTE OF SPORT, MICROSOFT AUSTRALIA, GMH TECH PTY LTD, CN TECHNOLOGY PTY. LTD.
Wang, Prof Chun H	This Hub aims to develop, manufacture and deploy high-tech, cyber-secure, medically-certified IoT sensors to global health markets by integrating disparate Australian capabilities into a productive end-to-end value chain. This Hub expects to position Australia at the forefront of connected health by integrating sensor science with cyber-secure data analytics, regulatory approval and certified manufacturing capabilities. Expected outcomes of this Hub include advanced manufacturing capacity for connected sensors, strategic partnerships and commercialisation skills to translate sensors research to create economic benefits such as jobs and locally-made products for domestic and export markets, as well as improving the health of Australians.										

Minister's Approval for Industrial Transformation Research Hubs for Funding Commencing in 2021 Schedule

Approved Organisation, Leader of Approved Research Program	Approved Research Program	Estimated and Approved Expenditure (\$)				Indicative Funding (\$)		Total (\$)	Industrial Transformation Priorities	International Collaboration	Partner Organisation(s)
(Columns 1 and 2)	(Column 3)	2020-21 (Column 4)	2021-22 (Column 5)	2022-23 (Column 6)	2023-24 (Column 7)	2024-25* (Column 8)	2025-26* (Column 9)	(Column 10)	(Column 11)	(Column 12)	(Column 13)
National Interest Test Statement The domestic medical technologies, biotechnologies and pharmaceuticals (MTP) sector is critical to Australia's economy and the health outcomes of the population, which employs 68,000 workers and contributes \$5.2 billion in Gross Value Added. To strengthen the global competitiveness of the MPT value chain, this Hub seeks to co-design, verify, and certify high-tech, cyber-secure Internet-of-Things (IoT) sensors that will be manufactured in Australia and deploy to global health markets. By creating an end-to-end ecosystem for medical grade, connected sensors and digital tools, this Hub will generate significant benefits to Australian economy and community: -Development and commercialisation of a range of new products, including intelligent sensors and user-centred health software, designed and manufactured in Australia for the rapidly growing global market; -New jobs in local manufacturing and software as a service; -Better health for Australians by improving chronic disease management, preventive healthcare and rehabilitation; -Industry focused researchers with skills to grow Australia's MPT sector.											
IH210100048 Khalili, Prof Nasser	ARC Industry Transformation Research Hub for Resilient and Intelligent Infrastructure Systems (RIIS) in Urban, Resources and Energy Sectors RIIS will deliver transformational technologies to address Australia's critical infrastructure needs. It will integrate advances in sensor technology, connectivity, data analytics, machine learning, robotics, smart materials, and reliable models to deliver resilient and adaptive infrastructure systems in urban, energy and resources sectors. All three sectors are critical to Australia's prosperity and well-being. It will engage with industry, government, and community to unlock scientific roadblock, deliver foundational skills, and translate research and development to commercial opportunities. Benefits include: improved productivity, competitiveness, resiliency, safety; growth, job creation; technological leadership, and export potential.	498,000.00	996,000.00	996,000.00	996,000.00	996,000.00	498,000.00	4,980,000.00	Cyber Security, Oil, Gas and Energy Resources, Mining Equipment, Technology and Services, Advanced Manufacturing	Papua New Guinea	LINDENBAUM PTY LTD, LINKE & LINKE SURVEYS PTY LTD, AZURE MINING TECHNOLOGY PTY LTD, ROBOWORKS PTY LTD, ROOBUCK PTY LTD, N2N AI PTY LTD, CRYPSES PTY LTD, BHP GROUP LIMITED, ASSET INSTITUTE LIMITED, AAM PTY LTD, SOUTH EAST WATER CORPORATION, SPATIAL VISION INNOVATIONS PTY LTD, MINCKA ENGINEERING PTY LTD, GEOSCAPE AUSTRALIA, KUMUL PETROLEUM HOLDINGS LIMITED, PHORIA PTY LTD, FRONTIERSI
National Interest Test Statement RIIS is an innovative 5-year research program to develop cost-effective technologies and research-based engineering skills, which will better design, optimise and maintain infrastructure systems across urban, resources and energy sectors. The Hub will bring together federal and state government, industry, and four of Australia's top universities to develop novel technologies around sensing, sensor connectivity, data collation and synthesis, smart materials, performance modelling and spatial data. Development and deployment of such technologies will create new industries, which along with efficiency gains within the entire production and supply chain, will add billions of dollars to the Australian economy. Other benefits include: up-skilling of the workforce; frameworks to facilitate uptake of the most advanced digital and automation technologies; protecting and enhancing critical infrastructure that Australians rely on; improving security and resilience; and facilitating adoption of advanced technologies, operations and practices, to the competitive advantage of Australia.											
The University of New South Wales		998,000.00	1,996,000.00	1,996,000.00	1,996,000.00	1,996,000.00	998,000.00	9,980,000.00			

Minister's Approval for Industrial Transformation Research Hubs for Funding Commencing in 2021 Schedule

Approved Organisation, Leader of Approved Research Program	Approved Research Program	Estimated and Approved Expenditure (\$)				Indicative Funding (\$)		Total (\$)	Industrial Transformation Priorities	International Collaboration	Partner Organisation(s)
		2020-21 (Column 4)	2021-22 (Column 5)	2022-23 (Column 6)	2023-24 (Column 7)	2024-25* (Column 8)	2025-26* (Column 9)	(Column 10)	(Column 11)	(Column 12)	(Column 13)
(Columns 1 and 2)	(Column 3)										
The University of Sydney											
IH210100030	ARC Research Hub in Intelligent Robotic Systems for Real-Time Asset Management	500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00	Advanced Manufacturing, Cyber Security, Oil, Gas and Energy Resources, Mining Equipment, Technology and Services	United States of America	THALES AUSTRALIA LIMITED, ADVANCED NAVIGATION PTY. LTD., NEARMAP AUSTRALIA PTY LTD, AUSTRALIAN NUCLEAR SCIENCE AND TECHNOLOGY ORGANISATION, EMESENT PTY LTD, NEXXIS PTY LTD, HULLBOT PTY LTD, ABYSS SOLUTIONS PTY. LTD., BLUEPRINT LAB PTY LTD, KAI SYSTEMS, INC, ENGINEERROOM.IO PTY LTD
Manchester, A/Prof Ian R	This hub aims to transform the way assets and infrastructure are managed by developing new capabilities for intelligent robotic systems for inspection, monitoring, and maintenance. The hub expects to generate new knowledge in robotics and associated fields including sensing, planning, data processing, and machine learning using interdisciplinary approaches and tight collaboration between academia and industry. The expected outcomes are robots with the ability to autonomously collect data for integration into a digital twin that provides a real-time representation of the true state of a physical asset. The benefits include both improved asset management and establishing Australia as a leading manufacturer of advanced robotic systems.										
National Interest Test Statement											
This hub will contribute to Australia's national interest in two important ways. Firstly, it will establish Australia as a leading developer and manufacturer in the rapidly growing market of advanced robotic systems. The market for inspection robotics is estimated to grow by 5B AUD over the period 2020-2024. Australia has a world-renowned strength in field robotics, and many innovative companies developing robotic systems and associated technologies including sensing and data processing. This hub will create a nexus for development, manufacturing, and commercialisation of advanced robotic systems, allowing Australia to tap into this rapidly growing market. Secondly, the hub will create new technologies that will help Australia manage critical infrastructure, including energy, transportation, and communications, which is facing a daunting backlog. Australia's vast land area and sparse population leads to severe challenges for manual inspection of critical infrastructure, and autonomous robotic systems are widely seen as the key to achieving high assurance of infrastructure integrity with minimal cost.											
The University of Sydney		500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00			

Minister's Approval for Industrial Transformation Research Hubs for Funding Commencing in 2021 Schedule

Approved Organisation, Leader of Approved Research Program	Approved Research Program	Estimated and Approved Expenditure (\$)				Indicative Funding (\$)		Total (\$)	Industrial Transformation Priorities	International Collaboration	Partner Organisation(s)
(Columns 1 and 2)	(Column 3)	2020-21 (Column 4)	2021-22 (Column 5)	2022-23 (Column 6)	2023-24 (Column 7)	2024-25* (Column 8)	2025-26* (Column 9)	(Column 10)	(Column 11)	(Column 12)	(Column 13)
University of Technology Sydney											
IH210100001 Shon, Prof Ho Kyong	ARC Research Hub for Nutrients in a Circular Economy (NiCE) Urban utilities are in need to design resilient wastewater infrastructure to tackle the pressures of urban intensification, waterways pollution and climate change. This Hub aims to transform the wastewater industry with an unprecedented, city-scale circular economy of nutrients based on urine separation and processing at building level, to produce safe and effective liquid fertilisers. By engaging with stakeholders across the value chain, this Hub expects to bring two urine processing technologies to commercial readiness, and to produce new regulations and business models for the circular economy. This will add resilience to the wastewater and urban farming industries, and will create market opportunities for new Australian technologies.	257,928.50	515,857.00	515,857.00	515,357.00	257,428.50	0.00	2,062,428.00	Advanced Manufacturing, Food and Agribusiness	Switzerland, United States of America, Korea, Republic of (South)	QUEENSLAND URBAN UTILITIES, ORIGINWATER INTERNATIONAL PTY LTD, NUTRI-TECH SOLUTIONS PTY LTD, CHUMDAN SPATIAL INFORMATION CO., LTD, BLAKTHUMB PTY LIMITED, DULUXGROUP (AUSTRALIA) PTY LTD, PIETY GROUP PTY LTD, BUILDLAND AUSTRALIA PTY LTD, CMS INNOVATIONS PTY LTD, KEOSONG CONSTRUCTION CO., LTD., THE ROYAL BOTANIC GARDEN SYDNEY, AJJA TECHNOLOGIES PTY LTD, THE COUNCIL OF THE CITY OF SYDNEY
National Interest Test Statement											
The NiCE Hub will make Australia the world leader of a new circular economy, based on nutrient recycling through the separation, collection and processing of human urine into safe and effective fertilisers. It will use an integrated and multidisciplinary approach to create the technical and social know-how, the business models and the regulatory frameworks needed for the uptake of this circular economy concept. The Hub's outcomes will directly benefit Australia's water utilities, agriculture, and manufacturing sectors. Urine recycling can save up to 50% of sewage treatment operating costs and avoid costly capital upgrades. It can help grow food for over a million people in Australia, enhancing food security through decreased dependence on imported fertilisers. New technology (toilet designs, sensors and membranes processes for urine) will create new opportunities for Australia's manufacturing sector. The Australian society will benefit from a leapfrog in urban resilience and liveability. The environment will benefit from a reduced discharge of pollutants into waterways.											
University of Technology Sydney		257,928.50	515,857.00	515,857.00	515,357.00	257,428.50	0.00	2,062,428.00			
New South Wales		1,755,928.50	3,511,857.00	3,511,857.00	3,511,357.00	3,253,428.50	1,498,000.00	17,042,428.00			

Minister's Approval for Industrial Transformation Research Hubs for Funding Commencing in 2021 Schedule

Approved Organisation, Leader of Approved Research Program	Approved Research Program	Estimated and Approved Expenditure (\$)				Indicative Funding (\$)		Total (\$)	Industrial Transformation Priorities	International Collaboration	Partner Organisation(s)
		2020-21 (Column 4)	2021-22 (Column 5)	2022-23 (Column 6)	2023-24 (Column 7)	2024-25* (Column 8)	2025-26* (Column 9)	(Column 10)	(Column 11)	(Column 12)	(Column 13)
(Columns 1 and 2)	(Column 3)										

Queensland

James Cook University

IH210100014	ARC Research Hub for Supercharging Tropical Aquaculture Through Genetic Solutions	499,980.50	999,580.00	999,369.00	999,271.00	998,902.00	499,400.50	4,996,503.00	Food and Agribusiness		MAINSTREAM AQUACULTURE GROUP PTY LTD, SEAFARMS GROUP LIMITED, THE TRUSTEE FOR CYGNET BAY PEARLS UNIT TRUST, THE COMPANY ONE PTY LTD, SEA FOREST PTY LIMITED, AUSTRALIAN GENOME RESEARCH FACILITY LIMITED
Jerry, Prof Dean R	This project will deliver the genetic knowledge to instigate world-leading and highly productive breeding programs for five tropical aquaculture species (barramundi, pearl oyster, prawn, grouper and marine algae) in northern Australia. It will integrate cutting edge genetic and genomic approaches into innovative aquaculture enterprises and will establish a novel understanding of the genetic basis of disease resistance and how the production environment interfaces with the bacterial microbiome, pathogens and water quality to cause disease. Outcomes will lead to increased productivity, international competitiveness, and lowered disease risk and significantly expand Australia's capacity in the aquaculture sector.										

National Interest Test Statement

This project will address a current deficiency in the northern Australian aquaculture sector related to the farming of genetically improved animals and seaweeds that have been selected for higher productivity and disease tolerance, thereby lowering per unit production costs and the risk of farming due to disease threats. Successful outcomes from the project will significantly increase the productivity and environmental sustainability of northern Australian aquaculture and lead to higher economic viability likely to translate into increasing employment and socioeconomic benefits to regional communities. Increased efficiency through the integration of genetic approaches will improve the international competitiveness of Australian aquaculture in the face of imports, delivering more home-grown product into the domestic market, while lowered risk due to threat of disease will drive investment confidence into the sector.

James Cook University	499,980.50	999,580.00	999,369.00	999,271.00	998,902.00	499,400.50	4,996,503.00
Queensland	499,980.50	999,580.00	999,369.00	999,271.00	998,902.00	499,400.50	4,996,503.00

* Note - Indicative funding for approved projects will be made available through a funding variation under section 54 of the ARC Act

Minister's Approval for Industrial Transformation Research Hubs for Funding Commencing in 2021 Schedule

Approved Organisation, Leader of Approved Research Program	Approved Research Program	Estimated and Approved Expenditure (\$)				Indicative Funding (\$)		Total (\$)	Industrial Transformation Priorities	International Collaboration	Partner Organisation(s)
(Columns 1 and 2)	(Column 3)	2020-21 (Column 4)	2021-22 (Column 5)	2022-23 (Column 6)	2023-24 (Column 7)	2024-25* (Column 8)	2025-26* (Column 9)	(Column 10)	(Column 11)	(Column 12)	(Column 13)
Victoria											
Deakin University											
IH210100023	ARC Research Hub for Functional and Sustainable Fibres	500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00	Advanced Manufacturing	England, Finland, Switzerland, Singapore	QUICKSTEP TECHNOLOGIES PTY LTD, HARA THE LABEL PTY LTD, HEIQ PTY LTD, XEFCO PTY LTD, IMAGINE INTELLIGENT MATERIALS LIMITED., TRANSPORT ACCIDENT COMMISSION, CONVEYOR PRODUCTS AND SOLUTIONS PTY LTD, SIMBA COMMERCIAL PTY LTD, NANOLLOSE LIMITED, CARBON REVOLUTION LTD, ELG CARBON FIBRE LTD
Razal, Prof Joselito M	This Research Hub aims to expand Australia's position in fibres, textiles and composites by developing next generation functional fibre materials and creating synergy between functionality and sustainability, two key attributes that have hitherto been mutually exclusive. The Hub will transform regional and national economies from traditional manufacturing to a vibrant future fibre oriented advanced manufacturing sector with functionality and sustainability as central tenets. Expected outcomes include industry adoption of novel fibre-based materials, processing and recycling technologies; creating jobs, significant environmental benefits, and positioning Australia at the front of a global shift towards functional and sustainable materials.										
National Interest Test Statement											
The Hub will harness Australia's strong research capacity in fibre, textiles, and composite materials science to develop novel materials with enhanced functionality; meeting consumer and industrial demand for advanced fibre capabilities. Under increasing market and environmental pressure, innovation and sustainability are becoming inseparable concepts across the fibre industry. There is an urgent need to reduce reliance on petroleum-derived feedstock, and to reduce the environmental impact of supply chains, including end of life management, while attaining an ever-greater range of functionalities. The outcomes – new materials, processes and end-of-life options – balancing advanced functionality with sustainable approaches, will give partners, innovative Australian SMEs and key global players, a significant market edge in a large global industry. Successful transitioning of the research outcomes will increase productivity and competitiveness in the advanced manufacturing sector of the Australian economy, centred around issues identified as critical to the future of the Australian and global fibre industries.											
	Deakin University	500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00			

Minister's Approval for Industrial Transformation Research Hubs for Funding Commencing in 2021 Schedule

Approved Organisation, Leader of Approved Research Program	Approved Research Program	Estimated and Approved Expenditure (\$)				Indicative Funding (\$)		Total (\$)	Industrial Transformation Priorities	International Collaboration	Partner Organisation(s)
(Columns 1 and 2)	(Column 3)	2020-21 (Column 4)	2021-22 (Column 5)	2022-23 (Column 6)	2023-24 (Column 7)	2024-25* (Column 8)	2025-26* (Column 9)	(Column 10)	(Column 11)	(Column 12)	(Column 13)
Monash University											
IH210100025	ARC Research Hub for Advanced Manufacturing with 2D Materials (AM2D)	471,564.00	946,488.50	951,961.50	909,562.00	766,057.00	333,532.00	4,379,165.00	Advanced Manufacturing, Mining Equipment, Technology and Services	England, Korea, Republic of (South), France, Japan	IONIC INDUSTRIES LTD, CLEAN TEQ HOLDINGS LIMITED, STRATEGIC ENERGY RESOURCES LIMITED, GRAPHENE TECHNOLOGY SOLUTIONS PTY LTD, GRAPHENE MANUFACTURING AUSTRALIA PTY LTD, INDUSTRIAL INNOVATIONS PTY LTD
Majumder, Prof Mainak	Australia holds large resources of critical 2D minerals – key enablers of several existing and emerging technologies in Energy Storage, Purification and Printed Electronics. The AM2D hub aims to provide a sophisticated environment for researchers and an industrial translation platform for manufacturers; a hub where leading academics, bright students, and industry partners come together to learn, apply, collaborate, innovate, and deliver industry transformation in advanced manufacturing. Anticipated outcomes include the transformation of newly discovered materials into globally traded, high-value 2D products, enabling Australian industries to capture more wealth and jobs from this large and growing market.										
National Interest Test Statement											
The AM2D hub aims to take advantage of Australia's global competitive advantage in the abundance of critical 2D materials deposits, and develop innovative and, ultimately, globally traded, commercial products based on this enabling class of materials. Through data-driven processing and smart manufacturing optimisation, the hub will rapidly transfer clever scientific ideas and products to local industries that are immediately realisable and can be manufactured at scale in Australia. This will enable significant commercial benefit for Australian high-tech businesses, particularly SMEs, as well as medium-term economic benefit through licensing and exports. Smart manufacturing of new-to-world devices and products will also catapult Australian industry to the forefront of the global energy storage, water purification, and printed electronics markets and will unlock new investment in other application areas where functional 2D coatings and 2D sensors show immense promise. .											
Monash University		471,564.00	946,488.50	951,961.50	909,562.00	766,057.00	333,532.00	4,379,165.00			
The University of Melbourne											
IH210100051	The ARC Research Hub for Digital Bioprocess Development	500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00	Medical Technologies and Pharmaceuticals, Advanced Manufacturing	Germany, Italy, United States of America, England, Estonia, Netherlands	CSL INNOVATION PTY LTD, PALL AUSTRALIA PTY LTD, PATHEON BIOLOGICS AUSTRALIA PTY LTD, UNIVERSITY OF TARTU, UTRECHT UNIVERSITY, NETHERLANDS, THE UNIVERSITY OF NOTTINGHAM, UK, UNIVERSITY OF BOLOGNA, ITALY
Gras, Prof Sally L	The ARC Hub for Digital Bioprocess Development aims to assist the Biopharma industry by increasing digital innovation, productivity and competitiveness. An interdisciplinary team of engineers, scientists and computing specialists will develop digitally integrated advanced manufacturing processes and a platform for industry adoption. The program will address key bioprocessing research challenges and develop new process and digital models that can predict and optimise manufacturing processes, resulting in greater yields, faster and more flexible processes and enhanced product stability. The Hub will transform biopharmaceutical manufacturing and unlock growth opportunities to forge an internationally competitive Australian Biopharma sector.										

Minister's Approval for Industrial Transformation Research Hubs for Funding Commencing in 2021 Schedule

Approved Organisation, Leader of Approved Research Program (Columns 1 and 2)	Approved Research Program (Column 3)	Estimated and Approved Expenditure (\$)				Indicative Funding (\$)		Total (\$)	Industrial Transformation Priorities	International Collaboration	Partner Organisation(s)
		2020-21 (Column 4)	2021-22 (Column 5)	2022-23 (Column 6)	2023-24 (Column 7)	2024-25* (Column 8)	2025-26* (Column 9)	(Column 10)	(Column 11)	(Column 12)	(Column 13)
National Interest Test Statement											
This Hub will assist the Biopharma industry by developing new models that can optimise manufacturing processes, strengthen productivity and improve its international competitiveness. The Australian Biopharma industry contributes \$1.2 billion in exports and \$8.9 billion to the Australian economy but has cost disadvantages, has been slow to adopt Industry 4.0 technologies and is under threat from international competitors. Partnering with Australia’s premier Biopharma companies, the ARC Hub for Digital Bioprocess Development will prepare Biopharma for the future, creating a resilient and agile industry capable of producing world-class healthcare vaccines and medicines accessible for all Australians. A critical sovereign capability will be forged and advanced manufacturing will grow, raising Australia’s profile as a high-value manufacturer and attracting international investment. The Hub will create highly-skilled workers, upskill the current workforce and make digital bioprocessing accessible to Biopharma, emerging Biotech and other industries essential to Australia’s prosperity.											
	The University of Melbourne	500,000.00	1,000,000.00	1,000,000.00	1,000,000.00	1,000,000.00	500,000.00	5,000,000.00			
	Victoria	1,471,564.00	2,946,488.50	2,951,961.50	2,909,562.00	2,766,057.00	1,333,532.00	14,379,165.00			
		3,727,473.00	7,457,925.50	7,463,187.50	7,420,190.00	7,018,387.50	3,330,932.50	36,418,096.00			