



APRIL 2020

Economic impact of the University of Sydney

Version 1.2

ACIL ALLEN CONSULTING



Introduction

The University of Sydney (the University) is a leading higher education and research university and a significant economic and social institution in New South Wales and in Australia. It was founded in 1850 as Australia's first University and is ranked number one in Australia across a range of disciplines including in science, education, the arts and built environment.¹

The University is one of the most significant institutions in NSW and provides the community with invaluable educational, research, economic, cultural and social benefits. The University adds significantly not just to the economic output of the economy through incomes, employment and increased productivity but to the social fabric of NSW and Australia.

The University has commissioned ACIL Allen Consulting (ACIL Allen) to assess the economic contribution and impact that the University has made to the NSW and Australian economies in 2019 as well as the historical contribution of the University from 2006 to 2019. This study assesses the economic contribution and impact that the University makes through its: (i) operations and capital expenditure, (ii) research activities, (iii) educational activities, (iv) students' expenditure, and (v) student's visitor's expenditure.

In assessing the economic contribution and impact of the University of Sydney, ACIL Allen has drawn on data provided by the University over the period 2006-2019.

The University of Sydney has grown significantly over this period with major improvements in not just facilities but in the breadth and quality of its research and educational offerings.

The significant increase in enrolments includes outreach to many communities and students that may have not otherwise pursued a higher education pathway.

Over the period 2006 to 2019:

- students' enrolments rose from 50,168 to 73,902
- graduates increased from 10,173 in 2006 to 14,150 in 2019
- University revenue grew from \$1.24 billion to \$2.64 billion
- the contribution of students' and visitor expenditure to the NSW economy increased from \$213 million to \$774 million.

Based on the University of Sydney's activity in 2019, its contribution to the Australian economy was:

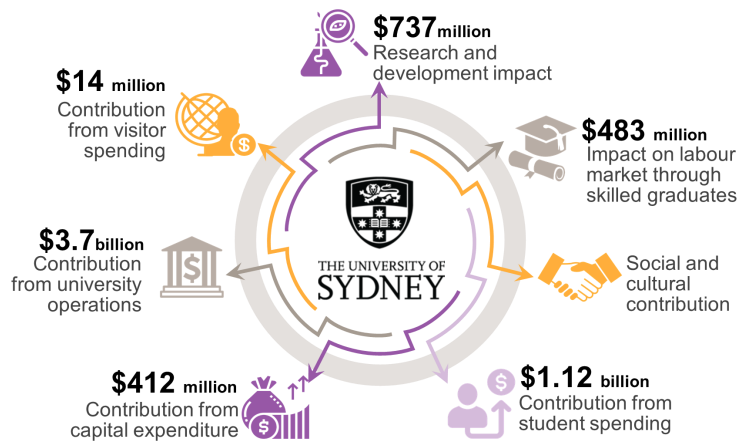
- employment: **35,633** full-time equivalent (FTE)²
- economic output: **\$5.9 billion**
- research impact: **\$2.2 billion** net present value (NPV) with every \$1 dollar of research spend generating an **additional \$7.82 of GDP** (or \$6.05 in NPV terms)
- education impact: **\$900 million** (NPV).

¹ QS World University Rankings 2019, Financial Times Business School Rankings 2018, Academic Ranking of World Universities (ARWU) 2019, US News and World Report.

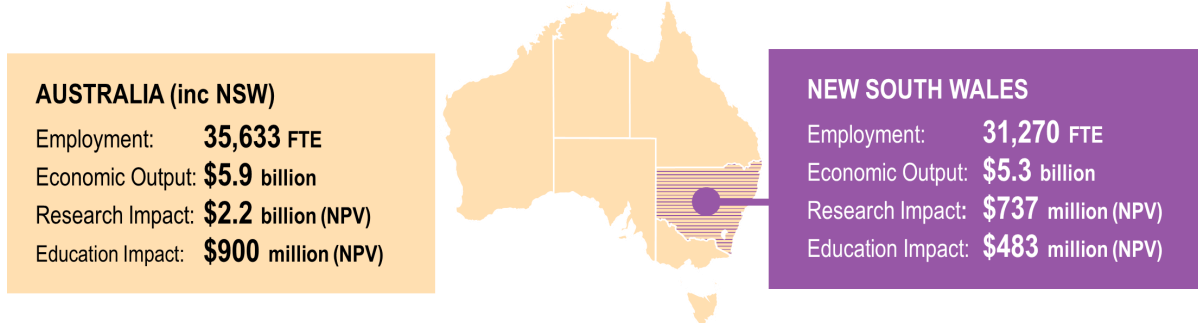
² FTE years is a measure of employment over time. An employee year is employment of one full time equivalent (FTE) person for one year. Alternatively, it can represent employment of a 0.5 FTE person for two years.

2019

The University of Sydney's contribution to the NSW economy from activity in 2019

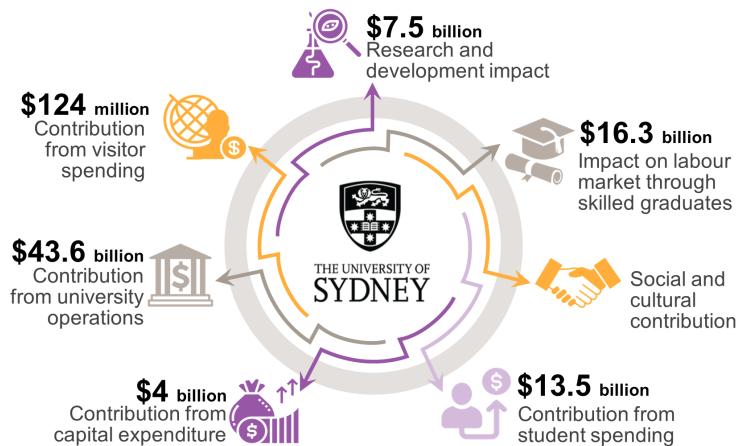


University contribution to the NSW and Australian economy: 2019

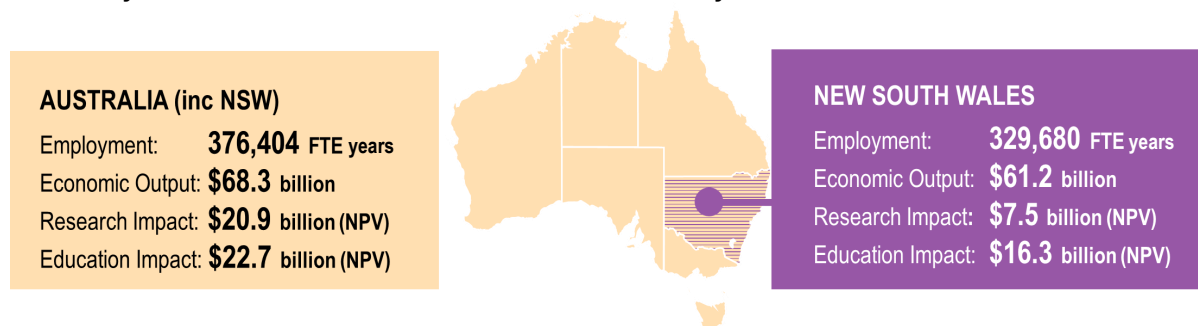


2006–2019

The University of Sydney's contribution to the NSW economy from activity over the period 2006–2019



University contribution to the NSW and Australian economy: 2006-2019



Economic contribution of University related expenditure

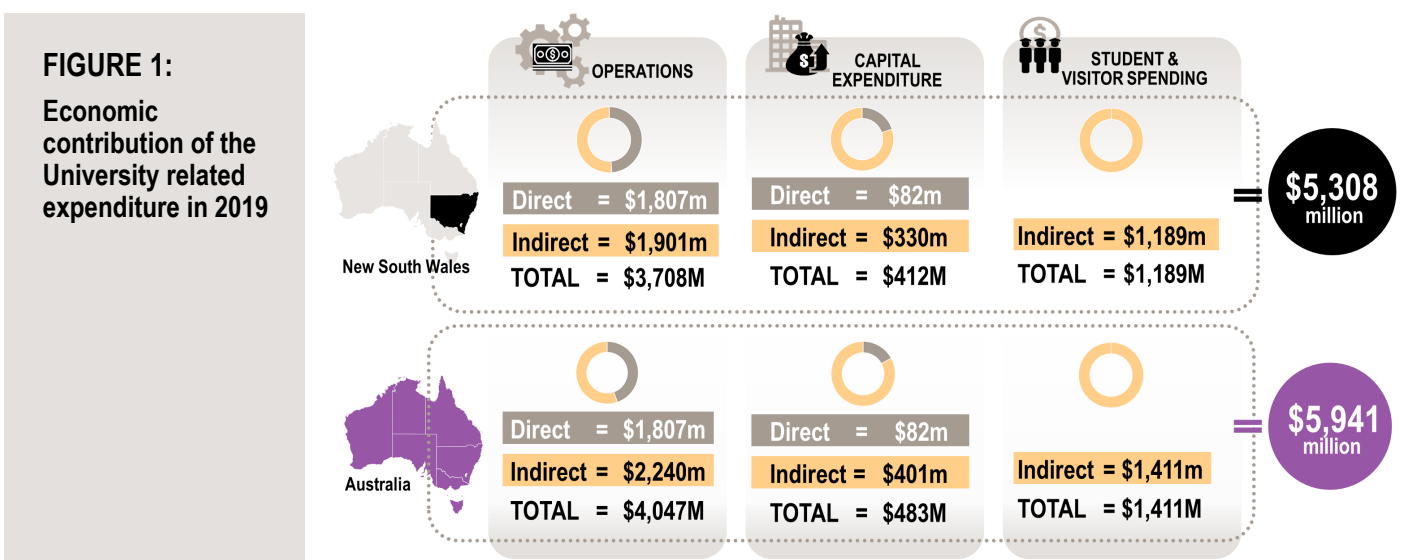
The economic contribution of University related expenditure includes the expenditure by the University, expenditure by the University's students and visitors, and the flow on impacts to other sectors of the NSW and Australian economies. The economic and employment contribution to the NSW and Australian economy arising from this expenditure in 2019 and over the longer period 2006 to 2009 is outlined in this section.

ECONOMIC CONTRIBUTION IN 2019

ACIL Allen estimate that the contribution of the University-related expenditure to the **NSW economy in 2019** was around **\$5.3 billion**. This is a significant contribution and is equivalent to 0.85 per cent of NSW GSP in 2019. It comprises:

- a direct contribution of around **\$1.89 billion**
- a production induced contribution of around **\$1.56 billion** associated with the value added embodied in the production chain
- a consumption induced contribution of around **\$1.86 billion** associated with spending by workers employed throughout the supply chain.

ACIL Allen estimate that the contribution of the University-related expenditure to the **Australian economy** (including NSW) in 2019 was around **\$5.9 billion**, this contribution is equivalent to 0.31 per cent of Australia's GDP in 2019 (see Figure 1).



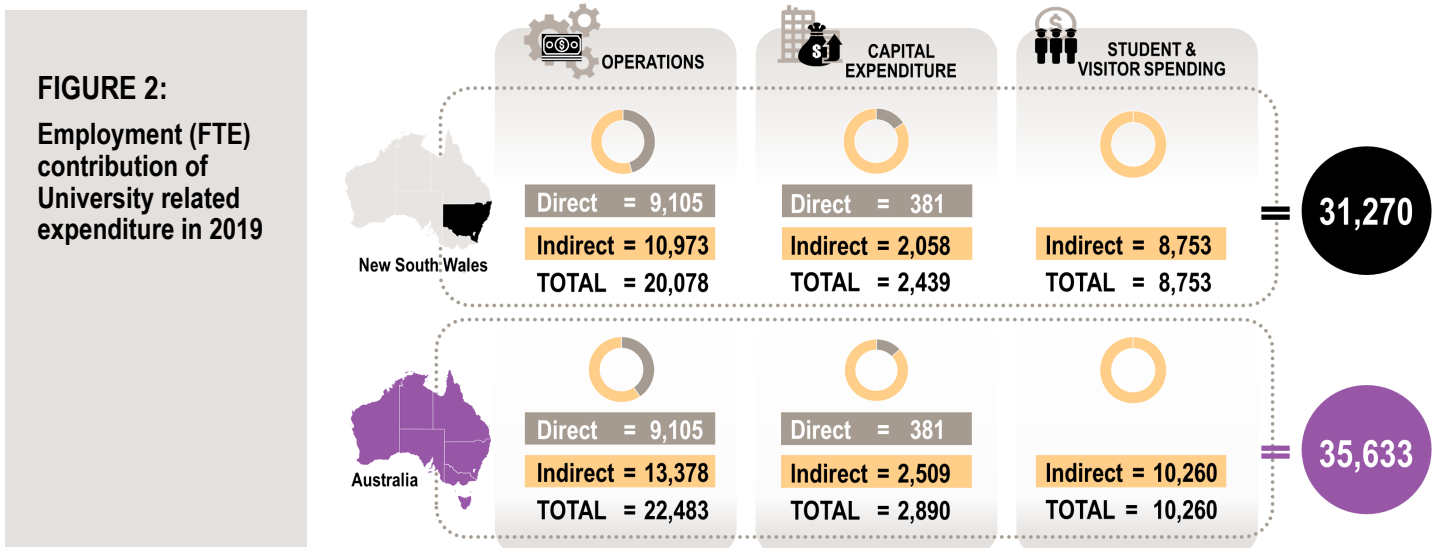
EMPLOYMENT CONTRIBUTION IN 2019

The University also makes a significant contribution to NSW in terms of employment. Besides directly employing a significant number of people, the expenditure related to the University creates a number of indirect jobs as a result of:

- University employees and student spending money in the community
- spending by businesses that supply goods and services to the University.

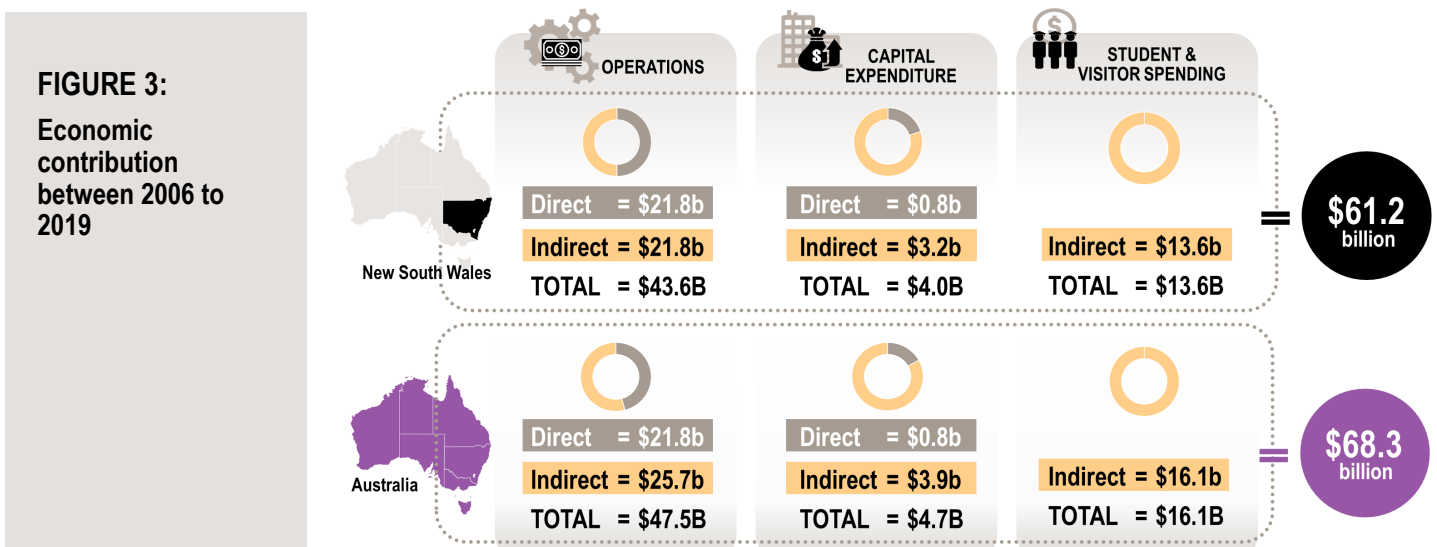
ACIL Allen estimate that **31,270 FTE** years were supported directly and indirectly in NSW in 2019 by the University which was a 40 per cent increase on the number supported in 2006. The number of FTE years Australia-wide is estimated to be **35,633** (see Figure 2).

The largest employment contributions result from the operations of the University and student expenditure, which contributed around 20,078 FTE years and around 8,666 FTE years, respectively to the NSW labour market during 2019.



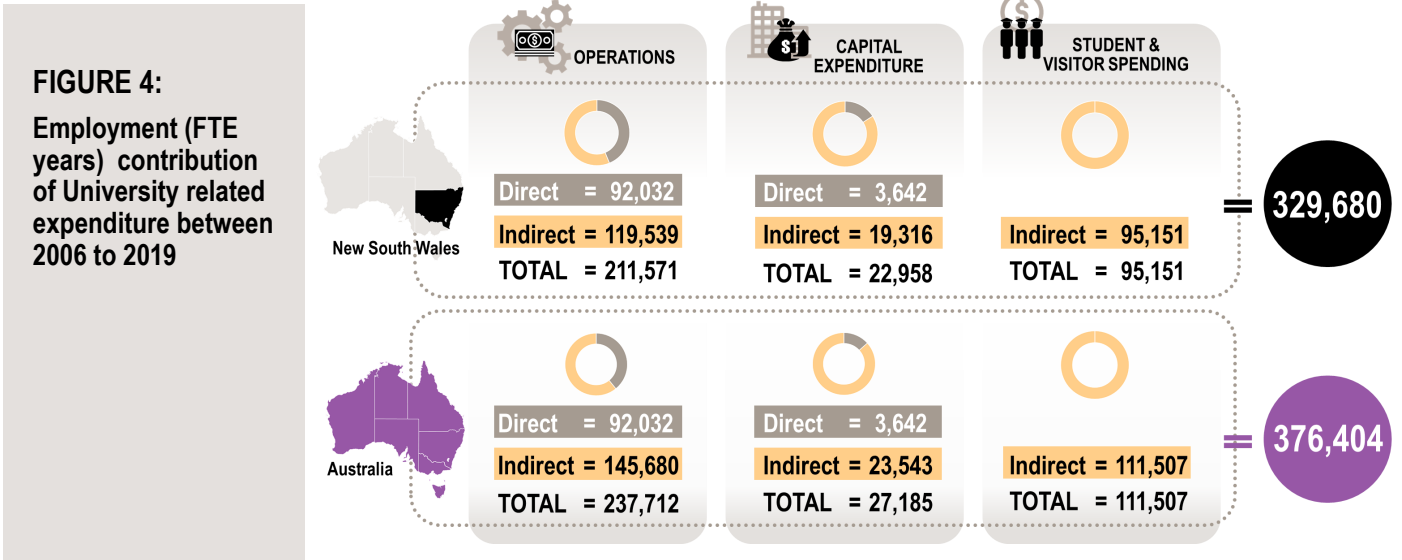
ECONOMIC CONTRIBUTION BETWEEN 2006 TO 2019

Looking over a longer period between 2006 and 2019, the University related expenditure contributed **\$61.2 billion** to the NSW economy and contributed **\$68.3 billion** to Australia overall during these years (see Figure 3). More than 70 per cent of the contribution was from the University's operations, with student expenditure accounting for 22 per cent.

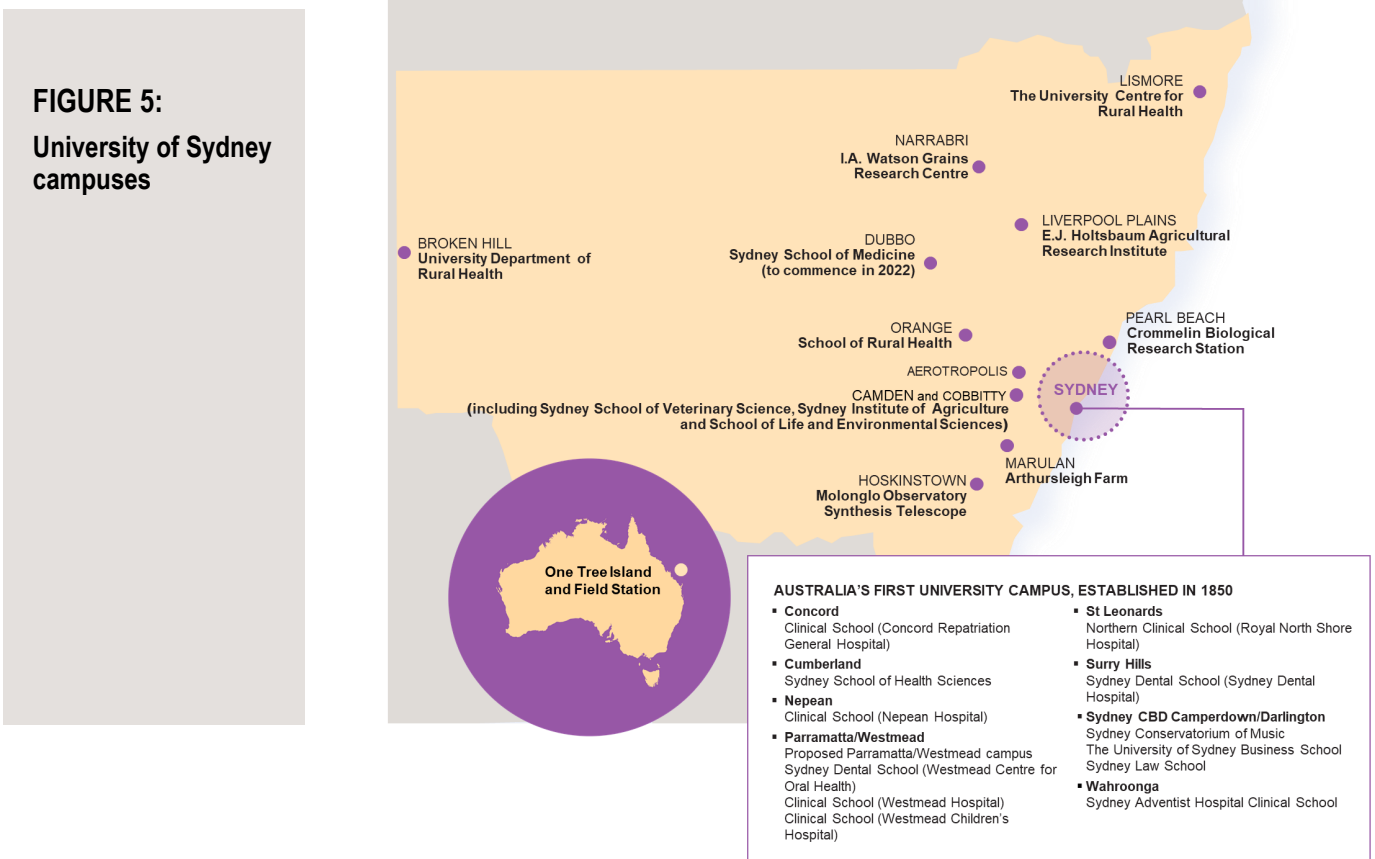


EMPLOYMENT CONTRIBUTION BETWEEN 2006 TO 2019

The numbers of jobs arising from University expenditure between 2006 and 2019 is shown in Figure 4. In total, between 2006 and 2019, University-related expenditure supported a total of **329,680 FTE years** in the NSW economy and 46,724 FTE years in the rest of Australia.



The University also makes a significant contribution to NSW in terms of employment in both metropolitan and regional areas with campuses at Camperdown/Darlington, Cumberland, Camden, Cobbitty, Rozelle, Sydney Medical School and Teaching Hospitals, Surry Hills, Parramatta/Westmead and Sydney CBD as well as a presence in 11 other regional centres and locations across NSW (see Figure 5).



Economic contribution of the University's research activities

The University of Sydney is rated as one of the leading Universities in Australia and in the top 5 per cent of Universities in the world. The University is also ranked in the top 50 in the world for more than 35 subjects and on a range of rankings is first in Australia in a number of fields including graduate employability, architecture and the built environment, oncology, veterinary science, education, arts and humanities, transportation science and technology.³

All 22 fields of research undertaken by the University of Sydney have been rated as above, or well above, world standard by the Australian Research Council with 11 achieving the top rating of "well above world standard" and 11 rated "above world standard".⁴

The contribution of the University's research was assessed by estimating the effect of the research on the future productivity and economic output of the NSW and Australian economies over the period 2006 to 2037 – compared to what would have been produced if spent on less productive investments in the economy.

Impacts of 2019 research

The University's 2019 research is projected to **increase the real economic output for:**

- NSW by more than **\$737 million** (in NPV terms) over the period 2019-2037
- Australia by a total of nearly **\$2.2 billion** (in NPV terms) over the period 2019-2037.

Every \$1 dollar of research spend at the University in 2019 generated an additional **\$7.82** of GDP (or **\$6.05** in NPV terms).

For every **\$1 dollar** of Government research funding the University receives it spends an additional **\$1.52** to undertake the research in terms of full operating costs.

Impacts of research between 2006–2019

The University's research between 2006 and 2019 are projected to **increase real economic output for:**

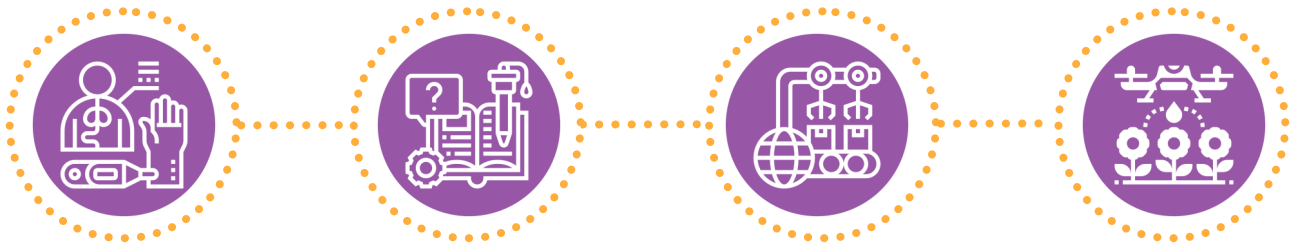
- NSW by a total of **\$7.5 billion** (in NPV terms) over the period 2006-2037
- Australia by a total of **\$20.9 billion** (in NPV terms) over the period 2006-2037.

Every \$1 dollar spent in research at the University between 2006 and 2019 has generated an additional **\$6.43** of GDP (or **\$4.94** in NPV terms).



³ Times Higher Education (THE) World University Rankings 2020, QS World University Rankings 2020, QS World University Rankings 2019, Financial Times Business School Rankings 2018, Academic Ranking of World Universities (ARWU) 2019, US News and World Report.

⁴ Australian Research Council, 2019, 2018 Excellence in Research for Australia (ERA).



The biggest impact of the University's research over the period 2006-2037 is in health care services, the education and training sectors (\$14.8 billion), agriculture (\$3.7 billion) and the manufacturing sector (\$2.4 billion).

The cumulative employment impact of the University's research activities between 2006 and 2019 is estimated to be **13,056 FTE** years in NSW over the period 2006 to 2037 and **34,215 FTE** years across the whole of Australia.

REPAIRING SKIN



University of Sydney McCaughey Chair of Biochemistry, Prof Anthony Weiss AM, founded Elastagen Pty Ltd in 2005 to commercialise his breakthrough in a process to manufacture a protein called tropoelastin (essentially a form of a synthetic skin) to treat patients with severe burns and chronic wounds.

In 2018, Elastagen announced that it was to be acquired by Allergan plc, one of the world's 20 largest biopharmaceutical companies. This deal, worth more than \$A350 million, is one of the largest transactions ever completed in the Australian life science sector. ACIL Allen estimate that the benefits just to burns victims and the health system in Australia alone over the next ten years are more than \$114 million.

HELPING PEOPLE LIVING WITH CHRONIC LUNG DISEASE BREATHE EASY

Chronic obstructive pulmonary disease (COPD) is a leading cause of death and disease burden in Australia following heart disease, stroke and cancer.

Professor Jennifer Alison, from the University of Sydney, has led a team of researchers and clinicians from across Australia to develop innovative approaches to improve the care of people with COPD. This includes an online evidence-based rehabilitation Toolkit for health care professionals to improve their capacity in assessing and treating patients with chronic lung disease. The Toolkit involves exercises, psychosocial support and education on disease management. Aboriginal and Torres Strait Islander peoples in Australia are a key group impacted by COPD. To address this, Professor Alison and Prof Graeme Maguire developed the 'Breathe Easy, Walk Easy (BEWE) Program' in partnership with the Lung Foundation Australia to support the provision of pulmonary rehabilitation in rural and remote areas of Australia. The project is strongly supported by the Poche Centre for Indigenous Health at the University of Sydney.



Economic impact of the University's education activities

The contribution of the educational activities undertaken by the University was assessed by estimating the effect of the University on the future productivity of the NSW and Australian workforce through the output of graduates over the period 2006 to 2037 over and above what would have been generated if invested in less productive areas.

Impacts of 2019 education activities

The University's 2019 education activities are projected to **increase the real economic output** of:

- *NSW* by a total of **\$483 million** (in NPV terms) over the period 2019-2037
- *Australia* by a total of **\$900 million** (in NPV terms) over the period 2019-2037.



Impacts of 2006-2019 education activities

Over the longer term, the University's 2006 to 2019 graduates are projected to **increase the real economic output** of:

- *NSW* by a cumulative total of **\$16.3 billion** (in NPV terms) over the period 2006-2037
- *Australia* by a cumulative total of **\$23 billion** (in NPV terms) over the period 2006-2037.

The University's past and current graduates are projected to increase total employment in NSW by **31,254 FTE** years over the period between 2006 and 2037 and by **42,663 FTE** years across Australia.

SOCIAL AND CULTURAL CONTRIBUTIONS

The University of Sydney's impact on society extends far beyond what can be measured in purely economic terms. The University has extensive outreach and engagement with the community, industry, not-for-profits, government and makes an invaluable contribution to society from a cultural, social and environmental perspective. This includes building local community capacity in Sydney and other communities and by enriching the quality of life of people through the arts, culture, sport and through innovation and creativity.

The University of Sydney has also played a fundamental role over the last 150 years in helping to build a more just and equitable society by enabling people from all backgrounds, including the more marginalised in society, to reach their potential and increase participation in higher education.



Community engagement, arts and culture

Examples of the University's engagement and broader social and cultural contribution include:

- **The INSPIRED campaign** – is an example of the strong engagement and connection that the University of Sydney has with its alumni and broader community in Australia and overseas. More than 64,000 individual donors have contributed more than \$1 billion to the INSPIRED campaign making it the most successful philanthropic campaign of any university in Australia.
- **The Sydney Policy Lab** – aims to connect experts from across the University from different domains to focus on public policy research and development on major challenges relevant to Sydney, the region and Australia.
- **The Sydney Knowledge Hub (SKH)** – established in 2019, the SKH provides co-working spaces for external partners in industry, government and community organisations to promote innovation, collaboration and engagement with researchers and students at the University.
- **Sydney Genesis** – supports startups by providing mentorship, cash grants to assist in commercialising products or services and assistance with gaining media coverage and exposure. The Genesis program has supported over 1,000 startups since its commencement in 2008 and around 80 mentors, mostly from the private sector, provide their time and advice to startups.

PERFORMING ARTS, THEATRE AND MUSIC



Since 1975 the **Seymour Centre** has not only played host to a broad array of local and international artists but as a “university” performing arts centre it has been a major promotor and presenter of theatrical innovation and experimentation supporting the artists of the future. In 2019 the Seymour Centre hosted 613 performances and had over 250,000 visitors and over the last five years the Seymour Centre has presented over 3,000 performances with around 1,181,000 visitors.

The **Sydney Conservatorium of Music** has had a significant influence on Australia's musical landscape for over 100 years, providing a comprehensive musical education to thousands of students and hosting performances of international standard. In 2019 the Sydney Conservatorium of Music held over 1,750 events and public performances with almost 59,000 patrons, on average around 55,000 patrons a year attend around 1,700 events and performances at the Sydney Conservatorium.



Equity and participation

The University of Sydney was founded in 1850 on the principle of providing people from all backgrounds with the opportunity to undertake higher education. This is reflected in the University today where significant measures have been taken by the University leadership and staff to embed diversity and inclusion into the culture of the University. In 2019, the University and its foundations invested **approximately \$106 million in scholarships and prizes** to support students in their education.



WIDENING PARTICIPATION OF UNDERREPRESENTED GROUPS

The Widening Participation and Outreach Program (WPO) is the University's flagship program aimed at engaging with schools, equity groups, Aboriginal and Torres Strait Islander students and students in regional NSW. The WPO program involves a series of events and activities for young people that are underrepresented in higher education to enhance their learning potential, build their academic capacity and experience university life and spark their interest in studying at university. In total 11,525 students participated in 35 individual WPO events in 2019 involving 421 primary and high schools and there were 22,845 student engagements with the WPO program in 2019 compared with 3,920 in 2009.

Aboriginal and Torres Strait Islander peoples

As Australia's first university, the University of Sydney has a strong commitment to support Aboriginal and Torres Strait Islander peoples by helping to increase their participation in higher education and partner with communities to provide services and undertake research to help close the gap in health and other areas.

The Wingara Mura-Bunga Barrabugu (WMBB) is the University-wide strategy for Aboriginal and Torres Strait Islander education, research, participation and engagement. This strategy is complemented by the Unfinished Business Action Plan which outlines the priorities that the University will take in 2020 towards addressing work that is still to be done under the 2012 WMBB strategy and setting the foundations for future initiatives.

WINGARA MURA-BUNGA BARRABUGU (WMBB) SUMMER PROGRAM



The Wingara Mura-Bunga Barrabugu (WMBB) Summer Program is a week-long residential that offers Aboriginal and Torres Strait Islander students from around Australia the opportunity to live on campus and take part in activities and workshops that help them explore the opportunities of higher education in a real world setting.

177 Aboriginal and Torres Strait Islander students participated in the program in 2019 from across 101 high schools. After completing the program 90 per cent of students felt confident in their ability to succeed academically.



Sustainability

The University of Sydney has a strong commitment to the environment and sustainability through its on-campus activities, education programs and world leading research. In 2020 the University of Sydney ranked 1st in Australia and 2nd in the world by Time Higher Education (THE) against the United Nations Sustainable Development Goals.

In February 2015 the University set a three-year goal in its carbon reduction strategy ensuring the carbon footprint of its listed equities was 20 per cent below a composite benchmark and achieved this in 2017.

As of September 2019, it was a record 55 per cent below the composite benchmark, 21 percentage points lower than the 34 per cent measured in 2018. Since 2014 the listed equity portfolio's carbon footprint has fallen 71 per cent in absolute terms.

The University's installation of solar panels on 20 buildings at the Camperdown/ Darling campus, saw solar panels generate 1,000 MWh of electricity in 2019 saving 900 tonnes of avoided CO₂ emissions, equivalent to the emissions of over 200 cars or 100 homes.

The University also seeks to establish itself as a place that drives social and environmental change where sustainability is integrated into our campus life through the implementation of world-leading research and education.



In the areas of Environmental Studies all four areas of research at the University (including Environmental Science, Ecological Applications, Environment Science and Management and Soil Sciences) are rated at well above world standard. Engineering research at the University is also rated well above world standard and areas such as Environment and Design and Earth Sciences are rated above world standard.



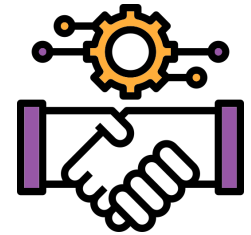
WASTE RECYCLING

Sydney University's Nanoscience Hub (Sydney Nano) was established in 2015 with \$110 million of University funds and \$40 million from the Commonwealth Government. Prof Thomas Maschmeyer, the inaugural director of Sydney Nano, developed a process that uses water at high temperature and pressure to transform low rank coal, waste biomass and plastics into oils, waxes and chemicals. Licella Holdings was established with support from the University to commercialise the research and the company now employs more than 40 people in NSW and is in the process of building commercial scale hydrothermal plants in Australia and China with international joint venture partners.



Community and industry engagement and partnerships

Strengthening engagement and developing strong partnerships with the community and key stakeholders underpins much of the work of the University of Sydney. This is reflected in the Australian Research Council's 2019 Engagement and Impact Assessment report which reviewed all 22 Fields of Research of the University and assessed 42 per cent of the University research as 'high' in terms of engagement, well above the average of the sector of 34 per cent.



The University of Sydney has a total of 145 Research Centres, Collaborative Networks and Centres of Excellence including ten multidisciplinary initiatives which bring together researchers from across the University in collaboration with industry and other partners.

These centres and initiatives have formed strong relationships with industry and other external organisations which have facilitated the commercialisation of research and the application of research in partnership with industry to help provide innovative solutions to improve environmental and economic outcomes.

PARTNERSHIP WITH QANTAS



In 2012, Prof Salah Sukkarieh from Sydney University's Australian Centre for Field Robotics (ACFR) began a collaboration with Qantas to develop innovative software that would allow more efficient flight planning. Constellation, the new flight planning system, won the 2019 IHS Jane's Technology award for enabling flight efficiency and fuel savings.

Constellation is the most advanced flight planning system used by any airline in the world and is expected to help Qantas cut fuel use by as much as 1 per cent, potentially saving \$40 million and 50,000 tonnes of carbon dioxide emissions each year.

RESEARCH FOR GENDER EQUALITY IN THE WORKPLACE

The University of Sydney's **Women, Work and Leadership Research Group** aims to expand knowledge and research expertise on women and work. Led by Professor Marian Baird and Professor Rae Cooper, the group engages closely with industry, including through an Australian-wide survey of employees, to assess workforce trends and to bridge the gap between academia and policy. The group's research has made a significant contribution to both government and company policies about parental leave, women and leadership, flexible and equitable work arrangements and domestic and family violence leave. The Research Group is currently undertaking a study, in partnership with the retail sector and legal practitioners, to design gender equality into the future of their work practices.

The background of the top section is a photograph of the University of Sydney's main building, a grand Gothic Revival structure with a central clock tower and multiple spires, set against a clear blue sky. The building is surrounded by a green lawn and a paved walkway.

About this study

This study measures the three main avenues in which the University of Sydney contributes to the economy:

- (i) through the goods and services purchased by the University, through its day-to-day operations, capital expenditure and through the expenditure of students and associated visitors (demand-side contribution)
- (ii) through the educational and research activities of the University supplies (supply-side contribution, eg research outputs and highly skilled graduates).

University teaching is essentially an investment in human capital. University of Sydney graduates are highly-skilled jobs and therefore the University contributes to increased labour productivity at the economy level and enhanced earnings for graduands at the individual level.

In addition, scientific research undertaken by the University generates economic impacts when the outputs of these research projects are adopted by industry to develop new products and processes, leading to increased productivity and the development of new products and services in the economy.

- (iii) the University of Sydney also provides important contributions to the social and cultural life in NSW and Australia by helping to shape the development of many aspects of the community, particularly in areas like the creative arts and culture, public debate and knowledge, the environment and community identity. The University also acts to improve the ability of the community to respond to issues by building community capacity for strong decision making, leadership and informed choices.

The economic contribution of the University related expenditure (including student expenditure) was assessed using NSW and Australian input-output (IO) models which measure the value-added contribution throughout the economy and the increase in economic output (Gross State Product (GSP) in NSW and Gross Domestic Product (GDP) for Australia).

The economic impacts of the University's research and educational activities were assessed using Tasman Global, ACIL Allen's in-house Computable General Equilibrium (CGE) model of the Australian economy.