08. Utilising Australia's Extraordinary Talent to Grow the Innovative Medicines Industry

Medicines Australia

Better health through research and innovation

Workforce Development

> The strength of the innovative medicines industry depends on the talent of the people within it and their skills and knowledge.

Investing in the capabilities of Australia's innovative medicines industry will deliver more jobs and new medicines that can save lives.

Australia's future prosperity will rely on science, technology, engineering and mathematics (STEM) – disciplines that are at the core of innovation. STEM qualified employees are the core drivers of innovation and are fundamental for businesses which rely on STEM graduates to remain competitive and their expertise will continue to facilitate and sustain economic growth.

Objectives

Medicines Australia strongly supports the Australian Government implementing the following measures to boost our future competitiveness and help create high-skill jobs:

- Investing and supporting further investment in the innovative medicines sector to continue to drive the demand for high-skills jobs.
- Reducing employment barriers through initiatives targeted to (but not limited to): people of Aboriginal and Torres Strait Islander backgrounds, people with a disability, women, and people from diverse cultural backgrounds.
- Supporting the medicines industry, as well as the education, training and research sectors towards new growth through a comprehensive plan.
- Ensuring that Australia has a suitably skilled and adaptable workforce to supply people qualified in science, technology, engineering and mathematics (STEM) in response to demand.
- Working with the medicines industry and the education, training and research system to better align training and industry needs.

> **Key Fact:** The medicines industry employs around 24,602 Australians, many of which are highly skilled jobs, with above average incomes.

Australia's medicines industry is currently one of Australia's major innovative industries, and consists of research, manufacturing, marketing and sales arms. It is an integral part our knowledge intensive economy. The jobs the medicines industry creates have high wages and require a workforce with diverse skills and educational levels. Even more importantly, the industry helps to save lives and improve health care outcomes.[1]

> The innovative medicines industry is made up of three inter-related areas:

Pharmaceuticals: Researching, developing and distributing medicines to treat illness or disease.

Vaccines: Researching, developing and distributing vaccines to prevent illness and disease.

Biotechnology: Researching, developing and distributing biological medicines using biotechnology techniques.

Despite the negative impact on the value of pharmaceutical exports observable in Figure 1, the trend for exports has increased since the low of mid-2015 and continues to grow. As an Australian produced export, pharmaceutical products continue to grow by approximately 16% over the past few years.

There is growing demand for products from Australia's advanced manufacturing plants, such as AstraZeneca (see Example Case 1). Innovative pharmaceutical companies will invest to establish plants in response to a range of environmental, political, economic and regulatory characteristics of a country. In 2016, Australia was ranked fifth of 54 nations in terms of biotechnology innovation by the Scientific American Worldview which is based on scores for productivity; intellectual property (IP) protection; intensity; enterprise support; education and workforce; infrastructure and research and development drivers; and policy and stability of government. Such facilities support highly qualified science, technology, engineering and mathematics (STEM) jobs, and associated economic benefits in Australia.

Figure 1: Workforce profile of Medicines Australia member companies.

Jobs supported (FTE)

12,000 - Direct | **10,900 - Indirect**

Source: Medicines Australia member economic survey (2017)

As demonstrated above, in 2016 the innovative medicines industry in Australia supported approximately 22,900 FTE jobs. More than half of those were roles directly employed in the industry. The vast majority of these roles were highly skilled positions, which is reflective of the broader changes to Australia's economy over the decade. Approximately 80% of pharmaceutical company employees had attained a bachelor's degree or higher, much higher than the economy-wide average.

In addition to the manufacturing of products, the medicines industry not only require labour and capital, it also needs input in the form of goods and services from other industries. The demand from the medicines industry for such input creates jobs for other industries and suppliers, supporting many more thousands of indirect jobs. Many of these are niche regulatory and reimbursement consulting services for medicines companies. Other indirect jobs supported include those in specialist services equipment suppliers: for example, suppliers of containers, labels and advanced manufacturing equipment.

Challenge: Securing the high-growth industries of the future.

The Australian Government, through its 2014 *Industry Innovation and Competitiveness Agenda*[3] has identified four areas of key interest:

Business environment

Infrastructure

Labour force

Industry Policy

Medical technologies and pharmaceuticals were one of five sectors where industry growth centres were established in the wake of the 2014 report. Medicines Australia welcomes the identification of the innovative medicines industry as a key priority area. Australia has many advantages that make us competitive: skilled workers, world-standard liveability, high-quality infrastructure and proximity to Asia. But these resources must be connected if we are to grow the innovative medicines industry.

Solution: Development of a long-term growth plan for the medicines industry.

Supporting the transition of manufacturing capabilities from traditional strengths to new growth areas will require a long-term shared plan. Globally, the pharmaceutical market is expected to exceed $1.5 trillion by 2023 growing at a compound annual growth rate of 3–6% over the next five years[4] in response to urgent needs to help those suffering from chronic diseases.

There is an enormous economic opportunity for Australia to develop and manufacture the new drugs that will meet the future health needs and deliver better health outcomes for patients.

Australia has extraordinary capabilities, but to be able to successfully translate cutting-edge research into real health and economic outcomes requires successful implementation of a long-term plan.

Collaboration with industry and other key stakeholders has, and will continue to lead to more translational research, increased levels of manufacturing, increased exports and greater health and economic outcomes. The number of high skills and high wage jobs that can be created in the future will largely depend on how much growth occurs as a result of planning and collaboration with industry.

Challenge: Low levels of collaboration between universities and business.

Realising the full potential of the medicines industry will rely on facilitation of the innovative process from initial discoveries into the marketplace. The development of better links between business, research institutions and universities has been outlined as a key Australian Government objective.

This will not be easy to achieve. Numerous Government reviews over the last decade have highlighted the urgent need to improve the links between Australian industry and higher education. Very little improvement in these links has been reported over the same period of time. The university sector's capabilities in particular, will need to be harnessed in business-led research and innovation. Likewise, the university sector should consider how to best collaborate with the business sector to investigate commercially focused research.

Collaboration in Research & Development between Universities and Industry has over the last few years not been as strong as we would expect, reflecting a year on year average growth rate of -0.07% from 2007 to 2017. However, there are positives and areas we can seek to improve on. As of 2016 our yearly index of 4.27% was and continues to be well above the world median of 3.42%. Medicines Australia welcomes the commitment to the ongoing development of collaboration by the Australian Government which will ensure our full potential can be realised.

Solution: Working with the medicines industry and the education, training and research system to better align training and industry needs.

As the Australian Government has identified, transitioning successfully from the mining investment boom to a more diversified economy will rely on job creation in more knowledge intensive sectors.

Medicines Australia notes that the Australian Government believes that this rebalancing presents an opportunity to promote young Australians into growing sectors of the economy through new internship arrangements and PhD students through industry placements. Medicines Australia welcomes a number of specific commitments made by the Australian Government:

- Commitment to 250,000 new jobs for young Australians over the next five years.
- Youth Jobs Path Program with up to 10 industry led job pathway programs to better target the training and internship experiences for young people.
- An additional 1,955 scholarships in 2019, valued at up to $18,000 each, for students undertaking Science, Technology, Engineering, Mathematics, Health and Agriculture tertiary qualifications—more than doubling the 1,200 scholarships previously available under the Rural and Regional Enterprise Scholarships announced in the 2017-18 Budget.
- 1200 undergraduate, postgraduate and Vocational Education and Training (VET) students to undertake a STEM qualification and internship as part of the Rural and Regional Enterprise.
- Over $64.0 million to fund early learning and school STEM initiatives under the Inspiring all Australians in Digital Literacy and STEM measure.
- The Australian Government is providing $28.2 million from 2016-17 to 2019-20 to support more women in STEM careers which will support 1400 new industry-based internships for PhD researchers, with a focus on supporting more women in science, technology, engineering, or mathematical (STEM) disciplines. The program will also promote collaboration between universities and industry by providing PhD researchers the opportunities to gain the skills required by industry.
- $1.9 billion in 2019-20 to universities to support research and research training through performance-based funding formulae.

The medicines industry recognises the need for initiatives that assist researchers to develop necessary experience to equip them for collaborative research opportunities with business.

Mechanisms such as internships, scholarships, graduate intake programmes, industry-based research placements are all needed. In addition, specific solutions to overcome emerging areas of skills gaps are important to consider as part of future planning with State Governments. As illustrated in the case study above, some State Governments are moving to better align education and training programmes with industry needs.

Challenge: Reducing barriers to employment and driving technological innovation.

A growing body of research predicts that the areas of future job growth will require people with higher levels of skills and education, including with skills in science, technology, engineering and mathematics (STEM). This includes research produced by the Committee for Economic Development (CEDA) on Australia's future workforce which suggests that around 5 million Australian jobs will likely be replaced by computers over the next 1-15 years.[5]

Consistent with the Australian Government's research, CEDA also predict that medical technologies and pharmaceuticals are sectors that have major growth potential. In the future, the skills associated with idea generation and translation to the development of new medicines will be increasingly important.

In Australia, women comprise around one quarter of the STEM workforce and 75% of the fasting growing industries will require stem skills. The Australian Bureau of Statistics (ABS) reports that the labour force participation rate for people with disability in 2009 was only 54%, close to half the rate for people without disability (83%).[6]

Data also suggests that in 2011, Aboriginal and Torres Strait Islander people were less likely to be participating in the labour force than non-Indigenous people by a gap of 20.5%.[7]

Solution: Targeted policies to increase employment participation in sectors of future growth.

Government policies that work and investments are needed to create a job market that is accessible to people where employment barriers exist, such as people of Aboriginal and Torres Strait Islander backgrounds, people with a disability, women, and people from diverse cultural backgrounds.

The Australian Government's stated commitments to increasing the diversity of the STEM workforce and implementing measures to improve indigenous employment outcomes are welcomed by Medicines Australia.

Challenge: Creating a work environment where men and women equally thrive.

For Australia to reach its true potential we need an economy that empowers women and provides opportunity for men and women to equally thrive.

The Australian pharmaceutical industry is an employer of choice for women, with 60% of our workforce made up by women. Our industry like-for-like pay gap of 2.4% is relatively low when compared to the general market and we have a strong pipeline of female talent coming through the ranks.[8]

Despite this, barriers still exist in some organisations - particularly in key pay gap areas, flexible working arrangements, and support for parental leave. While women comprise 60% of the workforce across the sector, men make up 66% of Head of Organization roles.

The goal of our industry is to lead the nation in being an industry that is known for equity.

Solution: Industry collaboration to raise the tide on gender equity.

The Pharma Australia Gender Equity Special Interest Group of Medicines Australia, known as PAGE, brings together 18 pharmaceutical companies who are focused on a 2019 action plan to deliver initiatives that support both women and men to do their best work, in an environment of support, collaboration and trust for everyone.

Based on a detailed industry data analysis and with input from a cross section of almost 50 industry leaders, the PAGE group is delivering a focused program designed to boost gender equity. The program focuses on:

- Mainstreaming flexible working solutions for everyone.
- Adopting a rigorous approach to achieving and sustaining pay equity.
- Improving the parental leave experience for all working families

To make this happen, the group have conducted a detailed assessment to determine where policies across these three core areas can be improved; and producing best practice guiding principles that enable companies to enact change.

The baseline is commercially realistic, but with sufficient flexibility to drive impact and change at the industry level. Additional stretch targets have been identified to encourage leadership across all domains.

Our industry leaders will regroup by the end of 2019 to assess the progress made, how collaborating at an industry level has supported individual companies and how the sector can build on this program in 2020 and beyond. PAGE's intention is to incorporate a broader focus on diversity and inclusion after its success on gender issues.

1 AKey Fact; AusBiotech; Australia's Life Sciences Sector Snapshot 2017. Available at: https://www.ausbiotech.org/documents/item/389

2 Industry Innovation and Competitiveness Agenda, Australian Government, October 2014. Available at: http://www.industry.gov.au/industry/Pages/Industry-Innovation-and-Competitiveness-Agenda.aspx#header;

3 Industry Innovation and Competitiveness Agenda, Australian Government, October 2014. Available at: http://www.industry.gov.au/industry/Pages/Industry-Innovation-and-Competitiveness-Agenda.aspx#header;

4 The Global Use of Medicine in 2019 and outlook to 2023, 29 January 2019. Available at; https://www.iqvia.com/institute/reports/the-global-use-of-medicine-in-2019-and-outlook-to-2023. TC Data; University – Industry Collaboration in Research & Development. Available at: https://tcdata360.worldbank.org/indicators/h4247b4d7?country=AUS&indicator=603&countries=BRA&viz=line_chart&years=2007,2017&indicators=944

5 Supporting more women into Stem Careers; Department of Education. Available at: https://www.education.gov.au/supporting-more-women-stem-careers-australian-mathematical-sciences-institute-amsi-national-research

Education and Training; Department of Infrastructure, Transport, Cities and Regional Development. Available at: https://www.infrastructure.gov.au/department/statements/2019_2020/ministerial-statement/education-training.aspx

Committee for Economic Development of Australia Australia's Future Workforce, June 2016. Available at: http://adminpanel.ceda.com.au/FOLDERS/Service/Files/Documents/26792~Futureworkforce_June2015.pdf;

6 Australian Bureau of Statistics, 4102 – Australian Social Trends, March Quarter 2012

7 Australian Bureau of Statistics, 4102, Australian Social Trends, Exploring the gap in labour market outcomes for Aboriginal and Torres Strait Islander Peoples

8 PAGE commissioned analysis of Mercer's remuneration database and Australian Life Sciences Remuneration Review (2018). Data available upon request.

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