Strategic Research Priorities

The challenges that Australia faces over the forthcoming decade are complex, multifaceted, to some extent unpredictable, and ultimately have no single solution.

The five most important challenges facing Australia are outlined below to ensure that Australia maintains its position in the global research landscape and retains and builds on its capacity to contribute to the global research effort. The challenges provide the overarching framework within which the strategic research priorities have been developed to support strategic effort in the national interest.

These challenges were developed considering the global picture, including Australia's position in the Asia Pacific region, and in consideration of the principles of research investment as defined in the 2012 National Research Investment Plan (the Investment Plan).

As these challenges emerge, combine and change over time it will be vital that Australia has a flexible research system, which is underpinned by a solid foundation of enabling capability that can be mobilised, focused and re-directed as necessary to help address them.

Such flexibility can be developed through a series of activities, all of which are outlined in the Investment Plan and which include the development of strategic research priorities aimed at addressing societal challenges.

The societal challenges are:
- Living in a changing environment
- Promoting population health and wellbeing
- Managing our food and water assets
- Securing Australia's place in a changing world
- Lifting productivity and economic growth

The strategic research priorities will drive investment in areas that are of immediate and critical importance to Australia and its place in the world. They will catalyse focused investments in areas for which Australia must maintain a strong research and innovation capability.

Addressing the priorities and implementing solutions of national significance will lead to a major impact by building critical mass and scale in areas vital to Australia's future.

Living in a changing environment

Research outcomes will identify strategies to develop resilient natural (ecosystems) and human environments (people, communities and their utilities and industry) that can all thrive in a changing environment.

Identify vulnerabilities and boundaries to the adaptability of changing natural and human systems

Research will identify the level of environmental change human and natural systems can tolerate before fundamental ecological processes are irreversibly changed. This includes understanding complex systems, especially human-natural linked systems, to be able to interpret and predict their behaviour.

Manage risk and capture opportunities for sustainable natural and human systems

Research will identify behavioural, economic, technological, institutional and design options for managing change in the linked human and natural environment (including climate change, extreme events, population growth, consumption and biodiversity).

Enable societal transformation to enhance sustainability and wellbeing

Research will identify areas of highest risk and develop options for the change required to mitigate and/or adapt to environmental change. This priority will focus on urban design, governance systems, decision frameworks and industry policies.

Promoting population health and wellbeing

Research outcomes will help to build resilient communities and achieve a state of physical, mental and social wellbeing, and not merely the absence of disease, or infirmity, for all Australians in whichever part of Australia they live.

Optimise effective delivery of health care and related systems and services

Research will address policy needs for a practicable and sustainable health care system, including harnessing opportunities and addressing challenges to maximise health impacts.

Maximise social and economic participation in society

Research will identify strategies to maximise social and economic participation, particularly in relation to key life stages, intergenerational disparities and socioeconomic disadvantage.

Improve the health and wellbeing of Aboriginal and Torres Strait Islander people

Research will identify ways to improve access, utilisation and engagement with health, education and social services in partnership with urban, rural and remote Aboriginal and Torres Strait Islander communities.

Managing our food and water assets

Research outcomes will identify new food production practices and systems that can accommodate competing demands for soil and water while ensuring the long-term sustainability of these assets.

Optimise food and fibre production using our land and marine resources

Research will identify ways to make Australian agriculture and food processing more productive, globally competitive and efficient in producing high quality, innovative, safe and sustainable food while protecting our natural assets.

Develop knowledge of the changing distribution, connectivity, transformation and sustainable use of water in the Australian landscape

Research will study the dynamics of water and its use, patterns of rainfall, water resource distribution, how to retain water in our soils and how to resolve conflicting demands on water resources to maximise the large-scale efficiency of our water usage to meet Australia's needs.

Maximise the effectiveness of the production value chain from primary to processed food

Research will enable effective planning to meet changing needs of consumers while increasing food production to help meet domestic and global demand in a sustainable and competitive way. Research will therefore identify the weaknesses, vulnerabilities and bottle-necks in food production, and methods for integrating capability in the production value chain.

Securing Australia's place in a changing world

Research outcomes will identify ways to improve Australia's capacity to deliver national security and identify the means by which personal security in Australia will be safeguarded. This challenge should be considered in the context of global uncertainty and changes in the Asia Pacific region.

Improve cybersecurity for all Australians

Research will identify ways to improve cybersecurity for individuals, organisations, businesses, government and national infrastructure.

Manage the flow of goods, information, money and people across our national and international boundaries

Research will identify risks and strategies in areas including biosecurity, cybersecurity, international crime, defence and international and transnational legal and regulatory frameworks, in order to understand and manage the flows across our boundaries and respond to the risks they pose to national security.

Understand political, cultural, economic and technological change, particularly in our region

Research will develop a comprehensive understanding of the Asia Pacific region including strategic geopolitical change, changing cultural and political formations, regional partnerships, changing demographics, social cohesion and technological developments.

Lifting productivity and economic growth

Research outcomes will identify the challenges and opportunities in a changing world economy, particularly in the context of the economic rise of Asia, and help to build a resilient new economy so that Australia can thrive, while also identifying the means to enhance the wellbeing of all Australians.

Identify the means by which Australia can lift productivity and economic growth

Research will identify the areas that have the capacity to produce the largest productivity and economic gains for Australia, and the means by which those gains can be realised to the benefit of the whole Australian economy.

Maximise Australia's competitive advantage in critical sectors

Research will underpin the development of the future supply of reliable, low cost, low emission energy; enhance the long-term viability of Australia's resources, services and manufacturing industries; and support Australia's access to new markets and supply chains.

Deliver skills for the new economy

Research will identify the skills profile required as we shift towards an entrepreneurial and innovative knowledge economy fully engaged with our region and the world; and identify the methods and systems needed to develop Australia's human capital.

For more information

Go to www.innovation.gov.au/StrategicResearchPriorities