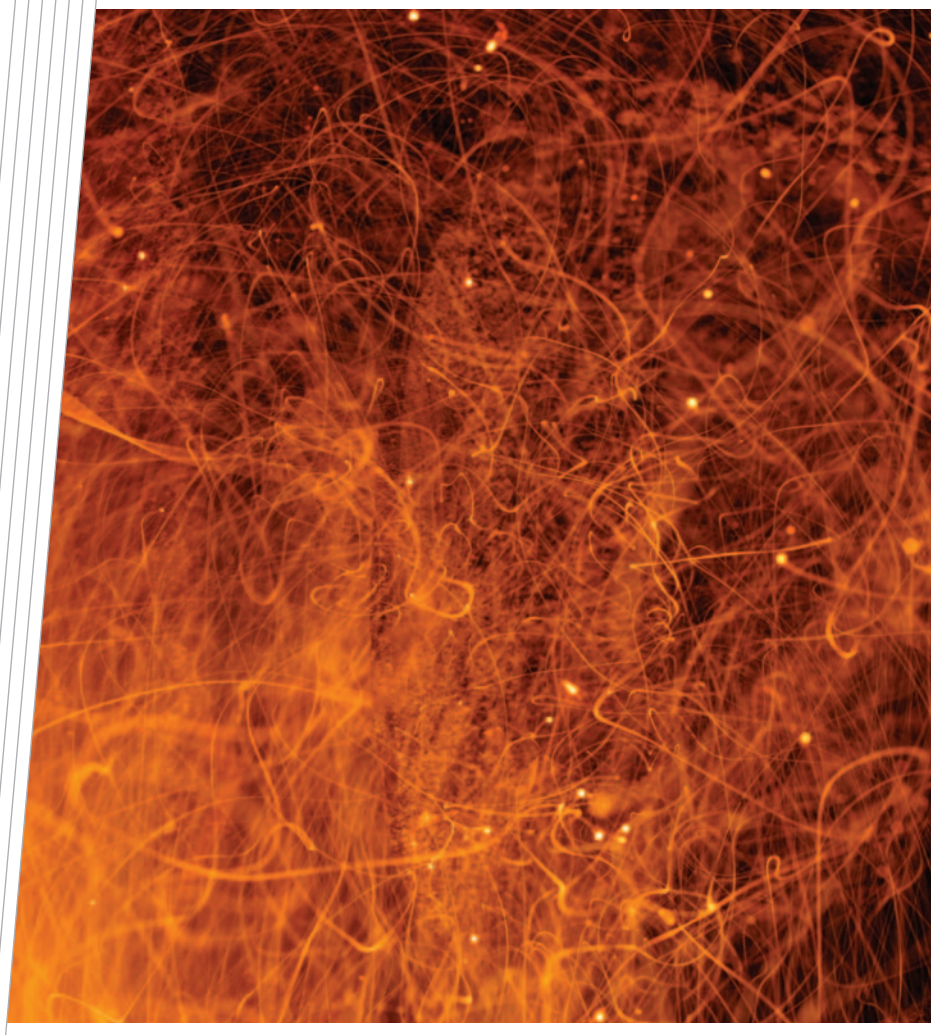

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CSIRO Strategy 2011-2015

- NATIONAL FLAGSHIPS
- SCIENCE EXCELLENCE AND PREPAREDNESS
- DEEP COLLABORATION AND CONNECTION
- INNOVATION ORGANISATION
- TRUSTED ADVISOR

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Message from the Minister

For 85 years, CSIRO has carried the ambitions of the Australian people. Its impact can be seen in every facet of modern life, from the kitchen fridge to the factory floor. We cannot measure its contribution to our economy and our standard of living – for we cannot imagine a world without its discoveries.

The Gillard Labor Government is proud to be the custodian of that great legacy. We are investing a record $3 billion in this unique national asset over the next four years. This 2011-2015 Strategy offers a glimpse of the rich returns that investment will yield. It sets an ambitious but responsible course for the years ahead.

The challenges we are confronting today, from climate change to an ageing population, demand nothing less.

CSIRO's National Research Flagships will scale up their collaborations with partners in industry and the research community. They will sharpen their focus on the most significant national concerns, with an emphasis on delivering results for the public.

At the same time, CSIRO will reinforce its leadership in the global science community. The Strategy outlines a bold vision for research precincts of global standing, harnessing national and international science talent on a large scale. They will offer the scale, capability, and enabling environment for excellent science, and maximum discovery.

CSIRO will also remain a vital voice in public policy, channelling robust evidence to governments and citizens alike. I am particularly pleased to see CSIRO continue to embrace the opportunities such as those provided by the National Broadband Network. CSIRO has played a vital role in the development of the enabling technologies; and it will harness them in the years ahead to raise the profile of science in the community.

In its ninth decade, CSIRO has never been more vital to the nation. I am confident this Strategy will answer our expectations for excellence.

Senator The Honourable Kim Carr
Minister for Innovation, Industry, Science and Research

Message from the Chairman and Chief Executive

CSIRO is a trusted organisation with a proud and remarkable track record of success. It is Australia's pre-eminent science organisation. Globally it is recognised among the top applied research organisations. We continue to demonstrate our scientific excellence with great relevance to industry, the community, and to a sustainable future. CSIRO's priority is Australia, but we must think, act and excel on the global stage.

Our passion is to have a positive and profound impact on the most significant challenges and opportunities facing Australia and humanity. And those challenges have never been so difficult. These challenges will require all our creativity and innovation, and the brightest and best minds we can muster to catalyse a response. The opportunity sits before us for CSIRO to play a central global role in the world of applied science – science with purpose; science in use – by leading and connecting people, organisations and ideas in the areas in which we are strong.

Our strategy lays out what we will do, but our values and principles will be remembered for longer than our achievements. As science itself is questioned so the integrity of our excellent science becomes even more important. We cannot achieve our aspirations or deliver on our goals without being guided by our values.

This strategy supports the nation by embracing our distinct role as the nation's leading large scale, multidisciplinary, mission-directed science and technology organisation. It stands on the shoulders of our transformation that began in 2002 with our first investment in Flagships. It emphasises two new areas of focus that will further differentiate our organisation over time. The first is building our role as a trusted advisor on issues of science on the most significant challenges and opportunities faced by the nation. The second is our vision of creating global-scale research precincts, national scale centres and vibrant regional sites in Australia. A country of Australia's size, with our small population, means CSIRO can play a role of catalyst in building deep connections across the innovation system. These connections are vital if Australia is to attract talent and partnerships and access global knowledge.

Our strategy is based on the five pillars of delivering profound impact through our National Flagships; investing in science excellence and preparedness to underpin these areas of impact; building deep connections and collaboration; being an innovation organisation; and being a trusted advisor to the nation. It balances our focus on impact with our foundation of excellent science. It reaffirms our commitment to industry and to building stronger connections with our top global research and technology peers.

We have set ourselves some tough challenges. The challenge of being recognised in the top 3 applied science organisations in the world. In a world which is investing faster and deeper than Australia in innovation capacity we have set ourselves the deep and challenging goal of improving our science quality and impact against the top 10 of our global peers in plant and animal science, agricultural science, environment and ecology, and resource geosciences; and having 14 of our science areas in the top 1% in the world.

In steering CSIRO forward we have listened to leaders from across the nation, all sides of government, our CSIRO Board, leaders and staff, and our industry advisors. I thank all those who have provided advice and input as well as our strategy team for their contribution to our future.

Simon McKeon
Chairman

Megan Clark
Chief Executive

Our Strategic Journey 2000-2015

CSIRO has a rich history of delivering scientific solutions to benefit Australia. As Australia's large scale, multi-disciplinary, mission-directed science and technology organisation, CSIRO has, since 2000, been building the foundations and platforms for delivering profound impact in response to national challenges and opportunities.

Over this time, we have enhanced our scale and mission focus through the National Research Flagships program, built a one-CSIRO culture, operating environment and support structures, and strengthened support for transformational and frontier scientific discovery.

This strategy will build on our achievements and further focus CSIRO on realising benefit for the nation. We will continue to grow our investment in Flagships, create strategic science and delivery partnerships, and ensure scientific preparedness through maintaining deep research capabilities in key areas. We will further enhance our role as a trusted advisor to the nation and a national R&D connector.

Our distinct role

ROLE	2003-2007	2007-2011	2011-2015
Access to Global Knowledge			
National R&D Connector			Deep Collaboration and Connection
Trusted Advisor			Trusted Advisor
Science Excellence and Preparedness		Science Focus (Discovery)	World Class Capability and Precincts
Mission Directed	Flagships, 20-35% Science Investment	Flagships 35-50%, Science Investment, SAP	Flagships 65%
Multi-Disciplinary	Research Support	Matrix, Research Support	People, Governance and Values
Large Scale	Flagships, One-CSIRO	Flagships, One-CSIRO	Profound Impact, Flagships, One-CSIRO

Delivering on our strategy

Not a strategic foundation - Some progress
Laying foundations for next Strategy
Focus for Strategy

Developing our 2011-15 Strategy

This Strategy builds on the strategic directions established through our 2003-07 and 2007-11 strategies.

While this consistency of direction has been a valuable input to our process, it was also vital to closely examine our internal and external environment to ensure that our new strategy addresses changes and challenges that have emerged since our last planning process.

The CSIRO Board and Executive Team, with support and contributions from the Executive Management Council, considered research and analysis from many external and internal sources. All staff have been encouraged to contribute ideas and comments about strategy in conversation with their colleagues and through more formal mechanisms.

We took as our starting point CSIRO's defined role under the Science and Industry Research Act (1949), and considered how we currently service this via our role house and our unique positioning in the national innovation system. We examined our past performance and our current strengths to confirm that positioning and to identify areas of opportunity or requiring improvement.

We explored the major trends that are shaping science and society and our readiness to respond to these. We looked at local and national trends in innovation and the implications of these for Australia's and CSIRO's changing place in the global innovation system. We also considered our competitive differentiation and positioning nationally and internationally and what other major players are doing.

A key component of our underpinning research was extensive external consultation. During 2009 and 2010, we ran a series of industry and community "heavy hitter" dinners and engagements with academia, youth and government to find out what our stakeholders expect from CSIRO.

During 2010 and early 2011, in keeping with past practice, the Executive undertook an analysis of broad science directions and used these as a key input not only to strategy but to planning our science directions for coming years.

Over the last year, we have assessed the strategic choices available to us and considered a wide range of options related to our science, impact, relationships, infrastructure, people and finances. This led us to the identification of the five pillars at the heart of this strategy.

Further work on scenarios informed by deeper analysis around key issues such as our national footprint, our collections, infrastructure and culture helped us to define the 23 strategic actions that will bring the strategy to fulfilment.

Research and Analysis
What guides our Strategy

- Our positioning and role within national and global knowledge flows
- National Broad Direction Setting (our stakeholders' voice)
- Megatrends, Megashocks and Foresighting
- What our staff tell us
- The opportunities of the future

Findings and Outcomes
What that means

- Major national/global trends, challenges and opportunities
- Highly prospective opportunities at intersections of our capabilities
- Increasing national/global collaboration
- Scale and quality matters
- Valuing science for the impact it delivers
- Australia requires a trusted and expert source of scientific advice

Our Strategic Imperatives
Our response

- National Flagships focussing on major national challenges
- Science Excellence for impact and national preparedness
- Deep collaboration and connections with industry, governments, research and academia
- An innovation organisation
- Trusted science advisor to the nation

A world-class research organisation for Australia

We are Australia's national research agency and one of the largest and most diverse scientific research organisations in the world.

- At CSIRO we aspire to make a difference to the issues and challenges that matter most to Australia.
- We rank in the top one per cent of world scientific institutions in 14 of 22 research fields.
- We lead 9 National Research Flagships that are addressing major national challenges.
- We host three National Research Facilities and manage 8 National Biological Collections.
- CSIRO transfers knowledge through nearly 5000 scientific publications and over 9500 client reports annually.
- Annually, we typically work on over 4300 active research contracts serving small, medium and large businesses as well as the public sector.
- CSIRO is the single largest participant in the Cooperative Research Centre (CRC) Program, participating in 28 of the 47 centres as at June 2010.
- We contribute to an average of 750 international collaborations each year in about 80 countries.
- In 2009-10 we had 171 active licenses for our technologies and discoveries.
- CSIRO is Australia's leading patenting enterprise, holding over 3900 granted or pending patents or other forms of intellectual property.
- More than 150 spin-off companies have been based on CSIRO generated intellectual property and expertise.
- Each year CSIRO Science Education Centres reach 1.2 million students, parents, and teachers through activities that focus on science, while CSIRO Enquiries deals with over 35,000 public and business enquiries.

A snapshot

People	6550
Research Divisions	13
Locations	57
National Research Flagships	9
National Research Facilities	3
Budget	$1B+

CSIRO's Recent Achievements

CSIRO has a track record of success at delivering value for Australia across a wide range of scientific, economic, social and environmental fields. The 2011-15 strategy will provide the framework for CSIRO to further grow the impact it delivers for Australia and, increasingly, for the global community via connections and partnerships.

Contributing to healthy Australian communities

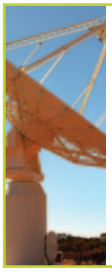
The CSIRO Total Wellbeing Diet supports thousands of Australians as they improve their health through better diet and exercise. Its success has seen CSIRO develop further wellbeing plans including The Healthy Heart Program, The Wellbeing Plan for Kids, and The Diabetes Diet and Lifestyle Plan.

Improving health with CSIRO's new barley

Developed by CSIRO, BARLEYmax™ is a natural wholegrain with enhanced nutritional benefits. This 'supergrain' contains twice the dietary fibre and four times the resistant starch of regular grains and has a low glycaemic index. Cereals containing BARLEYmax are available on supermarket shelves across Australia.

A sutainable water future for Australia

In 2007-08, CSIRO undertook a water resource assessment of the Murray Darling Basin, the largest ever such study. This assessment has since been expanded to all major national water systems to allow a consistent analytical framework for water policy decisions.

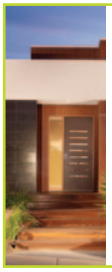


Building the Australian SKA Pathfinder

The first dish of CSIRO's Australian Square Kilometre Array Pathfinder (ASKAP) performed its first scientific observations in January 2010, with a further five antennas assembled later the same year. ASKAP, a set of thirty-six 12-metre dishes, is an important precursor to the international Square Kilometre Array radio telescope.

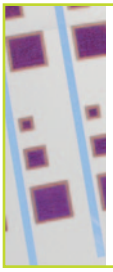
Mapping undersea mineral deposits

CSIRO and its partners created the first map of Australia's undersea mineral deposits. The map shows the location of all known mineral deposits within Australia's marine jurisdiction and is the first of its kind in the world.



Doors open on zero-emission house

Australia's Zero Emission House, designed to fit the lifestyle and budget of a typical middle income family, showcases off-the-shelf building and renewable energy generation, and 'smart' energy management technologies. If all new houses built in Australia between 2011-20 were zero emission houses, 62 million tonnes of greenhouse gas emissions would be prevented.

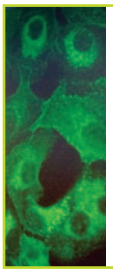


Next generation 'printable' solar cells

The discovery of molecules that deliver high power conversion efficiencies is set to advance Australia's solar industry. These flexible plastic solar cells are cheaper and more efficient to produce, and can be installed over large areas such as rooftops.

Wireless local area networks

In the early 1990s, CSIRO scientists invented and patented a solution to the problem of radio waves bouncing off walls and furniture indoors. This invention is at the heart of most commonly used high speed wireless local area networks (WLAN) used to connect computers and other devices to each other.



Fighting Hendra Virus

In 2009, CSIRO scientists made a major breakthrough in better understanding how the deadly Hendra virus spreads among horses and to humans. In a further breakthrough an experimental vaccine has been shown to successfully prevent the infection of horses with Hendra virus.

A chip for measuring biodiversity change

CSIRO has developed a new technique that can identify the presence of thousands of organisms in a single sediment sample. Using a custom-made gene chip containing DNA sequences from over 42,000 organisms, scientists can investigate what organisms are present at a site. The gene chip provides valuable insight into the biodiversity and health of aquatic ecosystems.

SECTION 2: OUR 2011-15 STRATEGY

Our Purpose, Mission and Vision

Our Purpose

CSIRO's purpose is defined through the functions we undertake for the benefit of Australia, which are set down in the Science and Industry Research Act (1949). They are:

- to carry out scientific research for any of the following purposes:
  - assisting Australian industry;
  - furthering the interests of the Australian community;
  - contributing to the achievement of Australian national objectives or the performance of the national and international responsibilities of the Commonwealth;
  - any other purpose determined by the Minister;
- to encourage or facilitate the application or utilisation of the results of such research.

Our Mission

We deliver innovative solutions for industry, society and the environment through great science.

Our Vision

Our science is used to make a profound and positive impact for the future of Australia and humanity.

Artist's impression of ASKAP antennas at the Murchison Radio-astronomy Observatory

Our Values

Our Values guide our interactions with our colleagues, and with our external partners and stakeholders. They show us what we can expect from each other and what others can expect from us.

Values

- Embracing **scientific excellence** and working together ethically and with **integrity** in everything we do
- Building **trust and respect** each day with our communities, partners and colleagues, knowing that with trust comes accountability
- Igniting our **creative spirit**, exploring new horizons and creating an environment where innovation thrives
- Consistently **delivering on our commitments**. 'Do what we say we will do'
- Striving towards a **healthy, safe and sustainable** future

We are successful when:

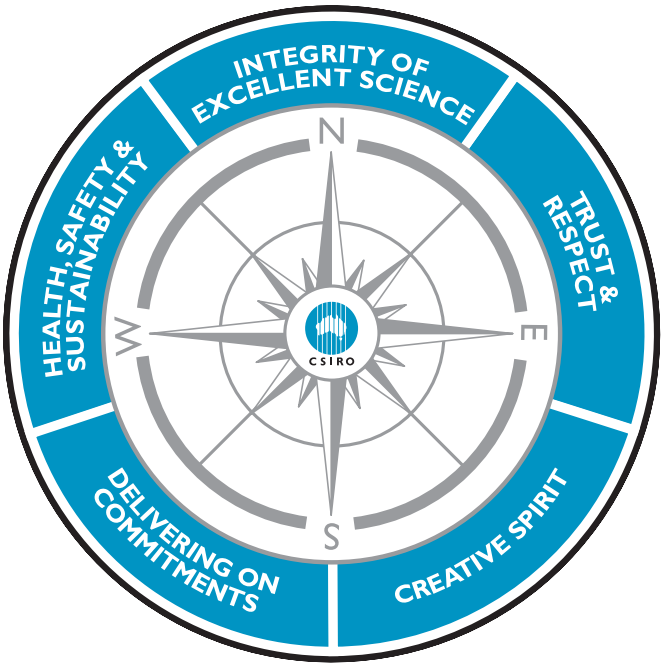
- Our science contributes to an improvement in the prosperity, quality of life and future sustainability of humanity
- Our collaborators, partners and stakeholders realise value and outcomes from our science and describe working with us as a pleasure
- Our people go home safely and share a sense of achievement
- We are a place where people are healthy, flourish and want to work
- We are a trusted research advisor

Keeping our people safe

CSIRO's commitment to Health, Safety and Environmental Sustainability is reflected in our aspirational vision "Striving for Zero Harm". This means:

- zero injuries
- zero illnesses
- zero environmental harm
- zero tolerances of unsafe behaviour

STRIVING FOR ZERO HARM

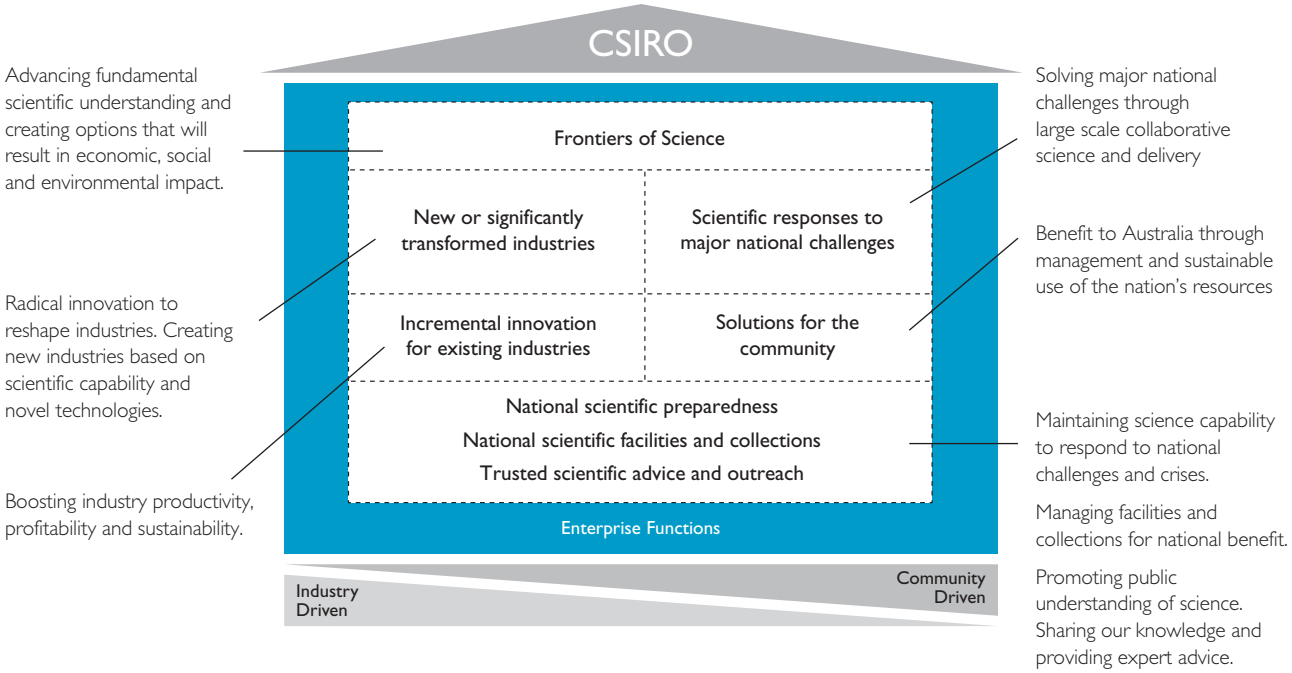


Our Distinct Role

CSIRO invests its resources and efforts into areas that will create positive impact for Australia. In achieving this outcome we are guided by delivering against our distinct role.

Our national research and development system is composed of numerous individual players across universities, government, CRCs and industry. Each of these are positioned along a continuum from mission-directed to enquiry-led science, and have varying ratios of public and private funding. CSIRO's positioning within this system is unique, with many of our stakeholders defining our role as being "the nation's large scale, multi-disciplinary, mission-directed science and technology organisation". In fulfilling this role,

- We act as a trusted advisor to the nation.
- Our deep research capabilities and facilities are critical for national preparedness to understand and respond to national challenges and opportunities.
- We provide deep connections across the innovation system and help Australia gain access to global knowledge.
- We manage national facilities which support national priorities, laying the foundations for managing these in a virtual world.



Strategy Foundations and Pillars

Our strategy for 2011-15 builds on a decade-long evolutionary journey through our two previous strategy cycles.

This Strategy supports CSIRO through:

- Building our passion for delivering profound impact underpinned by science excellence
- Reinforcing Flagships and Divisions as fundamental to our future
- Using Values every day to guide our behaviours and interactions, and support good decision-making.

This Strategy supports the Nation through:

- Embracing our distinct role as a large scale mission directed, multi disciplinary, science and technology organisation
- Investing in capabilities that build strength in areas of national need
- Consolidating us as a trusted advisor on the big issues facing the nation
- Creating a bold vision for globally competitive precincts.

This Strategy supports global reach through:

- Establishing stronger connections with our top global research and technology peers
- Enhancing our industry alliances through Flagships.

This 2011-15 strategy is underpinned by five success pillars with aligned strategic objectives. These are:

- National Flagships
- Science Excellence and Preparedness
- Deep Collaboration and Connection
- Innovation Organisation
- Trusted Advisor.

Success Pillars	Strategic Objectives
National Flagships	Focus and increase the Organisation's resources invested in delivering profound impact in response to national challenges and opportunities through the National Research Flagship Program.
Science Excellence & Preparedness	Invest in people and infrastructure to maintain and develop national scientific breadth and depth in support of delivering profound impact and scientific preparedness.
Deep Collaboration & Connection	Build deep connections with and among the best partners in Australia and the world to complement our science capability and accelerate impact delivery.
Innovation Organisation	Boost our capacity to operate as one organisation to respond to the changing nature of science, deliver profound impact and build capability for the future.
Trusted Advisor	Play a leading role in the trusted delivery of scientific evidence, advice and interpretation to the Australian government, public and industry.

Strategic Objectives and Actions

The five Strategic Objectives will be delivered through 23 specifically designed Strategic Actions.

Some of these Strategic Actions are new to this strategy. Others build on, or accelerate, work that was commenced under previous strategies.

The strategy also identifies what we will not do, as a significant guide to our stakeholders and staff.

Strategic Objectives		Focus and increase the Organisation's resources invested in delivering profound impact in response to national challenges and opportunities through the National Research Flagship Program.		Invest in people and infrastructure to maintain and develop national scientific breadth and depth in support of delivering profound impact and scientific preparedness.
Success pillars		**National Flagships**		**Science Excellence & Preparedness**
Strategic Actions We will:	1.1	Provide targeted additional investments to Flagships (from 50% to 65%), integrate Divisional research directly relevant to Flagships and reposition Flagships to grow impact.	2.1	Develop and implement an integrated program to build our global science standing which includes attracting, developing and retaining world-class people, partnering with the best, and further targeting our capability investments into areas of national need and strength.
	1.2	Build the capacity of Flagships to deliver integrated solutions to complex problems at the intersection of natural and human systems (such as energy, water, climate and land use).	2.2	Support Global Precincts for Australia in plant and agricultural sciences, resource sciences, environmental sciences, human life sciences, and materials and manufacturing sciences; and national centres and vibrant regional sites in other areas of strength.
	1.3	Develop and implement a robust impact measurement framework (delivered and projected) and track performance against it.	2.3	Develop a funded, shared national vision for collections, providing enhanced integration and access while supporting scientific discovery.
	1.4	Strengthen Flagship governance, advisory and planning frameworks.	2.4	Embed e-Research and E-Enablement strategies to increase research productivity in a data intensive and collaborative world.
			2.5	Build on the Transformational Capability Platform Program through focussing and expanding our efforts in platform capabilities such as ICT, mathematics and socio-economics.
We will not:		*Support sub-scale portfolios that operate outside of a Flagship or Division.*		*Invest in capability that is not central to our future impact delivery. We will not be researcher of last resort.*

	Build deep connections with and among the best partners in Australia and the world to complement our science capability and accelerate impact delivery.		Boost our capacity to operate as one organisation to respond to the changing nature of science, deliver profound impact and build capability for the future.		Play a leading role in the trusted delivery of scientific evidence, advice and interpretation to the Australian government, public and industry.
	Deep Collaboration & Connection		**Innovation Organisation**		**Trusted Advisor**
3.1	Develop enhanced strategic partnerships with industry (national, international and SMEs) and government in areas aligned with partner needs and Flagship goals.	4.1	Embed the CSIRO Values and Code of Conduct in our practices and processes, and continue to build an enhanced culture of innovation based on leadership, empowerment, diversity, teamwork and resilience.	5.1	Develop and implement a systematic program of engagement with leaders in government, industry and the community.
3.2	Grow strategic research partnerships with universities and leading international peers (including observational programs) in fields where we seek to build our global position.	4.2	Develop and train our people to work and lead in a multidisciplinary, mission directed research organisation.	5.2	Equip our staff to communicate about their science to inform national debate on its impacts for government policy, industry, the public and the world.
3.3	Develop and implement a comprehensive technology and knowledge engagement strategy for the effective transition of scientific knowledge into practice.	4.3	Implement robust and integrated workforce and future capability planning through our Divisions, and ensure they are linked to clear research and impact strategies.	5.3	Develop and implement an enhanced community engagement program to grow awareness of the benefits of our science and to stimulate broader interest in scientific discovery.
3.4	Partner in the design and management of large scale science and unique national infrastructure (such as SKA) supporting delivery of our science and advancement of knowledge.	4.4	Optimise our operating practices and systems to enhance the productive integration between and across Flagships, Divisions and Enterprise Functions.	5.4	Respond to the growth in online and social media, and its impact on how scientific information is sourced and distributed.
3.5	Ensure the vibrancy of our regional sites through appropriate science agendas, internal and external science connections, local community engagement, and support mechanisms.	4.5	Ensure the financial sustainability of CSIRO through disciplined operating and capital resource management.		
	Seek or accept revenue that is not aligned with our strategy.		*Compromise our values or the health and safety of our people, or walk away from operating as one enterprise.*		*Publicly comment on policies of government, opposition and other political parties, or speak outside our expertise.*

Implementing the Strategy

This strategy will be implemented through a robust planning and evaluation program. While indicative phasing for each of the strategic actions has been developed it will be through annual CSIRO Operational Plans that we will ensure that the objectives of all our leaders and staff are aligned with the intent of our strategy.

Some strategic actions will transition to business-as-usual quite quickly, while others will require extensive planning and implementation stages before becoming part of our day-to-day operations.

All managers in our organisation are involved in making sure our people understand our strategy and contribute to its success.

SUCCESS PILLARS	STRATEGIC ACTIONS		PHASING			
	Planning / Implementation / Business as usual		2011-12	2012-13	2013-14	2014-15
National Flagships	1.1	Invest for Flagship impact				
	1.2	Integrated Flagship solutions				
	1.3	Flagship impact measurement				
	1.4	Flagship governance				
Science Excellence & Preparedness	2.1	Invest for capability strength				
	2.2	Precincts				
	2.3	National vision for collections				
	2.4	e-Research and e-Enablement				
	2.5	Build on TCP Program				
Deep Collaboration & Connection	3.1	Strategic industy partnerships				
	3.2	Strategic research partnerships				
	3.3	Technology & knowledge engagement strategy				
	3.4	Large scale national infrastructure				
	3.5	Regional vibrancy				
Innovation Organisation	4.1	Values and innovation culture				
	4.2	Develop and train our people				
	4.3	Workforce and future capability planning				
	4.4	Optimise operating practices				
	4.5	Financial sustainability				
Trusted Advisor	5.1	National leader engagement				
	5.2	Communicating for national debate				
	5.3	Community engagement				
	5.4	Social media				

Strategic Imperative 1: National Flagships

Focus and increase the Organisation's resources invested in delivering profound impact in response to national challenges and opportunities through the National Research Flagship Program.

Our ability to conduct large-scale, multidisciplinary research allows us to focus on tackling major challenges that matter to Australia's future. Through our Flagships we help build globally competitive industries with increased productivity; secure water, energy and food for the future; promote health; assist Australia adapt to climate change; and build a sustainable future for all. We seek to make a difference with our research to make a positive impact now and in the future.

Some selected outcomes

- Establish new Flagships in Biosecurity and Digital Productivity.
- Deliver national integrated systems solutions for carbon (Integrated Carbon Pathways) and oceans (Ocean and Coastal Integrated Assessment Services).
- Facilitate scale-up of new energy technologies, targeting carbon capture and storage, solar, geothermal and smart grids.
- Amplify impact from Flagships in carbon, water, oceans, landscapes and health.

Expanding the Flagships program for positive impact

CSIRO's Flagship program evolves to meet the needs of the nation. As some Flagships mature and deliver on their goals, new Flagships will be created in areas of emerging need and opportunity. Prospective new Flagships will be tested in the following areas.

Digital Productivity

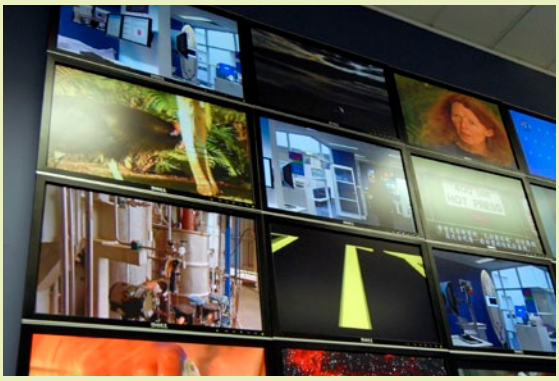
The objective would be to improve the productivity of Australia's digital economy and unlock the value of the National Broadband Network, through more efficient and innovative service delivery.

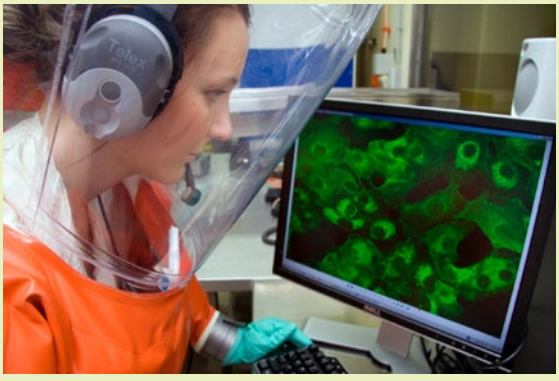
Up to $5 billion in value could be added per annum for the Australian economy by transforming online services and service delivery.

Biosecurity

This initiative would aim to maintain and improve Australia's favourable biosecurity status through new knowledge and tools to protect against, and reduce the impact of, exotic diseases, pests and weeds.

It would form the core of a distinctive national, regional and global collaborative network of biosecurity researchers and innovators.





Strategic Imperative 2: Science Excellence and Preparedness

Invest in people and infrastructure to maintain and develop national scientific breadth and depth in support of delivering profound impact and scientific preparedness.

To continue to address major challenges and help Australia remain competitive in a world that is increasing its investment in innovation, we must maintain national and global-level science capability. We will build the capability and infrastructure required to deliver a world-class response and ensure we have the platforms and investment in new horizons that will prepare us, and Australia, for the future.

Some selected outcomes

- Improve our science quality and impact against the top 10 of our global peers in plant and animal science, agricultural science, environment and ecology, and resource geosciences, and maintain 14 of our science areas in the top 1% in the world.
- Build interdisciplinary science platform capabilities through expanding our Transformational Capability Platforms program.
- Position CSIRO to adapt to and benefit from the changing world of e-enabled research.
- Establish global and national precincts for Australia.
- Develop a funded, shared national vision for collections.

CSIRO: a reputation for science excellence

CSIRO's reputation for quality science is demonstrated by some key international measures and the numerous awards and honours over many years that have been accorded our top scientists.

CSIRO is in the top 10 organisations in the world in two science areas

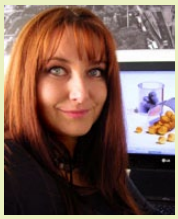
CSIRO is in the top 25 organisations in the world in four science areas

CSIRO is in the top 1% of organisations in the world in fourteen science areas

- Thomson ISI data

Some of our top science achievers

Dr Amanda Barnard



Dr Barnard received the Malcolm McIntosh Prize for Physical Scientist of the Year at the 2009 PM's Prizes for Science and the International Union of Pure and Applied Physics 2009 Young Scientist Prize in Computational Physics for her work on nanoparticles.

Dr Ezio Rizzardo

Dr Rizzardo was elected a fellow of the Royal Society in 2010 and in 2011 was named as one of the world's top 100 chemists for the impact of his research published over the past decade.

Dr John O'Sullivan

Dr O'Sullivan was awarded the Prime Minister's Prize for Science in 2009 and the Australian Academy of Technological Sciences and Engineering Clunies Ross Award in 2010 for his leadership of the team that developed CSIRO's Wireless LAN technology.

Dr Beth Fulton

Dr Fulton was awarded the 2007 Science Minister's Prize for Life Scientist of the Year for her achievements in marine ecosystem modelling. Recently, along with fellow scientists Susan Blackburn and Susan Wijffels, she was added to the Tasmanian Honour Role for Women for outstanding contributions to science.

Strategic Imperative 3: Deep Collaboration and Connection

Build deep connections with and among the best partners in Australia and the world to complement our science capability and accelerate impact delivery.

Australia cannot compete globally if we are not working with the best in the world. CSIRO will pursue strategic engagements that support delivery of profound impact against national and global challenges and opportunities.

Delivering more profound impact will require us to build larger and longer lasting industry, government and research alliances, nationally and globally, to amplify our efforts and catalyse national responses.

Some selected outcomes

- Build enhanced connections with our national innovation system to support a "Team Australia" response to national challenges.
- Further deepen relationships with key Australian Government Departments to underpin national policy.
- Build global relationships, including with significant multi-national companies, to create pathways for technology transfer and delivering impact.
- Build and expand collaborative relationships with international counterpart organisations, particularly in China, and deepen relationships with organisations in Europe, USA, Asia and South America.
- Position Australia and CSIRO to host the Square Kilometre Array with appropriate partnerships, governance and business model.

CSIRO wins Boeing Supplier of the Year Award

For CSIRO to be successful, our collaborators, partners and stakeholders must realise the value of our science and describe working with us as a pleasure. That's exactly what aeronautical giant Boeing did when it awarded CSIRO its prestigious 'Supplier of the Year' award in May 2011.

During a 22-year partnership, CSIRO and Boeing have jointly invested about $110 million across a wide range of projects, including world-leading technology innovations in aircraft repainting methods, sustainable aviation fuels, aircraft assembly processes, fire retardants and aircraft maintenance management software. Boeing Chairman and Chief Operating Officer, Jim McKerney cited "outstanding results and top-notch customer satisfaction" as the key to winning the award.

From L to R: Andrew Dingjan CSIRO Senior Technical Advisor to Boeing; Dr Alex Zelinsky, CSIRO Group Executive; Mr Don Winter, Director, Boeing Flight and Systems Technologies.

Strategic Imperative 4: Innovation Organisation

Boost our capacity to operate as one organisation to respond to the changing nature of science, deliver profound impact and build capability for the future.

CSIRO has demonstrated that we can enable high impact through excellence in research and delivery. We have shown this particularly for complex problems and problems requiring boundary spanning – either across capabilities or organisations. We must now strengthen our ability to work in this way by embedding an innovation culture in our organisation.

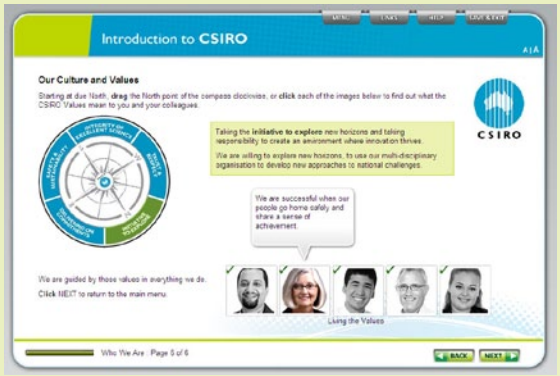
Some selected outcomes

- Focus on leadership and talent development through excellence in learning.
- Understand and prepare for our future science capability needs.
- Ensure our the next generation of leaders are supported to reach their maximum potential.
- Promote innovation and creativity through our values, our culture and our processes.

A learning organisation

"Leading the Research Enterprise" is one of several tailored staff development programs that CSIRO runs. Developed and delivered in collaboration with the Australian Graduate School of Management at the University of NSW, it provides 24 of the Organisation's most promising future leaders with a three week tailored learning and development experience to prepare them for the challenges of leadership within Australia's national science agency.

Our tailored e-learning programs cover a wide range of topics including tailored programs for new staff, and modules on our code of conduct and other key organisational policies and processes.



Strategic Imperative 5: Trusted Advisor

Play a leading role in the trusted delivery of scientific evidence, advice and interpretation to the Australian government, public and industry.

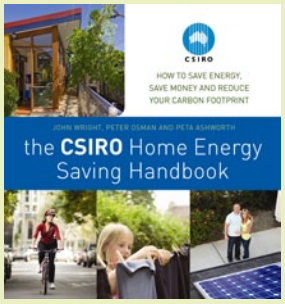
As Australia's largest and most diverse scientific organisation we have an obligation to inform the Australian public, government and industry about science. This is an obligation we take seriously. We know that people are informed through dialogue and genuine exchange, and we are committed to creating more opportunities for this. We will take a more active advisory role, while recognising there is a balance between 'anticipating' and 'being responsive'. This will range from national and global scale issues like climate change to areas where individual action has personal consequences such as diet and obesity.

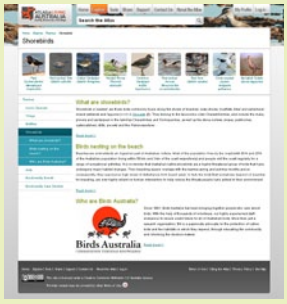
Some selected outcomes

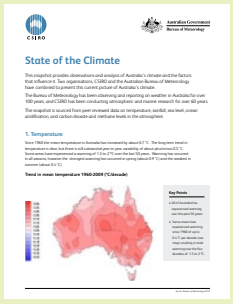
- Provide thought leadership to the CSIRO and Australian scientific community around the use of social networking technologies.
- Maintain and strengthen the role of trusted advisor to the government and the community across the full range of CSIRO science.
- Leverage our scientific outreach programs, national facilities and collections for broader CSIRO engagement with the general public.
- Implement an integrated engagement strategy across key government departments and provide high level scientific and strategic innovation input.
- Be valued for our contribution to sustainable community wellbeing.

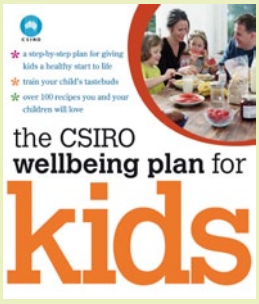
Providing trusted scientific advice to the nation

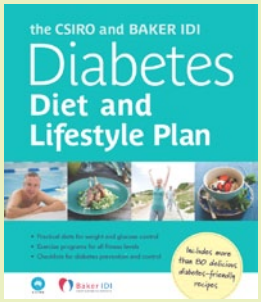
CSIRO publishes accessible books and reports, based on the findings of quality peer-reviewed research by CSIRO and other leading scientists. Our publications support broader understanding of complex scientific issues, good decision making and positive personal lifestyle choices.

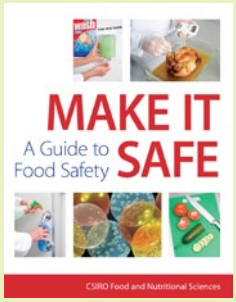












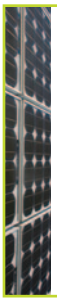
Flagships and Impact

Current Flagships

Our Flagships are how we deliver impact against major national challenges and opportunities.

Climate Adaptation

To equip Australia with practical and effective adaptation options to climate change and variability, and in doing so create $3 billion a year in net benefits by 2030.



Energy Transformed

To develop, demonstrate and ensure deployment by 2020 of integrated low carbon pathways for Australia and alternative stationary and transport energy solutions that realise a reduction of Australia's CO2 emissions by >20Mtpa by 2030 and by >50Mtpa by 2050.

Food Futures

To transform the international competiveness of, and add $3 billion annually to, the Australian agrifood sector by applying frontier technologies to high potential industries.

Future Manufacturing

To create $2B of additional annual value for Australia's manufacturing industry by 2025 through the development and application of resource efficient, clean and disruptive technologies.

Minerals Down Under

To assist the Australian minerals industry exploit new resources with an in-situ value of $1 trillion by 2030, and to more than double the size of the associated services and technology sector to $10 billion a year by 2015.

Preventative Health

To improve the health and wellbeing of Australians and save $2 billion in annual direct health costs by 2020 through the prevention and early detection of disease.

Sustainable Agriculture

To secure Australian agricultural and forest industries by increasing productivity by 50 per cent and reducing carbon emissions intensity by at least 50 per cent between 2009 and 2030.

Water for a Healthly Country

To provide Australia with solutions for water resources management, creating economic gains of $3 billion a year by 2030, while protecting or restoring the country's major water ecosystems.

Wealth from Oceans

To provide Australia with the knowledge and tools to protect coastal and ocean environments, increase their value to society and create a net economic benefit of $3 billion per annum by 2020.

Potential new Flagships *(under investigation)*

Biosecurity

- Integrated approach to biosecurity
- Detection, diagnostics and risk assessment

Digital Productivity

- Investing in Services and Digital Productivity
- Utilising the capacity of the NBN
- Supporting e-Government initiatives

Capability

Divisions

Our Divisions manage, maintain and grow the depth and breadth of our science capabilities.

Energy Group

Earth Science and Resource Engineering (CESRE)

CESRE provides technologies that support sustainable development of Australia's energy and mineral resources.

Energy Technology (CET)

CET develops technologies that will reduce greenhouse gas emissions and contribute to a secure and sustainable Australian energy future.

Environment Group

Land and Water (CLW)

CLW develops new measurement and prediction systems for assessing the availability and condition of land and water resources, to facilitate effective decision-making by government, industry and the community.

Marine and Atmospheric Sciences (CMAR)

CMAR advances Australian climate, marine and earth systems science to help Australians better understand and manage effects on the Earth's systems.

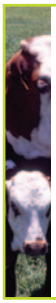
Ecosystem Sciences (CES)

CES conducts research and development across a range of landscapes, targeting social, economic and environmental sustainability.

Food Health and Life Science Industries Group

Food & Nutrional Sciences (FNS)

FNS conducts food and nutrition research to support the health and wellbeing of the Australian community, and the sustainability and viability of the Australian food industry.



Livestock Industries (CLI)

CLI provides research in animal science and animal biosecurity to enable Australia's livestock and allied industries to be globally competitive.

Plant Industry (CPI)

CPI aims to breed better plants and build knowledge of plants and their environment to improve Australia's plant-based industries.

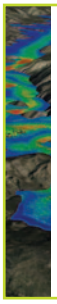
Information Sciences Group

Astronomy and Space Sciences (CASS)

CASS provides radio astronomy and space tracking facilities to CSIRO and Australia.

ICT Centre (ICT)

The ICT Centre is CSIRO's national research hub for innovative information and communication technologies.



Mathematics, Informatics and Statistics (CMIS)

CMIS develops and applies innovative mathematical and statistical sciences so that CSIRO can deliver highquality solutions to Australia's challenges.

Manufacturing, Materials and Minerals Group

Materials Science and Engineering (CMSE)

CMSE creates world-class innovation in materials science and engineering to serve our community by helping transform Australian manufacturing.

Process Science and Engineering (CPSE)

CPSE develops and applies scientific and industrial research capability to support the growth and competitiveness of Australian minerals and related process industries, and related Australian technology and services sectors.

Global Precincts for Australia

A significant new initiative in this strategy, global precincts will harness the critical mass necessary for Australia to continue to be internationally competitive in our national areas of science strength.

Brisbane Environmental Sciences Precinct

The world's largest environmental sciences hub directed towards solving the nation's critical environmental challenges and opportunities.

Melbourne Manufacturing and Materials Science Precinct

A top 3 global advanced materials precinct, translating leading edge research to create wealth and solve national and global challenges.

Canberra Plant and Agricultural Sciences Precinct

Globally leadership in plant sciences focusing on agricultural and environmental genomics, attracting the world's best researchers and largest clients.

Perth Resources Sciences Precinct

A focus for Australian geosciences, recognised globally in the top five geosciences precincts, and a key influencer in Asia and South America.

Melbourne Human Life Sciences Precinct

A globally competitive human life sciences precinct with strong connectivity between basic and clinical research.

Transformational Capability Platforms

Transformational Capability Platforms contribute to the long-term sustainability and future impact of CSIRO by strengthening key cross-organisational groups of capabilities.

Transformational Biology

Catalysing a step-change in biological capabilities by combining human, plant, and animal biology with genomics, phenomics and whole-of-system approaches.

Sensors and Sensor Networks

Realising the vast potential of sensors and sensor applications by stimulating multidisciplinary collaboration on a large scale.

Advanced Materials

Building programs that combine physics, engineering, chemistry and biology at an unprecedented scale to catalyse the development of materials of the future.

Computational and Simulation Science

Enabling step-change growth in computation capabilities to accelerate the delivery of next-generation applications for industry and the community.

Proposed new research vessel – *Investigator*

National Infrastructure

CSIRO manages two types of National Research Infrastructure to assist the scientific community with the delivery of research. These are:

National Research Facilities

These are available for use by all Australian and international researchers. The three facilities are:

- Australian Animal Health Laboratory (AAHL)
- Australia Telescope National Facility (ATNF)
- Marine Research Vessel National Facility (MNF).

National Biological Collections

These are a vital repository of Australia's biodiversity and a resource for conservation and research. The major collections are:

- Australian National Fish Collection
- Australian National Insect Collection
- Australian National Herbarium
- Australian National Wildlife Collection.

Our National Footprint

CSIRO has developed a 20 year view of the evolution of our footprint which aligns infrastructure, science directions, and partnerships. Some of the key features of the plan are:

- Consolidate capital city sites
- Enhance vibrancy of regional sites with appropriate science agendas and connections
- Build critical mass in R&D areas of importance to Australia
- Develop the precinct concept, with partners across the nation.

Monitoring our progress

Our progress towards delivering the strategy will be monitored using a range of measures including the ten enterprise measures listed below.

Impact

1. Develop measures in 2011-12 for benchmarking our performance for delivery of Triple Bottom Line impact through evaluating realised benefits. Be recognised as one of the top 3 global applied science organisations by 2014-15 for impact delivery as measured against our 20 global peers.
2. Develop future impact pipelines for at least 80% of the Flagship Portfolio by June 2012. Evaluate potential Triple Bottom Line value for at least 50% of the Flagship future pipeline by June 2013 and 80% by June 2014. Deliver Flagship goals at a rate meeting or exceeding initial time to goal expectations.
3. Baseline customers' 'willingness to recommend' in 2011-12 and improve our performance year on year over the strategy.
4. Increase the community awareness of impact derived from CSIRO activities from the established baseline of 50% in 2010-11 to 75% by 2014-15.

Science

5. Science quality is maintained or improved in Environment & Ecology, Agricultural Sciences, Plant & Animal Sciences, and Geosciences as measured through benchmarking against global peers (science productivity, citations per paper, collaboration). CSIRO maintains breadth in at least 14 fields in the top 1% globally based on ISI/ Thomson Reuters total citation data.
6. Progress towards establishing Precincts of global standing in the Plant & Agricultural Sciences, Resource Sciences, Environmental Sciences, Materials & Manufacturing Sciences and Human Life Sciences meets Precinct Development Plans by 2014-15.

People

7. No fatalities or major injuries of CSIRO people. Lost Time Injury Frequency Rate (LTIFR) and Medical Treatment Frequency Rate (MTFR) improves year on year and is in the top quartile of like organisations by 2014-15.
8. Awareness of CSIRO's Values increases from the established baseline of 73% in 2010-11 to 95% in 2011-12. A baseline for the use of Values in guiding behaviours and decision-making is established by June 12 and improves year on year over the strategy period.

Resources

9. CSIRO's financial, operating and capital management performance meets approved annual budget.
10. Direct investment of CSIRO resources towards major national challenges and opportunities through the National Research Flagships increases to 65% by 2014-15.

Our Financial Resources

Over the four year Strategy period CSIRO's total revenue for operations is planned to be $5.25b including $2.12b of revenue from external sources.

Planning, Investment, Review and Reporting

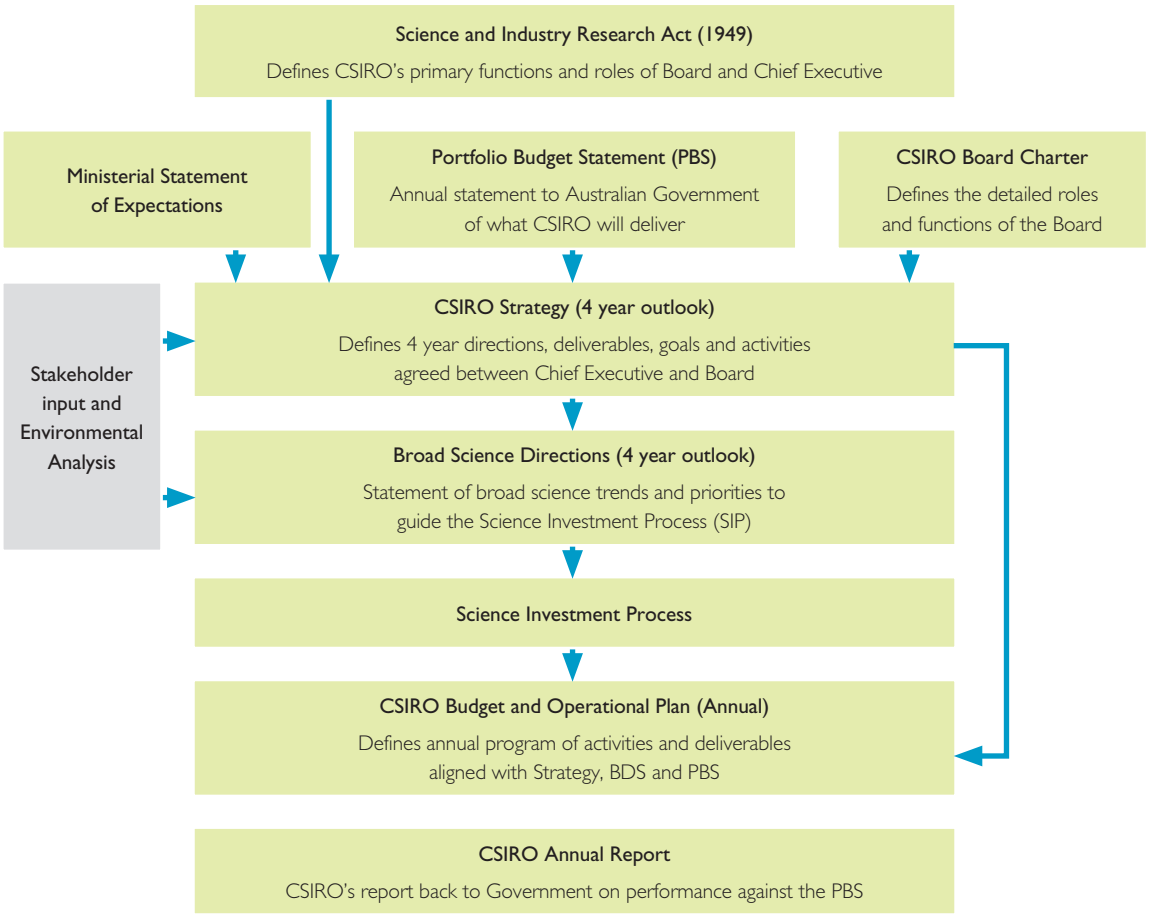
We will monitor and report our progress and seek continuous improvement in our performance through rigorous processes for planning, review and reporting.

CSIRO's planning and performance system includes:

- The broad objectives and strategies of the Organisation as set out in this **Strategic Plan.**
- Enterprise-level activities, resourcing and targets for each year as defined in the **Operational Plan and Portfolio Budget Statement**.
- Reporting performance against these objectives and targets in the **CSIRO Annual Report**.
- Regular reports to the CSIRO Executive Team and Board.
- Detailed planning and review processes operating at multiple levels from Flagships and Divisions to individuals.

Our **Science Investment Process** delivers Investment decisions based on the criteria of **relevance** and **impact** for Australia. As part of this strategy, a four year analysis of broad science directions and a four year investment horizon have been established with involvement of the CSIRO Executive team and senior Flagship and Division leaders.

During the strategy period, the investment process will focus only on those areas requiring adjustments to investment levels or science directions based on changed internal or external circumstances.



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Your CSIRO

Australia is founding its future on science and innovation. Its national science agency, CSIRO, is a powerhouse of ideas, technologies and skills for building prosperity, growth, health and sustainability. It serves governments, industries,