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Strategic Plan for 2003-2007

Delivery and Execution

Strategic Goals

Focusing our science investment

Delivering world-class science

Partnering for community impact

Serving as catalyst for industry innovation

Building one-CSIRO capabilities and commitment

Securing a financial foundation for growth

August 2003

Foreword

Australia has gained a wealth of social and economic benefits from CSIRO's science and through the creativity and determination of its people. This Strategic Plan reflects strongly the continued commitment of the Organisation to the prosperity and well-being of Australia – its industry, environment and community

The Plan builds on the Organisation's proud history over 77 years and proven ability to design, manage and deliver mission directed strategic research, which directly addresses significant national issues and has achieved genuine national benefits. Our priorities, as documented in the Plan, closely align with the Government's National Research Priorities.

We wish to acknowledge with thanks the valuable feedback from key stakeholders, the CSIRO Board and, most importantly, our staff in helping us frame the development of our priority goals.

The Plan sets a demanding and important agenda for the Organisation for the next four years and into the coming decade based on our core beliefs and vision. Delivery on the objectives set out here has our full commitment.

Catherine Livingstone, Chairman

Geoff Garrett, Chief Executive

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CSIRO strategic planning framework – the CSIRO 'story'

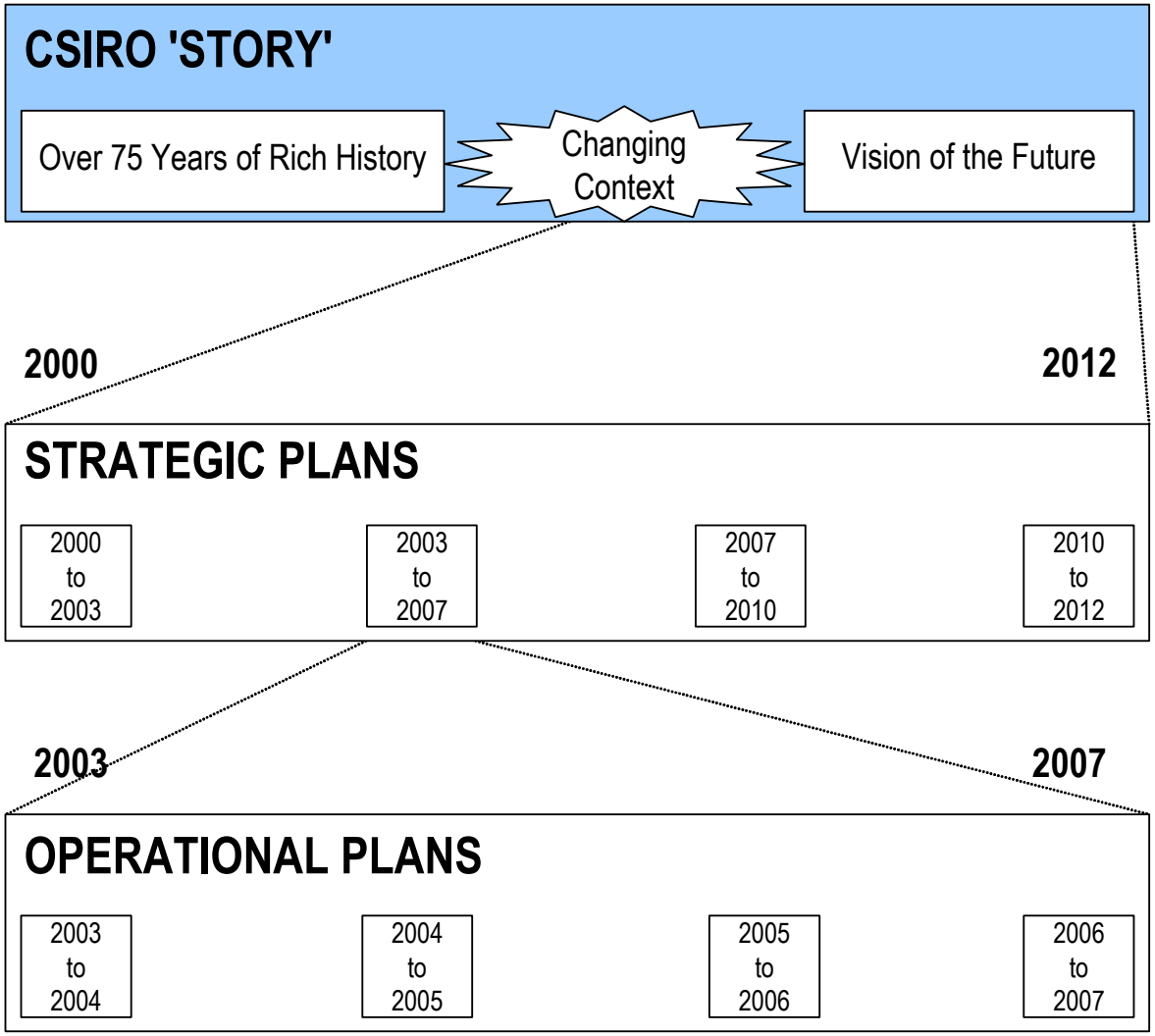
The CSIRO 2003–07 Strategic Plan links CSIRO's broad vision for the future with specific annual operational plans that specify current priority initiatives.

CSIRO's rich history shapes our future direction. The organisation's vision, mission and core beliefs have been built up over the last 77 years and flow through everything we do. At the same time, in response to some important changes in our environment, we have embarked upon a new era at CSIRO. Only our unrelenting focus on improving the quality of our science and the impact of our outputs will ensure our relevance for years to come. We are reinventing ourselves as a research enterprise with global reach. We demand of ourselves science excellence, business excellence and operational excellence. We have agreed upon the key change messages that will help us get there. We recognise, however, that real change does not happen quickly.

The next decade of change for CSIRO will take place within this broader context. From 2000 to 2012, CSIRO will have four distinct strategic episodes. Each episode will be represented in a strategic plan consistent with the broader journey upon which we are embarked. Each strategic plan sets our goals, strategic objectives, targets and performance metrics for a two- to four-year period. The strategic plans, in turn, pave the way and provide very clear objectives that are the foundations for developing our annual operational plans.

Our annual operational plans will spell out the initiatives and activities for the coming year. The operational plans contain budgets, initiatives, annual performance targets and reporting groups that focus our activities for the year. These activities are designed to push forward the strategic goals and objectives that appear in our strategic plan. Thus, the strategic plan provides the organisation with direction and a sense of accountability that are detailed in annual operational plans. The operational plans explain what we will do each year to execute on these and bring us closer to achieving our strategic goals.

CSIRO strategic planning framework



- Act/Purpose/History/Core Beliefs
- Changing Context
- Vision
- Key Change Messages

- Strategic Goals
- Strategic Objectives
- Measures of Success
- Headline Performance Indicators

- Structure of Research Portfolio
- Annual Performance Goals
- Detailed Budgets
- Risk Plan

Our Act

CSIRO is an independent statutory authority constituted and operating under the provisions of the *Science and Industry Research Act 1949*. This Act lays out the functions, powers and structure of governance of the organisation. The Act provides the underlying foundation for all that we do.

A Board, consisting of the Chief Executive and from seven to nine members appointed by the Governor-General, is charged with ensuring the proper and efficient performance of the functions of the Organisation and with determining the policy of the Organisation with respect to any matter.

CSIRO's primary functions are:

- to carry out scientific research for the purpose of assisting Australian industry, furthering the interests of the Australian community, contributing to the achievement of national objectives or the performance of national and international responsibilities
- to encourage or facilitate the application or utilisation of the results of CSIRO's scientific research.

Secondary functions specified in the Act include:

- to encourage and facilitate the application or utilisation of the results of any other scientific research
- to carry out services, and make available facilities, in relation to science
- liaison with other countries in matters connected with scientific research
- training of research workers
- establishing research fellowships and studentships
- cooperation with associations of persons engaged in industry for the purpose of carrying out industrial scientific research
- establishing, developing, maintaining and promoting standards of measurement
- collection, interpretation and dissemination of information on scientific and technical matters
- publication of scientific and technical reports, periodicals and papers.

The Act also provides (in Section 10) that CSIRO shall, as far as possible, cooperate with other organisations and authorities in the coordination of scientific research, with a view to preventing unnecessary overlap and ensuring the most effective use of available facilities and staff.

The enabling legislation

Science and Industry Research Act 1949

- To carry out scientific research for the purpose of assisting Australian industry, furthering the interests of the Australian community, contributing to the achievement of national objectives or the performance of national and international responsibilities
- To encourage or facilitate the application or utilisation of the results of scientific research
- To carry out services, and make available facilities, in relation to science

Constancy of purpose

CSIRO's purpose is simply: *'By igniting the creative spirit of our people we deliver great science and innovative solutions for industry, society and the environment'.*

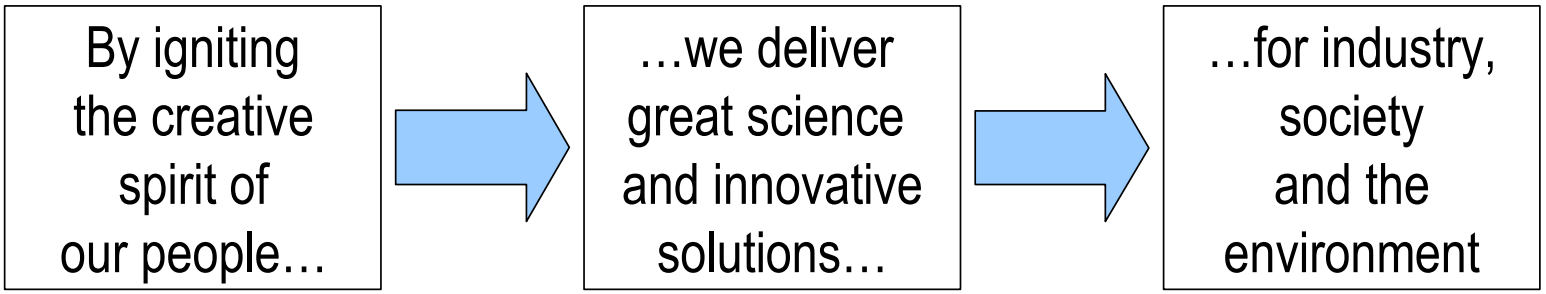
People are at the centre of everything we do. We work to create the right environment to amplify our talent. We take a 'Team Australia' approach.

It is not enough just to have a great idea; we must have impact, solve problems and make a difference.

We take a triple-bottom-line focus in our activities, balancing between commerce and the public good.

Great science is our foundation. Getting it out there is our aim.

Constancy of purpose



Over 75 years of rich history

CSIRO's origins date from the early years of World War I. In 1916, Prime Minister Hughes's Government established the Advisory Council of Science and Industry as a step to create a 'National Laboratory' and so bring scientific research to a national standing. The Council's earliest work was to collect information about the state of scientific research in Australia; undertake research; review existing research; and collect and disseminate scientific information.

The moves to establish a permanent body finally resulted in an Act to establish the Commonwealth Institute of Science and Industry (ISI) being passed in 1920. The Institute's work was hampered by a lack of funds and no clear mandate for its existence. The imperative for organising research in a country at war had gone and the economic benefits were not yet appreciated. Legislation was passed in 1926 that established a successor agency, the Council for Scientific and Industrial Research (CSIR).

CSIR

The primary aim of CSIR was to carry out scientific research in connection with, or in promotion of, primary and secondary industries in Australia. The council's first Annual Report to Parliament listed some 41 scientists on its staff, located in rented rooms in a technical college in Brunswick, a suburb of the city of Melbourne.

A number of the scientists who had advised the Government on the establishment of CSIR had argued strongly that creative scientific research required a type of environment not usually found in government departments. Because of this, CSIR was set up as a statutory authority and its governing Council was given considerable freedom in the appointment and management of its staff.

The 1930s and 40s

Although CSIR was established to undertake research for the benefit of Australia's primary and secondary industries, the Council decided to devote most of its limited resources initially to problems of agriculture and the utilisation of forest products. The first five key research areas decided upon in 1926 were animal pests and diseases; plant pests and diseases; fuel problems, especially liquid fuels; preservation of foodstuffs, especially cold storage, and forest products.

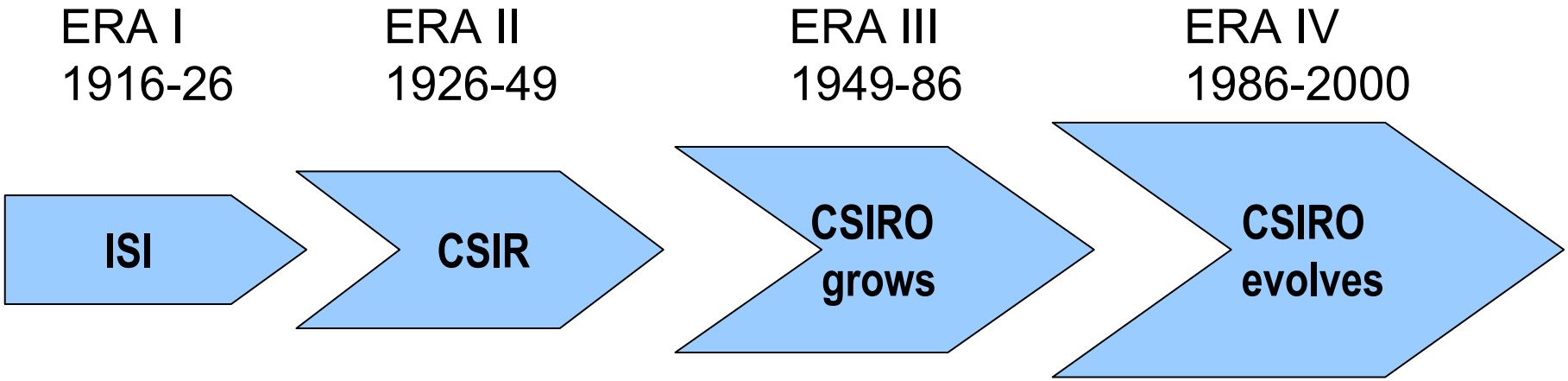
Gradually CSIR built up divisions dealing with animal health and nutrition, soils, plant industry, fisheries, food preservation and transport, entomology and forest products. Only a few scientists were then engaged in activities such as radio research and microscopic studies of minerals (mineragraphy).

In 1936 the Government decided to extend the activities of CSIR to provide scientific assistance to secondary industry. This proved to be a fortunate decision, for the National Standards Laboratory, the Aeronautical Laboratory and the Division of Industrial Chemistry created in the years 1937–40 played an important part in the rapid wartime development of Australian industry. In 1940 three other laboratories were established to help the war effort – they dealt with Radiophysics, Dairy Research, and Lubricants and Bearings.

After World War II ended in 1945, CSIR was able to concentrate once more on the problems and opportunities of primary and secondary industry. Research expanded to include areas such as building materials, wool textiles, coal, atmospheric physics, physical metallurgy and assessment of land resources.

In the late 1940s, potential incompatibilities were recognised between the needs of scientific freedom and national security, leading to the passing of the *Science and Industry Research Act 1949*. Under the Act, CSIR ceased all secret or 'classified' work of a military nature. The council was reconstituted as CSIRO, the Commonwealth Scientific and Industrial Research Organisation.

Over 75 years of rich history



- Beginnings of a national plan for the economic exploitation of science
- Agriculture as key driver

- Establishment of the scientific culture in Australia
- Careful nurturing of cooperative Federalism in science

- Professional management of the scientific endeavour
- Rapid expansion and diversification
- Widely accepted as a powerful force promoting technological change

- Comprehensive sectoral priority setting and insistence on scientific excellence
- Top patenting institution in Australia
- Involved in over 150 spin-off firms
- Produced over 8000 client reports annually
- Active in over 700 international projects
- Increasing competition in the provision of R&D services

Over 75 years of rich history (continued)

Over the next three decades CSIRO gradually expanded its activities so that its research was related to almost every field of primary, secondary and tertiary industry. Many other areas affecting the community at large were also covered – such as the environment, human nutrition, conservation, urban and rural planning, and water supplies.

The use of myxoma virus to control rabbits was one of the CSIRO's most famous successes, cutting populations by up to 99 per cent. The episode was memorable for a public scare over the simultaneous outbreak of human encephalitis in northern Victoria. To calm public anxiety that myxomatosis might have been the cause of this deadly human brain disease, CSIRO Chairman Ian Clunies Ross and two other notable scientists, MacFarlane Burnet and Frank Fenner, injected themselves with myxoma.

A wool boom provided unprecedented funding for research into animal production, wool biology, Merino genetics, wool chemistry and physics and textile technology. This led to the first shrink-proof woollen fabric, permanent pleating and creasing.

In 1971 CSIRO moved its headquarters from Melbourne to Canberra as part of a Government initiative to bring the heads of its agencies closer to the daily workings of the ministers they served. In the 1970s many Governments around the world came to appreciate more how scientific research could contribute to the health of the economy and the community. Politicians began to play closer attention to the funding and activities of government research bodies.

By the mid-1970s, CSIRO was a large and diverse organisation with 37 divisions and 5 units. In 1976, the Government established a committee chaired by Professor Arthur Birch to review it. The committee recommended that divisions should be grouped into institutes each headed by a director. The Executive was reduced in size to three full-time members, including the Chairman, and five part-time members.

In the 1980s, rabbits were back on centre stage with work on a new biological control, the rabbit calicivirus disease (RCD). The Animal Production laboratories in Sydney produced the world's first transgenic sheep, Plant Industry saved Australia's lucerne pastures by developing an aphid-resistant variety, and the Division of Atmospheric Research became a global leader in research on greenhouse gases and climate change. Radio astronomy gained a new lease on life with the building of Australia's most ambitious science project to that point, the Australia Telescope Compact Array. Closer to home, CSIRO played a critical role in developing new technologies and exploration methods directly suitable for the Australian landscape of deep weathering and saline groundwaters, and the types of minerals likely to be found, eg gold and nickel. In 1988 CSIRO and the Reserve Bank released the world's first polymer banknote, a commemorative $10 note to celebrate the bicentenary of European settlement in Australia. In 1985, the Australian Science and Technology Council concluded CSIRO should remain a single statutory authority doing mainly applications-oriented research and transferring its results to industry. The Executive was replaced by a Board chaired by former NSW Premier Neville Wran. CSIRO was told to seek more external funding.

Through the 1990s, CSIRO significantly strengthened its involvement with the manufacturing, information technology, services, mining and minerals sectors. Divisions such as Mathematical and Information Sciences, Manufacturing Science and Technology, Petroleum Resources, Molecular Science, and Telecommunications and Industrial Physics became prominent for their increasing industry support roles. In food, research into basic dairy foods resulted in the emergence of a new ingredients industry, which by the end of the 1990s had turned traditional dairy processing into one of the country's leading manufacturing sectors. The 90s saw more environmental research, especially into salinity and water quality issues, ecology and biodiversity, and an expansion into the oceans with the first concerted effort to explore Australia's new 200km Exclusive Economic Zone. Research in biotechnology grew rapidly and Plant Industry mounted a major effort on the genetic manipulation of plants, while Exploration and Mining helped find the world's richest undersea gold deposit along with $11 billion worth of gold and nickel on dry land. As global concern mounted over climate change CSIRO was internationally prominent in the cleaner use of fossil fuels, and the development of alternative energy. This led to ambitious projects like the aXcessaustralia Low Emission Vehicle and the Hybrid Energy project as working symbols of the ingenuity of Australian technology.

Acknowledgement

Information compiled by Rodney Teakle and also taken from *75 Years of Australian Science* by Brad Collis at: http://www.csiro.au/csiro/75thann/75thanniversay.html

Over 75 years of rich history (continued)

Core beliefs

Our core beliefs have coalesced over time. They represent our shared priorities and drive our behaviours in every day-to-day activity and interaction at CSIRO.

- We have great people.
- We aspire to excellence in all that we do.
- Science can achieve great things.
- Integrity, honesty and openness are fundamental to the way we operate.
- Our clients and partners are essential to our success.
- Our diversity and breadth allow us to tackle complex problems and opportunities on a national and global scale.
- We value a safe and healthy work environment.
- Trust is crucial in building high-performing teams.

Core beliefs have remained the same…

Changing context for strategic planning

For the last two years, CSIRO has been operating in a rapidly changing environment. Global, national and internal factors have all placed significant pressure on our efforts. We have tried to be cognisant of these forces and to incorporate them into our own strategic planning activities.

Global factors

Changes in global science trends, forces of globalisation and trade and geopolitical strife all set the stage upon which we operate. Like it or not, we compete on a global stage, just like our clients and partners. Global competition for opportunities as well as for top talent is on the rise. We ignore the global context at our peril.

Australian factors

At home in Australia we also face a changing landscape. The recently drafted Australian National Research Priorities (NRPs) highlight some of the most important issues Australia faces. In times of drought and fire and with increasing security concerns, the nation's needs respond accordingly. Correspondingly, feedback and insights from our Sector Advisory Councils help us foresee the challenges ahead, from agribusiness to energy, or manufacturing to health. Expectations for CSIRO naturally also shift in the face of changing capital markets and funding pressures. Now more than ever, Australia needs a strong CSIRO which is committed to delivering real results.

Internal factors

We have also taken account of our own internal situation, as we plan for the future. We recognise the need to recruit, retain and stretch up-and-coming talent, address staff feedback on a variety of issues and continue to manage change. We recognise the need to maintain the trust associated with our brand, and the importance of securing our financial ability to achieve our goals. Most of all, we note the limits on any organisation's ability to drive change in multiple dimensions. This constraint is the chief determinant of the timing and pace of our initiatives.

…but the planning context has changed

Australian Factors

- Government expectations and reviews
- Funding pressures
- National Research Priorities
- Sector outlooks
- Client feedback
- Drought, fire, security, ageing population
- Market opportunities
- Trust of science

Internal Factors

- Demographics of scientists
- Assets (IP, infrastructure)
- Brand positioning
- Financial position
- Staff feedback

Global Factors

- Science trends and 2025 scenarios
- Competitive dynamics
- Forces of globalisation and trade
- Geopolitics and security
- Global economic malaise
- Competition for talent
- Sustainability agenda

A vision of our unfolding future

In a nutshell, for the next decade, CSIRO will help take on the biggest and most challenging issues facing the nation. Through vibrant partnerships with effective knowledge transfer to industry and communities, we will help drive business activity, exports, and social benefits. And through unremitting excellence in both science and the business of doing science, we will remain one of the world's pre-eminent scientific organisations.

Above all, through science and imagination, our people will help create the sort of future for Australia that Australians want: a source of innovative, sustainable solutions, ideas and technologies to the world; booming knowledge exports worth billions of dollars; industrial and environmental rejuvenation – new jobs, new industries and fresh opportunities.

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So polishing our crystal ball, let's take a glance at where Australia could be at the end of this decade. And how CSIRO will help it to get there.

This decade begins a period when this country emerges as a world pace-setter in the discovery and useful application of knowledge. When Australia hails the contribution of its scientists and technologists as readily as it does that of its sports people. When knowledge and ideas are our most valuable and sought-after products. When they form the backbone of our economy and our jobs. When they are a byword for quality, integrity and ethics. When they breathe fresh life into traditional industries and give birth to new ones, in areas like:

- genomics, proteomics and bioinformatics
- nanotechnology
- advanced IT and communication technologies
- preventative healthcare
- clean, competitive energy
- complex systems science.

These are some ways in which CSIRO helped Australia achieve this momentous change – by changing ourselves and the way we do things. By building on a magnificent foundation of great science. By recognising that success depends on partnership. By taking on the biggest, toughest challenges. By making sure our knowledge was turned into outcomes of value to industry and society. By giving full rein to our creative powers and our imaginations. By working with the world's best and being among the world's best. By continuing to build an endowment based on intellectual property with commercial relevance.

Our 'enterprise' is about combining excellence in research with excellence in how we manage our business and how we deliver results. We will make sure our knowledge is put to fruitful use. Our aim is to have a living discourse with our partners about the future – and how we get there. We will invest our precious people, skills and capabilities in the areas of greatest national need. We will constantly check to see our work is relevant, and that our results will count. We will seek to meet Australia's needs, first and foremost, but in a way that also benefits humanity.

Vision for the next decade

Australian Science – Australia's Future

- Australia is forging a bright destiny as a source of innovative, sustainable solutions, ideas and technologies to the world
- Booming knowledge exports worth billions of dollars
- Industrial innovation and rejuvenation; new jobs, new industries and fresh opportunities
- Landscape and waters are regenerating
- Science is making a real difference
- 'Hail to the athlete, hail to the scientist…'

How CSIRO Will Have Helped…

- Taking on the biggest and most challenging issues facing the nation
- Helping bring global attention to Australian science
- Advanced pace of commercialisation and an endowment of relevant intellectual property
- Vibrant partnerships with effective knowledge transfer to industry and community
- Unremitting excellence in both science and business
- Investment focus: intelligent management of resources for impact, relevance and delivery of value
- Australian focus; global connections, stature and significance

Six key change messages

We have set our sights on six key messages that will drive us towards achieving the vision of becoming 'a research enterprise with global reach'. From 2000 to 2012 these six key messages will provide the basis for our strategic goals. To deliver on our core purpose, in a rapidly changing environment, requires behavioural change along trajectories that these key messages articulate.

Focus Focus Focus

We are currently still spreading ourselves too thinly. We need to focus our energies in order to maximise our contribution, and value addition to the nation, by building teams around key scientific opportunities and challenges for Australia. This will continue to demand tough choices and solid alignment with our nation's priorities for research endeavour.

Look Out!!!

First, this is a volatile, even dangerous world – as such, we need to take care. There are numerous and ever-increasing pressures on an organisation such as CSIRO to enhance delivery of quality and meaningful outcomes, and to ensure organisational relevance and survival into the longer term. Second, we exist only to make an indispensable contribution, and thus provide value, to those people outside our organisation – our clients, our stakeholders and the people of Australia. Third, our business of science bears with it the awesome responsibility of engaging with the future. We need to look outward – to identify and understand the challenges facing us. We get it wrong at our peril.

Partner or Perish

No single individual, group or institution can possibly encompass the breadth of skills and competencies needed to deliver against the major challenges that confront us, both now and into the future. As such, we must continue to emphasise quality partnerships, nationally and globally, increasing our capability to deliver creative science and innovative solutions in a timely way.

Service from Science

A strong outward-looking emphasis necessitates that we pay close and responsive attention to our clients and the wider community. To meeting and indeed anticipating their needs. This demands a culture of uncompromising customer focus – delivering great service from excellent science.

One-CSIRO

To address major national challenges and global opportunities more effectively, CSIRO must leverage its scale and scope, through effective multidisciplinary and boundary-crossing team work, harnessing the full and integrated power of a unified CSIRO. This will also enable us to move rapidly to identify and exploit new opportunities and technologies that will emerge beyond and across conventional boundaries.

Go for Growth

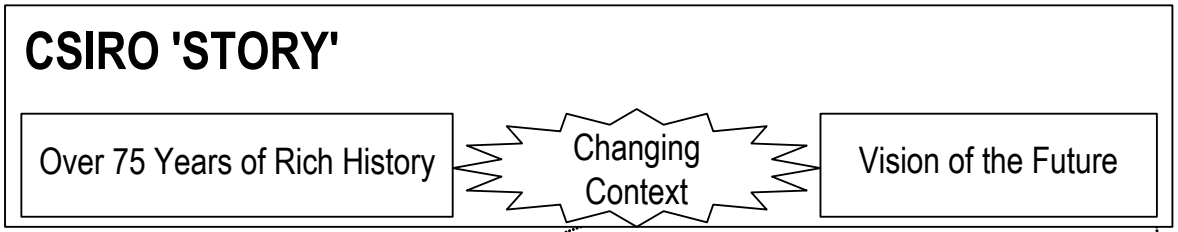
Without growing, we risk shrinking to irrelevance. As we succeed, our nation will benefit and our impact and business will grow. And so will our staff – as individuals and as teams – in capability, experience, stature, wisdom and contribution.

Six key change messages

CSIRO strategic planning framework – strategic plans

The next decade will bring a series of strategic plans that highlight our strategic goals, performance metrics and targets. Each strategic plan focuses on a two- to four-year period and identifies the relevant priorities for each step in the path towards 2012.

CSIRO strategic planning framework



- Act/Purpose/History/Core Beliefs
- Changing Context
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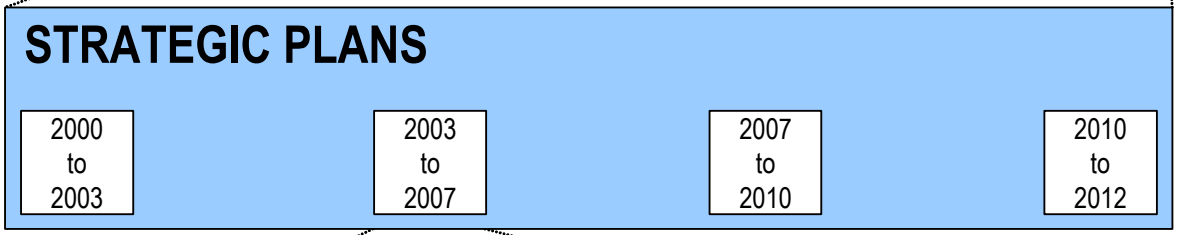
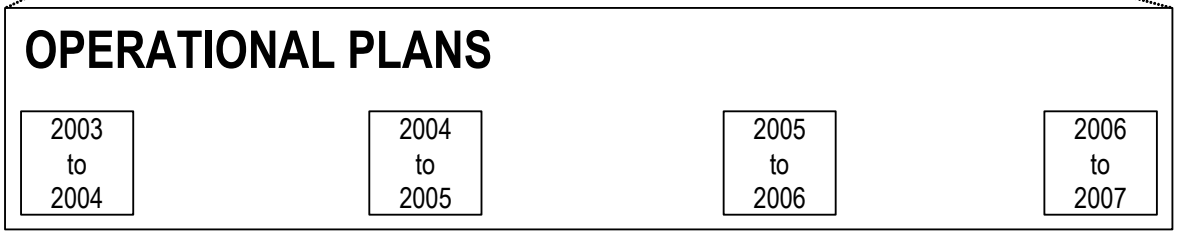
- Key Change Messages

2000 2012



- Strategic Goals
- Strategic Objectives
- Measures of Success
- Headline Performance Indicators

2003 2007



- Structure of Research Portfolio
- Annual Performance Goals
- Detailed Budgets
- Risk Plan

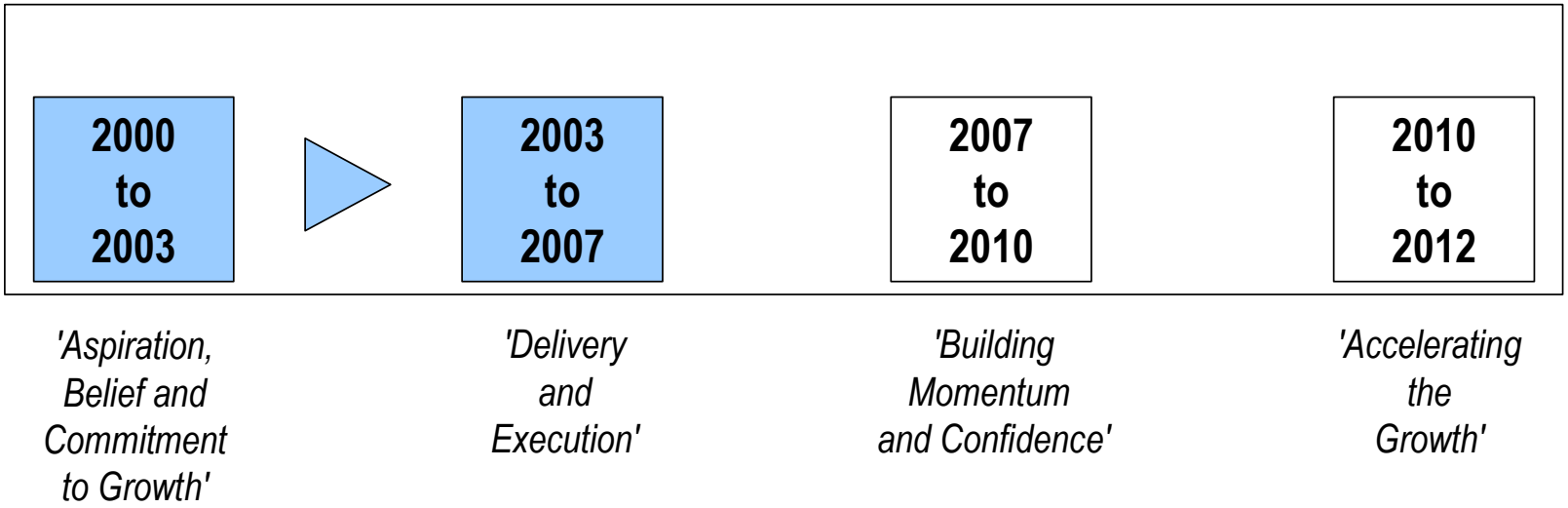
Series of strategic plans

The six key messages will drive our behaviour over the next decade and affect all parts of our organisation. They represent serious changes in mindsets and behaviours of all CSIRO staff. We recognise that deep change takes time – significantly changing an organisation as large and complex as CSIRO can not happen overnight. Often change of this magnitude takes 10 or more years. We believe that the changes for CSIRO will unfold in a series of somewhat distinct episodes over the coming decade. Each episode will represent a different step towards achieving our vision of becoming a research enterprise with global reach.

Each of the strategic plans over the next decade represents an episode towards our vision for 2012:

- 2000 to 2003 was characterised by CSIRO's commitment to grow in order to be more relevant and deliver greater value to our stakeholders and clients.
- 2003 to 2007 represents our focus on delivery and execution, requiring some tough decisions to be made as we concentrate on implementation.
- 2007 to 2010 will be characterised by building momentum as the most successful growth paths become more and more clear.
- 2010 to 2012 will be a period of working to maintain our growth momentum.

Series of strategic plans



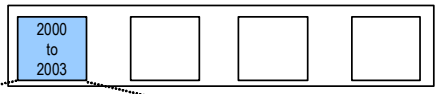
- Six key change messages represent major transformation at multiple levels of our organisation
- Such change typically takes 10+ years and tends to unfold through a series of episodes
- For CSIRO, each period represents a planning episode with specific strategic goals
- Strategic plans will be developed one at a time based on progress and context of previous plan

2000 to 2003 episode

The 2000–03 triennium was about aspiring and committing to grow. We achieved many accomplishments in the period, several of which helped lay the foundation for our growth over the next decade. Our Strategic Action Plans (SAP I, SAP II and SAP III) focused our actions towards the six key messages. For example:

- we continued to deliver great science, benchmarked with the world's best
- we made a substantial contribution to the formulation and development of Australia's National Research Priorities
- we planned and launched the Flagship programs, directed towards big goals, and received additional Commonwealth support for them
- we negotiated an Enterprise Bargaining Agreement which provided a significant structural increase to compensation for our staff
- we significantly improved our relationships with government
- we initiated a customer value survey that has continued for the last five quarters and is now part of our make-up
- we raised our external earnings, especially related to intellectual property based revenues
- we revamped our business development and commercialisation activities and brought in significant external talent
- we listened to feedback from our staff, through comprehensive surveys, and are implementing appropriately
- we secured senior leadership, alignment and enthusiasm, and Board and stakeholder commitment for our strategy going forward.

2000 to 2003 episode



'Aspiration, belief and commitment to growth'

- Building senior commitment and alignment on six key change messages
- Raising the bar to think big
- Overcoming organisational barriers
- Committing to SAP I, II and III to drive action

SAP I | SAP II | SAP III

Focus Focus Focus	• Planning and launch of Flagships • Engagement in National Research Priorities (NRP) formulation • Enthusiasm for R&D alignment with NRPs
Look Out!!!	• Benchmarking (eg ISI rankings) for our science excellence • Growth in post-docs, post-grads, Federation Fellowships • Staff survey results actioned • Increased remuneration to be competitive in the talent market
Partner Or Perish	• Commitment to 'Team Australia' • Strengthened government relationships • CRC review and new university collaboration initiatives • Increased quality and quantity of communications
Service From Science	• Customer value survey analysis and reporting • Early experiments with large corporates • Growth in revenues from industry • Alliance with Australian Industry Group to target promising SMEs • Impact analyses of benefits/costs (Centre for International Economics)
One-CSIRO	• Executive Management Council process and Group processes streamlined • Identification and funding of emerging science • System advances in email, HR applications (eg perf mgmt and OHS&E) • New system of Annual Performance Agreements (APA) introduced for all staff • Restructured BD&C with experienced talent from outside
Go For Growth	• Secured funding increase for Flagships • Still in running for further appropriation increase • Increase in IP-based revenues • Subsidisation analysis and action plan • External earnings growth

Strategic goals for 2003 to 2007

The 2003–07 period will emphasise execution, delivery and implementation. The strategic goals for the next four years grow out of the six key messages, but emphasise the near term creation of a foundation for growth and the need to make difficult decisions along the way.

The six strategic goals for 2003 to 2007 are:

1 Focusing our science investment
– increasing the relevance of our science investment portfolio

2 Delivering world-class science
– enhancing our global reputation for science excellence

3 Partnering for community impact
– delivering public good impact for Australia

4 Serving as catalyst for industry innovation
– delivering commercial impact for Australian industry

5 Building one-CSIRO capabilities and commitments
– evolving our culture and working arrangements

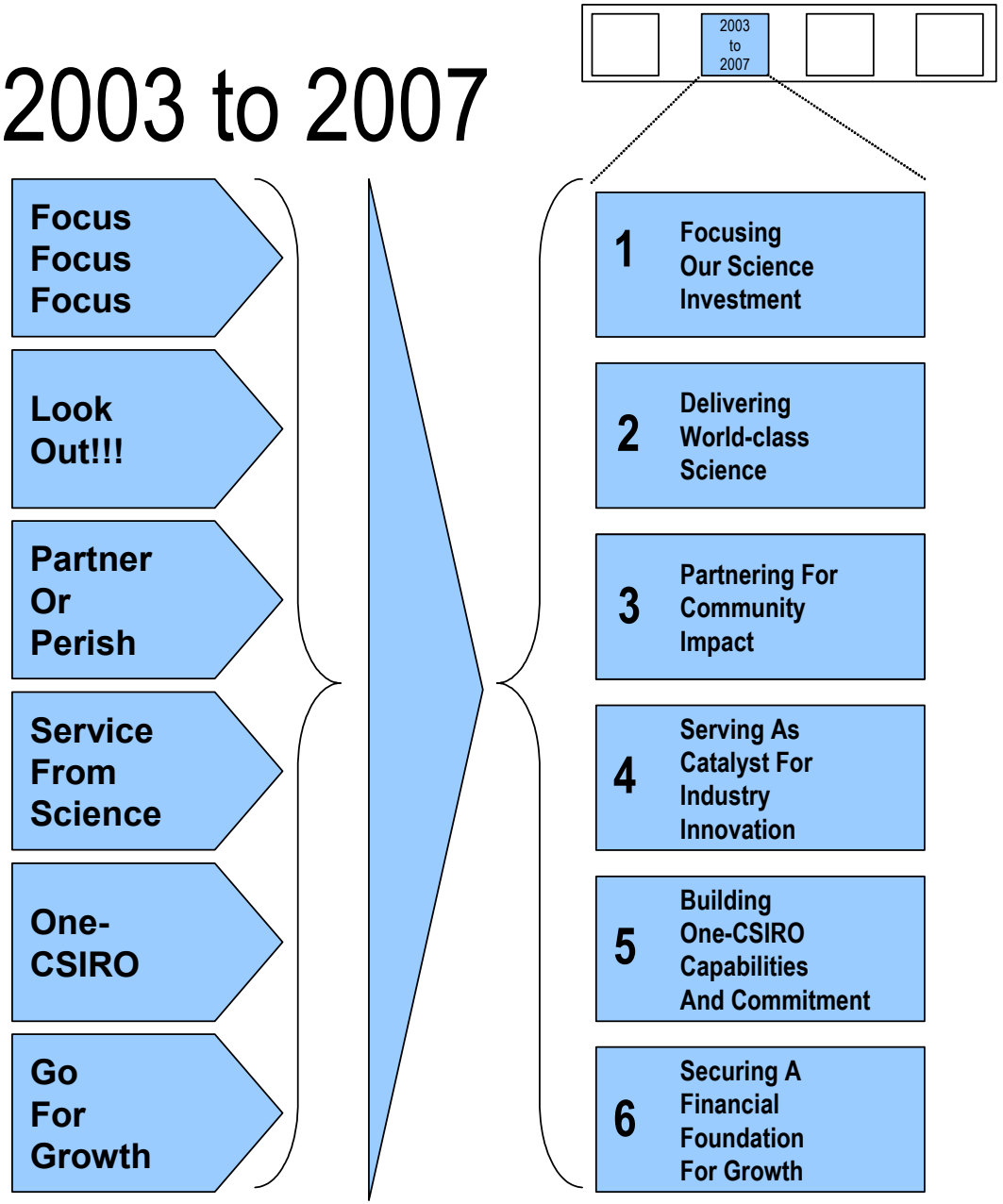
6 Securing a financial foundation for growth
– achieving financial outcomes that provide a foundation for our future.

These six goals represent the priority manifestation of the six key messages for the next four years.

Strategic goals for 2003 to 2007

'Delivery And Execution'

- From SAPs to operating plans
- Six strategic goals chosen to reflect priority aspects of the six key messages for the next four years
- Strategic goals reflect need to create proper foundation for growth
- Heads down implementation imperative



CSIRO strategic goals

There are six strategic goals for 2003–07. For each goal there are four objectives, or sub-goals. Each of the six goals and 24 objectives will now be described in detail. Each goal and objective has corresponding performance measures and 4-year targets.

CSIRO strategic goals

Focus Focus Focus	1 Focusing Our Science Investment	1.1 Play a significant role in delivering on Australia's National Research Priorities 1.2 Build critical mass and ensure quality in our core research programs 1.3 Champion Flagships to improve the lives of Australians and advance Australia's key industries 1.4 Increase the impact of major cross-Divisional activities through a focused strategic investment process
Look Out!!!	2 Delivering World-class Science	2.1 Concentrate people processes on developing, attracting, exciting and retaining talent 2.2 Optimise delivery of all research activities by improving project management 2.3 Build our global recognition for science leadership in our chosen science domains 2.4 Help Australia play a leadership role in major international science facilities such as the Square Kilometre Array
Partner Or Perish	3 Partnering For Community Impact	3.1 Focus and intensify collaboration with universities, CRCs and other agencies 3.2 Service the needs of government for informed policy setting 3.3 Enhance communication to raise public and stakeholder excitement and trust in science 3.4 Partner with other agencies to advance Australia's global development contributions
Service From Science	4 Serving As Catalyst For Industry Innovation	4.1 Intensify engagement with rural research and development corporations to grow regional and new industries 4.2 Structure deeper and more meaningful relationships with large corporations 4.3 Accelerate the growth of promising technology-based SMEs 4.4 Reinvent our ICT capabilities to strengthen Australia's knowledge-based industries
One-CSIRO	5 Building One-CSIRO Capabilities And Commitment	5.1 Stimulate breakthroughs by promoting cross-pollination, especially in frontier research 5.2 Be among the best in governance, OHS&E and performance management processes 5.3 Adopt a unified approach to improve service dramatically and grow top accounts 5.4 Implement standard processes and IT systems to enhance collaboration and efficiency
Go For Growth	6 Securing A Financial Foundation For Growth	6.1 Secure greater Federally funded support for CSIRO science investment 6.2 Proactively manage patent and equity portfolios to multiply IP-based revenue streams 6.3 Deliver customer value for money and eliminate subsidisation in consulting services 6.4 Reduce overhead and purchasing costs and manage balance sheet for reinvestment

Goal 1

Focusing our science investment

We are currently spreading our science investment too thinly. During the next four years, we will continue to focus our efforts to maximise our impact and maintain our competitive standing for quality and scale. We will focus on delivering value to our stakeholders in several ways:

- We will ensure that we are directing our science efforts in alignment with the areas most important to Australia through the National Research Priorities (NRPs). We will deliver meaningful outcomes in alignment with the NRPs.
- We will commit to having sufficient scale and quality in our activities to keep our activities relevant and competitive on a global scale.
- We are truly excited about the Flagship programs' opportunity to deliver important outputs relating to some of the most complex and important issues facing Australia. We will concentrate a substantial portion of our energies on Flagships. Flagships will seek to improve the lives of Australians and to advance key Australian industries.
- We will also develop coordinated investment strategies for other important cross-divisional activities.

Whereas 85–90% of our energies during the period will be focused on our core research activities and Flagships, we will also encourage significant experimentation in the frontier research areas with 10–15% of our investment resources. Our core research and Flagships are areas where we will press for focus and scale, whereas in our Emerging Sciences Initiative we will seek to better harness our diversity and breadth.

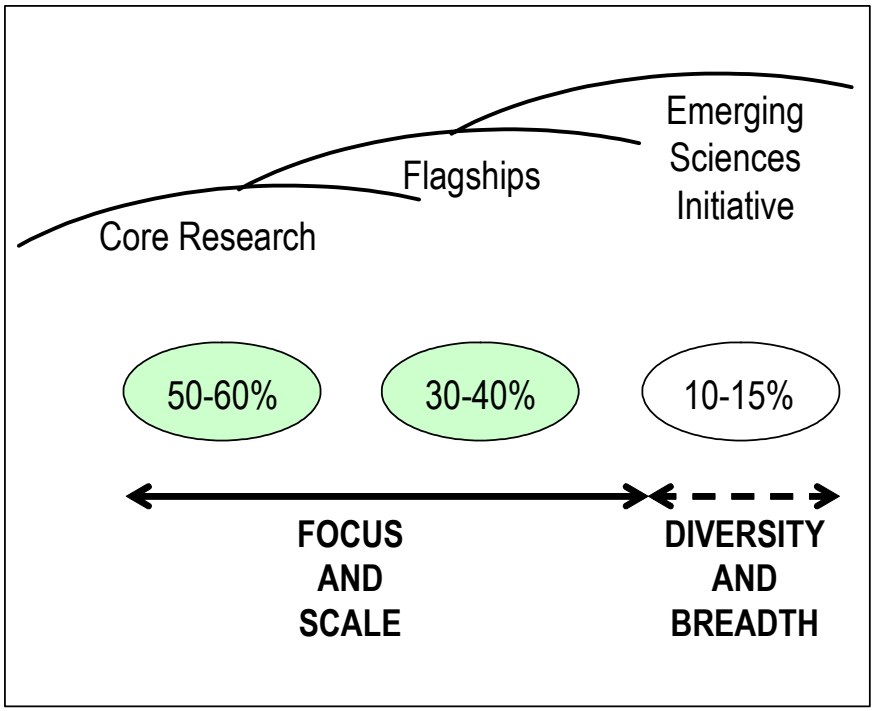
Goal 1: Focusing Our Science Investment

1.1 Play a significant role in delivering on Australia's National Research Priorities

1.2 Build critical mass and ensure quality in our core research programs

1.3 Champion Flagships to improve the lives of Australians and advance Australia's key industries

1.4 Increase the impact of major cross-Divisional activities through a focused strategic investment process



Value to Australia

- Greater collective impact on big challenges
- Global standing and scale
- 'Team Australia' specialisation
- Efficiency of National Innovation System

Value to CSIRO

- Stakeholder satisfaction
- Science relevance
- Potential future financial gain

Objective 1.1

Play a significant role in delivering on Australia's National Research Priorities

The National Research Priorities (NRPs) encompass four major areas and 17 related priority goals. The four major focal points of the NRPs include:

A An environmentally sustainable Australia

B Promoting and maintaining good health

C Frontier technologies for building and transforming Australian industries

D Safeguarding Australia

The NRPs provide a vision for the key challenge areas for Australia today and into the future. A relatively high level of alignment with the National Research Priorities is consistent with CSIRO's mandate and the organisation's historical focus on performing research that would provide outcomes of benefit to Australia. As a leading research enterprise, CSIRO's ongoing commitment to the NRPs is a top priority, where CSIRO can add significant value.

Currently, over 70% of CSIRO's Federal appropriation funding is directed towards the priority goals associated with the National Research Priorities. Given the importance of the NRPs, it would be unacceptable to see this NRP alignment index ever fall below two-thirds (ie 67% alignment).

The research currently defined as 'not relating to the National Research Priorities' (currently about one-quarter of CSIRO's total effort) fall into four broad categories:

- Research of relevance to the National Research Priorities but not reasonably connected to any priority goal, (eg work in climate change).
- Research which does not reasonably align with either the National Research Priorities or their associated priority goals but which addresses important issues for Australia, eg research targeted at the discovery of bioactive molecules for application in human health (ie pharmaceuticals, animal health or crop protection).
- A limited amount of fundamental research that it is not reasonable to include as breakthrough science in the context of building frontier technologies. (Given CSIRO's strong industry/end-user focus most of its more fundamental work, eg in nanotechnology or ICT, is designed ultimately to lead to frontier technologies of relevance to Australian industry. The most significant exception is basic research in radioastronomy.)
- Specific consulting services, compliance testing and work carried out for public sector and private sector clients.

The NRPs feature strongly in all of CSIRO's science planning activities. Importantly, the Flagship programs (see objective 1.3) have been designed to have significant overlap with the NRPs. The Flagships will represent a significant portion of CSIRO's overall spend over time. The Flagships align directly with many NRP priority goals including:

A1 Water – a critical resource

A2 Transforming existing industries

A3 Overcoming soil loss, salinity and acidity

A4 Reducing and capturing emissions in transport and energy generation

A5 Sustainable use of Australia's biodiversity

B2 Ageing well, ageing productively

B3 Preventative healthcare

C2 Frontier technologies

C3 Advanced materials

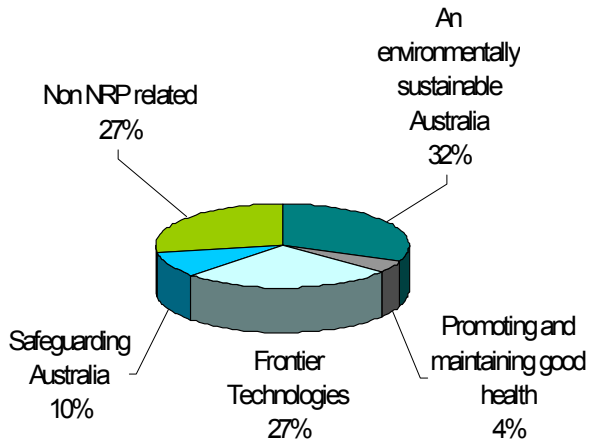
It is expected that a majority of the anticipated outcomes of Flagship programs, other major cross-divisional programs and the Emerging Sciences Initiative will align directly with the National Research Priorities. Therefore, it is likely that CSIRO's NRP alignment index will increase over time.

1.1 *Play a significant role in delivering on Australia's National Research Priorities*

Key points

- CSIRO is a lead agency and will continue to show commitment
- Current alignment of core research with NRPs is greater than 70% of appropriation
- Flagship programs significantly overlap with NRPs and will increase alignment
- CSIRO focused on delivering outputs that align directly with NRPs

Alignment of CSIRO's total R&D expenditure with NRPs



Success measure(s)

- Share of science investment on NRPs and evidence of impact from these programs

Likely initiatives

- Focus on NRPs in Science Planning to strengthen impact
- Measuring group/Division operational plans alignment with NRPs
- Flagships

Objective 1.2

Build critical mass and ensure quality in our core research programs

CSIRO's investment in science is spread too thinly. CSIRO has been criticised by clients and others as being 'a mile wide, but a centimetre deep'. A large proportion of our divisional programs are funded with less than $1 million each. CSIRO's budgetary constraints limit the number of programs that can be supported at meaningful investment levels. According to our PSS system, there are currently 6,500 people in all of CSIRO who account for nearly 6,000 active projects.

At the same time, there is clear recognition of the importance of both quality and scale. Scale is often required to be visible globally and to compete more effectively for the research dollars of an increasingly consolidating and global client base. Scale combined with quality are critical to the creation of a truly world-class set of science and commercialisation competencies aligned to a sector's current and future needs. Scale is also important in that it provides a more sustainable platform for the delivery of products and services required to meet the significant long-term issues affecting Australia. Finally, scale serves as a catalyst to open up a range of partnership and alliance opportunities that would otherwise not be available.

Through the science planning process, and divisional planning and rotating reviews, CSIRO will explore the degree of scale and quality in our science. A natural consequence of these planning activities will be an increased concentration of CSIRO activities. Some science activities will grow, and some non-critical, sub-scale science may be dropped. We anticipate a variety of processes both at a divisional and a corporate level to clarify further the areas of focus. A 'scale' index can be created to provide a top-down view of the number of programs that can concurrently be managed. More one-CSIRO, thematic cross-divisional work in fields such as nanotechnology or biotechnology provides one method to enhance scale through better alignment. Sharing of infrastructure and equipment across the organisation is another relevant indicator.

One additional approach to gaining significant scale and scope may be through joint ventures and strategic alliances. In a few cases, CSIRO may identify another science-based enterprise and determine that it shares complementary objectives with respect to scientific research and commercialisation activities. In such selective situations, it may make sense to align offerings to develop a deepened and broadened one-stop R&D shop for that industry. Selective strategic alliances can allow CSIRO to serve an industry better by quickly establishing CSIRO's status as a top player in terms of both scale as well as scope and quality. Obviously, these activities come with risks of their own and must be approached in a thoughtful way.

1.2 *Build critical mass and ensure quality in our core research programs*

Key points

- Critical mass and quality required to be competitive globally
- Science planning activities must increase focus on scale and quality
- Need to find innovative ways of tapping into external feedback about our research programs
- Selectively explore possible joint ventures and strategic alliances that lead to significant gains in scale and scope in a global industry

R&D providers to the global pulp and paper industry

Organisation	Staff	Coverage	Sales	Innovation Spend
PAPRICAN (Canada)	340	Complete P&P industry	$A60M	~ $15M
KCL (Finland)	340	Complete P&P industry	$A60M	~ $15M
STFI (Swedish Pulp and Paper Research Institute)	230	Complete P&P industry	$A40M	~ $10M
CTP (France)	140	Complete P&P industry	$A20M	~ $4M
IPST (US)	~ 100	Complete P&P industry	$A15M	N/A
PAPRO (part of NZ Forest Research)	40	Mechanical pulp & paper focus	$A6M	$1M
CSIRO (Pulp & paper & related research)	30	Chemical pulp & paper focus	$A5M	$2M

Note: Innovation Spend is an estimate of R&D focused on new product development

Success measure(s)

- Share of programs with critical mass

Likely initiatives

- Science planning
- Divisional operating plans
- Divisional reviews
- Joint ventures and strategic alliances
- New Program Performance Framework

Objective 1.3

Champion Flagships to improve the lives of Australians and advance Australia's key industries

Years of sustained investment in research and development by CSIRO have yielded tremendous results for many Australian industries. CSIRO has had a significant impact on the growth and prosperity of Australian industries including gold, cotton, wine, and magnesium. Of course, CSIRO was but one contributor of many to these industries. For example, over the last 20 years the Australian cotton industry has grown from a GVP of $200 million to $1,800 million, in some part due to the production of new cotton varieties from the CSIRO breeding program. The Australian gold industry has grown from $250 million to $5,000 million over the same time period, in part due to the new exploration methods developed in CSIRO especially for Australian landscape conditions. CSIRO is committed to have a similarly substantial impact on several additional Australian key industries over the next decade.

CSIRO has conducted detailed analysis of economic, social and environmental trends in Australia over the next 25 years and it is clear that important issues will inhibit Australians from achieving their real potential unless sustainable technological solutions to these issues are developed. The Australian Government's recent Intergenerational Report highlights issues such as the linkage between population growth and resource demand, desired increases in productivity and participation rates for ageing Australians, and the need to decrease the cost of health care while encouraging healthy living.

These challenges to Australian industry and to our community naturally transcend multiple science disciplines. There is no way to develop robust approaches or solutions to these issues unless this is done in an integrated and multi-functional way.

CSIRO is well placed to help handle that complexity and engage and help coordinate the relevant participants to achieve challenging goals in these areas through Flagship programs. Flagship programs are a new way of assembling multidisciplinary teams and harnessing the nation's scientific skills both inside and outside CSIRO. They aim to tackle 'audacious goals' around these major national challenges and opportunities. Flagships are based on a 'Team Australia' philosophy for doing science, and delivering against stretching objectives. They integrate, focus and re-direct existing scientific resources to achieve more valuable outcomes through a partnership of leading Australian scientists, research institutions and commercial companies and selected international partners.

We will be directing as much as one-third of our science investment into this category by the end of this four-year period. This is new territory for CSIRO and will require significant one-CSIRO behaviour and outputs. We are developing management processes to handle these large-scale, cross-divisional projects better.

CSIRO will invest in a few key Flagship programs that aim to improve the lives of Australians and advance Australia's key industries. Substantial effort has gone into establishing these programs. Broad consultation both outside and within CSIRO has been particularly important to engage with a diverse range of potential partners, collaborators and government. Alignment with National Research Priorities was factored in as well. The Flagships program is likely to include the following:

- Preventative Health – to help reduce healthcare costs, increase total economic benefit to the nation and enable Australians to achieve an extra ten years of productive and enjoyable life
- Agrifood Top 5 – to transform the international competitiveness and add $3 billion of value to the Australian agrifood sector by applying frontier technologies to its largest industries
- Healthy Country – to achieve a tenfold increase in the social, economic and environmental benefits from water use by 2025
- Light Metals – to help generate significant new export income, industries and enterprises for Australia by the 2020s by leading the global revolution in light metals
- Energy Transformed – to double the efficiency of the nation's new energy production, to halve energy losses and make Australia a world leader in cutting greenhouse emissions
- Wealth from Oceans – to build on Australia's excellence in climate and ocean science to generate sustainable wealth from our marine resources.

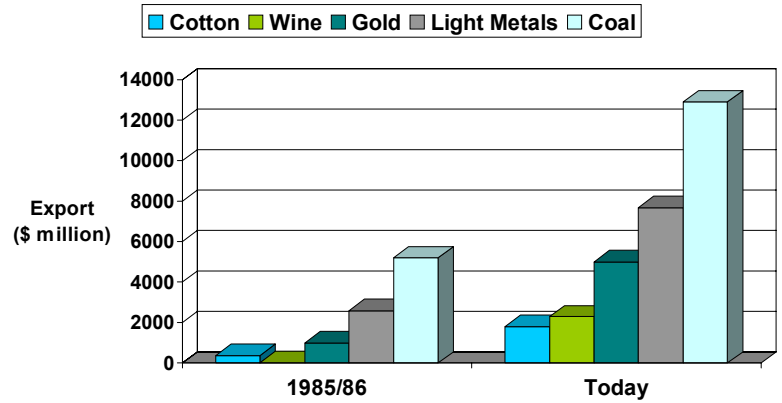
Each of these programs is designed to address major national issues and deliver significant outcomes. Many of the outcomes of the Flagship programs will focus on the public good, directly benefiting various jurisdictions and communities and improving the lives of Australians. Other outcomes will be highly commercial in nature, generating valuable intellectual property and creating sustainable businesses and meaningful employment.

1.3 *Champion Flagships to improve the lives of Australians and advance Australia's key industries*

Key points

- History of tremendous value creation for Australian industries from sustained efforts over time
- NRPs, reports such as The Intergenerational Report and our Australia 2025 studies highlight important national issues that face Australians
- CSIRO's distinctive capabilities make us uniquely positioned to focus, in partnership, on these issues in a multi-disciplinary way, to deliver against 'big goals'
- Require significant one-CSIRO behaviour and outputs as well as significant partnership activity

Export growth of key Australian industries where CSIRO has been an active participant



Source: Australian Department of Foreign Affairs and Trade
http://www.dfat.gov.au/publications/statistics.html

Success measure(s)

- Adoption and impact of program outputs (contribution to a triple bottom line)
- 5-6 Flagships operating successfully and accounting for at least 30 per cent of CSIRO science budget

Likely initiatives

- Preventative Health
- Healthy Country
- Wealth From Oceans
- Energy Transformed
- Light Metals
- Agrifood Top 5

Objective 1.4

Increase the impact of major cross-divisional activities through a focused strategic investment process

CSIRO is investing in several major cross-divisional activities. Major programs such as Climate Change and Secure Australia cut across divisional boundaries, potentially touching all or nearly all of CSIRO's divisions. The Emerging Sciences Initiative, including novel biotechnologies, complex systems science, new information and communication technologies, nanotechnology and social and economic integration (see 5.1), also necessarily crosses many boundaries.

These major cross-divisional activities are important areas for CSIRO. We must develop coordinated investment strategies for these activities, in recognition of the visibility and breadth of these science areas. A more coordinated strategic planning effort will help unleash our productivity across divisions by focusing and aligning our efforts. It will also help us better understand and deliver to the needs of the marketplace now and into the future in these important areas.

As an example, CSIRO is working with the Defence Science and Technology Organisation (DSTO) to respond to the Prime Minister's National Research Priority on safeguarding Australia by examining the feasibility of various models for coordinating and leading our research on aspects of national security. National security is defined by the Australian Government as 'measures to protect the Australian community, government and institutions from harm'. Such security activities cover four phases:

- Prevention – preventing a hazard from affecting Australian interests
- Detection – detecting and diagnosing a potential hazard
- Response – emergency response including delimitation, containment and neutralisation
- Recovery – decontamination and re-establishment of normal function.

Of course, CSIRO has been working on national security support technologies for generations. Some of our relevant research activities include studies of biological invasions, information technology for sharing and analysing information, physical and chemical detection technologies, pest and disease diagnosis, remote sensing and development of robust new materials. Fifteen divisions of CSIRO have already identified capacity in developing and providing tools, technologies and capabilities to support Australia's national security.

On a different front, for many years CSIRO has supported Australia's largest program on climate change. However, climate research in CSIRO has been spread across many divisions with little coordination. In response to the strategic objective of focusing effort to enhance scale and impact, CSIRO has taken the decision to redefine these activities so they are more inclusive of CSIRO's total climate research effort. Aligning our climate change activities across divisions ensures that our work delivers on four main outcomes:

- Australian governments, industry and public will continue to have informed and enlightened policy development related to the climate change issue.
- The Australian response to greenhouse gas emissions will bring wealth generation and new opportunities in the energy and other sectors.
- Australia will establish adaptive policies with respect to climate change that maximise economic wealth generation, simultaneously respond to interacting environmental issues, and offer social security and well-being.
- Drought management in Australia will be brought to new levels of sophistication through forecasting capabilities and targeted applications, building greater security in many sectors and improved sectoral efficiency.

Another example of major potential national value add by CSIRO cross-divisional activities is in the area of robotics. A 2001 Centre for International Economics (CIE) study demonstrated an estimated NPV of $4.5 billion from six CSIRO robotic mining projects aimed at automating coal mining. A benefit cost ratio of 96 and an internal rate of return of 720% were also estimated.

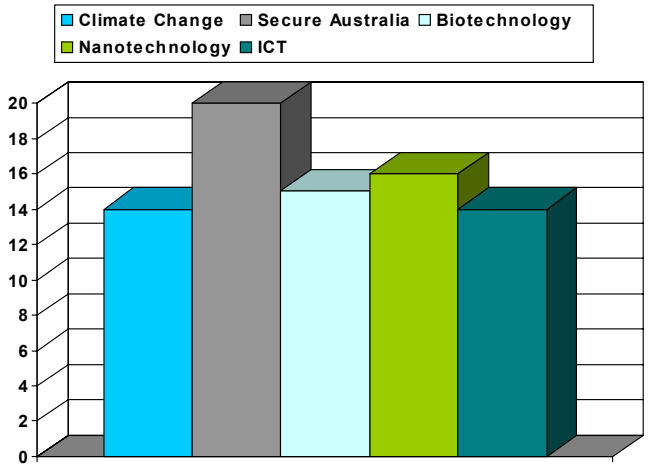
Our cross-divisional strategies for these and other science areas will be reflected in our annual operational plans. The strategies will be revisited periodically to reflect shifts in priorities given major external events and discontinuities.

1.4 *Increase the impact of major cross-Divisional activities through a focused strategic investment process*

Key points

- Major cross-Divisional activities are important and have significant impact
- Unleash potential through coordinated strategic investment process
- Require aligned behaviour around outputs
- Cross-Divisional strategies developed throughout the period and reflected in annual operating plans

Number of Divisions contributing to multi-Divisional science areas



Success measure(s)

- Adoption and impact of program outputs (contribution to a triple bottom line)
- 3-4 major cross-Divisional programs operating successfully

Likely initiatives

- ICT
- Secure Australia
- Climate Change
- Biotechnology
- Nanotechnology
- Bioinformatics
- Robotics

Goal 2

Delivering world-class science

It is not enough to perform science for science sake. We are committed to deliver outputs and solutions that create value for Australia. Our efforts must continue to be world-class to remain competitive and to maintain CSIRO's relevance in a volatile world. We recognise that our people are the key to delivering world-class science. However, delivering world-class science requires discipline and careful management as well, which we are working to improve. By continuing to build and foster a world-class team of scientists and by leveraging our project management discipline, our worldwide reputation for science leadership should be enhanced across more areas of our work. This should in turn allow us to pursue actively a handful of high profile global facilities in order to boost our ability to deliver returns. High profile global wins, of course, further enhance our reputation and allow us to continue to attract and excite great people.

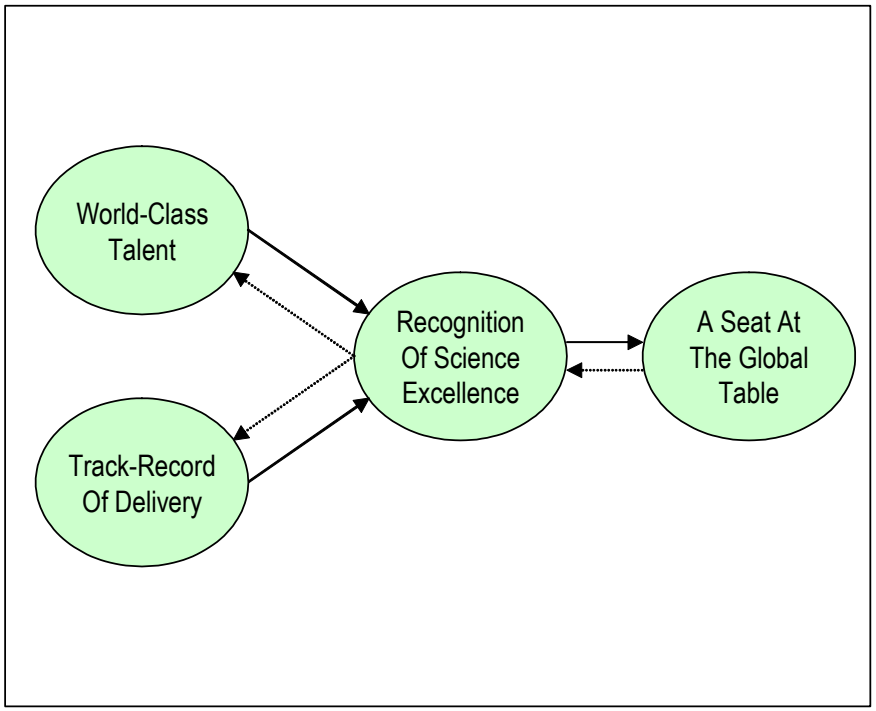
Goal 2: Delivering World-class Science

2.1 Concentrate people processes on developing, attracting, exciting and retaining talent

2.2 Optimise delivery of all research activities by improving project management

2.3 Build our global recognition for science leadership in our chosen science domains

2.4 Help Australia play a leadership role in major international science facilities such as the SKA



Value to Australia

- Global competitiveness for small nation with limited investment
- Benefits to industry through reputation in niche expertise areas
- Brain re-gain
- Value for investment in CSIRO

Value to CSIRO

- Reputation fuels growth on all dimensions
- Create returns on science investment
- Staff morale

Objective 2.1

Concentrate people processes on developing, attracting, exciting and retaining talent

We need to continue to improve the processes through which we attract, develop and retain talent at all levels. People are the most valuable CSIRO asset. In order to perform world-class science, CSIRO must have world-class scientists and staff. As we look forward, the ongoing quality of science at CSIRO will continue to be a function of the number of outstanding scientists and team members in the organisation.

Having top talent also enhances CSIRO's reputation, attractiveness, access to world science forums, influence on policy and success with commercialisation. For example, we are proud that five scientists with affiliations with CSIRO were among the researchers recently named by the Minister for Education, Science and Training as recipients of the Commonwealth Government's most prestigious annual research awards – Federation Fellowships. CSIRO strongly supports the Federation Fellowships program, funded under the Australian Research Council's National Competitive Grants Program, as one way of supporting research excellence that will have national and global impact.

While it is crucial to have top talent in senior-level ranks, it is equally important to have outstanding scientists and staff at every level of the organisation. Relationships with universities work well for gaining access to post-docs and post-grads. Quality mentorship allows us both to attract and to retain younger talent. Additionally, history shows that leveraging personal networks is crucial in attracting exceptional talent.

It is also important for us to continue to attract exceptional visiting fellows. As an example, over the last eight years over $1 million has been provided in direct support to 53 research fellows and visiting fellows through CSIRO's McMaster Fellowship program. These researchers have networked with Australian scientists to improve our research capabilities and have produced reports that have resulted in significant industry outcomes.

Over the last two years, one of our goals was to make compensation more competitive by putting in significant increases across the board. The Enterprise Bargaining Agreement (EBA) allowed us to be more competitive in the war for talent. Our next step is to figure out how to reward and celebrate top performers but also manage the weaker performers who do not respond positively to developmental feedback and opportunities.

CSIRO's initiatives on people development should have spirit and life. Group Chairs share the responsibility of developing their people, but learning and development must also take place across divisions in high-impact ways. The annual Staff Planning and Development session at future Executive Management Council (EMC) meetings to review people development issues is one example that brings the organisation together to focus on these issues. The Insight Survey acts as an annual barometer that we can act upon; it tells us that, while we are improving, there is still work to be done.

We must continue to maintain a positive work environment, provide the opportunity for career development and offer challenging and exciting work that makes a difference. Strong performers deserve to be celebrated, rewarded and offered opportunities for further career development. But we are on the right track as exemplified by the recent (May 2003) prestigious Award for Excellence in People Management from the Australian Human Resources Institute (AHRI).

2.1 *Concentrate people processes on developing, attracting, exciting and retaining talent*

Key points

- Great science comes from great scientists
- Scientists thrive in open and stimulating environments
- Prioritise attracting and retaining exceptional talent at all levels
- Reward and celebrate outstanding talent and manage poor performance
- Focus on the highest impact talent development activities

Number of students sponsored and supervised (jointly) by CSIRO

Supervision	1999-00	2000-01	2001-02	2002-03
PhD	379	475	433	425
Masters	143	57	53	48
Honours		77	71	62
Total	**522**	**609**	**557**	**535**
With CRC*	30%	23%	26%	21%

Sponsorship	1999-00	2000-01	2001-02	2002-03
Full	32	42	49	52
Partial	69	86	112	143
PhD	91	110	144	179
Masters	10	8	9	4
Honours		10	8	11
Total	**101**	**128**	**161**	**194**

* Cooperative Research Centres

Success measure(s)

- Growing number of post-docs with excellent credentials
- Retention and voluntary separation rates
- Insight results tracking up
- Supervision of Masters/PhD students

Likely initiatives

- Federation Fellows initiative
- Recruiting efforts
- Insight Survey action plans
- Development programs (eg right people, right place)
- Attract post-docs and post-grads
- Visiting Fellows programs

Objective 2.2

Optimise delivery of all research activities by improving project management

Effective project management discipline is the key to increasing our capability to deliver creative science and innovative solutions in a timely way. We are committed to project management improvement and recognise that well-managed projects use funds effectively, build client confidence and lead to further projects that contribute to our enterprise and scientific growth.

A recent Australian National Audit Office (ANAO) audit of CSIRO project management processes highlighted several areas for improvement. ANAO made nine recommendations aimed at strengthening CSIRO's corporate approach to project management, including: project planning, costing and risk assessment, monitoring of project progress and appropriate review on completion. ANAO's report stated that '...there are insufficient corporate standards and guidance on project management; and some existing policies are not well implemented. The impacts of these weaknesses are most notable for appropriation-funded projects but also affect the quality and consistency of project management for co-investment and consulting projects. A more structured, corporate approach to project management would provide greater assurance that sound practices are being appropriately applied, reducing the likelihood that a small low-risk task is excessively managed, or that a large, high-risk task is managed with insufficient rigour.'

CSIRO's Project Management Improvement project (PMI) was launched in recognition of the importance of quality project management. PMI includes the development and introduction of project management policies, corporate guidelines and systems/tools across CSIRO, implementation of effort logging, elimination of subsidies from research services and consulting projects and implementation of a value-based pricing model. Importantly, early intellectual property (IP) protection measures must also be incorporated into PMI practices to ensure adequate but not unnecessary spending.

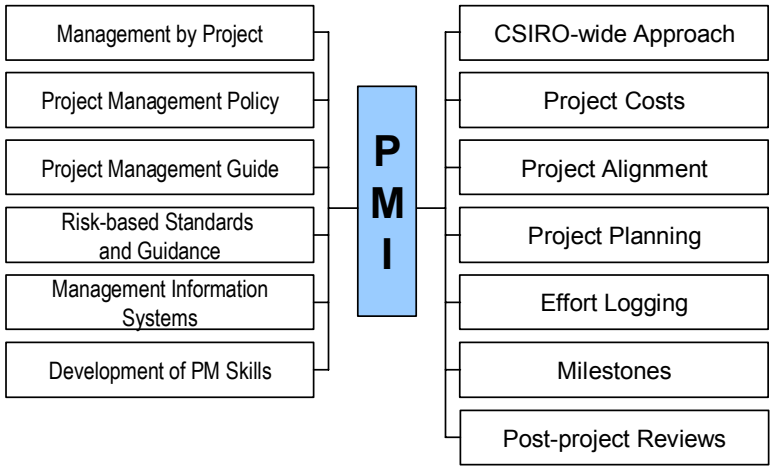
Successfully implementing PMI requires leadership, change management, support and training and a recognition that one size does not fit all. ANAO will return for additional auditing of CSIRO's project management processes during this four-year period and we expect to see significant improvements in their findings as a result of CSIRO's focused work in this area. CSIRO streams of work should come in on-brief, on-time, on-budget, and IP-protected at appropriate levels.

2.2 *Optimise delivery of all research activities by improving project management*

Key points

- Commitment to project management improvement and 'on brief, on budget, on time' initiatives
- Australian National Audit Office audit and recommendations serve as a catalyst for change
- Project Management Improvement initiative launched as first wave to address the importance of quality project management
- Early IP protection measures need also be incorporated

CSIRO's Project Management Improvement (PMI)



Success measure(s)

- Customer Value Survey results
- Results of internal/external audit of project management practice

Likely initiatives

- PMI Project
- IP management system

Objective 2.3

Build our global recognition for science leadership in our chosen science domains

As a research enterprise, CSIRO's standing as an international 'heavy hitter' in science must be maintained. Our global reputation depends first and foremost on the excellence of our science. For example, CSIRO's Plant Industry work in gene silencing, flowering and disease has elevated our acknowledged excellence in plant biotechnology and led to deeper ties between scientific discovery and delivery to industry. At the core of our business is an unrelenting commitment to science excellence that inspires our people and guides planning at all levels of the organisation. Our reputation signifies both our contribution to, and our ability to access, the world's knowledge base.

In order to maintain our global reputation for excellence, we must strive to achieve great standing across our chosen science disciplines. We must continually and rigorously test our research performance against the world's best. CSIRO's science planning will help direct our science investment to achieve these standards Our increasing emphasis on focus, quality, and critical mass in our science areas will play a role as well. The quality of our diverse research portfolio sets us apart.

The international journal *Science Watch*, published by the Institute for Scientific Information (ISI), offers one tool for measuring CSIRO's rankings among the world's leading science institutions. CSIRO was rated the third most influential research agency in the world in environmental science/ecology, and the fourth most influential in agricultural science, over the decade to February 2001. *Science Watch* (July/August 2001) commented, "These are the heavy hitters of science. In general each not only published in quantity but also exerted outsized influence on the world's research community".

Overall, ISI data showed CSIRO in the top one per cent of scientific institutions in the world in 11 out of 22 scientific disciplines. This is a baseline we are proud of, but we believe we can improve our position in ISI rankings over the four-year period.

2.3 *Build our global recognition for science leadership in our chosen science domains*

Key points

- Our reputation, influence and impact reflects the quality and relevance of our science
- Ensure standard of excellence across science domains
- Leverage science planning activities
- Continually raise the bar, and test our performance against the world's best, for areas we are investing in and improve breadth and depth of our research

Fields that CSIRO is ranked in the top 1% of the world's scientific institutions according to ISI

Agricultural Sciences	Geosciences
Biology & Biochemistry	Materials Science
Chemistry	Microbiology
Engineering	Physics
Environment/Ecology	Plant & Animal Science
	Space Science

Source: Institute for Scientific Information (Thomson ISI) – March 2003

Success measure(s)

- Citation-based performance measures for papers (ISI) and patents (CHI)
- Recognition for CSIRO in selected emerging sciences

Likely initiatives

- Science planning
- Ongoing Division Chief responsibility
- Emerging Sciences Initiative

Objective 2.4

Help Australia play a leadership role in major international science facilities such as the SKA

The opportunity to play a leadership role in major international science facilities is often both an indication as well as a result of being the world's best in a science domain. Hosting a major international science facility would have a disproportionate benefit on the nation and on CSIRO. Such facilities attract hundreds of millions of dollars of direct investment as well as increased resources and opportunities. The reputation for being absolutely the world's best further enhances the quality of an organisation, forming a powerful virtuous cycle.

Several important factors shape the decision to pursue aggressively such opportunities with major international science facilities:

- Is this a platform critical to the future of science industry?
- Is there a national advantage for Australia?
- Do we have people who are credible world leaders in the field?
- Do we have a history of excellence in the field and a reputation for success?
- Do we have existing facilities or centres that are relevant?
- Are there disproportionate supplemental benefits from our achievement?

One current example is to maximise Australia's chances of hosting the international Square Kilometre Array (SKA) to help cement CSIRO's reputation for being the world's best in astronomy. The SKA will be 100 times bigger than today's biggest radio telescopes, with a total surface area of about a million square metres. The SKA will help reveal the early universe and answer many of the big mysteries in astronomy and fundamental physics. The radio telescope is being designed by an international consortium and will be built in 10 years time at a total cost of $1 billion or more. Early participation in the international design and construction of next-generation radio telescopes will enable Australia to gain a significant role in emerging ICT developments such as high-bandwidth signal transmission, signal processing, phased-array development, grid computing, and complex systems.

CSIRO will actively focus activities to help increase Australia's chances of being selected as the site for the SKA. This focus of activity is designed to build upon the international track record of success and reputation of the Australia Telescope and the history of excellence of Australian astronomy. This momentum has been fuelled by the Federal Government's $23.5 million grant under the Major National Research Facilities (MNRF) program, by the Federation Fellowships awarded to Ron Ekers and Dick Manchester, and by industry, University and State Government partners.

In the short term, a decision will be made on the location of the Low Frequency Array (LOFAR), the first of the next-generation radio telescopes that will enable scientists to witness the formation of the first stars and galaxies in the universe. CSIRO has increased its efforts to ensure an early participation in LOFAR and is working in collaboration with the Government of Western Australia. If successful, the chances of siting the SKA in Australia will increase markedly. A final decision on LOFAR's site will be made by late 2003.

Rallying aggressively to pursue the SKA is important to cement our reputation for world's best in astronomy. However, this is just one example. Equally, monumental opportunities may come out of our exceptional work in atmospheric research, light metals or plant genetics, among others. An international centre for study of oceans is a possibility given our natural advantages on the Southern Ocean. We will explore ways in which we can support the management and effective implementation of the Victoria-based National Synchrotron Centre. In any event, we must work to identify and actively pursue other such opportunities especially in the event the LOFAR decision does not go our way. Group Chairs will lead the effort with their groups in identifying other such opportunities.

2.4 *Help Australia play a leadership role in major international science facilities such as the SKA*

Key points

- Being a leading participant in major international science facilities validates reputation as world's best in a science domain
- Hosting would provide huge national benefits to Australia (hundreds of millions of direct investment dollars)
- Australia must already have a beachhead and some existing competitive or natural advantages
- Aggressively pursue SKA and other significant radioastronomy facilities
- Identify and aggressively pursue other major international science facilities

Square Kilometre Array (SKA)

Credit: Chris Fluke, Swinburne University of Technology

Success measure(s)

- Australia is actively participating in initiatives to establish such facilities
- Australia is internationally recognised forerunner for SKA

Likely initiatives

- Campaign to base LOFAR in Australia
- Leadership role in SKA Project
- Light Metals Centre
- Southern Oceans
- Support for a national synchrotron facility

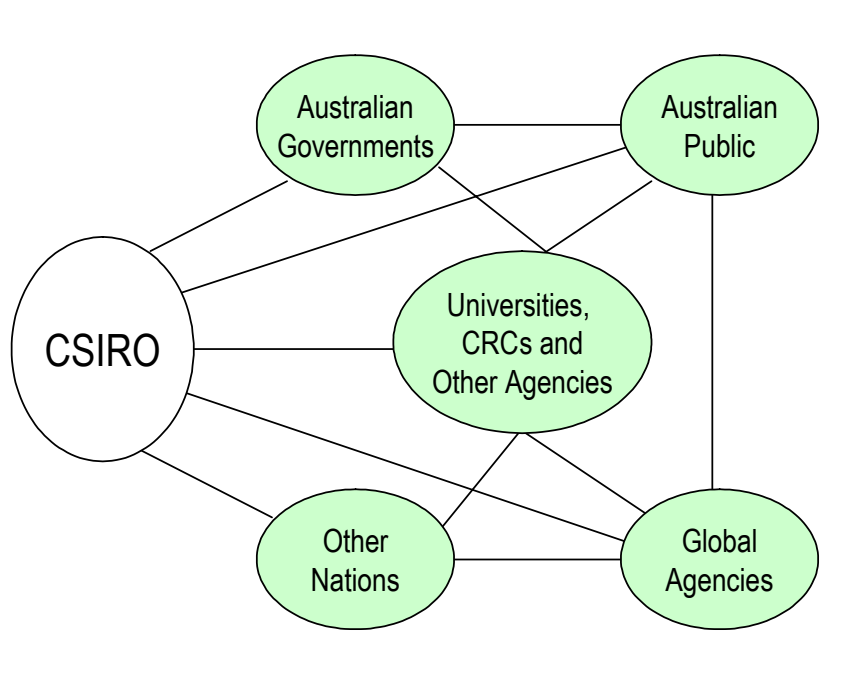
Goal 3

Partnering for community impact

Partnerships allow us to have impact where our efforts alone are insufficient. They also allow us to impact a much broader constituency of communities. We put a high value on partnerships and taking a 'Team Australia' approach to creating community impact. We will concentrate on increasing the impact of selective partnerships with Cooperative Research Centres (CRCs) and universities, increasing our engagement in a meaningful way with government to impact policy, partnering with agencies to contribute to the global agenda, and continuing to encourage an informed community through our interactions with the public.

Goal 3: Partnering For Community Impact

3.1 Focus and intensify collaboration with universities, CRCs and other agencies
3.2 Service the needs of government for informed policy setting
3.3 Enhance communication to raise public and stakeholder excitement and trust in science
3.4 Partner with other agencies to advance Australia's global development contributions



Value to Australia

- Impact on policy priority areas
- Informed policy setting and implementation
- Contribution to world agenda (consistent with foreign policy priorities)
- Benefits of international activity coming back to Australia

Value to CSIRO

- Highest impact activity in CSIRO
- Shareholder expectations and approval
- Staff excitement
- Core to mission/charter

Objective 3.1

Focus and intensify collaboration with universities, CRCs and other agencies

As a leading enterprise within the National Innovation System (NIS), CSIRO needs to become much more effective at taking a 'Team Australia' approach to getting into partnerships through Cooperative Research Centres (CRCs) and with universities and other agencies.

CSIRO has participated in over 75% of the CRCs in the program from 1991 to 2002 across a broad range of CRC types. CSIRO accounts for 18% of total investment in the 74 CRCs with financial data available. Furthermore, 11% of CSIRO's total plant and equipment was dedicated to CRCs in 2002. CSIRO's CRCs have been successful overall, with 75% meeting most of their agreed objectives. CRCs accounted for over 12% of total external revenue for CSIRO (1997–2002).

Despite the overall success, CSIRO has not been a model partner in all cases. Our attitude and manner of interaction has not always been exemplary, nor have we had sufficient processes in place to select and manage these collaborations appropriately.

We are implementing a CRC strategy that will target an attitudinal adjustment within CSIRO that will make us better partners. We will be more selective about new CRC opportunities and will have clear objectives that we can achieve together. True to the spirit of 'Partner or Perish', we expect to have a new wave of partnerships that further improve our chances of impact.

Similarly there already exists a large network of collaborative links between CSIRO and the Australian university sector. Clearly, collaboration between CSIRO and the universities is important and needs to be enhanced as well. As the recently announced review by DEST suggests, CSIRO must be thoughtful about collaborating with universities, especially where there is real value and complementary capabilities.

CSIRO must become a world best practice organisation in seeking and developing strategic areas of collaboration with universities that:

- build on and create mutual trust and effective relationships, to increase Australia's return on its investment in science and technology and in particular to assist the development of Australia's human capital through the production of globally competitive graduates
- create cost-effective outcomes beyond the capacity of the individual partners
- strengthen Australia's National Innovation System.

Rather than having a large number of collaborations with varying degrees of focus, CSIRO will elevate the status of a handful of examples of success and truly make them work well. We have already identified several attractive opportunities for strong collaboration going forward.

CSIRO will also take a 'whole-of-Government' approach to partnerships with other agencies, including:

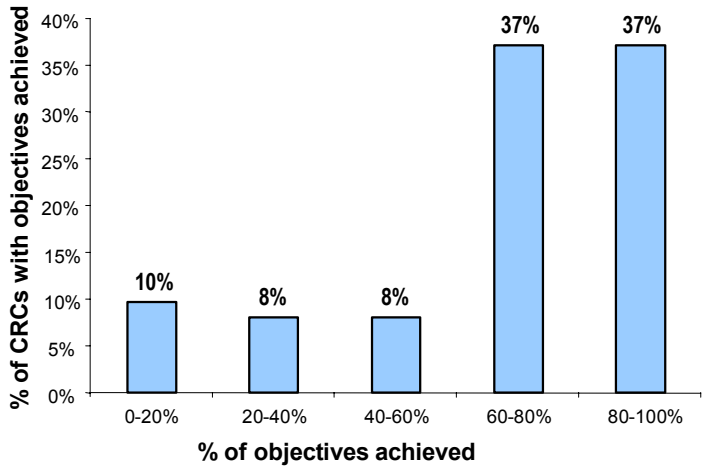
- DSTO, particularly around a partnership approach to delivering outcomes relevant to the priority of safeguarding Australia
- the NHMRC, with the objective of enabling NHMRC-funded researchers to collaborate more effectively with major health-related programs in CSIRO, particularly the P-Health Flagship
- the ARC, around broad engagement with the Flagships and in a possible enhancement of the CSIRO-ARC Australian Postdoctoral Fellowship scheme
- AIMS and ANSTO, around the common introduction of a performance management framework across all the major government research agencies.

3.1 *Focus and intensify collaboration with universities, CRCs and other agencies*

Key points

- CSIRO must be a more committed partner in collaborations with universities, CRCs and other agencies
- CSIRO must be a better partner through CRCs and improve processes of selection and management of relationships
- CSIRO must identify like minded universities and intensify the relationships to a new level
- CSIRO must work more closely with other agencies, especially in areas of overlap

Perceptual survey of CRC success



Source: Survey of CSIRO CRC representatives (February 2003), Phoenix Group analysis

Success measure(s)

- Strong portfolio of active partnerships with CRCs and universities focused on clear strategic goals
- Partner feedback

Likely initiatives

- Strategic Planning
- CRC strategy
- NIS mapping
- University partnerships
- DSTO, AIMS, Centres of Excellence and ARC liaison

Objective 3.2

Service the needs of government for informed policy setting

CSIRO is accountable to government and to Parliament. Government policies have the power to impact industry and the lives of Australians substantially. Many policies have a strong inter-relationship with the areas of science within CSIRO's mandate.

Clearly, fact-based analysis and insight can be a useful tool for policy-makers and can lead to more informed policy directions. CSIRO is in a unique position as a trusted research enterprise to provide such analysis and insight to government and Parliament. This activity is a crucial part of providing a return to the nation for its investment in CSIRO.

CSIRO, as an example, has made tremendous contributions to policies affecting chemical pollutants in water that harm the Great Barrier Reef. More recently, CSIRO played a significant role in informing the decision to launch the largest native vegetation protection plan on private land. CSIRO brought to the table a long-standing expertise in management of native vegetation for ecological integrity and natural resource policy design. This trusted expertise was combined with careful consultation with key groups to provide straightforward plain English advice, based on rigorous thinking, to the political system.

CSIRO needs to continue to anticipate and identify areas at Federal and State levels where fact-based and objective analysis and insight could result in value for the nation. Group Chairs and government business managers can help drive this process and our science planning activities have significant contributions to make. Implicit in government business is the ministerial liaison office function, government relations and the coordination and development of one-CSIRO policy advice.

Previously, we had a long history of providing policy briefings, but that activity has given way to new models for engagement as successors to parliamentary briefings that create the most value for the nation. One such new model is the re-establishment of the Parliamentary Information Initiative. The Parliamentary Information Initiative delivers individually tailored information about CSIRO science to members of parliament and senators in their own electorates. The aim is to give politicians greater participation in CSIRO and an appreciation of the benefits science brings to their local communities.

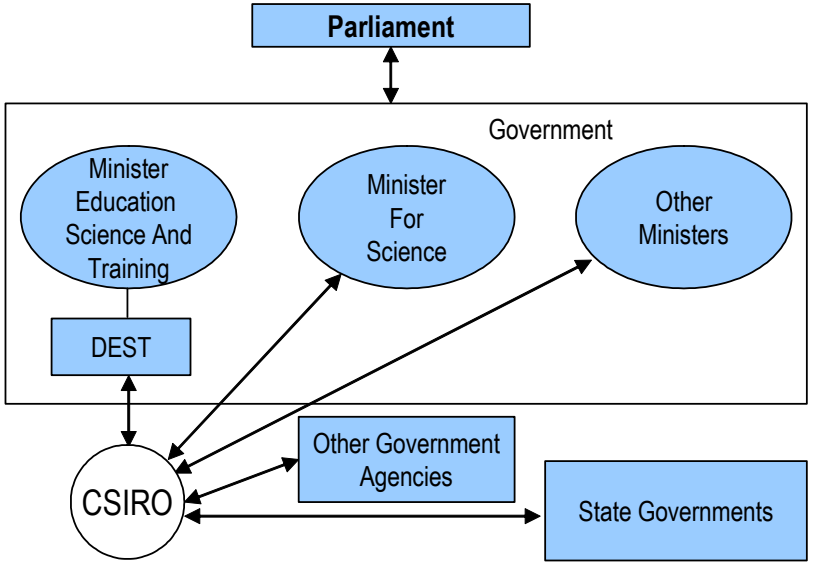
We will increasingly focus on high quality formal communications with ministers through briefings, cabinet and budget submissions and effective Senate Estimates appearances.

3.2 *Service the needs of government for informed policy setting*

Key points

- CSIRO is uniquely positioned and trusted to do this
- Accountable to government and parliament
- Policies are fulcrum points of high leveraged impact
- Fact-based analysis and insight can lead to more informed policies and have large impact on nation
- Applies to a range of policies, from science to trade
- CSIRO interacts through a wide variety of formal and informal mechanisms to support and influence government policy
- Need strong engagement with government and parliament

Government interactions with CSIRO



Success measure(s)

- Government engagement and satisfaction with CSIRO
- Active, effective programs of engagement with the Federal and State/Territory governments

Likely initiatives

- Science planning activities
- Government business
- Ministerial liaison office function, government relations and one-CSIRO policy advice
- Relationship management strategy – Federal and State
- Parliamentary briefings

Objective 3.3

Enhance communication to raise public and stakeholder excitement and trust in science

Scientific research makes a vital contribution to Australia's economy, the management of our environment and our health. CSIRO has an ongoing responsibility to inform and excite the public about science. This is important continuing work to inspire the next generation of young scientists as well as to build trust and confidence in the broader public towards science.

Public interest in science is high. 86% of Australians are aware of CSIRO and 74% rate CSIRO as good or very good. CSIRO gets very high marks as a trusted source, often higher than all other sources of information. CSIRO must continue to speak with one voice and pull together all our external communications and educational efforts. We must all be ambassadors to the public in communicating how science is essential to Australia's growth and sustainability and how CSIRO fits in to that message. CSIRO's media group helps coordinate those efforts, but it is incumbent upon each person in the organisation to be a true representative of CSIRO to the external world. We all must work towards preserving and enhancing the value of the CSIRO brand.

Our targeted media activities are one way we strengthen community awareness and enhance our reputation and engender trust in CSIRO and the scientific process. We produce approximately 300 media releases annually which are selectively distributed to national and international journalists and media outlets. These releases are pivotal in highlighting the breadth, relevance and excellence of CSIRO's science to the broader community and potential partners and investors.

CSIRO also operates a range of exciting science education projects that support schools and also raise awareness of the vital contribution of scientific research to the community. The projects currently reach 300,000 people each year and an additional 250,000 each week through a national half-hour children's television program.

Working with students, teachers and families is one way CSIRO is building an increased trust of science and an awareness of CSIRO's contribution to the Australian community. One such CSIRO program is Creativity in Science and Technology, which inspires thousands of young people each year by involving them in their own open-ended investigations. It develops the skills of teachers and encourages students to take up innovative careers or their own businesses, using science for economic growth or to solve practical problems in the community. We believe that focusing on teachers and educational departments is a leveraged way for CSIRO to impact schools.

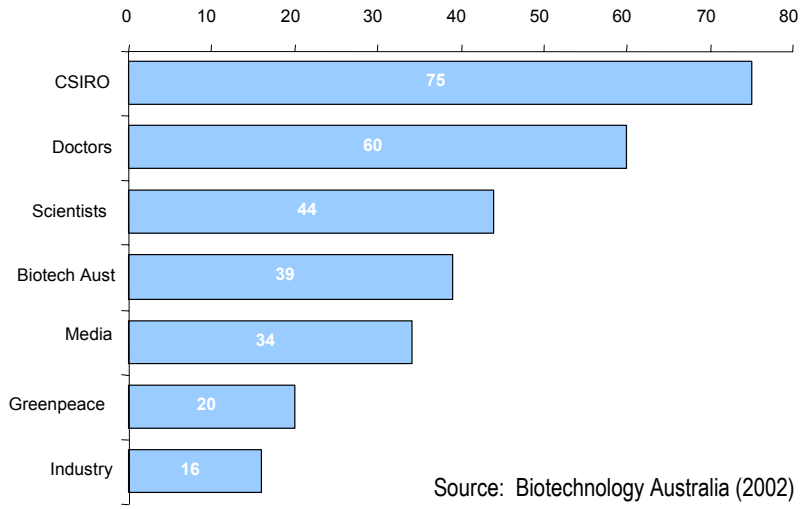
CSIRO is extending its educational projects to promote Australia overseas as well. We are currently exploring a variety of projects with local and overseas partners and local schools in other countries.

3.3 *Enhance communication to raise public and stakeholder excitement and trust in science*

Key points

- Actively continue to grow our positive public reputation and build trust in science
- Must continue to ensure consistency in our external communications efforts
- CSIRO has an ongoing responsibility to help inspire and educate about science
- Continue operating a broad range of educational programs

Sources of trust regarding biotechnology issues



Source: Biotechnology Australia (2002)

Success measure(s)

- Survey results amongst target audiences show increasing trust and excitement

Likely initiatives

- Communications/media
- Education and publications

Objective 3.4

Partner with other agencies to advance Australia's global development contributions

CSIRO brings multidisciplinary expertise to bear on problems of international humanitarian concern. In recent years, CSIRO has delivered more than 250 Global Aid projects in over 60 countries around the world, with collaborations involving 40 research institutions, foundations and aid agencies. CSIRO will continue to focus on the pursuit of large-scale humanitarian projects and ongoing funding for aid projects through global agencies and foundations. These projects will be performed on full cost recovery contracts and will generally be in collaboration with groups such as the Global Research Alliance (GRA), in which CSIRO is a founding member, and AusAid, with an emphasis on transferring knowledge back into CSIRO. Aid agency objectives will be matched with CSIRO capabilities and philanthropic funding sources.

CSIRO is currently working with the GRA to set up international workshops which will culminate in multi-institution, multi-donor initiatives in the fields of water, health, energy, transportation and the digital divide. The first initiatives are likely to focus on the project areas of water and energy, taking the United Nations' Millennium Goals as guidance. There is significant staff excitement around these pursuits.

Australia also has much to offer for many developing sovereign nations. CSIRO has been involved in activities in more than 80 countries. In 2001–02 alone, CSIRO exported $32 million of 'knowledge' services. CSIRO is positioned to assist in the developing nations' complex infrastructure and nascent industry requirements. CSIRO is focused on aid, trade and science related projects that span a sovereign nation's emerging needs.

Every international project should be considered in terms of what potential short or long-term return there will be for Australia as well as for CSIRO. Furthermore, there is a substantial fixed cost to doing business with each additional international market. Being spread too thinly can result in unprofitable activity with limited benefits.

Sovereign nation clients must have the capability and willingness to pay adequately for services rendered and cover all costs with a generous margin. Work provided must endeavour to utilise long-established core capabilities that are not likely to be easily reverse-engineered. Coordination with ministers will also be sought to ensure consistency with foreign policy. Finally, projects will seek to introduce appropriate Australian private sector players into partner relationships. Such national partnerships will be typified by:

- appropriate revenue streams
- total solution based contracts with a one-CSIRO approach
- long-term agreements – ideally 5 to 10 years
- enhanced reputation for CSIRO
- triple-bottom-line benefits through creation of new industries, improved quality of life and development of a stronger domestic science base
- a degree of exclusivity in our dealings.

This client development work will involve building beachheads in selected countries such as India, China, Vietnam, Brunei and Iran and then growing the relationship over time. For example, the Iranian Government, which has worked with a number of CSIRO divisions in recent times to improve the Iranian minerals sector, has recently approached CSIRO to collaborate on their agricultural sector on issues of national importance such as salinity and drought.

3.4 *Partner with other agencies to advance Australia's global development contributions*

Key points

- CSIRO brings multi-discipline expertise to bear on problems of international humanitarian concern
- Work with field agencies and foundations on development priorities on a cost-recovery basis
- Australia has great standing to work with developing nations
- Some nations can afford to pay for skill or infrastructure building services

Global Population Without Adequate Water Resources

Unserved Populations	**1990** Billions	**2000** Billions	**Change** %
Water Supply	1.1	1.1	-2%
Sanitation	2.4	2.4	+2%

Because of population growth: number without access to water only decreased by 2%, and number without access to sanitation *increased* by 42 million

Source: World Bank 2003 Presentation: Global Water Supply and Sanitation Assessment 2000 Report: WHO/UNICEF Joint Monitoring Program, Geneva.

Success measure(s)

- Evidence of partnerships and impacts (international contributions to a triple bottom line)
- More focused and effective international effort – fewer small and more larger programs

Likely initiatives

- Global Aid
- Global foundations / Global Research Alliance (GRA)
- Developing nations strategy
- Partnering with the Australian Centre for International Agricultural Research (ACIAR) and other agencies

Goal 4

Serving as catalyst for industry innovation

By diligently focusing on the current and future needs of industry, we can make a real contribution to science and to Australia. We see a significant opportunity to add value to small, medium and large corporations, helping boost GDP growth and contributing to industry. We think we can work smarter with businesses of all sizes. We also believe we can work more strategically with Australian Rural R&D Corporations (RDCs) and create win-win situations while contributing to the growth of Australian industry. We believe that Information and Communications Technology (ICT) capabilities are a particularly important cornerstone for the ongoing success and innovation of all these customer segments. Our strong outward-looking emphasis on their needs requires us to reinvigorate our ICT capabilities and bring that work across all our activities.

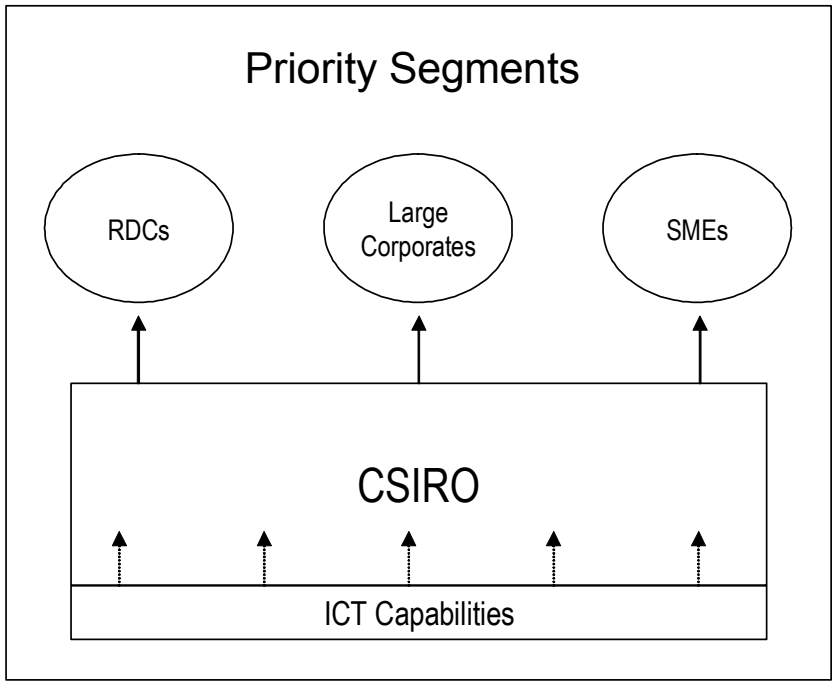
Goal 4: Serving As Catalyst For Industry Innovation

4.1 Intensify engagement with rural R&D corporations to grow regional and new industries

4.2 Structure deeper and more meaningful relationships with large corporations

4.3 Accelerate the growth of promising technology-based SMEs

4.4 Reinvent our ICT capabilities to strengthen Australia's knowledge-based industries



Value to Australia

- GDP growth
- New industry creation
- Attraction of foreign direct investment
- Rural industry protection and growth
- Vibrant SME sector

Value to CSIRO

- Higher impact contribution to industry
- More effective technology transfer and commercialisation
- Association with bigger success stories
- Staff excitement

Objective 4.1

Intensify engagement with rural R&D corporations to grow regional and new industries

Rural Research & Development Corporations (RDCs) do important work to foster industry in rural Australia. CSIRO has a history of collaboration with RDCs. They currently represent 10 of CSIRO's top 50 relationships. RDCs collectively spend nearly $400 million annually on research and development. We believe there is a significant opportunity to deepen our relationships with the RDCs and increase our level of co-investment with them to enhance our joint impact. We expect to double the level of co-investment with RDCs if we agree on joint strategies with RDCs that will significantly benefit their target industries.

Our work with the Cotton RDC provides an example for us on how we need to engage with the RDCs. Our relationship with the Cotton RDC led to the development of a high-lint cotton seed. We then worked with the Cotton RDC to create a distribution company together and entered into a joint venture with Bayer to distribute the new seed overseas. That seed currently has 11% market share in the US market and is likely to grow to 30% share, providing substantial benefits to the Australian cotton industry as well as sizeable royalties to the Cotton RDC. Such a successful outcome could only come through the strategic collaboration with both Bayer and the RDC.

Similarly the Grains Research and Development Corporation (GRDC) is a very significant supporter of CSIRO research and development activities. A considerable amount of benefit to the Australian grains industry has been achieved through co-investment by GRDC and CSIRO. For example, a benefit-cost analysis carried out by the Centre for International Economics (CIE) in late 2002 showed that GRDC-funded CSIRO research on the benefits of canola in rotations, and consequent improvements to nitrogen fertilisation of wheat, returned a benefit:cost ratio of 19:1 and net present value to the industry of $845 million. Until recently GRDC investment in CSIRO has been fragmented but the corporation is moving towards larger investments. GRDC is a founding party in the Graingene Joint Venture which is anticipated to make a significant impact on the Australian grains industry. GRDC has recently entered a crop protection alliance with CSIRO Entomology worth $20 million.

The Australian Coal Association Research Program (ACARP) is also a very significant supporter of CSIRO. A recent study by the CIE showed that $50 million invested in CSIRO in Mining Automation over 5 years is likely to lead to a $4,000 million benefit to local coal industry over the next 30 years. This benefit includes productivity gains and safety.

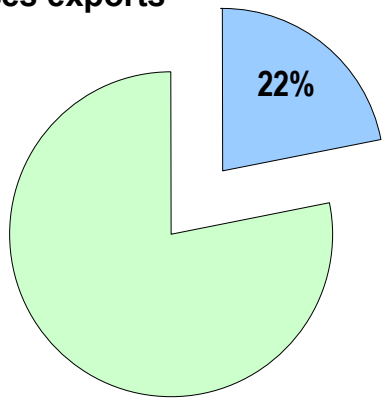
Deep strategic conversations with RDC leadership teams will be required to identify opportunities to apply CSIRO's capabilities to RDCs' growing needs. In each case, a new strategic vision for collaboration must be mapped out as to what impact we could jointly have on industry development. These conversations will need to take place at the CEO level. As an example, CSIRO will consider how State participation in the formation of regional clusters around RDC activities can be encouraged where consistent with capabilities and state priorities.

4.1 *Intensify engagement with rural R&D corporations to grow regional and new industries*

Key points

- Rural Research & Development Corporations (RDCs) currently represent 10 of our top 50 accounts
- Significant opportunity to deepen relationships and increase co-investment with RDCs in order to grow exports
- Priority to focus on largest opportunities with a few RDCs consistent with CSIRO ability to add real value
- Take strategic rather than tactical approach to RDC engagements

Agricultural, forestry, food and fisheries products comprise 22% of Australia's goods and services exports



Source: Agriculture, Fisheries and Forestry Australia (AFFA) Research and Development Corporation Outcomes (2002)

Success measure(s)

- Co-investment with RDCs
- Impact of research co-funded with RDCs
- Growth of targeted regional industries
- Customer value survey results

Likely initiatives

- Client service teams focused on top 10 RDCs (see 5.3)
- Divisional operational plans

Objective 4.2

Structure deeper and more meaningful relationships with large corporations

Large corporates are a relatively under-realised customer segment for CSIRO. In 2001, the top 50 businesses in Australia spent AUD1.6 billion on R&D. Globally, the top 50 businesses in the world spent $US165 billion on R&D.

To date, CSIRO has a very small share of R&D spending of large corporates. Only eight private sector companies appear in CSIRO's top 50 client accounts. We clearly have not offered an attractive value proposition to this important customer segment.

It is a strategic imperative for CSIRO to grow both the number and depth of relationships with large corporates. There are significant financial and reputational benefits to increasing our effectiveness with this customer segment and the opportunity to create intellectual property (IP). There is also a significant opportunity to embed their activities into Australia, thus creating jobs and meaningful economic impact for Australia.

However, CSIRO currently does not have enough deep relationships with the top management teams of large corporates that would provide line of sight into their strategic investment and R&D priorities. Our relationships have tended to be at the project level. We must focus on building CEO-level relations and open discussions at high levels within the large corporate market. R&D priorities from these large corporations will require resources from multiple CSIRO divisions. Therefore CSIRO client service teams (see 5.3) will be needed to deliver large corporate clients seamless access to CSIRO across divisional boundaries.

Clearly, CSIRO offers large corporates access to world-class science and domain expertise, in a trustworthy legal system at reasonable prices. CSIRO will need to experiment with new value propositions and entry points for this customer segment. CSIRO will explore potential channel partnerships including partnerships with consulting firms where we co-staff projects, thereby gaining exposure to strategic requirements and building relationships with senior management. While there will be significant ramp-up time due to relationship-building requirements, CSIRO is committed to this effort over the period.

4.2 *Structure deeper and more meaningful relationships with large corporations*

Key points
- Large corporates represent a significant percent of global R&D spend
- CSIRO has surprisingly few reciprocal and multi-year relationships with large corporates
- Opportunity for significant revenue, increased reputation and benefit to Australia
- Prioritise building relationships at high-levels with large corporate management teams
- Client service teams provide seamless and responsive access to resources across CSIRO Divisions
- Experiment with new value propositions

Australia

Top 50 businesses spent AUD1.6 billion on R&D in 2001

Source: IBISWorld

Worldwide

Top 50 businesses spent $US165 billion on R&D in 2001

Source: Standard & Poors

Success measure(s)
- Revenue from large companies as coinvestment
- Impact of research for large companies (contribution to a triple bottom line)
- CVS results tracking up

Likely initiatives
- Corporate channel partnerships
- Client service teams on top accounts (see 5.3)
- Special missions / events
- Market intelligence tools

Objective 4.3

Accelerate the growth of promising technology-based SMEs

Unlike many other OECD countries, Australia has a relatively small number of large businesses. For example, Australia had only 8 companies in the 2001 *Financial Times* list of the top 500 companies in the world.

Conversely, Australian small and medium-sized enterprises (SMEs) with less than 200 employees are particularly important to the national economy. They make a large contribution to economic growth and to industrial development. They are responsible for nearly 50% of total R&D performed by Australian companies. In 1999, there were 951,000 small businesses with less than 20 employees in the private, non-agricultural sector that employed 37% of Australia's workforce. Australia is unusual in the high proportion of its research conducted by SMEs. There are nearly 3,000 SMEs in Australia undertaking R&D and a similar number of technology-based SMEs not undertaking research that are also likely to have a need for technical advice and problem solving.

CSIRO's current value proposition for SMEs has led to mixed results. Many SMEs perceive that CSIRO's services are too expensive and come with high administrative costs due to the complexity of working with CSIRO. Many SMEs have been reluctant to approach CSIRO. At the same time, the limited financial capacity of many SMEs has meant that CSIRO has had to subsidise its services in certain cases.

CSIRO is adopting several strategies to enhance the innovativeness of SMEs in Australia. First, we will make it less burdensome for SMEs to work with CSIRO. We are simplifying the negotiation and contacting processes for SMEs and removing much of the administrative hassle of initiating work with CSIRO. Overall, we are shortening the length of contracts with SMEs (most to a single page) and thus the time required to work through those contracts (see 5.4).

Second, we are prioritising to work with the best and fastest growing SMEs. Alliances with groups such as the Australian Industry Group (AiG) will help us identify the growth stars among SMEs from manufacturing and other industries. With the stars of the SME market, we are initiating the concept of a 'spin-through.' Spin-throughs will allow us to work closely with leading SMEs and where appropriate inject some of CSIRO's intellectual property in return for fees and upside potential. With this group of SMEs that have the highest growth potential we will engage with them more intensely and remain flexible regarding alternative fee arrangements.

Third, we will leverage our market power and our volume of supply to enhance efficiency and yield of our spin-off process. We have a mixed track record in terms of the more than 70 SMEs we have spun-off from internally generated work. Yet, CSIRO has one of the largest potential supplies of quality ventures worthy of external investment. We will creatively explore partnerships with venture capitalists and other members of the financial community to create win-win arrangements that reduce the cost and time of spin-offs while increasing our expected yield. We will consider strategic umbrella or 'footprint' arrangements with top-tier funds that would remove the necessity of case-by-case complex legal agreements and would also secure CSIRO a more significant realisation of value from the spin-offs.

4.3 *Accelerate the growth of promising technology-based SMEs*

Key points

- SMEs are the engine of growth for Australia and have significant R&D activity
- Experiment with spin-throughs and injecting CSIRO IP for high growth tech-based SMEs
- Explore new arrangements to improve efficiency and yield of CSIRO's own spin-off SMEs

Australian SMEs conduct a large proportion of Business Expenditure on R&D (BERD)

Total R&D (%) broken down by size class of firms (1999)

Number of employees	Fewer than 100	100–499	500–999	More than 1000
Australia	29.2	20.7	12.3	37.8
Canada	16.8	15.8	10.1	57.4
USA	10.4	8.3	3.8	77.5
Korea	4.1	8.8	8.2	78.9

Figures taken from OECD, STI Scoreboard, 2001 as presented in CSIRO's August 2002 submission to House of Representatives Science and Innovation Committee regarding Business Commitment to Research and Development in Australia.

Success measure(s)

- Number of SMEs engaged in meaningful manner
- SME investment in CSIRO projects
- Improved CVS results with SMEs
- Triple bottom line impacts

Likely initiatives

- SME spin-throughs
- Footprint agreements
- Equity portfolio management

Objective 4.4

Reinvent our ICT capabilities to strengthen Australia's knowledge-based industries

The reinvention of CSIRO's ICT research capabilities will be focused around a key aspiration:

Powering Australia in the global ICT-enabled services competition: world-class player not paying spectator.

By its very nature, this is multi-sectoral in scope because of the importance of ICT services in all areas of the economy.

Effort will be focused into a limited number of platforms of enabling technologies in order to enable a world-competitive effort in each. Future services, wireless and mobile communications, trusted systems and large-scale networks of embedded devices are examples of potential technology platforms. The science and technology base for ICT will be continually refreshed through an explicit focus on frontier research.

The impact of CSIRO's research will be maximised by linking ICT research to challenging, real-world problems. This will build on the unique opportunity offered by the richness of CSIRO's applications domains as sources for such problems. ICT-enabled research in application domains will be focused into areas in which advances in ICT are a source of competitive advantage. It also ensures that the benefits from CSIRO's research are multiplied to the greatest possible extent through the creation of products and services by the ICT industry based on new technology from CSIRO. Future health services systems, environmental services or remote delivery of educational services are examples of potential major, challenging goals.

A CSIRO ICT Research Centre will be created as a whole-of-CSIRO focal point for ICT research. An ICT Research Director will be appointed in this Centre to provide high quality leadership of an internationally competitive CSIRO ICT Research Program. Partnering to advance collaborative research across CSIRO and create external partnerships with strong complementarity, with the National ICT Australia (NICTA) Centre of Excellence for example, will be a key component of this Research Program.

4.4 *Reinvent our ICT capabilities to strengthen Australia's knowledge-based industries*

Key points

- ICT impacts nearly every sector, but room for greater penetration in Australia
- Get Australia a seat at the global ICT table
- ICT Research Centre as focal point to advance collaborative research
- Focus on platforms of enabling technologies
- Link ICT research to real world applications
- Breadth of applications gives us our competitive advantage

Proportion of Australian businesses using ICT by sector – June 2001

Industry	Computers	Internet Access	Web Presence
Mining	88%	79%	30%
Manufacturing	81	66	28
Electricity, gas and water supply	95	89	44
Construction	80	64	10
Wholesale trade	89	77	33
Retail trade	78	57	22
Accommodation, cafes and restaurants	71	53	26
Transport and storage	76	60	19
Communication services	78	58	20
Finance and insurance	90	81	22
Property and business services	93	85	25
Health and community services	89	72	14
Cultural and recreational services	87	74	30
Personal and other services	72	52	22

Source: Australian Bureau of Statistics as represented in NOIE (February 2003) report on 'Productivity and Organisational Transformation: optimising investment in ICT'.

Success measure(s)

- CSIRO acknowledged as an ICT research leader by Australian companies

Likely initiatives

- ICT Research Centre
- High performance computing
- eScience initiatives

Goal 5

Building one-CSIRO capabilities and commitment

CSIRO's scope and scale mean that when we act as a single, unified organisation, the possibilities are limitless. Over the next four years, we will continue to lay the groundwork for greater one-CSIRO behaviour. We will focus on the four areas with greatest leverage from acting as a unified organisation.

We have begun important work on aligning our performance management framework across the organisation. This framework will provide robust business planning, good target setting and strong accountability.

We will also work together to present a single, unified point of access to our largest and most important accounts, increasing our ability to provide them with relevant services. These client service teams will allow us to be more responsive to our top clients' needs.

Generating breakthroughs in science comes from working across boundaries. We will foster more cross-disciplined interactions in all areas of our science activities, especially in our Emerging Sciences Initiative.

Delivering value to our stakeholders requires careful discipline and overseeing of our activities. We will unify and improve our internal processes and information technology (IT) systems which allow us to collaborate and operate effectively as one enterprise.

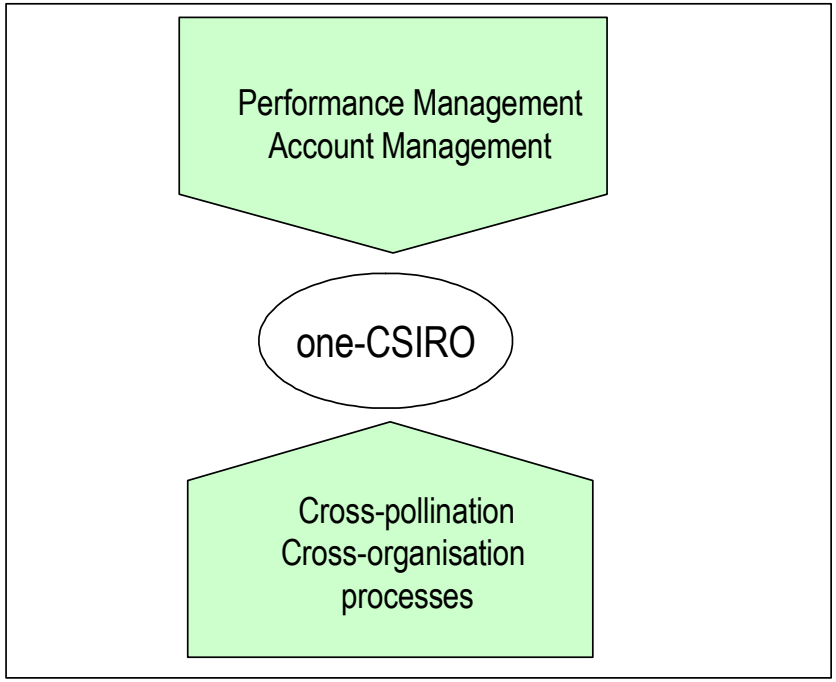
Goal 5: Building One-CSIRO Capabilities And Commitment

5.1 Stimulate future breakthroughs by promoting cross-pollination, especially in frontier research

5.2 Be among the best in governance, OHS&E and performance management processes

5.3 Adopt a unified approach to improve service dramatically and grow top accounts

5.4 Implement standard processes and IT systems to enhance collaboration and efficiency



Value to Australia

- Greater return for CSIRO investment through harnessing our scale and scope
- Easier to deal with CSIRO
- OHS&E reputation

Value to CSIRO

- Better science
- Simplification of complex and different systems across Divisions
- Increased transparency and improved governance
- Greater commercial impact
- Easier collaboration
- Enhanced client satisfaction and confidence

Objective 5.1

Stimulate breakthroughs by promoting cross-pollination, especially in frontier research

Innovation often results from the confluence of inventions in connected domains. Some of the biggest breakthroughs in science come about by connecting skills and knowledge from a number of different backgrounds. For example, the development of wireless local area network technology that recently led to Cisco Systems' acquisition of Radiata involved serendipitous collaboration across many seemingly unrelated science domains over many years.

New paradigms in science and technology are occurring at the interface between disciplines. CSIRO's determination to understand these interactions and harness this diversity will underwrite its leadership position in the future. Maintaining a reputation for world-class science requires CSIRO to invest and manage actively towards new major breakthroughs across divisions.

CSIRO's Science Forum has played a central role in identifying five themes for our Emerging Sciences Initiative that cut across traditional boundaries: novel biotechnologies, complex systems science, new information and communication technologies, nanotechnology and social and economic integration. Each of these areas is important for 21st century science.

- Novel biotechnologies: over the next 10 years, it is conceivable that the function of every molecule in every cell type will be described. As a result, biotechnology research will deliver new insights into the molecular make-up of living organisms, human populations and entire ecosystems. This potential has established biotechnology and its supporting science disciplines as a major focus in the global business environment.
- Complex systems science: the central theme of complex systems science is the exploration of systems whose behaviour cannot be understood or predicted from the characteristics of their component parts. Such systems are inherently non-linear and are often characterised by 'fractal scaling laws' and may exhibit 'self-organisation'. Complex systems are being found and studied over a wide range of time and space scales from those of a single cell to the entire globe and involve processes ranging from mathematical or physical alone to the intersection of biology and socio-economics.
- ICT: recent rapid developments in computing power, bandwidth and storage capacity, and intelligent systems are providing many new and exciting opportunities across a number of scientific disciplines. These developments, in combination with new mathematical models and statistical algorithms, provide scientists with alternate approaches to resolving scientific questions and problems and are allowing increasingly complex systems to be interpreted and understood.
- Nanotechnology: global investments in nanotechnology are likely to lead to a new generation of computing and communications devices with improvements in performance that should rival the gains of the current micro-technology. Nanotechnology will open new methods in medicine, biological research and manufacturing.
- Social and economic integration: few of the world's problems will be solved by science alone. Solutions will require a closer integration between science, the social sciences and the communities directly affected. This integration with wider policy considerations is particularly pertinent in addressing environmental issues including climate change. The success of science and technology in addressing environmental problems is becoming increasingly judged with reference to the effectiveness with which the outcomes are implemented in society.

These areas of science will impact CSIRO everywhere, including divisional work and the Flagship programs. Ideas do not respect boundaries.

Clearly these investments have a long term horizon, but can be managed overall to increase the probability of success. Experimentation on modest budgets is encouraged, and at each stage of development opportunities are tested against a number of progressively more stringent criteria to act as filters.

5.1 Stimulate future breakthroughs by promoting cross-pollination, especially in frontier research

Key points

- Innovation usually found at intersection of different domains
- Major breakthroughs require unwavering leadership over time
- Focus on five emerging science themes that cross boundaries and manage towards success
- Leave flexibility for curiosity driven research

Gene silencing (RNAi) across Divisions

	Mol Sci	PI	LI	MR	Ento
Genetically Modified Organisms					
Therapeutics					
Gene Function Studies					
Research Tools					
Other Uses					

Success measure(s)

- CSIRO acknowledged as a research leader in targeted 'hot science' areas (ISI)
- Initial emerging sciences programs bearing fruit

Likely initiatives

- Emerging Sciences Initiative
- Flagship programs
- Encourage exploration and collaboration across Divisions
- Idea stimulation process

Objective 5.2

Be among the best in governance, OHS&E and performance management processes

Delivering value to our stakeholders requires us to be among the best at managing our own internal activities. CSIRO must continue to observe the requirements of its governing legislation, the *Science and Industry Research Act 1949* (the 'SIR Act') and the *Commonwealth Authorities and Companies Act 1997* (the 'CAC Act'). These requirements include:

- exercising due care, diligence and good faith in the conduct of CSIRO's business
- dealing appropriately with conflicts of interest and duty
- keeping the Commonwealth Government, as CSIRO's principal stakeholder, properly informed about CSIRO's operations and business dealings
- ensuring subsidiaries comply with CSIRO's requirements
- observing prudent investment procedures.

CSIRO operates within both the public and private sectors of the economy and requires sufficient governance processes to meet the complexity of such activities.

To date, CSIRO's ability to manage internal governance and performance management properly has been made more difficult by non-uniform systems and processes across divisions. The lack of standards across divisions increases administrative transaction costs and makes well-informed decisions more difficult to make.

We are focused on several key initiatives to remedy this situation and help put us in the top rank of research organisations globally. We are improving our core governance processes in our key institutions including our Board, senior management and management committees. We have initiated a framework of delegation and authorities for officers that clearly establishes roles and responsibilities throughout the organisation. We are realigning the development of our strategic plans and operational plans in order to make more strategic and integrated investment planning decisions. We are also initiating a simple and predictable corporate planning cycle that better aligns the organisation's activities.

Additionally, work has focused on developing new and more simple ways of managing core activities that will also support external stakeholder requirements for outcome evaluation. The program performance framework will provide robust business planning, good target setting and strong accountability. We are moving towards a 'themes and streams' approach across our science activities which should provide a more uniform notion of the activities that need to be managed.

We also recognise that people's safety is paramount and have made significant strides in our occupational health and safety and environment (OHS&E) activities. We will continue to drive OHS&E improvements and make certain it does not slip.

Reinforcing all this will be a predictable and systematic corporate planning cycle which will streamline decision flows from ET with timely EMC feedback and Board review.

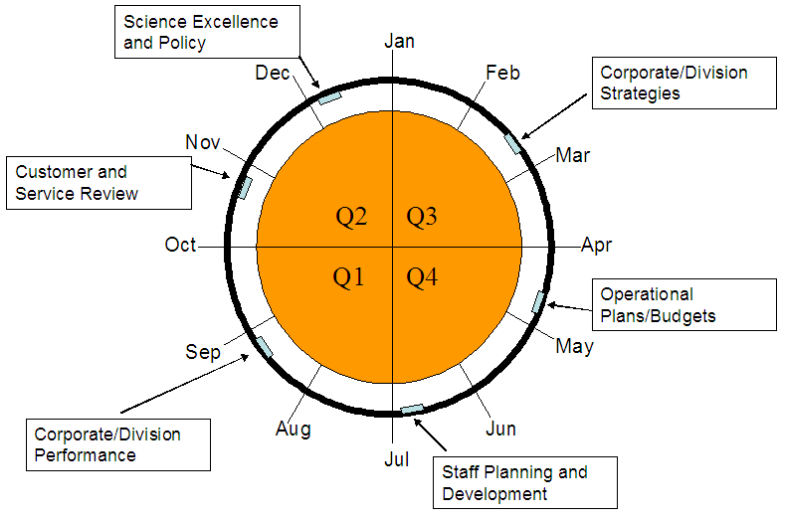
This important work will continue over the coming years and will require the entire organisation's focused efforts and support.

5.2 *Be among the best in governance, OHS&E and performance management processes*

Key points

- Governance and performance management hampered by non-uniform systems and processes across Divisions
- Corporate compliance reporting adds substantial transaction costs and hampers investment decision-making
- Need to migrate to consistent and relatively simple reporting system to avoid these problems
- Need clear and cost-effective governance processes
- Moving to CSIRO-wide planning cycle to reduce friction
- OHS&E improvement initiatives are valued
- Need to provide OHS&E IT Management Systems for improved efficiency
- 'Soft-side' performance management in CSIRO needs big improvement

Annual planning cycle



Success measure(s)

- External assessment / benchmarking
- Other agencies adopt relevant one-CSIRO practices
- Improved injury and positive performance indicators and safety culture
- Improved management of performance results (Insight Survey)

Likely initiatives

- Board, Audit, BCC, ComEx, ET, EMC
- Predictable planning and budgeting cycle
- CSIRO Program Performance Framework (PPF)
- CSIRO Health & Safety Committee, OHS&E Project Team
- Alignment of staff Annual Performance Assessments (APAs) with planning cycle

Objective 5.3

Adopt a unified approach to improve service dramatically and grow top accounts

Increasingly, solutions to industrial, social and environmental problems require multiple inputs and a whole-of-systems approach. This is most true of the needs of our largest clients. For any of them, the diversity of CSIRO's capabilities is relevant and often necessary to achieve objectives. A lack of a one-CSIRO approach to account planning and coordination with many of our large clients has led to inconsistent and ad hoc interactions, together with little customer relationship management. Many of those large clients are calling out for assistance in accessing capabilities from across CSIRO. Given that our top 10 clients account for 22% of our total external revenue, we owe it to them to listen.

We are responding by launching Client Service Teams (CSTs) for our largest multi-divisional clients to serve as liaisons between them and CSIRO resources. Most of our large clients have explicitly asked for it. CSTs make certain we bring as much of CSIRO as is relevant to each client's situation, with quality communication across various players in those teams. This will help grow our revenues and reinforce client relationships through multiple linkages that will raise the stakes in the relationship. They will help ensure we are working in a strategic way with our large clients, maximising value creation.

Account planning and development of large clients is a shared responsibility. We must ensure large clients receive ongoing value from their relationship with CSIRO and receive appropriate customer relationship management. If serviced properly, these clients will become stronger partners with CSIRO, providing reliable and regular sources of ongoing revenue as well as strong external advocacy for CSIRO.

A careful customer segmentation project is underway to help determine where best to apply our CST resources. At this time, we believe the highest opportunity customer segments include large Australian and multinational corporations, Rural R&D Corporations (RDCs), States and government departments and agencies. We plan to take a pragmatic approach to putting CSTs in place. We will make certain we do not disrupt strong existing relationships and that the benefits outweigh the costs in every situation.

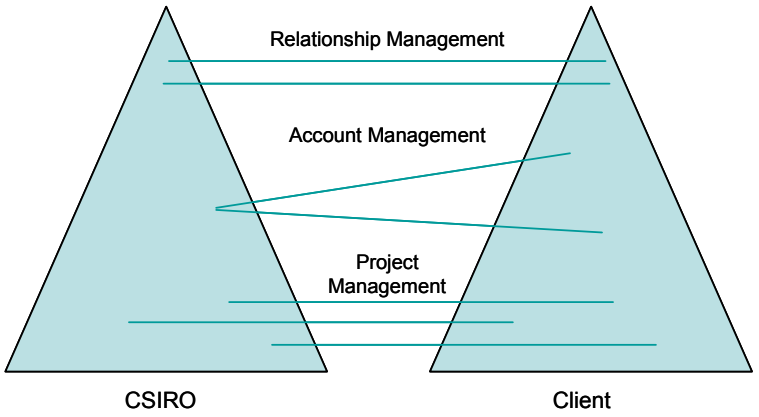
We expect to grow the number of CSTs to approximately 50 by 2007. We would expect to see CSTs focused on about 25 large corporates, 10 RDCs, three States and five Federal agencies, among others. We have already been moving towards the implementation of CSTs with several of these relationships.

5.3 *Adopt a unified approach to improve service dramatically and grow top accounts*

Key points

- Largest clients asking for assistance in working across CSIRO
- Client service teams (CSTs) make sense for largest accounts
- Providing better client service has powerful implications for CSIRO's business
- Customer segmentation and cost/benefit analysis will lead to approximately 50 CSTs by the end of the period
- Reinforce overall customer service culture

Client service team model



Success measure(s)

- Customer Value Survey results
- Increased amount and share of revenue from top accounts

Likely initiatives

- Customer segmentation
- Business Development CST effort

Objective 5.4

Implement standard processes and IT systems to enhance collaboration and efficiency

A key strategic advantage of CSIRO is the ability to attack problems at very high levels by pulling together resources across divisional and program boundaries. Often CSIRO brings creative solutions at the intersections between different sciences. CSIRO's integrated, big-picture approach sets it apart from other research organisations.

Disparate processes and systems across the organisation impede the porosity of CSIRO's work across boundaries. Differing transaction systems, electronic library systems, human resource processes and financial systems get in the way of working together in a one-CSIRO fashion. Such variety of IT systems and processes within the organisation leads to behavioural drivers that further discourage one-CSIRO collaboration. For example, one division should not avoid handing off work to another division for fear of losing external income. Rather, we should be asking how frequently one division's expertise was called upon by another division to add value to a project.

We must make it easier for clients to work with CSIRO by reducing the transaction costs of interactions. As an example, we will make it less burdensome for SMEs to work with CSIRO by simplifying the negotiation and contacting processes for SMEs and removing much of the administrative hassle of initiating work with CSIRO. Overall, we are shortening the length of contracts with SMEs (most to a single page) and thus the time required to work through those contracts.

Our priorities shape our processes. We must manage ourselves in a one-CSIRO manner in order to achieve our goals. Whether accounting and transfer pricing, project management or human resource systems and processes, CSIRO must act as one unified organisation. Requiring that our key systems and processes be consistent across the organisation is an important step in driving collaborative behaviours. We must work hard to align the strategies within parts of our organisation to drive the right behaviours. These organisational systems and drivers are often supported by the Information Technology Services group (ITS) but are shaped by each operating group within CSIRO.

With regard to information technology systems (IT) in particular, CSIRO suffers from a lack of standardisation. Furthermore, usage and compliance with existing IT systems is inconsistent. As part of the overall solution, we are committed to invest in, implement, and embrace unified IT solutions that reduce the cost of collaboration and enhance the ability to manage our operations. The recent implementation of unified email systems and CSIRO's web presence has been a good start.

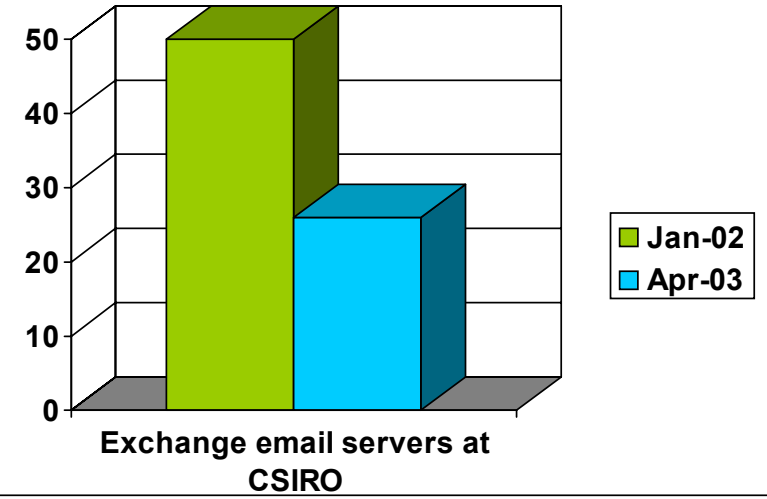
The ITS group's eCSIRO strategy is focused on supporting a one-CSIRO approach that enables enterprise-wide, secure access to information anywhere, anytime using a variety of delivery technologies. This top layer of applications will be supported by integrated and trusted core systems which will run across a robust and secure architecture. Over the next four years, we expect to break new ground with web-enabled integrated enterprise-wide systems that support CSIRO's business and research activities and deliver value-adding collaboration and knowledge management tools.

5.4 *Implement standard processes and IT systems to enhance collaboration and efficiency*

Key points

- Harnessing CSIRO's scale and scope through enhancing the ability to work across boundaries is a differentiating advantage for CSIRO and Australia
- Disparate processes, systems and business drivers impede one-CSIRO collaboration
- Enterprise-wide systems, knowledge management and processes encourage collaboration
- Simplify contracts and reduce transaction costs
- Investing in IT solutions that reduce cost of collaboration and provide better tools for collaboration to the organisation

eCSIRO is making progress towards unifying CSIRO's IT systems



Success measure(s)

- Reduced overhead ratio
- Evidence of stronger inter-Divisional collaboration in CSIRO-wide support
- Continued improvements in Insight results on 'working relationships' and 'work organisation and efficiency'

Likely initiatives

- Information Technology Services (ITS)/eCSIRO
- Rollout of contract simplification with SMEs

Goal 6

Securing a financial foundation for growth

Government has urged us to go for growth and we have accepted the challenge. Clearly we need to ensure robust sources of capital funding for that growth. The bulk of our growth will come from our activities in core science, Flagships and related programs, but our financial foundation needs to be in place to support that growth. We must liberate additional capital wherever possible to reinvest in our growth.

Continuing to demonstrate that we deliver a terrific return on our government appropriation is paramount. Delivering value to our stakeholders puts CSIRO in a position to justify receiving increasing funding. We must also stay focused on our own top and bottom lines. We must ensure that we run a professional enterprise, where costs are justified and benefits outweigh those costs. We must actively manage our intellectual property and other assets and pave the way towards growth.

We have to ensure that we create the investment capacity for that growth to happen.

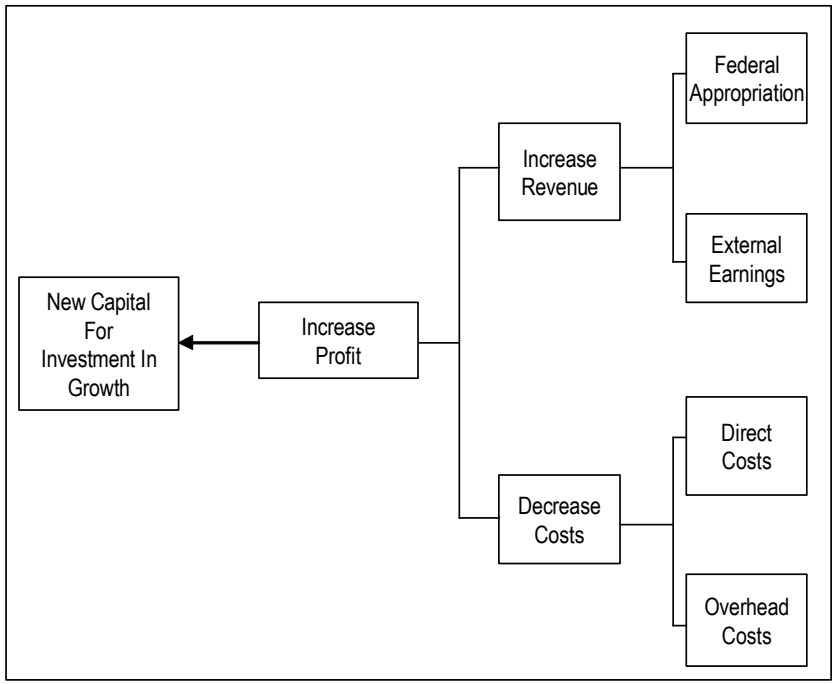
Goal 6: Securing A Financial Foundation For Growth

6.1 Secure greater Federally funded support for CSIRO science investment

6.2 Proactively manage patent and equity portfolios to multiply IP-based revenue streams

6.3 Deliver customer value for money and eliminate subsidisation in consulting services

6.4 Reduce overhead and purchasing costs and manage balance sheet for reinvestment



Value to Australia

- Net value creation for Australia
- Stronger CSIRO over time

Value to CSIRO

- Growth plans need investment funding in this phase
- Net value creation over time
- Proper stewardship and governance

Objective 6.1

Secure greater federally-funded support for CSIRO science investment

Government, representing the will of Australians, is CSIRO's most important stakeholder. Our appropriation provides the financial foundation for our world-class work. In order to receive greater government-funded support for CSIRO science investment, we must continue to demonstrate clear value. To do this we must deliver efficiently and effectively to external investors, thus demonstrating to governments that we can deliver equally well to Australia on the public investments made through appropriation. We recognise the need to demonstrate actual realised value creation and costs savings from the applications of our science.

Our recent government Outputs Pricing Review (OPR) with the Commonwealth Department of Finance and Administration (DoFA) suggests that we have demonstrated significant value to date, stating that 'CSIRO is providing excellent value for money justifying enhanced funding to sustain its critical mass as a multidisciplinary research agency'.

Prior to the most recent economic downturn, the nation wanted a CSIRO that was increasingly self-sufficient, relying on external earnings for a growing portion of its funding, and acting more like a commercial enterprise. However, over the last two years, the nation has come out in favour of a CSIRO working harder on the public good, putting more of an emphasis on public service at the same time as our commercial mission. The importance of CSIRO's public service mission is even more important given Australia's low level of corporate R&D relative to other countries. This imperative can be seen in the primacy now being placed on the Flagship programs and the nation's most complex policy changes.

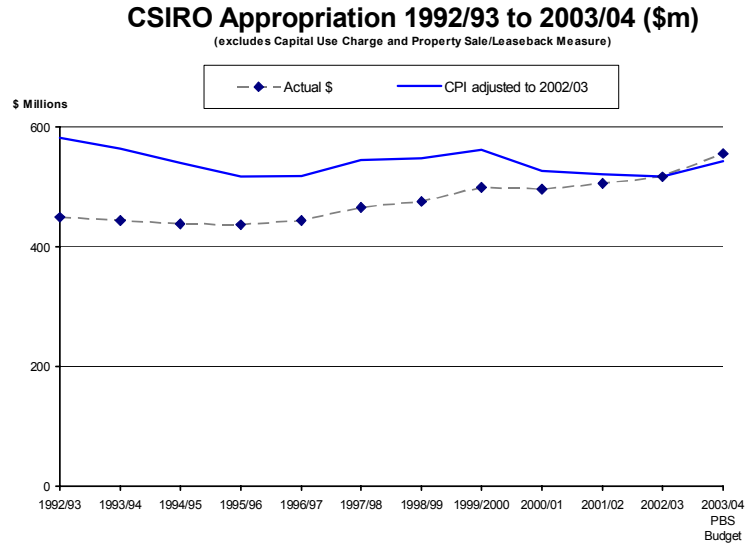
We have welcomed the Commonwealth support of Flagship programs as evidenced by the $20 million increase in appropriation for the Flagships for 2003–04.

Further additional appropriation funding in the next three years of this period becomes even more critical to our success. Therefore we must continue to demonstrate value and have the opportunity for increases in appropriation funding which allow CSIRO to continue to serve the nation. This is not about competing with other agencies, but rather it is about growing the pie.

6.1 *Secure greater Federally funded support for CSIRO science investment*

Key points

- Demonstrating value is the key to continued and growing support from government
- Outputs Pricing Review (OPR) international benchmarking indicates CSIRO delivering value-for-money
- Government support for CSIRO evidenced by recent $20 million increased appropriation for Flagships
- The nation's emphasis that CSIRO focus on public good makes appropriation funding all the more important going forward



Success measure(s)

- Appropriation funding increase

Likely initiatives

- Government business
- Enhance CSIRO's performance reporting to Government
- Special projects demonstrating clear value

Objective 6.2

Proactively manage patent and equity portfolios to multiply IP-based revenue streams

Over the years, CSIRO's investments in research and development have led to the creation of an impressive portfolio of intellectual property (IP) assets. CSIRO owns over 3,500 live patents and holds equity in many companies. Extracting value from this intellectual property is an important part of our strategy to have annuity revenue streams which provide an endowment type source of funds for CSIRO. It requires proactive management of our IP assets, equity and equity-like holdings to generate a steady and growing stream of returns for the organisation for reinvestment into our research activities.

We have recruited experienced managers to manage the value residing in our patent and equity portfolios in a more systematic manner to realise gains for CSIRO.

At one extreme, CSIRO has a number of mega-patents or 'RIPPERs', reclaimed intellectual property promising extraordinary revenue, with clear and significant market value. We will begin aggressively to pursue possible infringement or assertion actions for these major sources of IP. Examples may include our wireless local area networking IP, some of our work in gene silencing (RNAi) or other major pieces of IP. We believe the activity around our 'mega-patents' could provide huge financial benefit to CSIRO which we would be able to re-invest for the benefit of Australia. However, we will not realise the lion's share of this value over the course of this four-year period.

At the other extreme, one part of our IP management strategy is to search out IP that is currently lying dormant, and attempt to generate value by putting this IP up for sale or trade. Working with technology commercialisation firms allows CSIRO to sell bundles of dormant patents at little or no cost to CSIRO and significant upside. We have already begun this activity with over 30 dormant patents and expect to generate several million dollars.

In between those extremes, we are actively reviewing our patent portfolio to identify underutilised IP. We believe this patent parade activity will identify several substantial exploitation opportunities that we will pursue. We will also conduct thorough audits of our IP licences and licensees across our divisions. Through improved invoicing and collection of licence fees, we expect to see significant gains in revenue.

In addition, we will work throughout the period to realise value from the disposition of equity and equity-like holdings generated from our spin-offs. We will also begin experimenting more with spin-throughs (see 4.3) which may generate significant IP-based revenues as well.

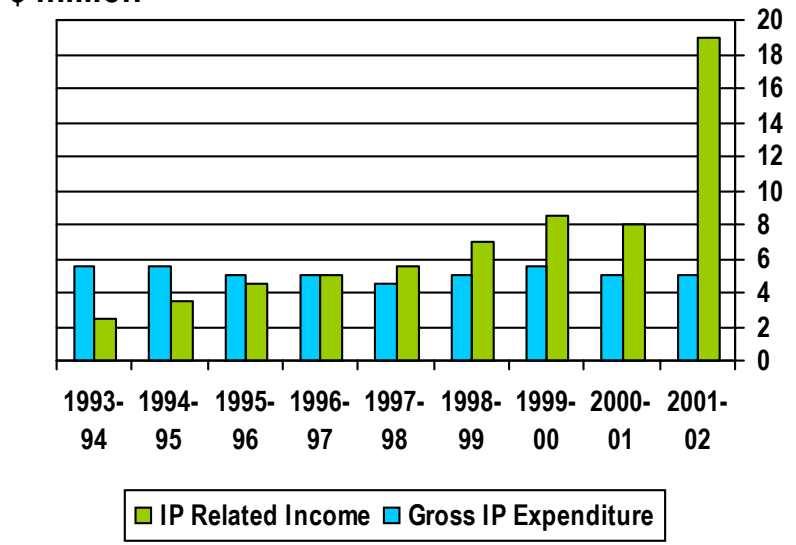
We must proactively secure IP rights more deliberately for important innovations, and aggressively enforce these rights where considerable upside exists. We will become increasingly proactive and systematic in managing this significant portfolio for growth and value realisation. It is critical to start these activities now, even though the major impact will not be felt for several years. We believe that our various IP and equity holdings have the potential to provide $90 million as an expected value by the end of the 2007. Of course, as an expected value, it is likely that we will end up with more, or less, depending largely on a few key 'RIPPERs'.

6.2 *Proactively manage patent and equity portfolios to multiply IP-based revenue streams*

Key points

- Extracting value from CSIRO's substantial portfolio of IP assets offers CSIRO an endowment type source of funds
- Proactive management of IP assets required to deliver on expected value
- Different approaches required to manage each of 3 categories of IP assets in particular
- Emphasis on 'RIPPERs' – (reclaimed intellectual property promising extraordinary revenue) mega-patents with clear and significant market value

Growth in net income from IP held by CSIRO
$ million



Success measure(s)

- Revenue from IP increasing steadily
- At least two 'RIPPERs' across the line

Likely initiatives

- Patent portfolio management
- Aggressive licensing

Objective 6.3

Deliver customer value for money and eliminate subsidisation in consulting services

In every project that CSIRO performs, we strive to provide true value for money to the client. Historically, however, CSIRO has not always focused enough on our own return for the value provided.

Subsidisation consumes value and also limits the value that can be provided for others. Subsidisation takes away from our ability to grow our business and can create cash flow problems if not addressed. If those dollars used for subsidisation purposes were instead invested in larger deals with partners on a shared risk/reward basis, then value creation would be significantly higher for both CSIRO and for Australia.

Consulting and services should be charged at full cost plus a margin. Co-investment activities and work with probable future IP revenues should still have positive net present values (NPV). In other words, any work with contingent future revenues should have an expected value of the revenues greater than the costs over reasonable time frames. The probability and magnitude of future revenue streams must always be analysed to justify the costs of a project.

We have begun the move away from subsidisation over the last two years. Going forward though, projects that may have been labelled as co-investment activity, but are actually more like consulting and service projects, must also be profitable for CSIRO. Non-strategic investments are really subsidisation in disguise and must be eliminated.

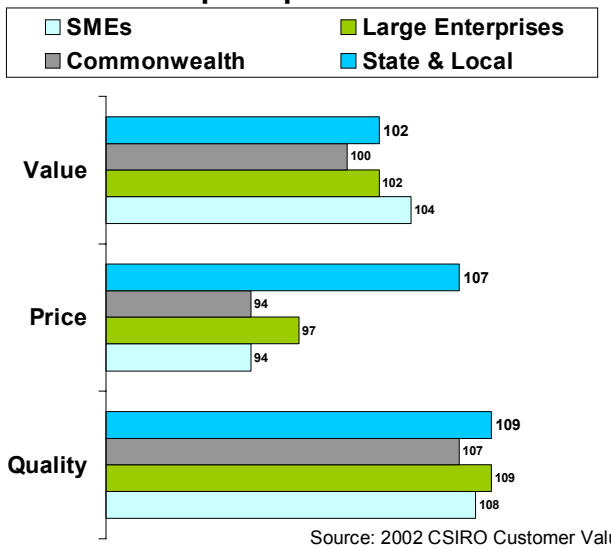
Transparency of accounting is crucial so that the real economic impact from a project can be analysed. We are working vigorously to be certain that appropriate cost-level data is available for all projects so that we can better manage our financial bottom line.

6.3 *Deliver customer value for money and eliminate subsidisation in consulting services*

Key points

- CSIRO will engage only in consultancies and contract projects where we can deliver value and benefits and receive compensation to outweigh our costs
- Subsidisation destroys value and negatively impacts CSIRO's ability to grow
- Consulting services charged at cost plus margin
- Co-investment activity must have positive net present value
- Transparency of accounting crucial for accurately costing projects

Overall customer perceptions of CSIRO



Source: 2002 CSIRO Customer Value Survey

Success measure(s)

- Increasing CVS scores
- Zero subsidy in activity

Likely initiatives

- Cost based accounting

Objective 6.4

Reduce overhead and purchasing costs and manage balance sheet for reinvestment

Effectively managing our cost structures and balance sheet is crucial for CSIRO's long-term financial wellbeing. Our growth strategy requires funds that need to be liberated from current activities and assets. We have substantial room for improvement in managing the efficiency of our cost and capital structures. Our stewardship of public funds demands this greater discipline in the management of our cost structure and balance sheet.

In keeping with a more disciplined approach to managing CSIRO-wide resource use, we are instigating a series of rolling reviews of the organisation's research support and overhead cost structures. We are reviewing all processes relating to overhead rather than simply cutting uniformly across the organisation. From our current baseline research support overhead, CSIRO expects these reviews will lead to improvements in process and policy that will support more efficient research operations. By the end of 2007, the research support overhead ratio will reduce significantly for substantial savings.

We will also question overhead costs and focus on working more cost-effectively. We will leverage our purchasing power to receive one-CSIRO volume pricing across divisions and initiate corporate procurement. Vinyl gloves that cost $4 in one Division should not cost $12 in another Division.

Because CSIRO is 'custodian' for many national facilities, a fair number of property assets with low intensity reside on our balance sheet. We are determining the most efficient way to manage those assets, given the substantial annual depreciation faced and impact to our balance sheet.

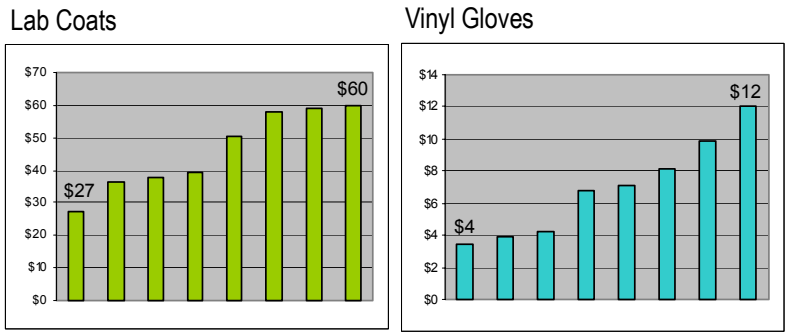
By the end of the strategic planning period (2006–07) we aim to free up $34 million per annum in savings through this objective.

6.4 *Reduce overhead and purchasing costs and manage balance sheet for reinvestment*

Key points

- Must manage cost structure and balance sheet to permit growth
- Reduction of overhead costs will lead to substantial savings
- Corporate procurement initiated
- Proactive management of low intensity assets on balance sheet will release important funds

Range of prices of lab coats and vinyl gloves across CSIRO Divisions



Success measure(s)

- Overhead ratio reducing
- Purchasing costs reducing
- Investment capacity increasing

Likely initiatives

- Cost initiatives
- Enterprise-wide procurement
- National facilities accounting treatment

Headline performance indicators

Specific measures of success have been noted and are being further developed for each of the 24 strategic objectives contained in the plan. Further details, including annual targets, are incorporated into the Operational Plan. However, to enable summary reporting of progress, a headline performance indicator has been developed for each of the six major strategic goals. These six measures, together with measures of staff satisfaction and customer satisfaction, will form the highest level of regular strategic progress reports to the CSIRO Board. These headline performance indicators are meant to give CSIRO a clear and concise view into our progress toward the six major goals.

The headline performance indicators include:

1 Flagship Implementation
percentage of Flagship annual performance goals achieved (target: 70%)

2 Science Excellence
ISI citation rates and patent impact index (target: rate of citation increase exceeds ISI & CHI benchmarks)

3 CSIRO Brand Preference
importance of CSIRO Brand name in Customer Value Survey score
(target: improve over 2002–03 baseline - 129)

4 Industry Engagement
number of significant commercial relationships with industry leaders ie
RDCs & States ($10m threshold),
Large Corporations ($2m threshold) and
SME growth stars (threshold to be defined)

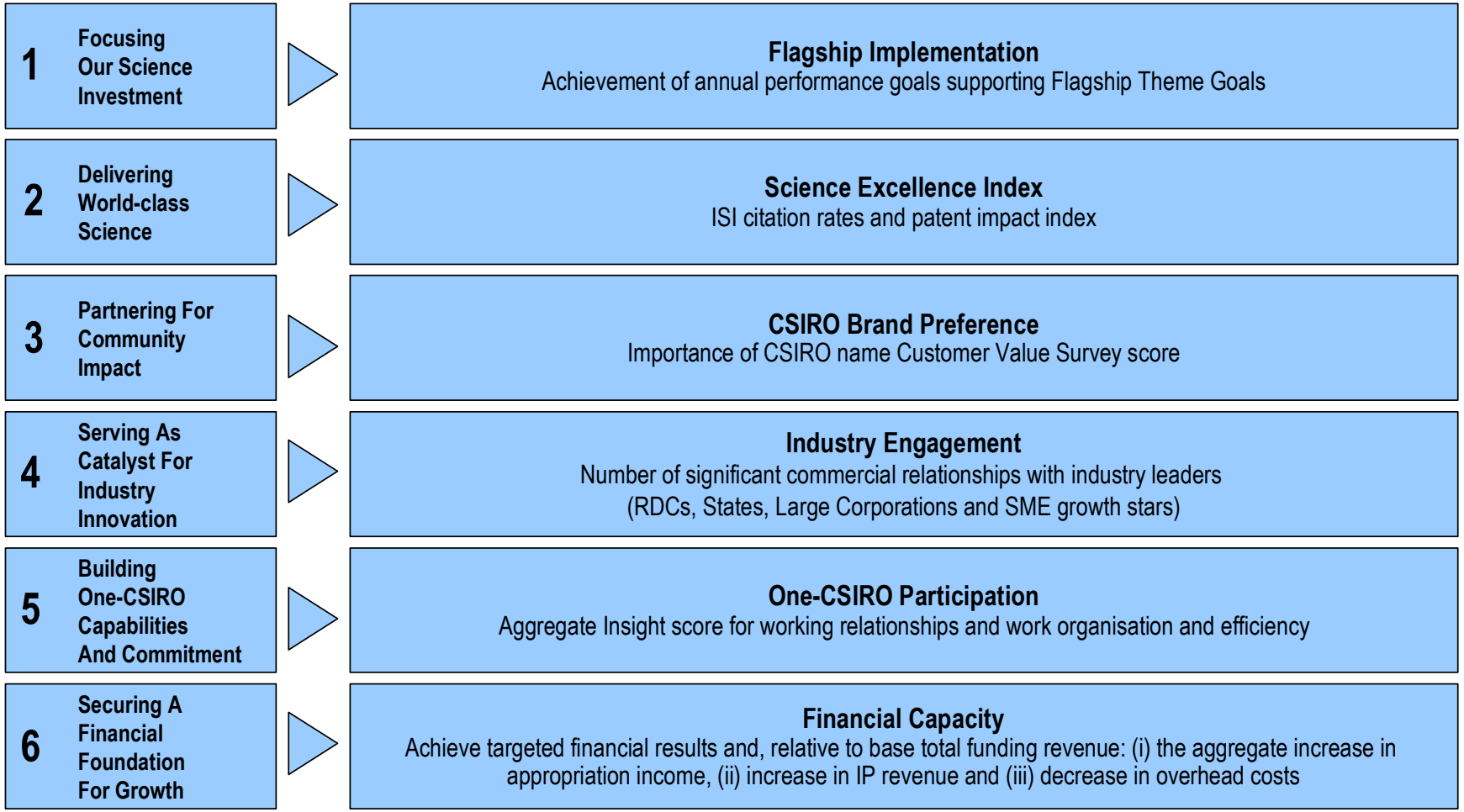
(target: increase over 2002–03 baselines)

5 One-CSIRO Participation
aggregate Insight score for working relationships and work organisation and efficiency (target: improve over 2002–03 baseline - 127)

6 Financial Capacity
achieve targeted financial results and, relative to 2002–03, achieve an:

(i) aggregate increase in appropriation income (target: $174m)
(ii) aggregate increase in IP revenue (target: $114m)
(iii) aggregate decrease in overhead & support costs (target: $73m)

Headline performance indicators



Additional headline performance indicators

In addition to the headline indicators for each of the six strategic goals, we also recognise the overarching importance of both employee satisfaction and overall customer satisfaction. We have developed an index from both the Insight results and the CVS data to allow tracking of a single number as a proxy.

7 Employee Satisfaction
We will closely monitor employee satisfaction through our annual Insight poll results (target: continue to exceed Global R&D norm)

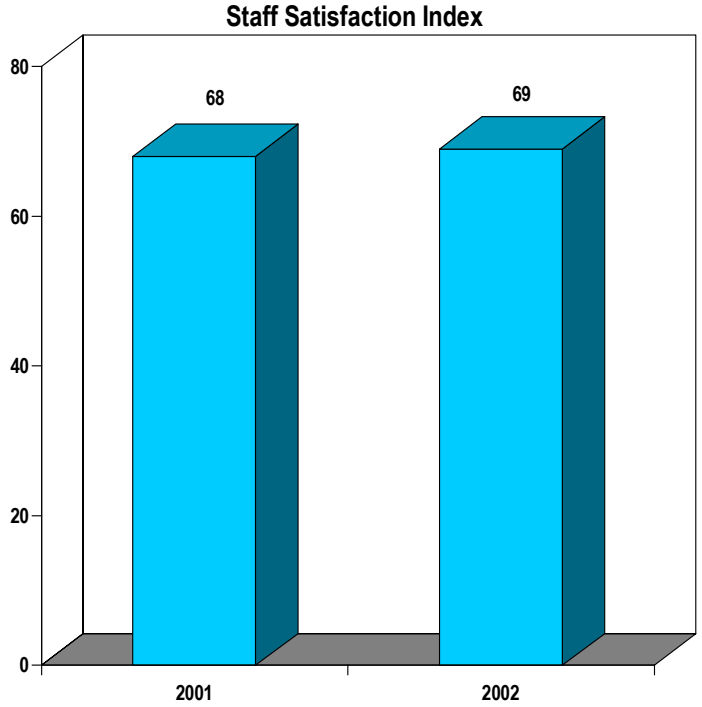
8 Customer Service
We will measure customer satisfaction through our quarterly Customer Value Surveys (CVS) (target: customer value rating greater than or equal to 110 – world leader benchmark).

Together, these eight headline performance indicators will help us manage our progress throughout the period.

Additional headline performance indicators

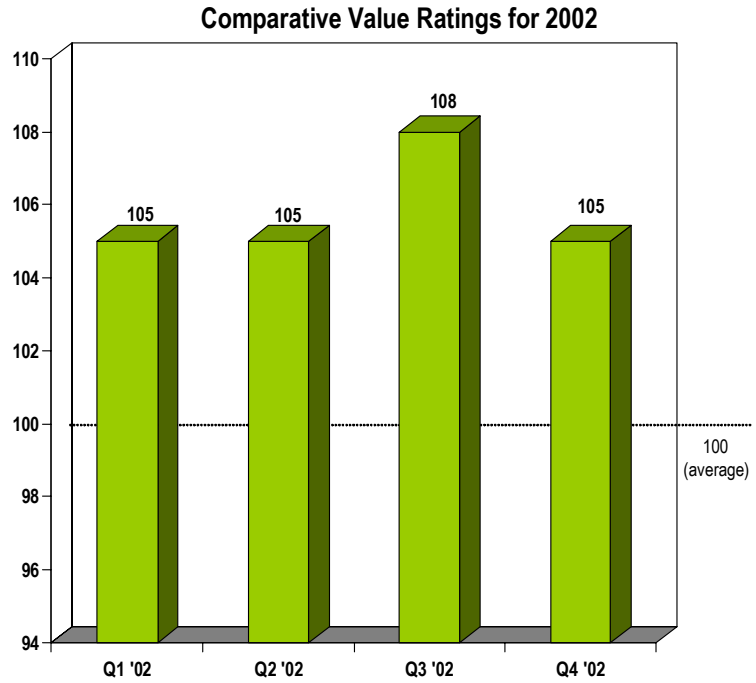
7 Employee Satisfaction

Insight Survey (Annual)



8 Customer Satisfaction

Customer Value Survey (Quarterly)

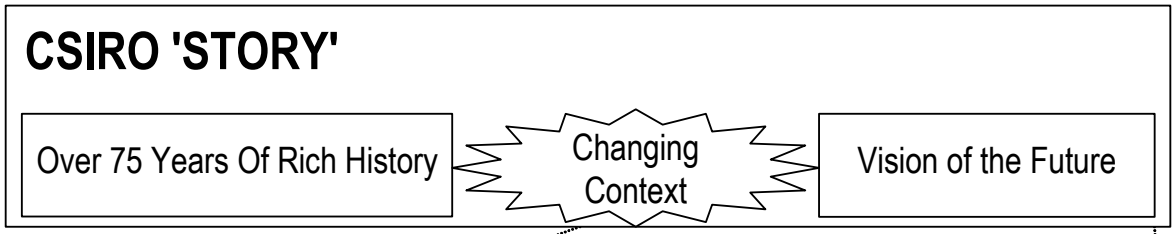


CSIRO strategic planning framework – operational plans

The CSIRO Strategic Plan outlines CSIRO's Strategic Goals for the coming four-year period. The strategic goals and objectives for the period are applied to generate each of our annual operational plans. These operational plans rely on the strategic goals and objectives for direction. Operational plans lay out the implementation of the strategy for the coming year and will indicate how the organisation's strategy will be implemented and managed for 2003–04. Four annual operational plans will be generated during the period.

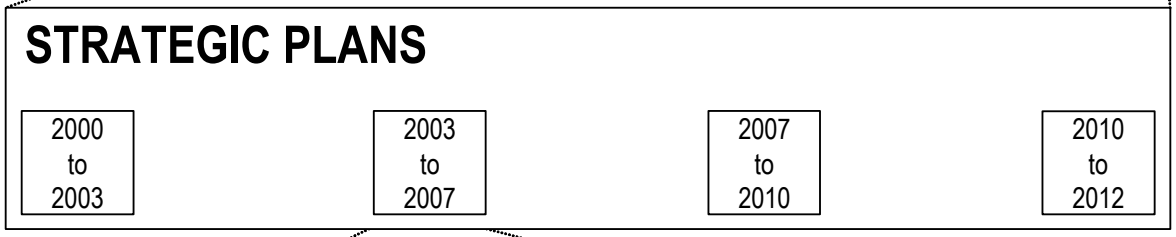
The new CSIRO strategic and operational plans will be completed before the commencement of the financial year, as per legislative requirement, and the next level operational plans will follow in August. It is planned, however, to examine the feasibility of transitioning to a revised planning-budgeting cycle in which the CSIRO plans would be available at an earlier date to allow the preparation of next-level plans prior to the beginning of the year to which they apply.

CSIRO strategic planning framework



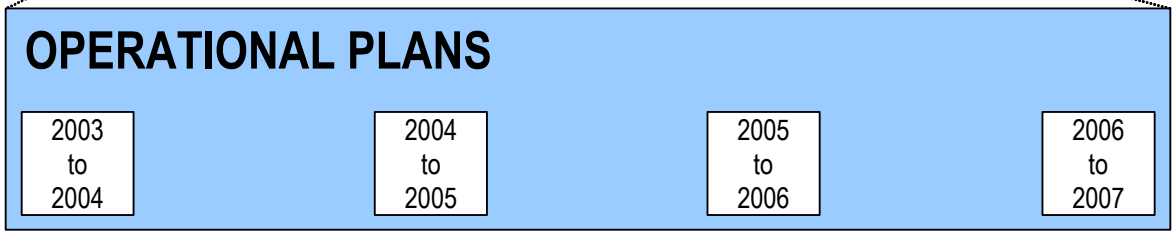
- Act/Purpose/History/Core Beliefs
- Changing Context
- Vision
- Key Change Messages

2000 2012



- Strategic Goals
- Strategic Objectives
- Measures of Success
- Headline Performance Indicators

2003 2007



- Structure of Research Portfolio
- Annual Performance Goals
- Detailed Budgets
- Risk Plan

Operational plan structure

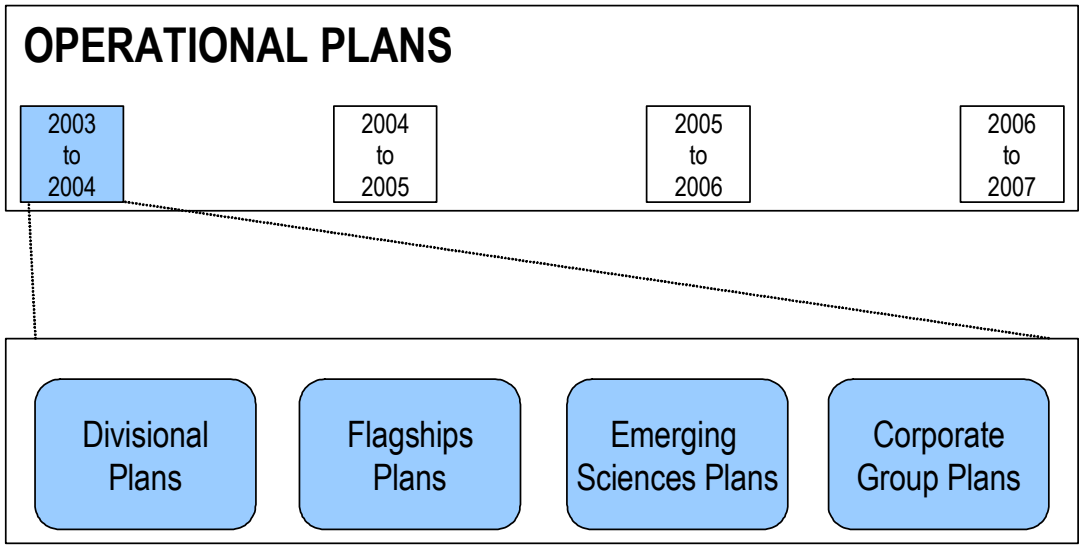
Operational plans consist of four groups of plans:

- Individual Flagships
- Emerging Science Initiative
- Priority-driven Research (Divisions), and
- CSIRO-wide Support (Corporate Groups).

Each of these operational plans will only focus on the strategic objectives that are relevant for that group for a given year.

It is proposed that next level operational plans will progressively move to follow the same generic structure as that established for Flagship Programs. That is, they will reflect a similar 'theme-stream' structure with clear strategic alignment, timing, annual performance goals and performance reporting.

Operational plan structure



- Operational plan consists of four groups of plans
- Each operational plan will only focus on an appropriate subset of the 24 objectives for the year

Intensity of activity

Within the next four years, the intensity of activity around any particular objective will vary from year to year. Not all objectives will receive uniform attention each year. Annual priorities shape the intensity of activity around any single strategic objective for a given year. Additionally, not every functional group or division will be focused on every objective. The operational plan maps the efforts of different reporting units to the appropriate objectives for the year.

Some of the objectives will be advanced at a constant rate each year. Others require a burst of intense activity. Areas of highest intensity of activity for each year are likely to include:

2003–04

- focusing and delivering on NRPs
- focusing and investing in Flagships
- being globally recognised for science leadership
- collaborations with universities, CRCs and other agencies
- engagements with RDCs
- reinvention of our ICT capabilities
- one-CSIRO governance, OHS&E and performance management
- securing greater federally-funded support
- reducing overhead and purchasing costs.

2004–05

- building critical mass and quality in our core research programs
- focusing and investing in Flagships
- focusing and investing on major cross-divisional activities
- concentrating people processes
- improving project management
- structuring deeper relationships with large corporates
- implementing standard processes and IT systems to enhance collaboration and efficiency
- proactively managing our patent portfolio
- eliminate subsidisation in consulting services
- reducing overhead and purchasing costs.

2005–06

- focusing and investing in Flagships
- focusing and investing on major cross-divisional activities
- improving project management
- structuring deeper relationships with large corporates
- accelerating the growth of SMEs
- stimulating breakthroughs by promoting cross-pollination
- adopting a unified approach with top accounts
- proactively managing our patent and equity portfolios.

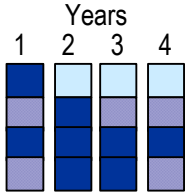
2006–07

- focusing and investing in Flagships
- being globally recognised for science leadership
- accelerating the growth of SMEs
- one-CSIRO governance, OHS&E and performance management
- securing greater federally-funded support

Intensity of activity

LEGEND

Light Medium Heavy



Focus Focus Focus	1 Focusing Our Science Investment	1.1 Play a significant role in delivering on Australia's National Research Priorities 1.2 Build critical mass and ensure quality in our core research programs 1.3 Champion Flagships to improve the lives of Australians and advance Australia's key industries 1.4 Increase the impact of major cross-Divisional activities through a focused strategic investment process
Look Out!!!	2 Delivering World-class Science	2.1 Concentrate people processes on developing, attracting, exciting and retaining talent 2.2 Optimise delivery of all research activities by improving project management 2.3 Build our global recognition for science leadership in our chosen science domains 2.4 Help Australia play a leadership role in major international science facilities such as the SKA
Partner Or Perish	3 Partnering For Community Impact	3.1 Focus and intensify collaboration with universities, CRCs and other agencies 3.2 Service the needs of government for informed policy setting 3.3 Enhance communication to raise public and stakeholder excitement and trust in science 3.4 Partner with other agencies to advance Australia's global development contributions
Service From Science	4 Serving As Catalyst For Industry Innovation	4.1 Intensify engagement with rural R&D corporations to grow regional and new industries 4.2 Structure deeper and more meaningful relationships with large corporations 4.3 Accelerate the growth of promising technology-based SMEs 4.4 Reinvent our ICT capabilities to strengthen Australia's knowledge-based industries
One-CSIRO	5 Building One-CSIRO Capabilities And Commitment	5.1 Stimulate breakthroughs by promoting cross-pollination, especially in frontier research 5.2 Be among the best in governance, OHS&E and performance management processes 5.3 Adopt a unified approach to improve service dramatically and grow top accounts 5.4 Implement standard processes and IT systems to enhance collaboration and efficiency
Go For Growth	6 Securing A Financial Foundation For Growth	6.1 Secure greater Federally funded support for CSIRO science investment 6.2 Proactively manage patent and equity portfolios to multiply IP-based revenue streams 6.3 Deliver customer value for money and eliminate subsidisation in consulting services 6.4 Reduce overhead and purchasing costs and manage balance sheet for reinvestment

Target financial scenario

CSIRO's operations are funded by a mixture of Government appropriations and external revenue sources. External revenue includes funding for co-investment in strategic research projects, contract research, consulting and testing services as well as the licensing and sale of intellectual property.

To aid the development of the strategic planning process, a variety of financial scenarios have been modelled so that we might better understand the potential financial outcomes that might flow from implementation of the strategic plan. The primary variables that have been modelled are changes to:

- appropriation income
- number of Flagships
- the rate of co-investment and consulting revenue growth
- the level of IP revenue growth – the primary determinant being the number of large scale IP deals (eg 'RIPPERs')
- the scale of research support overhead savings able to be generated.

A target scenario has been selected to show the potential outcomes that could flow from the strategic plan. This target scenario assumes:

- $20m (approved), $30m, $40m, $50m of additional appropriation of funding to operate five to six Flagships during the period
- moderate targets for both revenue growth (ie one 'RIPPER') and cost reductions.

Notes to table line items:

1 *Co-investment and consulting revenue*: based on divisional forecasts plus estimated impact ($10m p.a.) of strategic initiatives eg Implementation of Customer Service Teams

2 *IP*: Intellectual Property income from royalties, licences and technology sales. The significant out year growth is based on the expected impact of 'RIPPERs' (see description above).

3 *Other*: Revenue received from interest, asset sales, sale of produce and publications. The 2001-02 figures include revenue ($25m) received from Federal Government to fund research by the Australian Magnesium Corporation and profit from the sale of property ($20m).

4 *Baseline Appropriation*: Baseline CSIRO appropriation as set out in the 2003–04 Portfolio Budget Statements. The figures include indexation for official inflation estimates but exclude funding for the Capital Use Charge (CUC) and the impact of 2003–04 Federal Budget decisions.

5 *Baseline Appropriation – CUC*: Appropriation income received to fund the Capital Use Charge. The decision was taken by the Federal Government in 2002–03 to abolish this charge.

6 *New Appropriation*: Revenue received as a result of 2003–04 Federal Budget decisions – one-off funding of $20m for the Flagships Initiative and ongoing funding, provided for the supplementation of superannuation costs ($7m in 2003–04 and $9m in out years).

7 *Potential Appropriation*: The minimum level of appropriation revenue forecast by CSIRO as being necessary to fund increased ongoing investment in the Flagships Initiative.

8 *Gain on Sale of Assets*: Revenue associated with profit on the sale of land and buildings and other major assets.

9 *Expenses*: All organisational expenditure excluding the Capital Use Charge.

10 *Other Expenses – CUC*: Expenditure associated with the Capital Use Charge – see note 5.

11 *Organisational Overhead savings and other initiatives*: Expense savings expected to be realised from the review of overhead cost structures (Objective 6.4) and revised purchasing arrangements.

12 *Operating Result*: The targeted operating result shows a balanced operating result over the triennium to 2006–07. The targeted deficit in 2003–04 largely reflects deferred spending from 2001–02 and the costs of transition associated with the implementation of strategic initiatives, eg Flagships.

Target financial scenario

			2000-01	2001-02	2002-03	2003-04		2004-05		2005-06		2006-07	
			$ m	$ m	$ m	$ m	% VYA	$ m	% VYA	$ m	% VYA	$ m	% VYA
Income	1	- Coinvestment & Consulting	233	250	262	291	*11.1%*	318	*9.3%*	339	*6.6%*	362	*6.8%*
	2	- IP	8	19	14	22	*57%*	29	*32%*	46	*59%*	73	*59%*
	3	- Other	22	58	22	9	*-59%*	9	*0%*	9	*0%*	9	*0%*
		Total External Revenue	**263**	**327**	**298**	**322**	*8.1%*	**356**	*10.6%*	**394**	*10.7%*	**444**	*12.7%*
	4	- Baseline Appropriation	497	510	532	541	*1.7%*	552	*2.0%*	563	*2.0%*	573	*1.8%*
	5	- Baseline Appropriation - CUC	114	103	107								
	6	- New Appropriation			0	27	*N/A*	9	*-67%*	9	*0%*	9	*0%*
	7	- Potential Appropriation						30	*N/A*	40	*33%*	50	*25%*
	8	- Gain on sale of Assets	11	20	0	9	*N/A*	0	*-100%*	0	*N/A*	0	*N/A*
		Total Revenue	**885**	**960**	**937**	**899**	***-4.1%***	**947**	***5.3%***	**1006**	***6.2%***	**1076**	***7.0%***
Expenses	9	- Expenses	784	810	852	933	*9.7%*	962	*3.1%*	1,026	*6.7%*	1,110	*8.2%*
	10	- Other Expenses - CUC	105	101	107		*N/A*						
		Total Expenses	**889**	**911**	**959**	**933**	***-2.6%***	**962**	***3.1%***	**1026**	***6.7%***	**1110**	***8.2%***
		Operating Result (before savings)	**(4)**	**49**	**(22)**	**(34)**	***53%***	**(15)**	***-56%***	**(20)**	***33%***	**(34)**	***70%***
Savings	11	- Organisational Overhead savings & other initiatives			**0**	**4**	*N/A*	**15**	*275%*	**20**	*33%*	**34**	*70%*
	12	**Operating Result (after savings)**	**(4)**	**49**	**(22)**	**(30)**		**0**		**0**		**0**	

Continuity and progression from 2000-03

What's the same

Many of our strategic goals and objectives from 2000–03 will continue into the new period. Much of the work begun in our Strategic Action Plans of the prior triennium (SAP I, SAP II and SAP III) will be carried forward into 2003–07.

People and enhancing teamwork

The importance of our people remains paramount. Attracting, developing and exciting great people is fundamental to our success. We will continue to enhance our performance management processes. We continue to be excited about the changes we are focused on. We also still place a premium on one-CSIRO behaviours. Boundary 'porosity' is an ongoing priority. Collaborations and partnerships allow us to leverage our strengths in powerful ways. We continue to take a 'Team Australia' approach to our activities.

Delivering value and science excellence

We remain fixated on the need to deliver value to government, clients and to Australia. The Centre for International Economics (CIE) impact studies of Flagships and star projects will continue. Flagships remain a top priority as vehicles to deliver value. We continue to strive towards stretch targets across the organisation, and still need to think out of the box. The quality of our science is still our lifeblood. We continue to emphasise the need to improve the quality of our science across the board. Great science comes from great scientists armed with tools to deliver.

What's new and different

As indicated above, many of the strategic goals for 2003–07 represent a progression from the Strategic Action Plans (SAPs) of the prior triennium. The following areas reflect the increased attention demanded given the priorities of this four-year period.

Greater concentration

We recognise the importance of scale and quality in our science. Science activities within CSIRO that are not of a competitive quality or scale may be cut. We will take more of a portfolio approach to our investment decisions across science areas rather than purely a bottom-up justification of our science spend. We will also achieve greater clarity around the areas of focus for our science investments. We have a renewed vigour towards the National Research Priorities as well.

Growth as impact

Growing is not just a matter of increasing our external revenues or Federal appropriation. Growth is about increasing our impact in everything we do. We are adjusting our growth targets and increasing our emphasis on impact rather than simply on size.

More international

We will increasingly look out for opportunities abroad. Increased activities with multi-national corporations (MNCs) and developing nations will be a focus. We will be open-minded towards strategic alliances and joint ventures to help achieve scope and scale in global science areas.

Attitude to risk and performance consequences

Overall we will take a broader approach to managing risk across our activities and always try to balance risks with rewards. While we will continue to reward and develop outstanding performers, we will also place a higher priority on managing weak performance.

Continuity and progression from 2000-03

What's the same

- **People**
  - People development processes key
  - Lots of enthusiasm two years into change program
- **Science Excellence**
  - Specific goals on world-class science
  - Attention on recruiting and developing more scientists
- **Delivering Value**
  - Broad range of impact oriented metrics
  - Flagships as top priority – focus on execution and operationalising
- **Enhancing Teamwork**
  - One-CSIRO collaboration and boundary 'porosity'
  - Partnering emphasis/'Team Australia' approach

What's new and different

- **Greater Concentration/Tough Decisions**
  - Exit from some non-critical sub-scale science areas
  - Portfolio thinking to investment in science/NRPs
- **Growth As 'Impact'**
  - Adjustment to $1.3 billion revenue aspiration
  - Impact-oriented metrics linked more directly to goals
- **More International**
  - BD priority on MNCs and developing nations
  - Alliances to achieve scale in science
- **Performance Consequences**
  - Rewarding outstanding performers
  - Management of poor performers
- **Attitude To Risk**
  - From risk aversion to risk management

Managing top risks

We are committed to achieving our strategic goals during the period. Identifying and managing the top risks associated with the pursuit of these goals is crucial. We believe the most significant risks we must pro-actively manage include the following.

Flagship implementation

Flagships have great potential to impact the lives of Australians and key Australian industries. They represent a new way for CSIRO to organise our activities. As multi-partner 'Team Australia' Flagships they are complex to manage. We must execute effectively on the Flagships in order to make internal and external arrangements effective. Monitoring and managing their performance along the way is critical. We will provide milestone-based funding for Flagships, seeking to ensure that Flagships achieve maximum impact.

Business development and commercialisation

Our increasing focus on our largest accounts brings substantial upside; however, it also increases our dependence on those large accounts. We must balance our focus on our top clients with the need to service all of our customer segments with vigour. Additionally, we expect that several of our 'RIPPERs' (reclaimed intellectual property promising extraordinary revenue) or mega-patents will bear fruit over the next four years and we will ensure that adequate internal and external resources are dedicated to converting those 'RIPPERs'.

Resistance to change

For our changes to succeed, our people must be engaged and on board. At the same time, we must be sensitive to the fact that change often creates anxiety, fatigue and strife. We will engage with staff and work closely with our staff groups to monitor staff perspectives and encourage open and honest dialogues. We will also continue to engage with the unions and watch the pace of change. CSIRO will also maintain active lines of communication both internally and externally to proactively anticipate external criticisms from politicians or the media.

Funding and political context

CSIRO is operating in a world filled with political complexity and capital market skittishness. While we can not control the macro environment we live in, we can make certain that we continue to demonstrate value. Many of our investments are long term in nature and require patience and a long term perspective. Our annual operational planning process is one tool which sets investment levels according to capacity for the upcoming year. We also need to clarify for our stakeholders the consequences and changes to CSIRO's ability to deliver value from policies and decisions around funding.

Managing top risks

	Risk	Management Response
Flagship Implementation	• Failure to execute or make internal and external arrangements work • Risk of moderate (not 'mega') impact	• Close performance management through Divisional Chiefs, Group Chairs and Flagship Oversight Committee • Dynamic investment allocation
Business Development And Commercialisation	• Increased dependency on larger accounts (especially large corporates) • IP-based revenues smaller due to lack of 'RIPPERs' or delay	• Balance among customer segments • Retention of global patent experts and advisors
Resistance To Change	• Change management anxieties and possible tension • Resistance to upside incentives and performance management from egalitarian culture • Potential external criticisms from politicians and media	• Engagement with staff and close monitoring through Staff Consulting Group • Ongoing engagement with the Unions • Active internal and external communications
Funding And Political Context	• Political processes may influence progress and future funding • J-curve associated with growth investments • Turbulence from changes to strategic directions • Transition costs (eg redundancies) arising from resource shifts	• Investment levels set annually according to capacity • Active engagement in policy development processes • Flexibility to stretch timing of programs

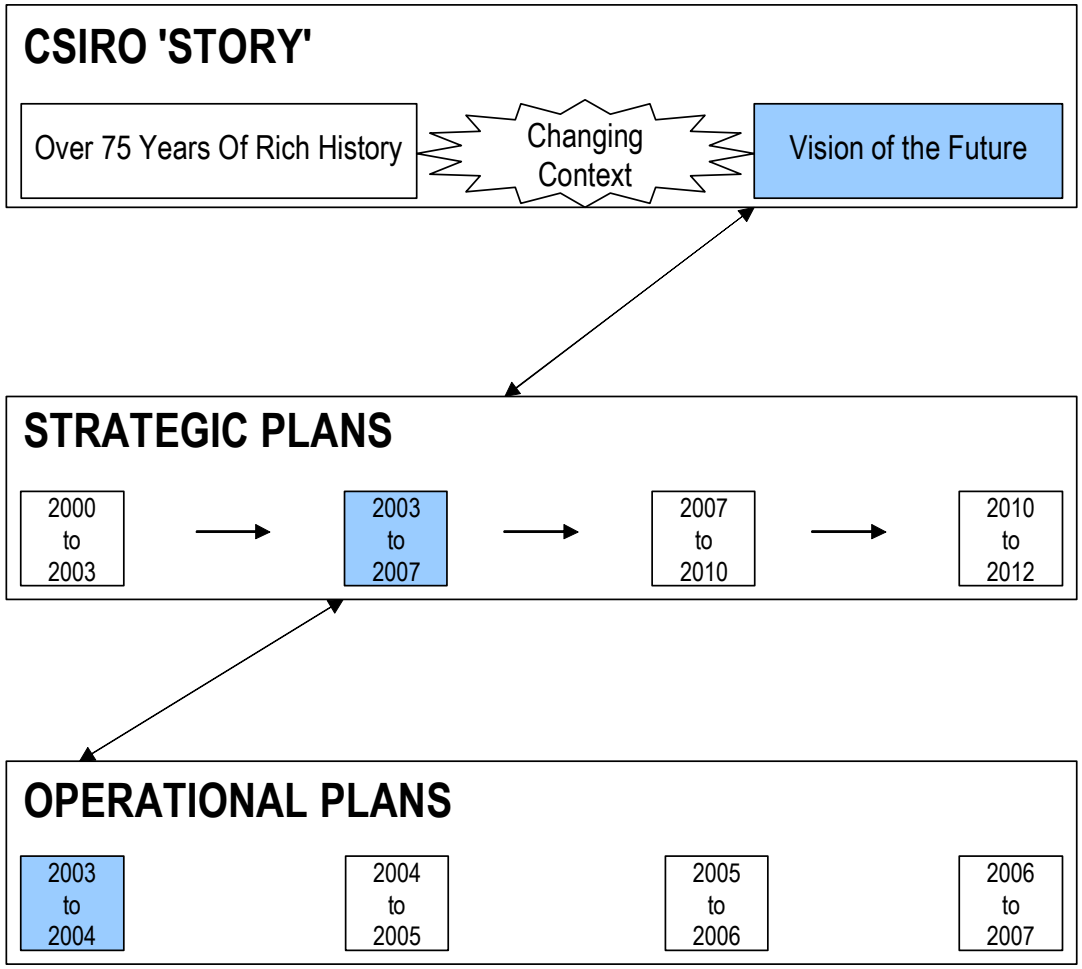
CSIRO strategic planning framework – an opportunity to write a new chapter…

We have an opportunity to write a new chapter in CSIRO's already rich and celebrated history. So long as our efforts are focused and aligned towards our goals, we are confident in our ability to do just that. By succeeding, we will deliver greater value to government, clients and to Australia.

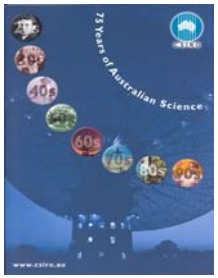
In 2001, CSIRO celebrated its great history of achievement with its 75th year anniversary booklet. Last year, *Fields of Discovery* by Brad Collis was published, which takes us through CSIRO's role at the forefront of some of the most extraordinary technological and scientific advances in the world during the second half of the 21st century. As the distinguished scientist Sir Gustav Nossal has written: "Australia is lucky indeed to have CSIRO… *Fields of Discovery* is authoritative across the broad sweep of sciences covered by CSIRO, eminently readable and accessible, and brought to life by many quotations and rich human stories. The book fairly hums with tales of high achievement".

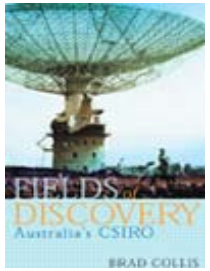
The next leg of our journey will be written up circa 2020. Our challenge – and opportunity – is to chart a course and deliver outcomes for Australia even more exhilarating than our celebrated past.

CSIRO strategic planning framework



- Visions are achieved one step at a time
- Success requires coherence from top to bottom





2020:
The Wizards of Oz:

Australia's Charge To Innovation Leadership in the 21st Century