

Economics Legislation Committee
ANSWERS TO QUESTIONS ON NOTICE
Industry, Innovation and Science Portfolio
2016-17 Supplementary Budget Estimates
20 October 2016

AGENCY: COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION

TOPIC: Business Unit Reviews

REFERENCE: Written Question – Senator Carr

QUESTION No.: SI-111

According to page 14 of the 2016-17 Corporate Plan, "CSIRO will undertake Business Unit Reviews in the 2016–17 and forward periods following a pause in reviews in the past few years..."

1. What are Business Unit Reviews? –
2. Why were the reviews paused and why have they been restarted?
3. Who will conduct the reviews?
4. What is the evaluation criteria?
5. What will be the outcomes of these reviews? And how will these outcomes be used? –
6. Which business units will be subject to review in 2016-17?

ANSWER

1. Business Unit Reviews are reviews of Business Units, by a panel of independent scientific experts, and conducted every three to five years.
2. The Business Unit Review program was temporarily paused in 2014-15, whilst CSIRO conducted the Integrated Reform Program. As the Business Unit Reviews are a key mechanism for maintaining CSIRO's high standard of research capability, preparatory work for resuming them commenced in the second half of 2016 following completion of the implementation of the Integrated Reform Program.
3. The reviews are conducted by a panel of scientific and industry experts from Australia and overseas (typically two from overseas and two from Australia) whose knowledge and skills enable them to provide an appraisal of the capability performance of the business unit.
4. The Review Panel is asked to assess the scientific quality of the research and the impact the research has made and is intended to make, for industry, the community, and the environment as well as suggestions as to how the performance of research teams can be increased. Panels are encouraged to be forthright in their advice. The Scope of the Review and the Performance Measures, as these are provided to the Review Panels, are provided at [Attachment A](#).
5. At the end of the Review session, the Review Panel meets with the Chief Executive and Deputy Chief Executive and the relevant Executive Director to discuss their findings. In the month following the review, the Panel provides a comprehensive written Report of the findings, which is considered by CSIRO's Science, Strategy, Investment and Impact Committee, the Executive Team and by the CSIRO Board Science Excellence Committee. Responses to specific recommendations from the Review are determined and actioned. In addition, the Review outcomes are taken into account, as appropriate, during the ongoing management of CSIRO's scientific capability.

6. Influenced by the availability of the proposed international panel members, the first review is currently scheduled to occur early in the 2017-18 Financial Year.

CSIRO Business Unit Review – Terms of Reference

SCOPE OF THE REVIEW

Business Unit Reviews are to evaluate each Business Unit's progress against the objectives and actions outlined in their strategic plan. Each review is to cover all research and technology diffusion activities of the nominated Business Unit in the context of the delivery of impact against national challenges as well as national preparedness. Examining the Business Unit goal and the progress made towards it is critical in this context, as it articulates the clear, quantified and ambitious objective to address a compelling national challenge that the Business Unit has undertaken. The review is also to examine the extent to which the Business Unit successfully integrates capability, science and project delivery 'end-to-end', and include research and project management processes as they pertain to the planning and management of research impact and the maintenance of research quality and relevance.

The review will include the connectivity/ collaboration (both amongst Programs within the Business Unit and within CSIRO) and in jointly fostering future science platforms with other Business Units. Connectivity/collaboration with other research communities, particularly internationally, and linkages with users and potential users of research results are an integral part of the assessment, as is the extent to which those relationships are effectively managed by the Business Unit and deliver on expectations.

To get maximum value out of the Review, Business Units or Panel Members *may* choose to highlight a specific area(s) where the review could focus its attention. The decision to include a focus area in the Review should be included when there are clear benefits to the Business Unit to focus in a specific area as a mechanism to tailor the review to maximise the value from the Review process. Not all Business Unit Reviews will include focus areas, in some instances greater breadth of review will be of more value than an increase in specificity.

Business Units have been created to integrate the full continuum of capability, science, project delivery and partnerships to deliver impact in the context of its stated Business Unit Goal. Considering all relevant factors, including the life-cycle maturity of the Business Unit and its internal and external environment, the Review Panel is requested to discuss, examine, assess and make recommendations to improve the Impact, Science and Innovation Capacity of the Business Unit and its Programs, broadly as follows:

Performance Dimension:	<i>Impact</i>
Performance dimension objective:	<i>To deliver profound economic, environmental and social impact to the nation.</i>
Key review question:	<i>To what extent is the Business Unit's research being adopted and making a difference?</i>

Scope of review dimension:

- **Appropriateness:** to what extent is the Business Unit's Goal and supporting objectives appropriate and well directed to deliver future economic, environmental and community wellbeing to Australia?
- **Benefits:** To what extent will the research outcomes sought by the Business Unit deliver a compelling return on investment to Australia relevant to the economy, society and/or environment if delivered in line with goals and plans (i.e. Impact goals, focus areas and statements)?
- **Impact management:** To what extent has the Business Unit evidenced a clear and well informed understanding of their intended impact and the pathways to achieve that impact, and have embedded robust practices to plan, monitor, evaluate and adjust activities in response?
- **Path to impact:** Overall, how likely is it that barriers to uptake and adoption will be overcome, and the research outputs will be adopted by the required end users, customers and stakeholders to realise impact goals?

- Uptake and adoption: to what extent has the Business Unit demonstrated the ability to form partnerships, commercial relationships and catalyse entrepreneurial activity to achieve the adoption and uptake?

Performance Dimension:	<i>Science</i>
Performance dimension objective:	<i>Maintain high quality science capability and resources to support multidisciplinary, impact focused research.</i>
Key review question:	<i>To what extent is the Business Unit a quality science organisation?</i>

Scope of review dimension:

- Research prospectivity: To what extent do we have good evidence that we have identified the right research challenges to deliver the outcomes and impact sought, and that those research challenges are both sufficiently future oriented and ambitious, but also technically achievable?
- Research output quality: To what extent is the quality of the research teams and the resources that support them, distinctive and what is their relative standing nationally and internationally?
- Capabilities and resources: Does the Business Unit have (or have access to) the necessary capabilities and resources, including infrastructure and collaborations, to achieve its Business Unit goal and research objectives with sufficient capacity for timely delivery?
- Capability development: How effective and systematic are the Business Unit's practices for developing researchers and their capabilities?

Performance Dimension:	<i>Innovation Capacity</i>
Performance dimension objective:	<i>Enhance our innovation capacity and culture.</i>
Key review question:	<i>Are the cultural and operational elements of our business effectively supporting leadership, environment, people, connectedness, resources and operational approach?</i>

Scope of review dimension:

- Leadership: to what extent are the Business Unit's leaders recognised and influential leaders in their relevant sectors and fields, have an ability to effectively communicate the Business Unit vision, mission and strategy, and have facilitated an empowered, autonomous and accountable culture?
- Operational Approach: Is there evidence that the Business Unit has embedded effective innovation culture, practices and skills to deliver impact from science – *specifically in the areas of impact planning & evaluation, multi-disciplinary research management, business development & commercialisation, project management, and risk management?*
- Resources: How effective is the Business Unit approach to managing and renewing an appropriate portfolio of research activity, including retiring projects which fail to meet objectives and securing resources to sustain and grow the Business Unit?
- Connectedness: To what extent is innovation within the Business Unit supported through the effective creation and management of multidisciplinary teams which draw from and collaborate with diverse internal and external networks?
- Environment: To what extent are the working arrangements, sites and facilities of the Business Unit appropriate to its mission and conducive to innovation and impact?
- People: to what extent has the Business Unit demonstrated that it has and is developing outstanding people at all levels and a strong culture aligned with the CSIRO values?

SCORING TABLES FOR IMPACT, SCIENCE QUALITY AND INNOVATION CAPACITY ASSESSMENT CRITERIA

The Review Panel is asked to assess the scientific quality of the research and the impact the research has made, and is intended to make, for industry, the community, and the environment (as detailed in the Business Unit Plan). They are asked to give an opinion, for each of the three performance dimensions (impact, science quality and innovation capacity) for the Business Unit as a whole and for each of its programs, as to whether these are benchmark, strong, favourable, tenable or weak.

Impact of Business Research

Benchmark	The research results are, by design, being used or will be used to set the pace and direction of commercial, environmental, community or policy development – recognised in government, industry or the community for this. The Business Unit has built the differentiated professional skill sets involved in delivering impact and is leading in its approach to the planning, monitoring and evaluation of research impact and is on track to achieve and exceed the Business Unit Goal.
Strong	The research results are such that they enable commercial, environmental, community or policy development that distinguishes user organisations from peers or competitors. The Business Unit is well advanced in building the differentiated professional skill sets involved in delivering impact and is mature in its approach to research impact management. The Business Unit is on track to meet its timelines and milestones toward output Goals.
Favourable	The research results are such that they enable commercial, environmental, community or policy development that organisations use to improve their position relative to peers or competitors. The Business Unit has begun building the differentiated professional skill sets involved in delivering impact and is making progress in research impact management. The Business Unit has demonstrated that it will contribute outputs on the path to cited Goals.
Tenable	The research results are such that they are used by organisations for commercial, environmental, community or policy development that maintains, but does not improve, their position relative to peers or competitors. The Business Unit has had limited success in building the differentiated professional skill sets involved in delivering impact and has demonstrated a nascent capability to research impact management. The Business Unit will make contributions towards meeting its milestone and output timelines.
Weak	The research results are such that they are not able to be used by organisations to even maintain their position relative to peers or competitors. The Business Unit is not building the differentiated professional skill sets involved in delivering impact and is not effectively managing an approach to research impact. The Business Unit will not significantly advance Australia toward meeting the national challenge it has been set.