Australia's National
Science Agency

Submission on National Competition Reform

CSIRO Submission 25/036

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Enquiries should be addressed to:

E GovernmentRelations@csiro.au

Introduction

As Australia's national science agency, CSIRO welcomes the opportunity to contribute to consultation on proposed reforms to competition policy. This response focusses on the proposed reforms in relation to International Standards.

CSIRO has a long-standing relationship with Standards Australia (SA). For many decades CSIRO has been a nominating organisation (an organisation that collaborates with SA to develop standards) and participated in the governance of the organisation through an appointment by the relevant Commonwealth Government Department. Since 2021 CSIRO has been a member of Standards Australia Ltd.

CSIRO uses standards (Australian and International) across numerous sectors, and we contribute to technical discussion on the development of new national, and international standards as a member of various working groups for organisations such as Standards Australia, the ISO and the ICU (Appendix A and B).

Our input to the consultation is based on our technical expertise and experience in this field. We would be happy to provide further information on any points below.

Value of Australian and International Standards

CSIRO contributes its scientific and technical expertise to the development of both International and Australian Standards because we see the important role that standards can play in achieving impact from science and technology for the benefit of the Australian community. Science and research organisations including CSIRO contribute to and inform evidence-based policy and standard setting processes.

High quality standards, developed through processes that are transparent, consensus based, and which allow for public consultation deliver benefits including:

- Facilitating trade and market access for Australian industries.
- Enabling interoperability and safety across sectors.
- Supporting innovation and the responsible adoption of emerging technologies.

The contribution of Australian scientific and technical experts helps to ensure that standards are fit-for-purpose, reflect Australian conditions and are aligned with regulatory and industry needs.

Our experts contribute to current processes to assess the suitability of international standards for adoption in Australia. These processes are an important way to ensure that overseas standards which are developed in different legal, environmental and policy contexts are appropriate for Australian conditions. The adoption process allows for an informed assessment of the appropriateness for local conditions, safety and quality requirements.

CSIRO (and Australia at large) supports and contributes significantly to the preparation of ISO standards. Standards Australia Committees with CSIRO representation (and we believe most Standard Australia committees in general) do not recommend the direct unmodified adoption of ISO standards for many of the reasons outlined below – but mainly the impracticality of using standards without included acceptance criteria.

This situation is not likely to change in the foreseeable future – all countries need specific criteria to meet their specific needs, so no single country will be able to have their own circumstance included in an ISO standard.

CSIRO's Experience and Contributions

CSIRO researchers and scientists are representatives on over 80 Standards Australia committees across 9 sectors. CSIRO representatives participate in equivalent International Standards (ISO) committee meetings to monitor trends, updates, and changes. These committees support Standards Australia and offer suggestions to ISO for improving or modifying standards to better suit Australian requirements.

Additionally, the committees work to update existing AS/ISO standards. Because they understand how changes in standards will impact Australia, the committees advise how to smoothly transition changes to the local sectors with minimal disruption.

Appendix A and B outlines our areas of contribution to the Australian standards setting processes and we would be happy to provide additional information as required by the Commission.

CSIRO also collaborates with the Technology Standards Program, of the International Trade and National Security Division, Department of Industry Science and Resources to ensure that CSIRO experts who work on Critical Technologies standards have access to additional training and support.

Expert oversight and validation for the purpose of adoption of international standards

It is important that any process to increase the rate of adoption of international standards in Australia retains a robust process of expert oversight and validation to ensure local safety and quality requirements are met. CSIRO technical and scientific experts have participated in many such exercises. For example,

- **Combustible Cladding.** The development of the AS5113 Australian standard on combustible cladding in the Construction sector. A CSIRO representative sits on the Standards Australia FP-018 (Fire Safety) Committee. Prior to the tragic Grenfell fire in the UK, Australia's construction sector recognised the potential risk of fires in buildings with combustible facades. A committee working group drafted a new Australian standard AS5113 to provide assurance for cladding combustibility by reviewing multiple

international test methods and selecting the most suitable for incorporation into the standard. The committee then finalised a modification of the BS and ISO standards included:

  - The option of using an affordable Australian timber species for construction the ignition crib.
  - Provision of pass/fail criteria based on additional measurements to the method, allowing the referencing of AS 5113 as a verification method in the National Construction Code (NCC) including additional measurements of limitations on falling debris (at request of fire brigade), temperatures at heights aligned with Australian building regulations namely spandrel heights specific to the NCC.
  - Additional test method and pass/fail criteria fire spread mechanism limitations to ensure that fire did not spread between buildings in addition to along the façade itself. This aligned with standardised bushfire testing.

  Australia's National Construction Code (NCC) now references AS5113 to ensure buildings in Australia meet safety requirements. This example also illustrates how standards allow a path to market for new and innovative building materials.

- **Construction in bushfire prone areas** The AS 3959 site assessment and construction standard for housing in bushfire prone areas was based on research by the CSIRO fire team after the Ash Wednesday fires in 1983. The test methods in AS 1530.8 what also based on research work and prototype test apparatus developed by the CSIRO bushfire research team. CSIRO continues to contribute to the content the standards providing independent scientific input.

Participation on International Standards setting processes

CSIRO (and Australia at large) supports and contributes significantly to the preparation of ISO standards. This is managed at a committee level through Standards Australia processes.

For standards which are international, and particularly for those which involve critical technologies, it is important that Australian scientific and technical experts and Australian industry participate in the standard setting process. CSIRO encourages participation of its technical experts in the Tech Standards Knowledge Program offered by the Department of Industry Science and Resources.

Assurance through testing and certification

CSIRO offers a range of testing, certification and verification services for manufacturers, importers and users of products who require assurance of conformance with Australian standards. For example, details of the services offered by our Infrastructure Technologies unit can be found here.

Challenges adopting only International (ISO) standards

There would be challenges for Australian businesses from the adoption of international (ISO) standards without modification or adaption for an Australian context.

ISO standards typically do not include pass/fail criteria so levels of performance or safety must instead be included in regulation. For this reason, CSIRO is not aware of any developed country directly adopting ISO standards exclusively, outside of simple “component” level tests/standards.

The required acceptance criteria must be developed to be suitable and relevant to local (Australian) conditions and be shaped to fit with federal and state regulation. While it may be possible in theory to pursue this path, all standard adoptions/revisions, and changes to regulation, would need to happen simultaneously (impractical), or be spread over an introductory period of several decades. Changes to ISO standards (which happen often) would then trigger necessary review and/or changes to all regulation due to the interdependence of requirements (again, a total impractical situation).

Currently, the ABCB (Australian Building Codes Board) effectively delegates this matter to the relevant Australian Standards committees (i.e. to set acceptance criteria) due to lack of adequate resourcing and/or knowledge.

CSIRO through its Infrastructure Technologies group already tests to a mix of AS and ISO standards (or, in some case, direct/identical adoptions of ISO standards as AS standards). Infrastructure Technologies generally tests to whichever standard the regulations or the market demand.

If Australia shifted to only adopting ISO standards

- Local manufacturers would only need to test to a single standard and may choose to access that testing locally before exporting. However, in Europe at least, the “CE” marking scheme required mandatory certification for many construction products. This can add significant overhead cost and EU certification rules may limit testing opportunities in Australia.
- Changes made to ISO standards could have unforeseen effects and disruption to local manufacturers and their products.
- Importers of products would likely leverage international testing to ISO standards rather than testing in Australia, which may reduce the testing opportunity in Australia. However, where certification is involved, additional local verification testing may be requested locally.
- Typically, international test capability is located (and optimised) close to the densest manufacturing regions located outside Australia. This may limit testing options or increase testing costs in many Australian sectors.

The Australian fire detection industry provides an example of the impact of only adopting ISO standards. Prior to mid-2000s, Australia wrote unique standards for equipment and all products (manufactured locally or otherwise) were tested in Australia by SSL/CSIRO. Around 2004, ISO standards were gradually adopted by the fire detection industry. Overall, it’s probably been a net-positive for testing and certification at CSIRO but only because:

- More manufacturers (internationally) have seen Australia as a target market.
- Local certification of this product type is necessary to meet market and regulatory requirements.

CSIRO's certification rules for this equipment mandated some amount of testing to supplement international testing, and rejected international (even if accredited) test evidence that it did not have confidence in.

Not all certification bodies follow the same approach, and we are lately seeing some migration to certification bodies that are more willing to readily accept any international evidence without further testing. The risk is devaluing local certification and with a significantly increased risk of non-compliant product entering the market.

There is a fundamental risk of conflating the adoption of international standards and trust in international testing. Unfortunately, the adopting standards does not necessarily imply or validate the trust in testing, even though international treaties are in place to support it (e.g. the ILAC MRA – International Laboratory Accreditation Cooperation – Mutual Recognition Agreement).

In some regions such as the UAE, the local government (even with their own adoption of ISO standards) is mandating onshore testing of products considered critical to life safety such as fire doors and fire-rated ductwork. This is presumably to address a distrust in offshore testing results even within the international framework of laboratory accreditation.

In summary, the Australian Construction sector currently uses Australian standards, but the Australian building industry is fragmented with each state having its own building codes. Harmonisation at federal level can greatly simplify path to market for new building products while providing quality assurance to Australians. It is not clear that a move to solely adopt international standards would address these underlying issues with potential impacts that might include:

- In the short term, every Australian manufacturer needing to retest its products to international standards.
- In the longer term, the availability of testing services in the local market likely to decline requiring local manufacturers to test offshore.
- Uncertainty on how international standards apply in the Australian environment, legislation and industry. This would need to be resolved.
- Likely requiring substantial work to adapt international standards because there is no direct mapping between International and Australian standards. For example, Australian standards specify compliance levels, but ISO standards do not.
- Building code and state regulations would require extensive rewriting to incorporate international standards.

Developing and adapting standards to meet national policy needs

CSIRO has played a central role in shaping Australia's capacity to use standards as a lever for innovation and productivity uplift. While international standards are often a strong foundation, Australia's unique policy priorities, sectoral structures, and technology readiness levels sometimes require the development of tailored standards or adaptations. One of the most prominent examples is CSIRO's role in supporting the Consumer Data Right (CDR) legislation, which aimed to create a fairer and more open data economy across sectors such as banking, energy, and potentially telecommunications. Recognising the absence of fit-for-purpose international standards for cross-sectoral consumer data access, CSIRO led the establishment of the Data

Standards Body, which developed detailed technical specifications and standards for data sharing, API protocols, and most critically, data security. These standards have enabled Australia to pioneer a globally unique approach to consumer-directed data portability, aimed at improving competition, reducing switching costs, and enabling the growth of new digital services in financial technology and energy management. The combination of legal mandate and standards-based technical implementation has positioned Australia at the global frontier of data infrastructure reform.

Voluntary AI safety standards guiding future regulation

CSIRO has been the primary technical lead in developing Australia's Voluntary AI Safety Standard including the guideline for watermarking and labelling of AI generated content. These standards serve two key purposes. First, they act as a testing ground for potential mandatory guardrails, enabling government and industry to assess the feasibility, clarity, and impact of specific technical requirements through real-world application, rather than through abstract consultation. This adaptive, consultative process, standards as a tool for policy prototyping, is more grounded than traditional roundtables or discussion papers.

Second, the standards help operationalise high-level international frameworks, such as ISO/IEC 42001 on AI risk management. While ISO 42001 provides overarching principles, CSIRO's work helps translate them into practical, actionable guidance, especially for SMEs and sectoral deployers, helping close the implementation gap and reduce compliance burdens. This dual role ensures that the standards are both locally effective and globally aligned.

Establishing De Facto Standards for AI Safety Evaluation

CSIRO has played a key role in developing shared international protocols for AI safety evaluation, working alongside global counterparts such as the AI Safety Institutes in the UK, US, Canada, EU, Singapore, Japan, and South Korea. These joint initiatives go beyond theory, CSIRO has co-led practical evaluation exercises that test multilingual AI models for hallucination and bias across diverse languages, agentic systems for unintended tool use and unsafe goal propagation, and cybersecurity-focused for vulnerability discovery and exploit generation under controlled red teaming scenarios. These joint efforts focus on establishing de facto standards for testing methodology, including how safety-related performance is measured, how tests are conducted, and how outputs are interpreted. The aim is to ensure that countries participating in joint evaluation exercises can mutually trust the results, based on transparent and agreed-upon protocols. This work is vital not only for building global comparability but also for ensuring that testing outcomes are policy-relevant and technically credible across jurisdictions.

By actively participating in both protocol design and the execution of test runs, CSIRO is helping to position Australia as a trusted contributor to global AI safety efforts. It also gives the Australian Government greater confidence in relying on internationally released results, knowing that the underlying test procedures and interpretive frameworks have been shaped and validated through direct Australian involvement. This reduces ambiguity around test outcomes and strengthens both policy confidence and scientific rigour in the global safety evaluation landscape.

Influencing and leading international emerging technology standards

Australia, through CSIRO's technical leadership, has not only adopted but actively shaped international standards in several emerging technology domains. A flagship example is CSIRO's role in initiating and then leading the international development of blockchain standards under ISO/TC 307. Eight years ago, Australia proposed the creation of an ISO technical committee to address growing international demand for interoperability, security, and governance standards in distributed ledger technologies. Since then, CSIRO staff have chaired Standards Australia's blockchain committee for seven years and played central roles in international working groups on foundational reference architecture and smart contracts. These contributions have shaped the global trajectory of blockchain infrastructure and reflected deep consultation with Australian industry across sectors such as finance, supply chain, and government services.

Security-driven technical leadership in global standards.

Beyond writing standards, CSIRO provides implementation-focused insights that address how standards operate in real-world environments, particularly in areas with national security implications. This is critical because compliance with a standard on paper does not automatically translate to secure or trustworthy deployment in practice. CSIRO's cybersecurity team, ranked among the top globally, has contributed directly to 6G security and privacy standard, focusing on the intersection of standardised protocols and deployment risks. This project is funded by Department of Home Affairs with national security as a top focus. This includes identifying vulnerabilities that emerge during vendor customisation, supply chain integration, or operator misconfiguration—areas often overlooked in abstract standards development. In this capacity, CSIRO plays a dual role: shaping the standards themselves and conducting security research on their implementation. This deep integration of theory and practice strengthens Australia's position in securing critical infrastructure, interconnected devices, and the broader cyber-physical systems that will define the future of society. Through this work, CSIRO helps ensure that standards don't merely reflect best practices, but also actively mitigate risk when translated into operational systems.

APPENDIX A: Standards Australia Committee Sectors with CSIRO Representation

Standards Australia Sector	Related Critical technologies	Number of CSIRO representatives
Agriculture, Forestry and Fishing		9
Construction		17
Electricity and Gas	• Clean energy generation and storage techniques	9
Health Care and Social Assistance	• Biotechnologies	4

Information Media and Telecommunications	• AI technologies • Quantum technologies • Advanced information and communication technologies	14
Manufacturing	• Autonomous systems, robotics, positioning, timing and sensing	13
Mining		11
Professional, Scientific and Technical Services		3
Water and Waste Service		4
Total CSIRO representatives		**84**

APPENDIX B: List of Standards Australia Committees with CSIRO Representation

Standards Australia Committee Name (84 Committees at 28 May 2025)
BD-012 Building Commissioning
BD-038 Wet Areas In Buildings
BD-058 Thermal Insulation
BD-109 Exterior insulation and finish cladding systems
BD-110 Building Enclosure Design
BD-112 Biodiversity
BD-200 Building Codes Committee Members
CH-003 Paints And Related Materials
CH-009 Safe Handling Of Chemicals
CH-017 Adhesives
CH-026 Laboratory Safety and Design
CH-040 Reference Materials
CS-028 Solar Heating and Cooling
EE-002 Carbon dioxide capture, transportation, and geological storage
EL-005 Secondary Batteries
EL-042 Renewable Energy Power Supply Systems & Equipment
EL-054 Remote Demand Management of Electrical Products
EL-056 Air Conditioners and Heat Pumps
EL-062 Smart Energy
EL-064 System Aspects of Electrical Energy Supply
EL-066 Marine energy - Wave, tidal and other water current converters
EM-001 Electric Vehicle Operation
EV-017 Degradability of Plastics
EV-021 Environmental Management and Sustainable Development
EV-022 Circular Economy
FP-001 Maintenance of Fire Protection Equipment
FP-002 Fire Detection, Warning, Control and Intercom Systems
FP-003 Fire Extinguishers
FP-004 Automatic Fire Sprinkler Installations
FP-011 Special Hazard Fire Protection Systems
FP-018 Fire Safety
FP-019 Passive Fire Protection
FP-020 Construction In Bushfire Prone Areas
FP-022 Fire prevention and protection for mobile and transportable equipment
FT-024 Food Products
FT-035 Food Microbiology

Standards Australia Committee Name (84 Committees at 28 May 2025)
FT-037 Food Loss and Waste
FT-038 Data-Driven Agrifood Systems
HE-030 Biological and Clinical Evaluation of Medical Devices
HE-032 Biotechnology
IT-012 Information security, cybersecurity and privacy protection
IT-014 Health Informatics
IT-038 Cloud Computing and Distributed Platforms
IT-041 Blockchain and Distributed Ledger Technologies
IT-042 Internet of Things and Digital Twin
IT-043 Artificial Intelligence
IT-044 Consumer protection in the field of privacy by design
IT-268 Sustainable Cities and Communities
JT-001 JTC 1 Strategic Advisory Committee
ME-009 Microplastics
ME-060 Controlled Environment
ME-080 Air Filters
ME-095 Smart Manufacturing
ME-096 Robotics
MN-001 Coal and Coke
MN-002 Iron Ores and Direct Reduced Iron
MN-003 Aluminium Ores
MN-004 Heavy Mineral Sands
MN-005 Copper, Lead, Zinc and Nickel Ores and Concentrates
MN-011 Rare Earth
MN-013 Lithium
MN-014 Specialty Metals and Minerals
MS-049 Retroreflective Devices
MS-064 Chain of Custody
MS-065 Photography
MT-009 Metal Finishing
QR-010 Conformity Assessment
QT-001 Quantum Technologies
SF-010 Occupational Respiratory Protection
SF-020 Scientific Diving
SV-001 Space Systems and Uncrewed Aircraft Systems
WS-003 Sanitary Plumbing Fixtures and Fittings
WS-032 Water Efficient Appliances
WS-038 Water Efficient Showers
WS-040 On-site domestic wastewater treatment

As Australia's national science agency and innovation catalyst, CSIRO is solving the greatest challenges through innovative science and technology.

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