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Department of Industry, Innovation and Science (DIIS)
10 Binara St
Canberra
ACT 2601

RE: Digital Economy Consultation Paper

Via email to: digitaleconomy@industry.gov.au

Key Points

- The digital economy is central to Australia's future growth. Data is central to the digital economy and is increasingly recognised as an asset in its own right, with data sharing the key currency to realise its full value.
- Enhanced standards cooperation, co-ordination and information sharing can assist in ensuring competition in the context of the digital economy, which is characterised by dynamic, and real-time, payment platforms, the increasing adoption of AI, a focus on cyber security and new approaches to regulation.
- The Commonwealth Government should continue to support standardisation, in partnership with Standards Australia, particularly through proactive road mapping exercises and standards development, with a view to identifying critical areas where industry growth is key to Australia's ongoing economic success such as cyber security, artificial intelligence, data-sharing, and regtech.

1.0 Standards Australia: Who we are and what we do

Standards Australia welcomes the opportunity to respond to the Department of Industry, Innovation and Science Consultation paper on the Digital Economy. Standards Australia is recognised by the Commonwealth Government as Australia's peak non-government standards body.

Founded in 1922, we are an independent and not-for-profit organisation and Australia's member of the International Organisation for Standardisation (ISO), International Electrotechnical Commission (IEC) and a member of the Pacific Area Standards Congress (PASC).

At the international level, Standards Australia is committed to representing the views of stakeholders, government and consumers in standards development and related activities. Domestically, standards are developed for the net benefit of Australia and to enhance economic efficiency, increase community safety and sustainability, and improve industry and international competitiveness.

Standards Australia facilitates standards development through technical committees, by bringing together relevant stakeholders to develop standards documents through a process of consensus.

Our current catalogue consists of approximately 5,500 voluntary standards across all 12 sectors of the Australian economy underpinning much of Australia's technical infrastructure.

There are many other areas where Standards Australia are actively contributing to the development of discrete work streams of national and international significance in relation to the digital economy.

Recently, Standards Australia has:

1. **Led the development of a roadmap to guide Australia's transition to Industry 4.0** – through the preparation of a detailed report for the Prime Minister's Taskforce, which includes a focus on future work items for industry stakeholders;
2. **Initiated the development of international blockchain standards**, through a new proposal to the ISO, and ongoing secretariat work, which is now supporting standardisation activity on this issue; and;
3. **Identified opportunities for growth associated with demographic transition** and the pivot towards service-based economies in Australia and in our region, through the release of a Digital Hospitals Handbook (SA HB: 163: 2017) and an APEC Sub-committee on Standards and Conformance report on the 'silver economy'.

2.0 The digital economy: Opportunities for growth through standardisation

Digitisation, which encompasses an increasing recognition of customer needs, maturation in technical capacity and an evolution of the corporate operating model, has long been recognised as central to economic growth. The widespread adoption of the internet and the corresponding development of early stage online commerce platforms that make products more widely available, demonstrates this reality.¹

Data is central to the digital economy and is increasingly recognised as an asset in its own right, with data sharing the key currency to realise its full value. Data is required to enable transactions, to identify sales revenue, to target products in ways that align with consumer preferences and to improve the quality of service and delivery. The immense value of data in driving economic activity is evidenced in the fact that global flows of data have supported the expansion of world GDP by 10% over the past decade, according to McKinsey.² The OECD has also noted that “we are in the midst of a digital transformation, with 40% of the world’s population now connected to networks, up from 4% in 1995.”³

This presents both opportunities and challenges for the Australian economy.⁴ Globally, companies that are adapting to a digital world, are more profitable than their peers.⁵ Government and the private sector (including business, the community sector and research institutions), all have a key role to play in fully embracing the digital economy to realise potential gains in the global marketplace. Australians are already early adopters of new, and emerging technologies, but this needs to be scaled across society from SMEs to large corporations, to realise the potential economic and productivity gains.⁶

Below, Standards Australia have listed areas where, the maturation of the digital economy can deliver significant benefits, including high-value job gains:

- **Online Retail platforms.** Australian consumers have already embraced tailored online retail products, providing them with access to a broader range of services, as well as diverse delivery and payment options.
- **Banking and financial services.** There is increasing interest in fintech platforms, including a focus on open APIs, blockchain applications and tailored products⁷. Some existing applications, for example, enable customers to invest, through redistributing a portion of every purchase they make. More broadly, and significantly for this sector, a review into Open Banking is already underway, initiated by the Treasurer, signalling the importance of this issue, and the centrality of competition.⁸

¹ OECD (2008). *The Seoul Declaration on the Future of the Internet Economy*. Geneva: OECD.

² <https://www.mckinsey.com/mgi/overview/in-the-news/the-ascendancy-of-international-data-flows>

³ OECD (2017). *Going Digital: Making the Transformation Work for Growth and Well-Being*. Paris: OECD Council at Ministerial level.

⁴ AIIA (2017). *Skills for Today. Jobs for Tomorrow*. AIIA: Canberra.

⁵ Manyika, J., Pinkus, G., & Ramaswamy, S. (2016) ‘The Most Digital Companies Are Leaving All the Rest Behind,’ *Harvard Business Review*, accessed 23/11/2017 from: <https://hbr.org/2016/01/the-most-digital-companies-are-leaving-all-the-rest-behind>

⁶ Productivity Commission (2017). *Data Availability and Use: Productivity Commission Inquiry Report*. Canberra: Commonwealth of Australia.

⁷ Kavanagh, J. (2017). ‘Innovating Australian Banking’, *Future Banking*, Sydney: Australian Bankers Association Inc., pp. 24-31.

⁸ The Hon. Scott Morrison MP, ‘Empowering consumers through open banking,’ accessed 08/10/2017 from: <http://sjm.ministers.treasury.gov.au/media-release/065-2017/>

- **Artificial Intelligence (AI).** AI is growing as an area of focus for policy makers, business and the community, with potential application in areas as diverse as customer service for major corporates, to human services (for example, the disability sector), and defence.
- **Regtech.** The area of regulatory compliance is growing in interest and prominence, reflecting a shift away from compliance as a manual, back-office, function towards a dynamic activity harnessing fit-for-purpose platforms. Australian solutions in this area can also be scaled and exported, as a service. The formation of the Australian Regtech Association highlights the growing importance of this emerging area.
- **Medtech.** The application of technology enabled healthcare solutions that bring together medical researchers, practitioners and business in Australia is leading to major improvements in the quality and timeliness of patient care. For example, ultrasound and smart implantables are being developed in Australia and exported to the world. Interoperability, not only at the level of specific technological interfaces, but also in service design, is critical to the wider scale adoption of medtech in clinical settings. Standards in Australia can play an instrumental role in enabling these improvements to materialise.
- **Cyber Security.** Cyber security is increasingly a focus for Australian government, business and the general public. The opportunities here are for Australian business, government and members of the public to harness cyber-security, as-a-service, as well as to develop and strengthen the local eco-system, allowing the local market to develop, and potentially lead to the creation of new markets for Australian businesses.

Standardisation, and particularly engagement in international standards development, can play a key role in supporting economic growth in specific sectors, through enabling competition and assuring consumers of the baseline safety and security of particular applications or platforms. It needs to be considered as central to Australia's digital economy, and not a strategic after-thought.

3.0 Our work in support of the digital economy

Standards Australia works proactively with Australian stakeholders to support standardisation in areas key to our digital economy. Some recent examples are detailed below:

The Harmonisation of Standards for the movement of data across APEC (the HoST Project)

In 2015, Standards Australia worked closely with the Australian Government – Department of Treasury, to deliver a project under the Asia Pacific Economic Cooperation Small-Medium Enterprise Working Group (APEC SMEWG). The Harmonisation of Standards for the movement of data across APEC (the HoST Project) conducted research and an APEC wide survey to determine trends and market behaviour in cross-border data flows.

The study initially found that there had been significant growth in the exchange of data and communication within the APEC community over recent years. As a result of the HoST Project, a report was presented to APEC highlighting a number of recommendations that had been identified by the APEC SME community as opportunities in the use of international data flows.

The recommendations included:

- Promoting the use of consensus based international standards to support regulations in international data transfer;
- The development of an APEC ‘standardisation roadmap’ to support the new digital economy; and
- Ensuring that the Asia-Pacific region remains invested and committed to creating a healthy environment for international data and information flows.

The HoST project demonstrated the need for Australia to assert itself as a leader in the Asia-Pacific region and ensure that Australia’s national standards and conformance infrastructure reflect changes in the environment towards the digital market. Recent examples of cyber-attacks such as WannaCry ransomware reinforces the need for a coordinated regional approach to digital issues and the importance of cyber resilience and security for Australian business, government and international trade.

Emerging technologies: Blockchain and Distributed Ledger Technologies – ISO/TC 307

Blockchain, at the broadest level, is a digital platform that records and verifies transactions in a public and secure manner. It is a de-centralised, cryptography based solution with the potential to redefine transactions and the back-office of a multitude of different industries. It will remove the need for third-party entities or ‘middlemen’ in many transactions.

Standards Australia has taken a lead role in the development of international blockchain standards, after successfully conducting a campaign in 2016 to create a new international technical committee, *Blockchain and distributed ledger technologies* at the ISO (TC-307). Australia holds the secretariat and chairmanship for this committee, which consists of 27 participating member countries and an additional 17 observing members. The committee’s work program is split between five streams of activity that have been identified as a priority:

- Reference architecture;
- Use cases;

- Security and Privacy;
- Identity; and;
- Smart Contracts.

The inaugural meeting of ISO Technical Committee (TC) 307 was held in Sydney in April 2017, and drew strong participation from national standards bodies across the globe with 89 international and Australian technical experts representing 18 participating countries. A second ISO Technical Committee (TC) 307 meeting was held during November 2017 in Japan.

The work of this Australian-chaired international committee has the potential to make a material positive impact on the financial sector both domestically and globally. The development of blockchain and distributed ledger standards can enable fintech start-up companies to compete in emerging and established financial markets through facilitating minimum standards and common maturity horizons, from which innovation can flourish, enabling healthy competition.

The development of blockchain standards will also provide existing and growing industries, including healthcare and agriculture, with the opportunity to utilise the benefits of this technology with greater confidence, to deliver improved products to consumers and support the protection of information.

Digital Hospitals Handbook

The future of healthcare lies in personalised care and a seamless digital experience that connects physical and digital environments. Standards Australia, through Technical Committee IT-039, facilitated the development of the Digital Hospitals Handbook (SA HB: 163: 2017), a guide containing principles and recommendations to support the development of hospitals of the future. The handbook focuses on key principles, ICT architecture, and a benefits realisation framework. It supports the move from volume to value in healthcare.^{9,10} That is: services that are data-informed, timely and personalised, as well as cost-effective.¹¹ To truly unlock value, standards can play a key role – ensuring acceptability to users and interoperability, whilst maintaining competitiveness.

Industry 4.0 – embracing Society 4.0

The 4th Industrial Revolution is ushering in a transformation in how and what we produce. Increasingly, smart manufacturing, which leverages big data analytics and personalises products and services, through 3-D printing of industrial components to prostheses, for example, is leading to an industrial transition in countries such as Australia, away from traditional manufacturing.

As a member of the Prime Minister's Taskforce for Industry 4.0, in particular through leading the workstream on standards, norms and reference architecture, we are seeking to align Australia's standards work with international schemes already in place or in development.

⁹ Scott, I. (2014). 'Ten clinician-driven strategies for maximising value of Australian health care', *Australian Health Review*, 38(2):125-33.

¹⁰ Porter, M.E. & Lee, T.H. (2013). 'The Strategy That Will Fix Health Care', *Harvard Business Review*, accessed 25/07/2017, from: <https://hbr.org/2013/10/the-strategy-that-will-fix-health-care>

¹¹ Koff, E. (2016). 'From volume to value driven care:' *Presentation to the NSW Health Innovation Symposium*, accessed 25/07/2017 from: <http://www.health.nsw.gov.au/innovation/2016symposium/Documents/presentations/elizabeth-koff.pdf>

We are engaging nationally, through growth centres, as well as regionally and internationally, including through the ISO, to progress common reference frameworks, to ensure Australian industry, and the Australian economy, benefits from the 4th Industrial Revolution.

This work provides a basis for the development of a broader focus on Industry 4.0, encompassed in concepts such as *Society 4.0* – referring to the horizontal transfer of skills, knowledge and technology across vertical areas of the economy, transforming the customer experience, manufacturing of goods and maintenance of services.

RECOMMENDATION 1: The Commonwealth may wish to consider developing a *Society 4.0* program, to guide activity in key areas that intersect with the focus of Industry 4.0 (smart manufacturing):

- a. Healthcare (integrating physical infrastructure, digital technologies and personalised - care models);
- b. Social infrastructure – including the disability sector and modular housing;
- c. Utilities - water, plumbing, energy and gas; and
- d. Robotics - including in the medical devices, mining and agricultural sectors.

4.0 Standards Australia's own digital transformation – accelerating the pace of change and responding to community needs

Standards Australia is engaged in the digital transformation of our business model to accommodate potential changes in distribution rights, as well as shifting customer preferences for tailored digital solutions.

Australian consumers are fast adopters of new technologies and platforms and there is an increasing appetite on the part of industry, our key stakeholders, to access standards in more user-friendly formats. This is particularly prominent in potential new market segments, including startups and SMEs.

Integral to this transformation is the digital empowerment of our own operations, together with the conversion of our content to support digital delivery.

This is aimed at ensuring our work is more readily, and widely, accessible, and useful to the communities who access our content. This mirrors learnings from not only the private sector, but government, as consumers signal a desire for data in more user-friendly, and less-restrictive, formats that work better for them.

In mid-2017, in another critical step for our digital business transformation, we formed an Innovation Incubator, which is designed to ensure that novel and innovative solutions to customer and contributor needs are prototyped and tested.

The intention is to develop these prototype solutions in collaboration and partnership with industry and government. This is modelled on identified, and validated, problem areas. Already, we have partnered with startups providing platforms in the regtech arena to rapidly prototype potential solutions, which we intend to test, on a small scale, with end users themselves.

Through 2018, Standards Australia will accelerate the pace of digital transformation, enabling new workable solutions to be identified, shared and scaled, where appropriate. We anticipate this will bring added benefits to our stakeholders, ranging from those who actively develop standards, to those who consume them, as well as policy-makers and regulators more broadly.

5.0 Future opportunities to support growth, trade and improve wellbeing

- **Artificial Intelligence.** AI is fast emerging as an area of focus, and competitive advantage. In October 2017, the Plenary of the ISO/IEC JTC 1 adopted a resolution to create Subcommittee 42 (SC42) – Artificial Intelligence. Australia was supportive of the creation of SC42, noting that Subcommittee 40 – IT Governance – was the appropriate place for any discussions around the governance of Artificial Intelligence, including ethics. The programme of work is yet to be set and will be resolved once the committee is constituted, but Australia is actively considering its ongoing participation in this area of work.
- **Cyber-security.** Cyber security is increasingly recognised as pivotal to our national wellbeing, including our economic security, with both Federal and State and Territory Government's elevating the focus on it, and the threats arising from both state and non-state actors.¹² Other jurisdictions, including New Zealand, have already expanded their cyber security capabilities to provide high-level protection from malware, for example, by including private companies and government infrastructure within a classified list of critical infrastructure, through project CORTEX.¹³ Moreover, the New Zealand Government has elaborated a series of access control standards to manage the information security aspects of critical infrastructure.¹⁴ The Department may wish to consider whether Standards Australia, as the National Standards Body, could play a constructive role in developing standards, as well as lower consensus documents, such as handbooks, to assist Australian companies to strengthen their information management and cyber security practices. Standards Australia is a participating member on ISO/IEC JTC 1 SC 27, enabling Australian stakeholders to participate in, and contribute to, the leading international standards in cyber management systems. Australia has made direct text adoptions of four standards within the series and is currently in the process of adopting three more. The adoptions of these international standards reinforce the importance of cyber security and intelligence in Australia. Australian international participation and adoption also increases the awareness of cyber threats and continues to encourage Australian business to consider conforming to the specifications for cyber and digital management within the ISO/IEC 27000 standards series.
- **Regtech.** Regtech is growing as an area of activity within Australia and elsewhere, with the potential to disrupt different sectors, promoting a more productive and collaborative approach to regulation. Here, a specific opportunity exists to chart the implications of the growth of this sector for standardisation, to give consumers greater confidence, profile the sector and identify which standards are most relevant to providers in this area and their dynamic platforms.

RECOMMENDATION 2: That the Commonwealth Government continues to support standardisation, through road mapping and standards development, with a view to identifying critical areas where industry growth is key to Australia's ongoing economic success such as: cyber security, artificial intelligence, data-sharing and regtech.

¹² Department of Foreign Affairs and Trade (2017). *Australia's International Cyber Engagement Strategy*. Canberra: Department of Foreign Affairs and Trade. See also: *NSW Digital Government Strategy*. Sydney: NSW Government.

¹³ Government Communications Security Bureau (2017). 'Information assurance', accessed 23/11/2017, from: <https://www.gcsb.govt.nz/our-work/information-assurance/#cortex>

¹⁴ National Cyber Security Centre (2017). *Voluntary Cyber Security Standards for Industrial Control Systems v.1.0*. Wellington: National Cyber Security Centre.

RECOMMENDATION 3: That the Commonwealth Government support and resource the development of a 'regtech market insights and standardisation blueprint', in collaboration with Standards Australia. This could identify sectors for growth and areas where regtech providers can both consume standards, and contribute to their development, creating a competitive edge for Australian businesses.

- **Data sharing.** Data sharing is the currency to unleash the full value of data. Common frameworks can play a significant role in enabling the growth of this area, greater cooperation and more streamlined approaches. More particularly, fit-for-purpose standards can be developed for incorporation into major infrastructure contracts, governing issues such as proprietary data.
- **Hospitals and healthcare.** The future of healthcare relies on personalised care. Standards Australia has already undertaken significant work in this area, including through the development of the Digital Hospitals Handbook. There is an opportunity to consider future revisions of the digital hospitals handbook, so it reflects both regional and metropolitan experiences and reflects best-practice models of integrated care, harnessing digital capabilities and reflecting broader stakeholder engagement.
- **Medtech.** Medtech represents an opportunity to apply technology and Australia's world leading medical research to commercial enterprises that improve patient outcomes and deliver cost efficiencies for government. Participation in international standardisation in areas such as robotics can play a key role in enabling Australian companies to help shape standards.

6.0 Conclusion

A robust digital economy, driving competition, enabling high-value job growth, and underpinned by sound cyber-security, is essential to Australia's ongoing economic prosperity. Whilst Australia has enjoyed years of strong economic growth, demographic challenges, including costs associated with ageing population and a reduced government revenue base, pose a risk to this positive trajectory. To position Australia to continue on a strong pathway of growth, which delivers a continued social and economic dividend, the expansion of particular export sectors, including technology-as-a-service, is vital. Here, concerted efforts on the part of government, industry, as well as research institutions, are key. Standards, as a means to ensure harmonisation at international level, improving access to other markets, can play a critical role.

As the peak standards development body in Australia, Standards Australia is charged with the development of standards to provide a safe and sustainable environment for the Australian public, while maximising performance and economic competition domestically and internationally. We are already leading work in blockchain standards development locally and internationally and will continue to play a pivotal role in standardisation across new and emerging areas. This includes in areas necessary to underpin our digital economy, including cyber security, data-sharing and regtech, where more sustained efforts at standardisation need to be made. This will require stakeholder support, new targeted investments and leadership from government.

7.0 Recommendations

Standards Australia recommends that:

- 1) The Commonwealth may wish to consider developing a *Society 4.0 program*, to guide activity in key areas that intersect with the focus of Industry 4.0 (smart manufacturing):
 - a. Healthcare (integrating physical infrastructure, digital technologies and personalised - care models).
 - b. Social infrastructure – including the disability sector and modular housing.
 - c. Utilities – water, plumbing, energy and gas.
 - d. Robotics – including in the medical devices, mining and agricultural sectors.
- 2) The Commonwealth continues to support standardisation, through road mapping and standards development, with a view to identifying critical areas where industry growth is key to Australia's ongoing economic success (for example: cyber security, Artificial Intelligence, data-sharing, regtech).
- 3) The Commonwealth support and resource the development of a 'regtech market insights and standardisation blueprint', in collaboration with Standards Australia. This could identify sectors for growth and areas where regtech providers can both consume standards, and contribute to their development, creating a competitive edge for Australian businesses.

8.0 Contacts

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Yours sincerely



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