STANDARDS Australia

ROADMAP FOR BLOCKCHAIN STANDARDS

Report – March 2017

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The report does not reflect the views of Standards Australia.

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Foreword

Dr Bronwyn Evans, Chief Executive Officer, Standards Australia

The emergence of new and exciting applications of blockchain and distributed ledger technologies (DLTs) present far-reaching opportunities for Australia and its international partners. Having first developed as a core component of the decentralised digital currency bitcoin, blockchain is now considered a transformational technology with broader applications.

Blockchain has the potential to support efficient and secure real time transactions across a large number of sectors. From enabling efficient and accurate financial services to providing visibility along the supply chain, and from streamlining government services to delivering confidence in identity accuracy to consumers, blockchain and DLTs have the capacity to revolutionise the way we do business.

For many Australians and global stakeholders the key to utilising blockchain technologies is contingent upon the performance of the systems. While economic efficiencies, improvements in standards of living and increased access are just some of the benefits of applying blockchain technologies, there is a broad community expectation that an appropriate legal and standards framework will be developed in order to establish market confidence.

This report explains the methodology and process used by Standards Australia to develop a Roadmap for Blockchain Standards. It highlights the critical role Australia will have in leading international efforts to develop blockchain standards under ISO/TC 307 Blockchain and electronic distributed ledger technologies.

The work undertaken by Standards Australia supports the Australian economy by enabling the spread of technology and creating new sustainable industries for the future. This report also demonstrates Standards Australia's ability as an independent facilitator to deliver policy and standards related solutions to contemporary matters of public priority in Australia. Standards Australia is proud to have facilitated the development of the Roadmap for Blockchain Standards.

Executive Summary

This report provides a summary of the Roadmap for Blockchain Standards (Roadmap). The Roadmap is designed to: identify the various technical issues associated with developing, governing and utilising blockchains and Distributed Ledger Technologies (DLT); identify blockchain and DLT use-cases relevant to Australia; and prioritise the order of standards development activities that could be undertaken in the development of blockchain standards by ISO/TC 307 Blockchain and electronic distributed ledger technologies.

Standards Australia facilitated the development of a Roadmap for Blockchain Standards between November 2016 and February 2017. The work represents a key component of Standards Australia's role in supporting the development of a collective Australian position on blockchain standards priorities and contributing to the establishment of industry, consumer and market confidence in the use and application of blockchain technologies.

Over the course of a number of years there has been growing use and application of blockchain technologies across a number of sectors of the Australian economy and globally. This includes in the financial services sector, government services and supply chain management. Whilst this technological developments and use-rates have increased, confidence in the technology is also gradually growing. The development of International Standards to support privacy, security, identity, smart contract, governance and other matters related to blockchain technology may contribute to further establishing market confidence in the use and application of the technology.

The report was produced as a result of a series of consultations held in 2016 and 2017 which enabled industry, consumer, academic and government stakeholders to identify and priorities the relevant international standards that may be required to support the broad use and application of blockchain and DLT.

Background

Blockchain is a digital platform that records and verifies transactions in a public and secure manner. This decentralised, cryptography based solution has the potential to redefine transactions by removing the need for middlemen. Whilst the technology is still an emerging one, its applications can be foreseen across a wide spectrum of sectors: financial services; consumer products and services; health; government; minerals and precious stones; real estate; internet of things; and business.

As with any emerging technology, the freedom for blockchain developers to be innovative and for vendors to be competitive is critical. Alongside regulation, standards have a role to play in establishing market confidence to support the roll out of blockchain technology.

In April 2016 Standards Australia submitted a New Field of Technical Activity (NFTA) proposal on behalf of Australia for the International Organization for Standardization (ISO) to consider developing standards to support blockchain technology. The proposal for an NFTA to the ISO was intended to establish a new ISO technical committee for blockchain. The new committee would be responsible for supporting innovation and competition by covering blockchain standards topics including interoperability, terminology, privacy, security and auditing.

In September 2016, ISO announced that Australia will manage the Secretariat of ISO/TC 307 after the International Organization for Standardization (ISO) approved Standards Australia's proposal for new International Standards on blockchain. As a requisite, Australia will host the first international blockchain standards meeting for ISO/TC 307 in April 2017. There are currently 33 member nations of ISO/TC 307 including: Germany, United Kingdom, Japan, Russia, France, Singapore, China, USA and many others.

Ahead of the April 2017 meeting, Standards Australia will be facilitating a number of key consultation activities including the development of a Roadmap for Blockchain Standards. The Roadmap report will inform IT-041 Blockchain and electronic distributed ledger technologies (IT-041) which serves as the Standards Australia technical committee for blockchain. The Roadmap report will support the development of a collective Australian position on the development of blockchain standards in preparation for the inaugural meeting of ISO/TC 307.

Further background on Standards Australia's Blockchain Standards Initiative can be found on the Standards Australia website: www.standards.org.au

Introduction

Standards Australia embarked upon the development of a Roadmap for Blockchain Standards in order to support Australia's leadership role in the development of International Standards for blockchain and DLT under ISO/TC 307.

The aim of the road mapping activity was to provide strategic insight:

- Identify the various technical issues associated with developing, governing and utilising blockchains and DLTs;
- Identify blockchain and DLT use-cases relevant to Australian stakeholders and assess the need for standards to support the specific use-cases;
- Prioritise the order of standards development activities that could be undertaken in the development of International Standards for blockchain by ISO/TC 307;
- Consider the role of standards in supporting potential future regulation on blockchain and the relationship between the law and standards; and
- Consider the pathways and structures that can be utilised under ISO/TC 307 to undertake the development of International Standards for blockchain by ISO/TC 307.

The Roadmap report will provide recommendations and insights by aggregating the views of Australian stakeholders who participated in consultations.

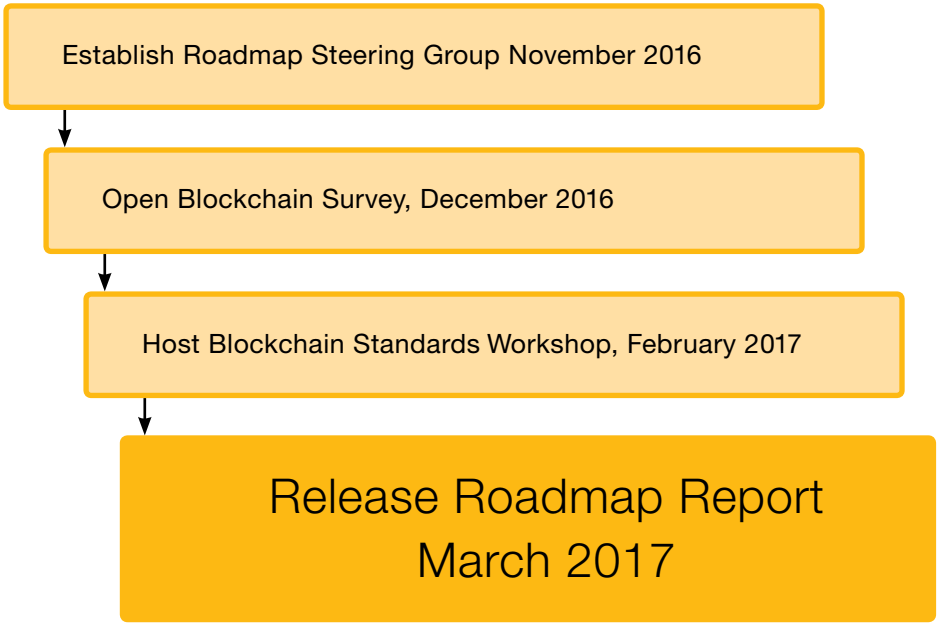
These recommendations and insights will inform the collective Australian position on the development of blockchain standards in preparation for the inaugural meeting of ISO/TC 307.

Methodology

The development of the Roadmap involved of a series of consultations held in 2016 and 2017 to identify and prioritise the relevant international standards that may be required to support the broad use and application of blockchain and DLT.

The development of the Roadmap was an inclusive process allowing industry, consumer, academic and government stakeholders to participate in consultations moderated and hosted by an independent facilitator, Standards Australia.

Stakeholder consultations commenced formally in November 2016 and the Roadmap was released in March 2017.



Developing the Roadmap

Steering Group, November 2016

Standards Australia established a Steering Group constituted of key stakeholders to support the Blockchain Standards Roadmap. The role of the Steering Group was to provide high level strategic advice and guidance to Standards Australia as it facilitates the development of a Blockchain Standards Roadmap ahead of the first international blockchain standards meeting for ISO/TC 307.

The Steering Group's input and feedback was used to refine key elements of the Blockchain Standards Roadmap, including the survey questions, workshop program and roadmap report.

Survey, December 2016

The blockchain standards survey was launched on 16 December 2016 and submissions were accepted until 10 February 2017. The survey questions were designed to gather three types of data:

- Organisational and identifier information including the type, size and activity undertaken by the respondent;
- Priorities for addressing standards-related issues encountered by organisations seeking to use or promote blockchain technologies; and
- Blockchain use-cases that present growth opportunities for Australian industry and government, and the potential need for blockchain standards to support those use-cases.

The qualitative data and case studies gathered from the survey have informed this roadmap report.

Organisational and identifier information

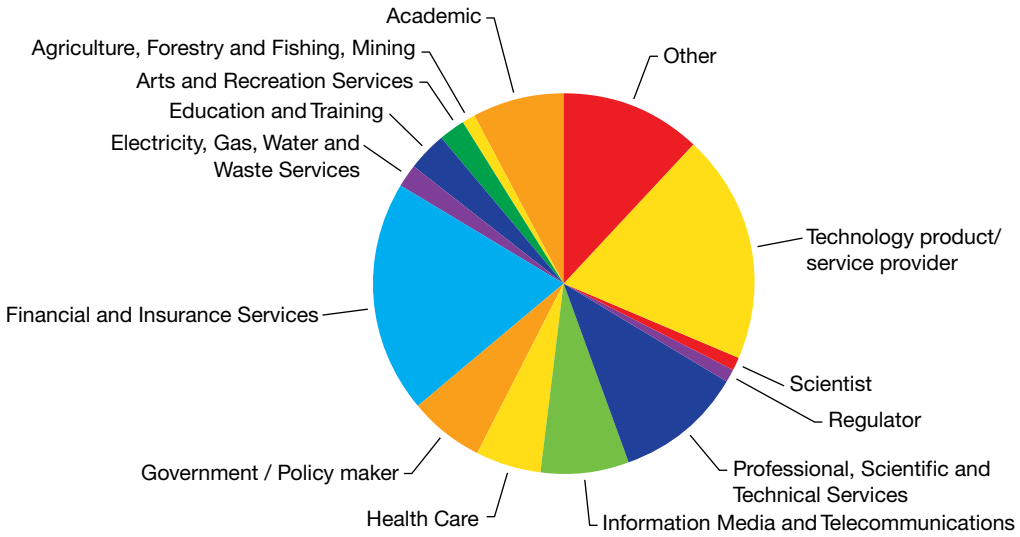
More than 100 responses to the survey were received from a balanced mixture of Australian government, industry, academic/research and consumer organisations. Notably, companies from across various industries provided 55% of responses and 6% of responses were provided by NGOs.

All states and territories were represented in responses with Sydney and Melbourne respondents equally each accounting for 35% of responses. Regional Australia provided 6% of responses.

Most respondents were male and aged between 31 and 60 years of age. Those aged from 41 to 50 represented the single largest age demographic.

Respondents represented a mix of industry sectors including the sciences, financial services, healthcare, education and training, professional services, supply chain management and others. Most respondents identified as belonging to either of three industries: financial services; technology; or government services.

Respondents by sector of economic activity



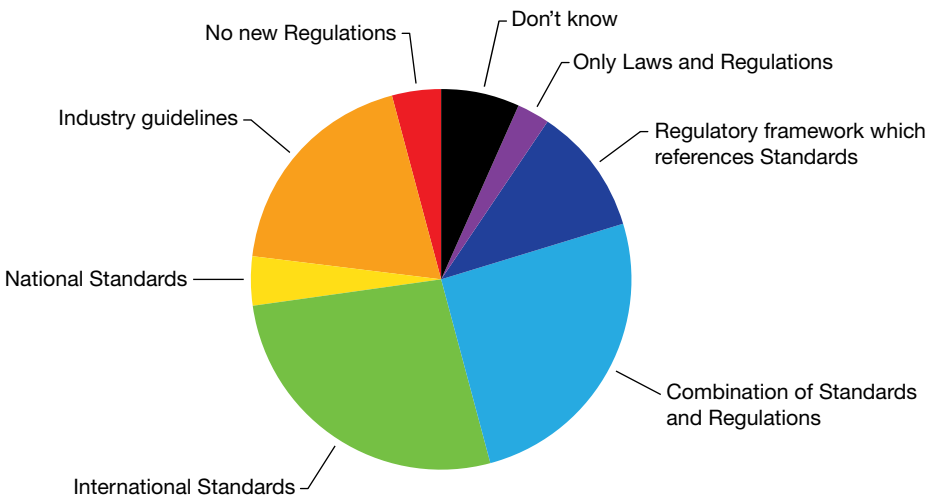
Source: Blockchain survey, Standards Australia analysis

The organisational and identifier information gathered from the survey is relevant for the purposes of the road mapping exercise as it portrays the balance of stakeholder interest which have contributed to the development of the Roadmap for Blockchain Standards.

Blockchain Issues

The survey allowed participants to consider the optimal standards and regulatory framework to support the roll out of blockchain technologies. More than 88% of respondents suggested that either national standards, international standards or a mixture of standards and regulation are required to support an appropriate co-regulatory framework for blockchain-related industries. Less than 3% of respondents believed that laws and regulation alone would be sufficient.

The optimum standards and regulatory framework to ensure we are fostering innovation and entrepreneurism



More than 88% of respondents indicate a role for standards in supporting the roll out of blockchain technologies. Source: Blockchain survey, Standards Australia analysis

The respondents also highlighted a number of blockchain issues that could be addressed through the development of appropriate standards. These include but are not limited to privacy, security, governance, terminology, interoperability and risk.

Challenges and inconsistencies in the definition of blockchain and other terms such as 'smart contracts' posed the greatest concern to respondents who almost universally recognised the need for consistent and agreed terminology was the highest priority standards issue for blockchain.

The priority order for standards development activities relating to blockchain according to respondents of the survey:

1. **Terminology**
2. **Privacy**
3. **Governance**
4. **Interoperability**
5. **Security**
6. **Risk**

Respondents also identified a number of current Australian and International Standards that could be used to support the roll out of blockchain technologies.

AS 2805 series	Electronic Funds Transfers – Requirements for Interfaces
ISO 20022 series	Financial Services – Universal Financial Industry Message Scheme
ISO/IEC 17788	Information Technology – Cloud Computing – Overview and Vocabulary
ISO/IEC 17789	Information Technology – Cloud Computing – Reference Architecture
ISO/IEC 18384 series	Information Technology – Reference Architecture for Service Oriented Architecture
ISO/IEC 19086	Information Technology – Cloud Computing – Service Level Agreement (SLA) Framework
ISO/IEC 27000 series	Information Technology – Security Techniques
ISO 31000 series	Risk Management – Principles and Guidelines
ISO 10962 series	Securities and Related Financial Instruments
ISO 6166 series	Securities and Related Financial Instruments
AS ISO/IEC 38500	Information Technology – Governance of IT for the Organization

Blockchain use-cases

Survey respondents identified financial services and government services as the two sectors with the greatest potential for use of blockchain technologies.

Within the financial services sector, the application of blockchain technologies was identified for use primarily to provide support to financial transactions, commodity exchange and remittances.

Stakeholder indicated that an elevated level of privacy and security measures may be required for the application of blockchain in the financial services sector.

The potential application of blockchain in the management of government services was recognised by survey respondents. The use of blockchain technologies to support the efficient transfer of land and to manage property title registrations was identified by more stakeholders than any other government services as an opportunity for government to utilise blockchain technologies.

Government services that survey respondents would like to see using blockchain technologies to improve efficiencies and public access

Land Transfers and Property Title registrations	**72.1%**
Personal Identification and Passport Documentation	**68.9%**
Management of Health Records	**65.6%**
Vehicle Registrations	**54.1%**
Welfare Distribution and Monitoring	**37.7%**
Urban planning; wider pedestrian sidewalks, increased times for crossings	**21.3%**
Public Transport Scheduling	**16.4%**

Source: Blockchain survey, Standards Australia analysis

Notably, approximately 15% of respondents described the application of blockchain in supporting supply chain management as a priority for Australia.

Respondents that supported the use of blockchain for supply chain management noted that using blockchain for procurement would support innovation, integration, quality and safety in the supply chain.

Workshop February 2017

Standards Australia hosted a Blockchain Standards Workshop on Friday 17 February at Standards Australia offices in Sydney.

Whilst participation at the workshop was open to the public, due to venue capacity and management of workshop proceedings a limitation was placed on the number of participants. More than 50 participants representing government, industry, academic and consumer organisations brought their participation to the workshop ("Appendix A – Workshop Participants" on page 24).

A series of topics were presented at the workshop in order to provide participants with insight into standards development processes, and forward thinking on the priorities for blockchain standards

Explaining the Blockchain Standards Initiative & Survey Analysis

A presentation was delivered by Standards Australia General Manager Stakeholder Engagement, Mr Varant Meguerditchian on the pathway toward Australia securing the roles of Chair and Secretary for the International Blockchain Standards Committee. The presentation also highlighted the purpose for the road mapping exercise and the steps that would lead Australia to the first meeting of ISO/TC 307.

A brief presentation was also delivered on the key outcomes of the survey with particular attention given to responses focusing on priority blockchain issues and use-cases for Australia.

Blockchain Standards Development in Australia and Internationally

Chair of ISO/TC 307, Mr Craig Dunn provided opening remarks and discussed the importance of blockchain technologies in supporting the growth of industries in Australia. He explained the critical role of the Chair of ISO/TC 307 in achieving consensus-based solutions to blockchain standards-related matters.

Presenting in her capacity as Secretary for ISO/TC 307, Standards Australia Program Manager Jo-Ellen Courtney described the functions of ISO/TC 307, the nature and format of the international meeting and the possibilities for engagement by Australia across all work streams within TC 307.

The potential and emerging implications to Australia from Distributed Ledger Technology

Mr Rob Hanson who is leading the strategic foresight study on blockchain and DLT at Data61 delivered a presentation on the potential implications of the broad use of blockchain technologies in Australia.

The presentation provided an indication of the near term use cases for blockchain in Australia including use in areas such as: Digital Currencies, Trade Finance, Provenance, Smart Contracts and Intellectual Property.

Mr Hanson also echoed results from the survey that indicated the three key potential future growth industries for blockchain were financial services, government services and supply chain management.

The presentation also provided foresight into the potential risks associated with the technology and the risk-mitigating measures that may be undertaken.

Standards in Support of the Rollout of Blockchain Technologies

Chair of the British Standards Institute technical committee for blockchain, Mr Gilbert Verdian provided background on the use of the technology in the UK and globally, as well as insight into the considerations of British stakeholders in relation to blockchain standards.

The presentation focused on the priority applications particularly highlighting the UK's and Europe's interest in the potential use of the technology to support financial transactions. The presentation described the valuable role of standards in building market confidence by addressing blockchain issues relating to governance, privacy, interoperability and authentication.

Mr Verdian indicated that standards would in no way replace regulation but rather support it. He suggested that blockchain represented an opportunity for government by: reduced the cost of operations; providing greater transparency of transactions between government agencies and citizens; and enabling broader financial inclusion of people currently on the fringes of the financial system.

Fintech Use Cases and the Role of Standards

Addressing the workshop as the representative for Fintech Australia, Mr Nick Addison indicated that the role for standards in the support of blockchain technologies needed to be clearly defined. Having researched existing ISO standards for databases, cloud computing and other technologies related to blockchain, Mr Addison indicated that in addition to terminology and interoperability, there was an opportunity for ISO/TC 307 to develop reference architecture standards for blockchain, which could provide best practice guidance to developers and users.

Mr Addison emphasised the need to ensure that blockchain standards developed specifically for use cases should align to relevant international standards that already exist in that sector. He indicated that blockchain standards relating to financial services could align with existing ISO standards developed by ISO/TC 68 Financial services. He also suggested that supply-chain-related blockchain standards could align with ISO Standards developed by ISO/TC 292 Security and resilience.

From Vision to Reality, Developing a Blockchain Platform

Mr Mike Ward, Product Lead for Corda at R3 delivered a presentation on the work undertaken by R3 in the development of DLTs. He provided examples of different DLTs, comparing Ethereum, Bitcoin and the R3's Corda. He also demonstrated an example of how Corda could be used to enable financial transactions.

Mr Ward highlighted that while blockchain and DLT are emerging technologies, it is likely that over the course of the next several years we will see progress in the use and application of the technology. He suggested that over the course of that period, standards are likely to play a role in shaping the future of the technology.

Blockchain Standards-in-law

Mr Scott Farrell, a Senior Partner at King & Wood Mallesons law firm and member of the Australian Government's FinTech Advisory Group presented on the relationship between blockchain standards and the law. He emphasised that this would be particularly important to understand with respect to "smart contracts".

Mr Farrell indicated that 'smart contracts' only represented in code are not equivalent to law. He explained that there is the risk that the code in 'smart contracts' may not include all or some aspects which are present in a legal contract and the surrounding legal framework. He suggested that standards can provide guidance to developers and users of blockchain technologies, but that these standards are not able to take priority over the law or act as a substitute.

Mr Farrell acknowledged that the law (and its accompanying regulations) could at times benefit from reference to standards and can also direct industry to use relevant standards.

Breakout Sessions

Using the survey results and presentations as a platform for discussions during the workshop, Standards Australia facilitated an open dialogue amongst stakeholders and moderated breakout sessions on the priority areas for blockchain standards development.

During breakout sessions participants separated into four groups and considered the following four questions:

1. *ISO/TC 307 is tasked with developing blockchain standards for interoperability, privacy, data governance, security, identity, terminology, risk, "smart contracts", key personnel and others. How would you prioritise the topics and why?*

Key outcomes from break out discussion One (1):

- Terminology and consistency in vocabulary were sighted as the most important blockchain issue requiring immediate attention by ISO/TC 307.
- A blockchain terminology standard would provide the clarity necessary to support the development of other blockchain standards.
- Matters relating to security, privacy and identity should be managed collectively in standards development activities.
- Governance, risk, interoperability and "smart contracts" were also listed as priority areas for blockchain standards development.

2. *What use cases for blockchain technology should Australia be promoting internationally as new work in ISO/TC 307, and what use-case-specific standards are required for these sectors (e.g. mining, supply chain, fintech)?*

Key outcomes from break out discussion Two (2):

- Privacy, security and identity issues are prevalent across most blockchain use cases.
- High priority sectors in which blockchain technologies could be applied to support Australian industry include: financial services; agriculture supply chain; government services.
- A standard specific to unitising stock or goods to support the application of blockchain technologies in the supply chain may be required.
- A standard that provides guidance on the level of risk and required security for different sectors may provide support to blockchain users across different sectors – noting specifically that some government services and financial services may require a higher level of security.

3. *ISO/TC 307 brings together more than 30 countries. What are the key challenges for Australia in driving the development of International Standards for Blockchain and supporting the establishment of a framework to support the technology?*

Key outcomes from break out discussion Three (3):

- Creating an inclusive environment, allowing appropriate participation from relevant leading economies and developing countries in the standards process will be important.
- Seeking the input of regulators in the process of standards development will assist with broader acceptance of the standards published by ISO/TC 307.
- Ensuring that standards are technology neutral, and interoperability is possible, will lead to greater usability of the standards.
- Collaborating with existing organisations already working on blockchain technologies will lead to the development of contemporary and relevant standards for blockchain.

4. *What are the outcomes that Australia should aim for in the development, adoption and use of standards developed by ISO/TC 307? Consider aspects such as development timelines as well as use and referencing of international standards by regulators globally.*

Key outcomes from break out discussion Four (4):

- Establish an inclusive process that would seek to ultimately develop blockchain standards which will be widely used.
- Develop and publish a work program to inform all stakeholders about the work of ISO/TC 307.
- Consider the timely development of a terminology standard in order to pave the way for other blockchain standards.
- Set a schedule to develop standards to support blockchain interoperability and create a competitive market.

The Roadmap

The roadmap is an aggregation and summary of responses from the survey as well as discussions and perspectives shared at the workshop. It provides a collective Australian viewpoint on the matters of priority for ISO/TC 307 and the actions that can be undertaken by that committee to develop blockchain standards in for the benefit of Australian and international stakeholders.

It provides foresight for Australia's leadership in the development of international blockchain standards by ISO/TC 307.

Priority Issues

1. ISO/TC 307 should initially develop blockchain terminology standards as a means to clarify definitions in the sector and set a platform for the development of other related blockchain standards. The standards for terminology could by developed in close coordination with the ISO/IEC committee JTC 1 SC 38 Cloud Computing and distributed platforms.
2. Privacy, security and identity issues are commonly sighted as concerns for most blockchain and DLT technologies. As such these issues can be addressed collectively through the development of one or a suite of standards under ISO/TC 307. These standards could be developed in association with ISO/IEC committee JTC 1 SC 27 IT Security techniques.
3. Governance and risk-related issues should also be addressed by ISO/TC 307 after the foundational standards for blockchain and DLT terminology. These standards could be developed with reference to existing ISO and ISO/IEC documents including ISO 31000 Risk management principles and guidelines, and ISO/IEC 38500 Governance of IT for the organization.
4. The development of standards for terminology, privacy, security, identity, risk, governance and other key issues relating to standards paves the way for the later development of a reference architecture standard for blockchain under ISO/TC 307. A reference architecture standard would provide stakeholders with a framework for developing and using blockchain and DLT. This should be considered as part of a future work program by ISO/TC 307.
5. Establishing interoperability amongst blockchain systems should be an overarching objective of ISO/TC 307. Standards for interoperability are more likely to be achieved after more fundamental matters are addressed such as the development of a consistent terminology and appropriate measures for managing privacy, security and identity.

Priority Use Cases

1. ISO/TC 307 should give close consideration to key industry applications for blockchain technologies including in the financial services sector, the government services sector and with regard to supply chain management.
2. Within the financial services sector, there is potential for use of blockchain technologies to support:
   - Digital Currencies
   - Trade Finance
   - Remittances
   - Commodity Exchange
   - Other transactions

   ISO/TC 307 should give due consideration to the security and privacy expectations specifically for such application of the technology. The development of tiered security standards for blockchain could provide guidance to blockchain developers and users on the security expectations for blockchain-enabled financial transactions. ISO/TC 307 could work closely with existing ISO committees to support the financial services sector, including ISO/TC 68 Financial services.
3. ISO/TC 307 could support the improvement of supply chain management and provenance through the development of a standard for unitising stock or goods to support the application of blockchain technologies. Work on this standard could support the agricultural supply chain and other sector where the commodity unit changes nature through the course of the supply chain. This standard could be developed with reference to ISO 28000 Specification for security management systems for the supply chain developed by ISO/TC 292 Security & resilience.

Standards and Law

1. ISO/TC 307 should work closely with ISO member National Standards Bodies to ensure the relevant participation of regulators from all interested economies in the process of standards development. This would enable congruity of standards and the law.
2. ISO/TC 307 should exclude matters pertaining to the law in the development of standards for ‘smart contracts’, privacy, security and identity.
3. ISO/TC 307 should develop standards that support users and developers of blockchain and DLTs by providing guidance on technical matters only. The standards should be robust enough to provide guidance to stakeholders and potentially be referenced by regulators in policy and regulation. Standards particularly for ‘smart contracts’ may have a role in ensuring that a blockchain application is compatible with the law.

Structure of ISO/TC 307

1. The establishment of working groups and sub-committees by ISO/TC 307 could better allow for technical experts to focus on their relevant work streams. In this regard, ISO/TC 307 should closely consider initially establishing working groups to manage work streams covering issues and use-cases under the following topics:
    - Terminology
    - Governance and risk
    - Privacy, security and identity
    - 'Smart contracts'
    - Financial transactions
    - Supply chain management
2. Liaisons with ISO/TC 68, Financial services; ISO/TC 292, Security and resilience; and JTC 1 Information Technology (SC 40 IT, Service Management and IT Governance; SC 38, Cloud Computing and distributed platforms; and SC 27, IT Security techniques) should be established initially in order to encourage collaboration with committees and experts relevant to blockchain who are already engaging with ISO processes. ISO/TC 307 may also consider establishing liaison relationships with other relevant ISO technical committees, standards bodies, consortia or organisations engaging in activities that could contribute to the development of blockchain standards.
3. ISO/TC 307 may reference and use existing standards in the development of blockchain standards, particularly but not limited to standards for privacy, security, risk, and governance. ISO/TC 307 may also reference standards in support of blockchain use-cases for financial transactions, supply chain management and others.

Conclusion

The Roadmap for Blockchain Standards was developed through a collaborative and inclusive process involving the participation and contributions of key stakeholders representing government, industry, research and consumer organisations.

The stakeholders collectively assessed the priority standards-related matters for blockchain and the use-cases that Australia should be promoting internationally through ISO/TC 307.

This Roadmap supports the development of a collective Australian viewpoint on matters relevant to the development of International Blockchain Standards through ISO/TC 307. It provides a platform for discussions at the first international meeting.

The Roadmap will enable ISO/TC 307 under Australian leadership to pursue outcomes that will ultimately establish confidence in blockchain technologies and broader use and application of the technology globally.

In its capacity as Chair and holder of the ISO/TC 307 Secretariat, Australia must also give due consideration to all participating member nations of ISO/TC 307. The success of ISO/TC 307 is contingent upon the alignment between the objectives set out by Australian stakeholders as part of this Australian Roadmap and the objectives of all other participating members of ISO/TC 307.

Forward Planning

Standards Australia will be working with Australian and international stakeholders over the coming years' in its capacity as the Secretariat for ISO/TC 307 to shape the future of international blockchain standards. Standards Australia's close collaboration with stakeholders and the standards development activities undertaken by ISO/TC 307 will be informed by the Roadmap for Blockchain Standards and the recommendations contained in this report.

Standards Australia recognises that stakeholders may ultimately not seek to develop international blockchain standards exactly in accordance with this Roadmap.

More Information

Varant Meguerditchian
General Manager Stakeholder Engagement
Standards Australia
T: +61 2 9237 6119
E: varant.meguerditchian@standards.org.au

Mr Varant Meguerditchian is General Manager Stakeholder Engagement at Standards Australia. In this role he is responsible for engagement with legislators, Commonwealth and jurisdictional government departments as well as industry, business and professional organisations to address various issues of Australian public interest. He is also responsible for Australia's international engagement with the ISO and IEC.

After joining Standards Australia in 2012, Mr Meguerditchian held roles in the stakeholder engagement and public affairs teams, working to influence and shape key policies across a number of sectors including: information technology; communications; energy; e-health; and business.

Mr Meguerditchian previously served on the Board of ANC Australia as President and Executive Director. He additionally has several years' experience in the banking industry.

Mr Meguerditchian holds a Master of Management from Macquarie University and a Master of International Relations from Griffith University. He has served as an Infantryman in the Australian Army Reserve. Mr Meguerditchian is currently based in Sydney.

About Standards Australia

Founded in 1922, Standards Australia is an independent, not-for-profit organisation, recognised by the Commonwealth Government as the peak non-government Standards development body in Australia. It is charged by the Commonwealth Government to meet Australia's need for contemporary, internationally-aligned Standards and related services. The work of Standards Australia enhances the nation's economic efficiency, international competitiveness and contributes to community demand for a safe and sustainable environment.

www.standards.org.au

Appendix A – Workshop Participants

ACORD
Alcheme Pty Ltd
ANZ
Australian Payments Clearing Association
ASIC
AUSTRAC
Austrade
Australian Taxation Office
Blockchain Professionals Meetup
Brave New Coin
Commonwealth Bank of Australia
Consumers Federation of Australia
Data 61 (CSIRO)
DFAT
Digital Risk Innovation
Equity Post Trade Services
exSell Group
Full Profile
Fuzo Limited
Gemalto
Good Security Pty Ltd
Griffith University
GS1 Australia
IBM
Icebloq
ING Direct
IP Australia
IQPC
King and Wood Mallesons
Lockstep Consulting
Lone Alarm
Microsoft
NSW Data Analytics Centre
Oban Enterprise Solutions
Optus-Macquarie Cybersecurity Hub
PwC
R3
Remitt
Reserve Bank of Australia
Stone & Chalk
UL Transaction Security
University of Technology Sydney