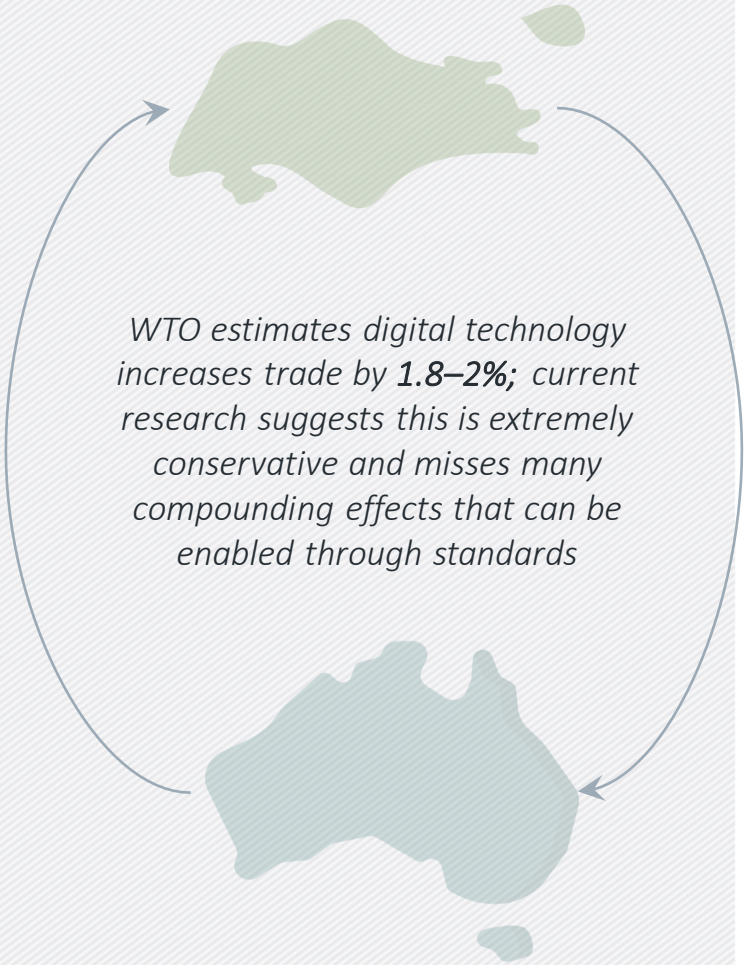
AUSTRALIA - SINGAPORE DIGITAL TRADE STANDARDS

March 2020

TRPC

THE POTENTIAL FOR *DIGITAL TRADE* GROWTH BETWEEN AUSTRALIA AND SINGAPORE IS EXTREMELY STRONG

- The two countries already have a strong trading relationship ……but there is scope to harness national efforts to digitalise and increase trade between the two economies
- The research focuses not only on 'digital trade', but the impact upon overall trade of increased digitalisation and digital process
- Emerging technologies (e.g. AI, Blockchain, 5G) are changing the ***scope, speed and scale of trade,*** creating ***new 'digital' trade*** avenues and opportunities for Australia and Singapore



DIGITAL TRADE IS FAR BROADER THAN E-COMMERCE FOUR COMPONENTS NEED TO BE CONSIDERED

Digital goods and services

- Items that are **stored**, **delivered**, and **used** in digital formats and typically accessed through online platforms or email
- *Apps and Software, Video Telephony Services, Data Management and Analysis*

Tangible goods and services delivered digitally

- 'Traditional' physical goods that are **delivered** digitally – either fully or in part
- *Books, Entertainment, Remote Healthcare, Online Services such as Travel Booking, Banking*

Digital enablers of trade in tangible goods/services

- Facilitate trade 'invisibly' to provide greater **efficiencies**, **security**, **transparency**, and **traceability** (auditability) for transactions
- *Wireless Communications, Digital Transactions, Cybersecurity*

Emerging transformative digital technologies

- Technologies that have the potential of **transforming** aspects of trade
- *Artificial intelligence, Internet of Things (IoT), Distributed Ledger Technologies (Blockchain), 3D printing*

COOPERATION ON STANDARDS WILL ACCELERATE DIGITAL TRADE

Standards enable businesses to **digitalise** using systems that can **interoperate** and **interconnect** with one another, allowing for **seamless** cross-border trade

New trade markets
(e.g. sale of digital goods and services)

Economies of scale
(e.g. 3D Printing can assist with mass production)

Benefits to Businesses

Lower compliance costs
(e.g. reduces number of standards to comply)

Higher productivity
(e.g. Blockchain can reduce time, *cost and provides traceability across supply chains*

Enhanced Value and Volume of Trade

WIDE-RANGING BENEFITS FROM ALIGNING ON STANDARDS

Benefits of International Standards Alignment

- **Interoperability:** in digital systems for transparency, simplicity, and compliance
- **Mutual Compatibility:** in products, components and services
- **Flexibility and Promptness**: in responding to new challenges or changes
- **Consistent Quality**: of product or service with appropriate safety and security safeguards

Adopting international standards (e.g. QR code specifications by EMVCo) made it possible for Singapore to link QR code system with regional neighbours for cross-border payments.

Collaboration between Australia and New Zealand on e-invoicing standards helps firms to exchange invoices electronically, with lowered administrative costs and expedited payments with fewer errors.

MULTIPLE AREAS OF MUTUAL BENEFIT EXIST FOR COOPERATION

- E-payments
- E-invoicing
- Digital Identity
- Privacy
- Artificial Intelligence

Singapore has issued the Model AI Governance Framework.

Australia is developing an AI Ethics Framework for businesses and governments. Both are participating in ISO/IEC JTC 1/SC. 42

Australia is leading international development of blockchain standards.

Singapore is already championing blockchain across applications to digitalise international commerce.

- Blockchain
- Smart Cities
- IoT
- Cross Border Data
- Data Portability

MULTIPLE AREAS OF MUTUAL BENEFIT EXIST FOR COOPERATION

- E-payments
- E-invoicing
- Digital Identity
- Privacy
- Artificial Intelligence

Singapore implemented PEPPOL based nationwide e-invoicing network, and integrated government systems.

Australia adopted PEPPOL framework for e-invoicing, with government agencies driving implementation.

Australia developed Smart Cities Plan, with initiatives including City Deals, and Smart Cities and Suburbs Program.

Singapore's 'Smart Nation' initiatives include National Digital Identity (NDI) and nationwide sensor platform.

- Blockchain
- Smart Cities
- IoT
- Cross Border Data
- Data Portability

MULTIPLE AREAS OF MUTUAL BENEFIT EXIST FOR COOPERATION

- E-payments
- E-invoicing
- Digital Identity
- Privacy
- Artificial Intelligence

Singapore has a a common QR code specification for e-payments based on EMVCo QR Specifications.

Australia has a standardized QR code specification for NPP, also based on EMV Specifications.

Australia introduced Consumer Data Right Rules for Open Banking, with plans to extend to other sectors

Singapore proposed Data Portability Obligations, giving consumers control of personal data and for business innovation

- Blockchain
- Smart Cities
- IoT
- Cross Border Data
- Data Portability

NEXT STEPS

Our research focusses on identifying digital standards that the Australian and Singapore Governments could ***jointly*** focus on.

Current research is focussed on:

- Investigating areas of digital growth of mutual benefit to both economies
- Estimating the size of digital trade growth in the short-to-medium-term
- Identifying a set of priority digital standards for development

Research Report to be delivered in Jun-Jul 2020

APPENDIX

EXAMPLES OF DIGITAL STANDARDS

Digital Trade Areas	Standards for Alignment
Financial Messaging and Payments	• SWIFT Message Types (MT) and ISO 15022 • ISO 8583 -Financial transaction card originated messages - Interchange message specifications • ISO 20022 universal financial industry message scheme
E-invoicing	• EN16931 – European standard on e-invoicing for public procurement *PEPPOL BIS Billing 3.0 is a Core Invoice Usage Specification (CIUS) of the European standard for e-invoicing (EN16931)*
Digital Trade Enablers	
Digital Identity	• ISO/IEC 24760-1:2019 IT Security and Privacy – A Framework for Identity Management • ISO/IEC 24745:2011 Information Technology - Security Techniques - Biometric Information Protection • ISO/IEC 19784-1:2018 Information technology — Biometric application programming interface — Part 1: BioAPI specification • ISO/IEC 19794-x:2011 - Information technology - Biometric data interchange formats — Part 1: Framework; Part 2: Finger minutiae data; Part 4: Finger image data; Part 5: Face image data; Part 6: Iris image data • FIDO Universal Authentication Framework
Privacy	• ISO/IEC 29100:2011: Information technology -- Security techniques -- Privacy framework • ISO/IEC 29101:2018: Information technology -- Security techniques -- Privacy architecture framework • ISO/IEC 27018:2019: Information technology -- Security techniques -- Code of practice for protection of personally identifiable information (PII) in public clouds acting as PII processors • ISO/IEC 27701:2019: Security techniques -- Extension to ISO/IEC 27001 and ISO/IEC 27002 for privacy information management -- Requirements and guidelines

EXAMPLE OF DIGITAL STANDARDS

Emerging Digital Trade Areas	
Internet of Things	• IEC 61850:2019 SER - Communication networks and systems for power utility automation (All Parts) • IEEE P2418.1 - Standard for the Framework of Blockchain Use in Internet of Things (IoT) • ISO/IEC/IEEE 42010: 2011 Systems and software engineering — Architecture description
Blockchain	• ISO/TR 23455:2019; Overview of and interactions between smart contracts in blockchain and distributed ledger technology systems • IEEE P2418.1 Standard for the Framework of Blockchain Use in IoT
Artificial Intelligence	• IEEE Standards Association (SA)'s Autonomous and Intelligent Systems (A/IS) standards P7000 series. • International Telecommunications Union (ITU), ITU-T Y.3172 (06/2019) Architectural framework for machine learning in future networks • ISO/IEC 20546:2019 - Information technology - Big data - Overview and vocabulary • ISO/IEC TR 20547-2:2018 - Information technology - Big data reference architecture - Part 2: Use cases and derived requirements • ISO/IEC TR 20547-5:2018 - Information technology - Big data reference architecture - Part 5: Standards roadmap
Smart Cities	• ISO/IEC 20005:2013 Information technology -- Sensor networks -- Services and interfaces supporting collaborative information processing in intelligent sensor networks • ISO/IEC 29182-1:2013 Information technology -- Sensor networks: Sensor Network Reference Architecture (SNRA) -- Part 1: General overview and requirements • ISO/IEC 29182-7:2015 Information technology -- Sensor networks: Sensor Network Reference Architecture (SNRA) -- Part 7: Interoperability guidelines

EXAMPLE: ACCELERATING USE OF ARTIFICIAL INTELLIGENCE

Standards make it easier and secure to adopt AI

International Standards for AI

- IEEE Standards Association (SA)'s Autonomous and Intelligent Systems standards P7000 series.
- International Telecommunications Union (ITU), ITU-T Y.3172 (06/2019) Architectural framework for machine learning in future networks
- ISO/IEC 20546:2019 - Information technology - Big data - Overview and vocabulary

AI

general-purpose technology which offers news forms of automation to enhance decision making

AI increases productivity in economic sectors of interest to Australia and Singapore

Economic impact of AI

- **Singapore**- AI has the potential to become a US$960 million market in 2022 and US$16 billion by 2030 with a CAGR of 42.2%
- **Australia** - Digital technologies, including AI, are potentially worth AU$315 billion to the Australian economy by 2028

FUTURE DIGITAL TRADE