WIPO Blockchain webinar

Interoperability and Governance in Blockchain Standards

Gilbert Verdian – Convenor SG7/WG7 Interoperability – ISO/TC307

ISO/TC307 Liaison for INATBA

Chair of DLT/1 – BSI Mirror Committee

History of Blockchain Standard

2009

At HM Treasury
- Introduced UK Government to Bitcoin and Blockchain
- Economic assessment and policy review
- Concluded that "this will not have any material impact to the UK's economy"
- Kept on working in this space – after all, it is really cryptography

2014

Mainstream
- A lot of talk about what we can do with the Bitcoin underlying technology
- Ethereum concept. Ripple, Stellar, xCoins etc
- "Blockchain" name became popular

2015

Business Problem from Government
- Wasn't happy that blockchain was progressing in silos
- Came up with the concept and architecture of Interoperability and Governance
- Started talking about identifying use cases – NSW Health for electronic records and data sharing

2016

ISO
- Started drafting the idea and proposal with Standards Australia
- Pushed to get people behind it. "Too early", "Stifle innovation", "Why??"
- October 2016 – ISO Approval

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Why are we building closed proprietary technology in isolation?

We've been here before

1990's: Online Service Providers - Proprietary Networks are limited

?

Compuserve

Prodigy

America Online

2015: Need for Blockchain ISO Standards

Russian Finance Firms Form Blockchain Consortium

A group of Russian banks and financial services companies has formed a private-sector consortium focused on blockchain applications.

- Coindesk 1 July 2016

Blockchain: Standards Wanted

Long reliant on collaborative standard-setting, the financial industry looks for more of the same to realize the operational and risk-mitigation potential of blockchain

- GARP – Global Association of Risk Professionals 8 April 2016

Australia's peak standard-setting body, Standards Australia, is calling on the International Standards Organisation to begin work on global standards for blockchain.

The organisation has asked the Geneva-based ISO to begin working on standards for blockchain, the technology behind digital currency bitcoin, offering the assistance of Australian expertise.

China creates blockchain coalition ChinaLedger Union

The country's blockchain industry organises distributed ledger-based coalition in Beijing supported by Chinese National Assembly and aiming to standardise the application of blockchain.

- 20 April 2016

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2015: Proposed Blockchain ISO Standard

The proposed work is to:

- define this standard
- create the mechanism to be a gateway to multiple blockchains
- create the **governance** framework
- have **interoperability** and compatibility with existing financial standards
- provide legal and **regulatory compliance** to each transaction across blockchains
- work towards a **regulatory framework** that provides a mix of legal and technical rules


ISO

Form 1: Proposal for a new field of technical activity

http://www.remitt.com/wp-content/uploads/2016/09/ISO-TSP-256-Blockchain-and-Electronic-Distributed-Ledger-Technologies.pdf

2015: Proposed Blockchain ISO Standard

To address key areas such as:

- **Terminology** – Having a common language and terminology to define the interoperability of blockchain
- **Process and Methods** – the mechanism and messaging standards around inter-blockchain communication including routing.
- **Trust and Interoperability** – Develop the standards that incorporate messaging protocols and methods to route, trust and connect to different blockchains. Establishing a standard API (Application Programming Interface) and set of routines and tools for building blockchain software and applications
- **Privacy and Security** – Ensure the confidentiality, integrity and availability of users and entities are maintained. Embed compliance to money laundering and KYC (know your customer) requirements.
- **Authentication** – ability to map blockchain transactions to individual users and entities in a secure manner. Store credentials on the blockchain or align/federate to a sidechain (off blockchain)

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1st Plenary – Sydney April 2017

National, European and international standards

BSI as NSB manages BS, EN & ISO, IEC standards.

All EN and most international standards are "adopted" as British Standards

Private & professional standards, codes and guidance

TC307 Standards under development

ISO/DTR 3242
Blockchain and distributed ledger technologies – Use cases

ISO/WD TR 6039
Blockchain and distributed ledger technologies - Identifiers of subjects and objects for the design of blockchain systems

ISO/WD TR 6277
Blockchain and distributed ledger technologies – Data flow model for blockchain and DLT use cases

ISO/WD 22739
Blockchain and distributed ledger technologies — Vocabulary

ISO/DTR 23249
Blockchain and distributed ledger technologies – Overview of existing DLT systems for identity management

ISO/FDIS 23257
Blockchain and distributed ledger technologies — Reference architecture

ISO/TS 23258
Blockchain and distributed ledger technologies — Taxonomy and Ontology

ISO/WD TS 23259
Blockchain and distributed ledger technologies — Legally binding smart contracts

ISO/DTS 23635.2
Blockchain and distributed ledger technologies — Guidelines for governance

ISO/WD TR 23642
Blockchain and distributed ledger technologies - Overview of smart contract security good practice and issues

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TC307 Working Groups

ISO/TC 307/AG 1	SBP Review Advisory Group
ISO/TC 307/AG 2	Liaison Advisory Group
ISO/TC 307/AHG 2	Guidance for Auditing DLT Systems
ISO/TC 307/CAG 1	Convenors coordination group
ISO/TC 307/JWG 4	Joint ISO/TC 307 - ISO/IEC JTC 1/SC 27 WG: Blockchain and distributed ledger technologies and IT Security techniques
ISO/TC 307/SG 7/WG7	Interoperability of blockchain and distributed ledger technology systems
ISO/TC 307/WG 1	Foundations
ISO/TC 307/WG 2	Security, privacy and identity
ISO/TC 307/WG 3	Smart contracts and their applications
ISO/TC 307/WG 5	Governance
ISO/TC 307/WG 6	Use cases

JOINT WORKING GROUPS UNDER THE RESPONSIBILITY OF ANOTHER COMMITTEE

REFERENCE	TITLE
ISO/TC 46/SC 11/JWG 1	Joint ISO/TC 46/SC 11 - ISO/TC 307 WG: Blockchain

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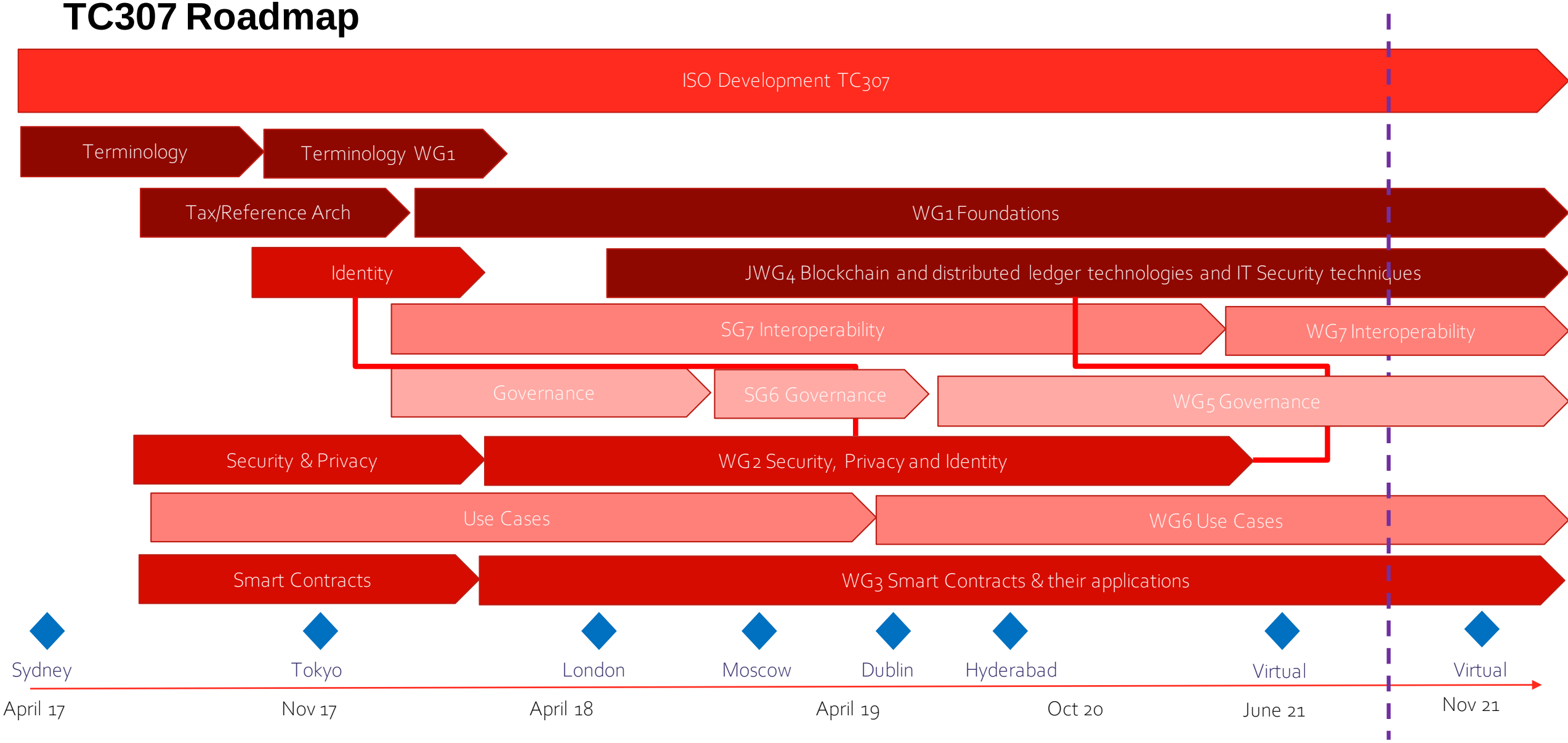
TC307 Roadmap



SG7/WG7 – Interoperability

Defining an Interoperability Framework

Leveraging Cloud Interoperability Standard

- ISO/IEC 19941:2017

Providing a framework to cover

- Governance Interoperability
- Business Interoperability
- Technical Interoperability

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Transport Facet

DLT is often thought of operating in an Internet-based environment; however, DLT can operate in other networking environments as well. The Transport facet deals with the communications infrastructure – how to get bytes of data from one system to another.

Syntactic facet

Syntactic interoperability is defined as “interoperability such that the formats of the exchanged information can be understood by the participating systems.”

Semantic Data facet

Semantic data interoperability as interoperability such that the meaning of the data model within the context of a subject area is understood by the participating systems.

Behavioural facet

Behavioural interoperability is defined as interoperability so that the actual result of the exchange achieves the expected outcome.

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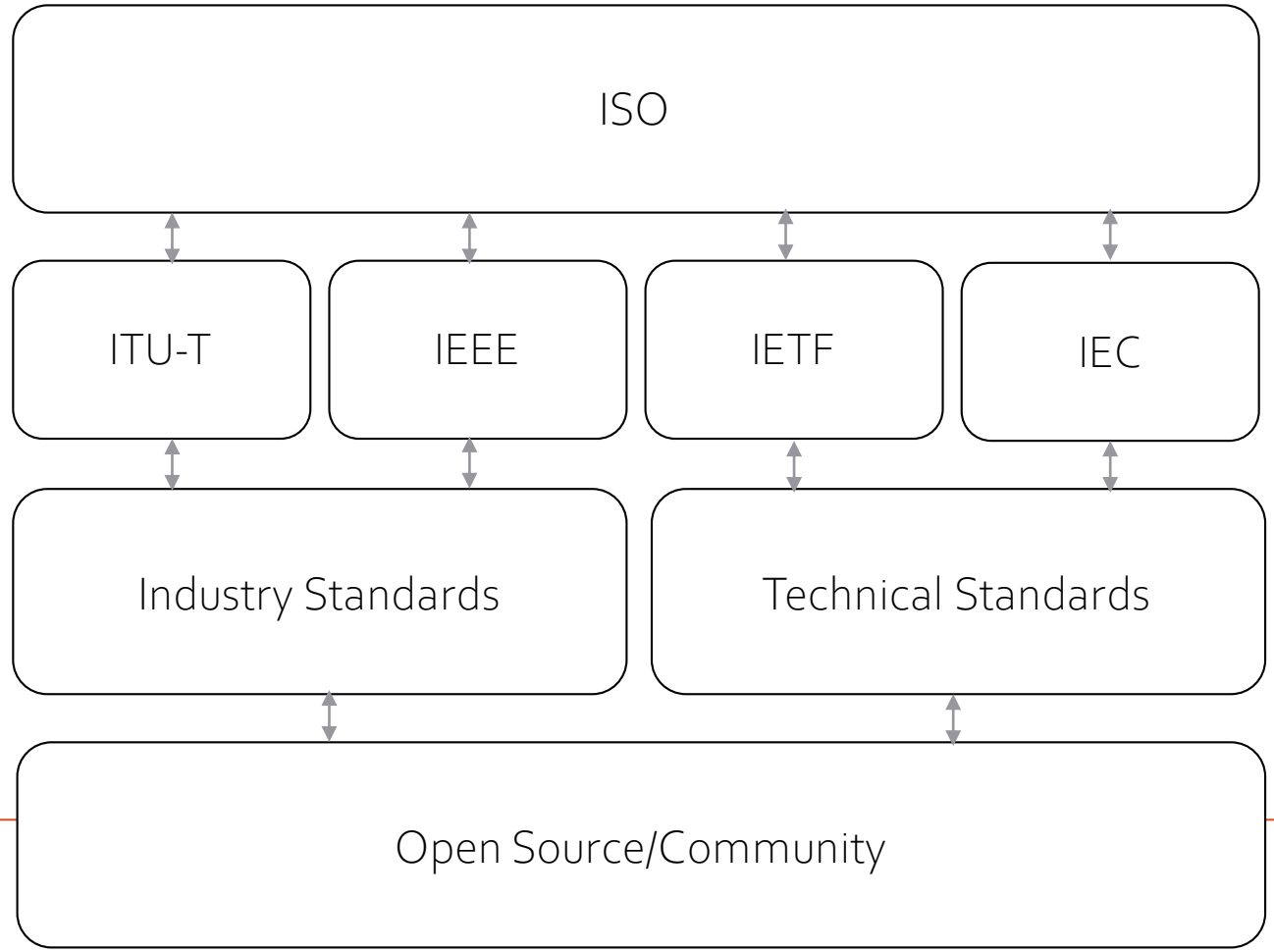
Policy facet

Policy interoperability while complying with the legal, organizational and policy frameworks applicable to the participating systems.

Interoperability Standardisation Collaboration

Possible framework for collaboration

Interoperability "Stack"



Standards Bodies

Interoperability Type

- Governance
- Business
- Technical

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Thank you

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