SECURITY OF DLT NETWORKS

A Distributed Ledger Technology Security Framework for the Financial Services Industry

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SPEAKER

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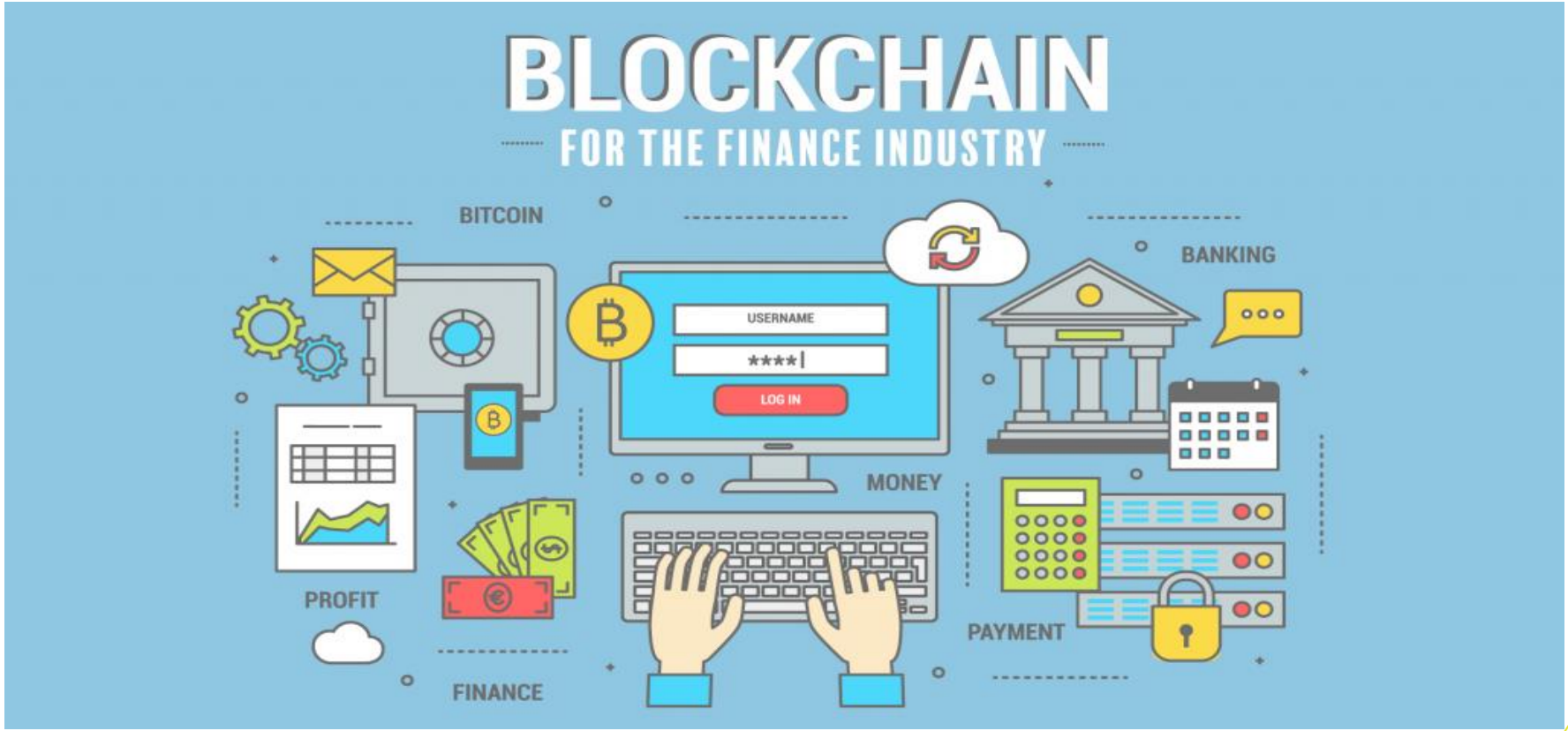
Jyoti Ponnapalli is a Distributed Ledger Technologies Lead in Technology Risk Management team at DTCC working towards the distributed ledger technologies security research. She is involved in CSA Blockchain Working Group Initiatives focused on developing security of DLT / Blockchain Protocols as well as DTCC led proposal for potential formation of a consortium to build an industry agreed upon framework for DLT Security. Prior to joining DTCC, she delivered strategic solutions and roadmaps of Value Chain using Blockchain for Retail supply chains, Chemical and Energy Industries.

AGENDA

- INTRODUCTION
- FINANCIAL SERVICES DLT
- DTCC CONNECTION
- DLT SECURITY FRAMEWORK FOR FINANCIAL SERVICES INDUSTRY
- INDUSTRY CALL TO ACTION
- DTCC ALLIANCES
- CONTACT INFO

BLOCKCHAIN FOR FINANCE INDUSTRY



USE CASES IN FINANCE

- Capital Markets
- Asset Management
- Payment & Remittances
- Banking & Lending
- Trade Finance
- Insurance
- Clearing & Settlement

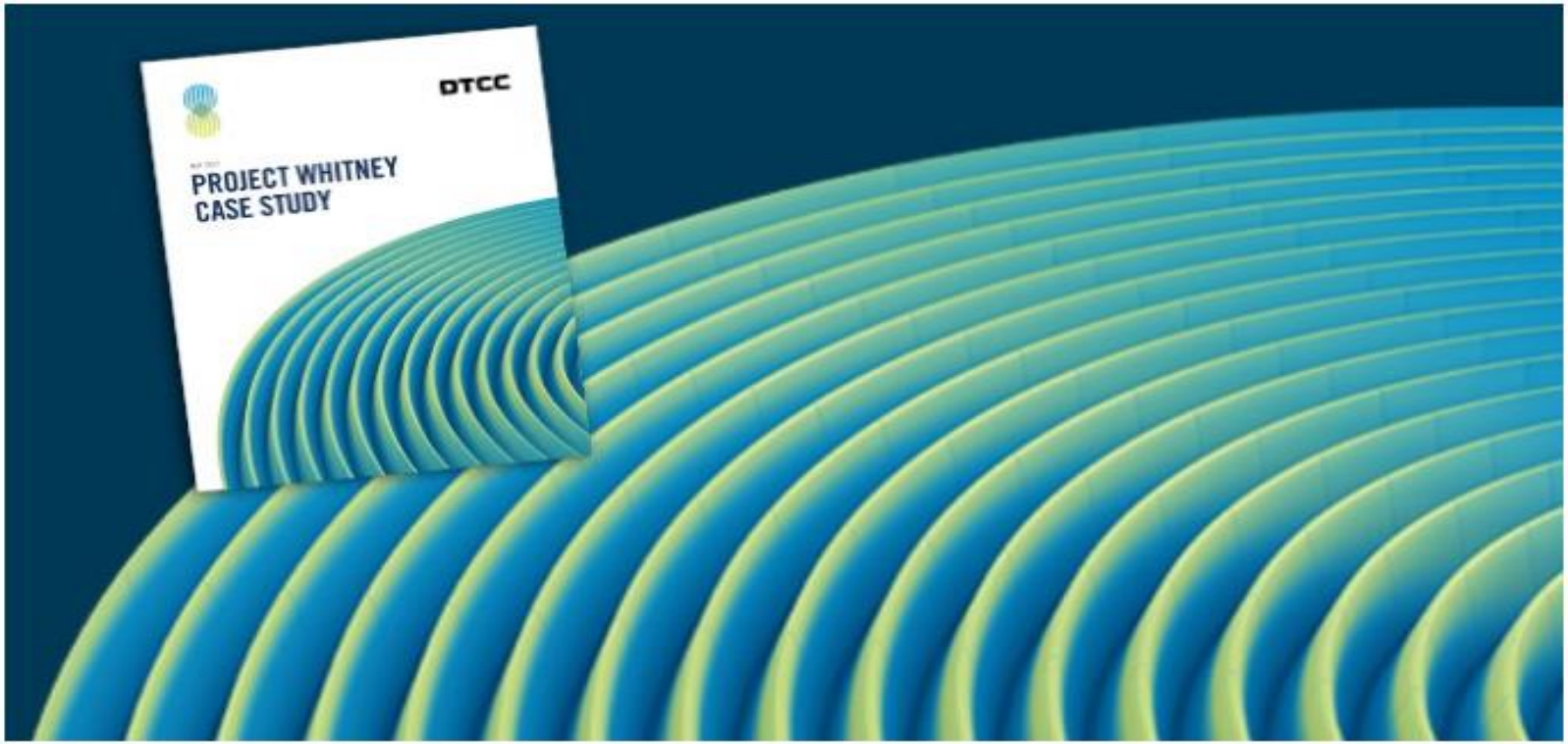
TOKENS - EVERYWHERE

Token type	Description
Security token	Tokens issued by ICO are security tokens(investing in ICO, same as traditional securities under swiss law)
Debt token	Represents debts and liabilities. (e.g. Bonds, mortgage)
Commodity token	The value is determined with market operations and supply and demand
Equity token	Corporate ownership, equity in company issuing the token with voting capability.
Utility token	Platform-dedicated tokens which provide access to a product or service.
Reward token	Platform-dedicated tokens which serves as a medium for scoring.
Asset token	A digital certificate that represents a physical or real-world asset.

DTCC CONNECTION

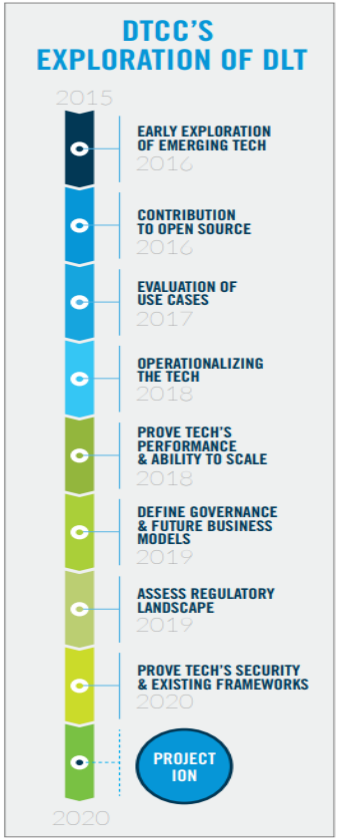
- https://www.dtcc.com/blockchain
- https://medium.com/@DTCC_Connection
- https://perspectives.dtcc.com/articles/security-of-dlt-networks

Modern Digital Infrastructure for Private Market Securities

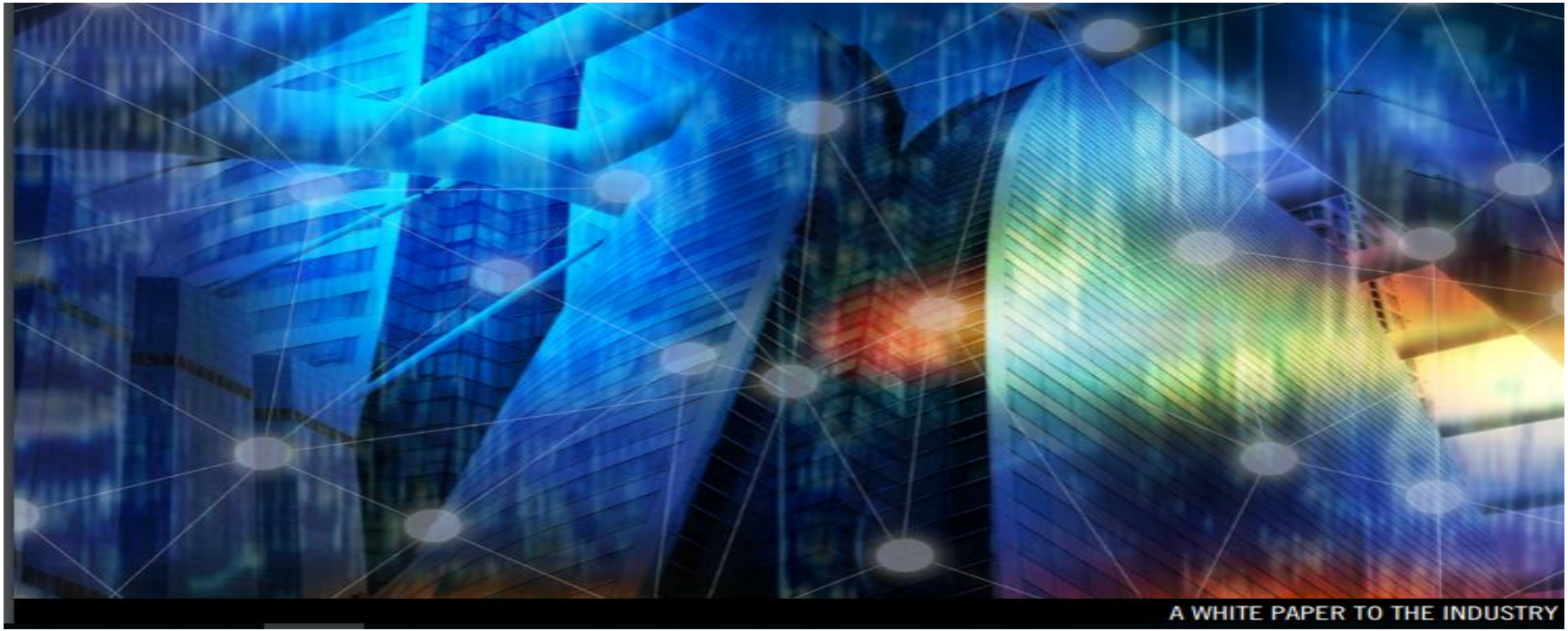


	CHALLENGE	PAIN POINTS
PRIVATE MARKETES	MANUAL PROCESSES	• Paper-based transfer of ownership • Costly, error prone, slow
	MARKET FRAGMENTATION	• Siloed solutions = 'walled gardens' • Lack of industry standardization
	INEFFICIENT SUITABILITY	• Bespoke and issue-specific compliance and suitability rules • Reactive compliance enforcement
TOKENIZED ASSETS	PUBLIC BLOCKCHAINS	• Nascency of smart contracts • Limited performance / throughput
	REGULATORY UNCERTAINTY	• Low confidence in public blockchains • Risk of private key loss or theft
	TRUSTED PROVIDERS	• Entrants with limited experience running regulated services • Lack of institutional grade infrastructure

Advancing Together: Moving Settlement Processes to T+0



DLT SECURITY FRAMEWORK FOR FINANCIAL SERVICES INDUSTRY



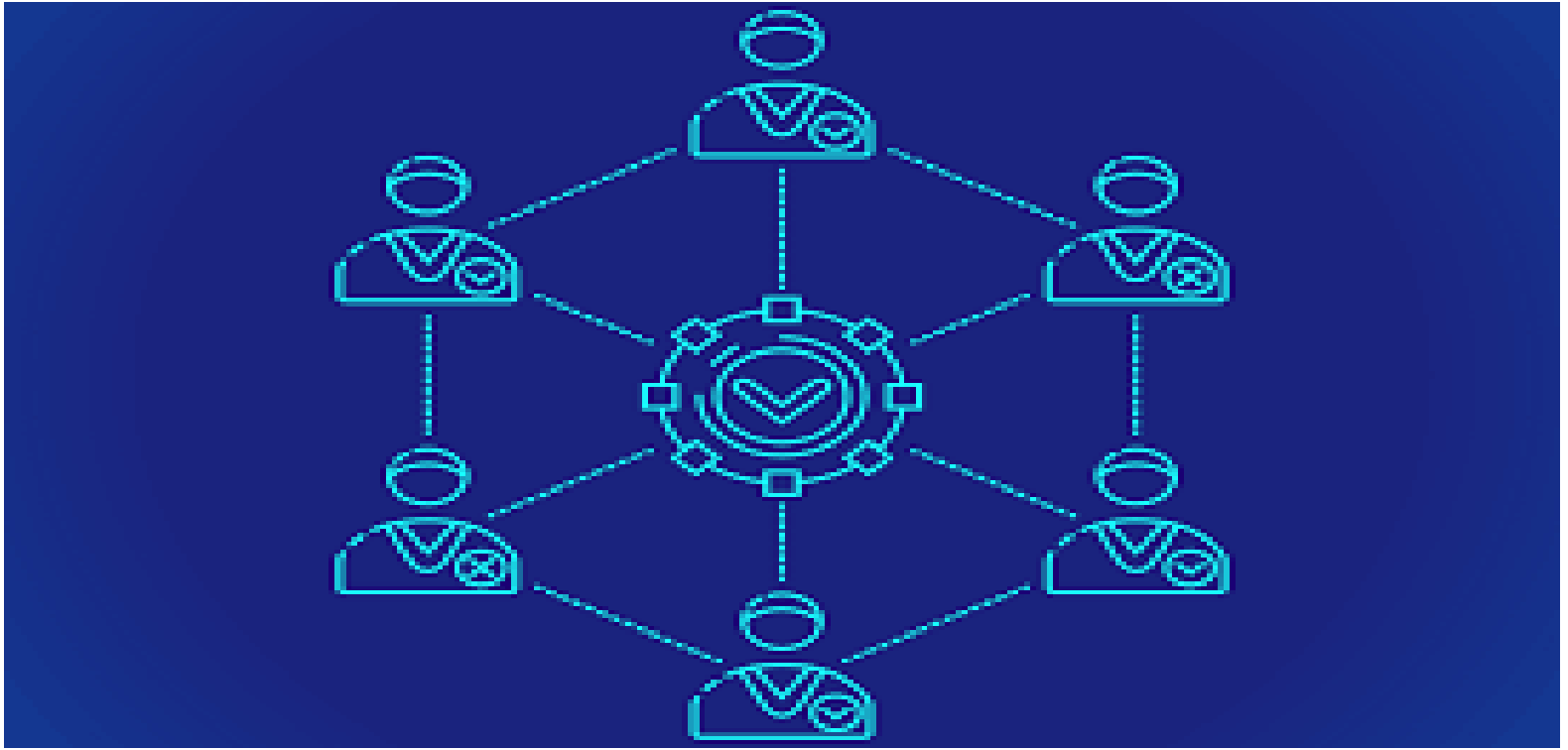
SECURITY OF DLT NETWORKS

- DLT VALUE PROPOSITIONS
- IDENTITY MEASURES
- DATA INTEGRITY
- CONSENSUS MECHANISMS
- TRANSACTION EFFICIENCIES
- COMPLIANCE
- SECURITY ASSESSMENTS

IDENTITY MEASURES

DATA INTEGRITY

CONSENSUS

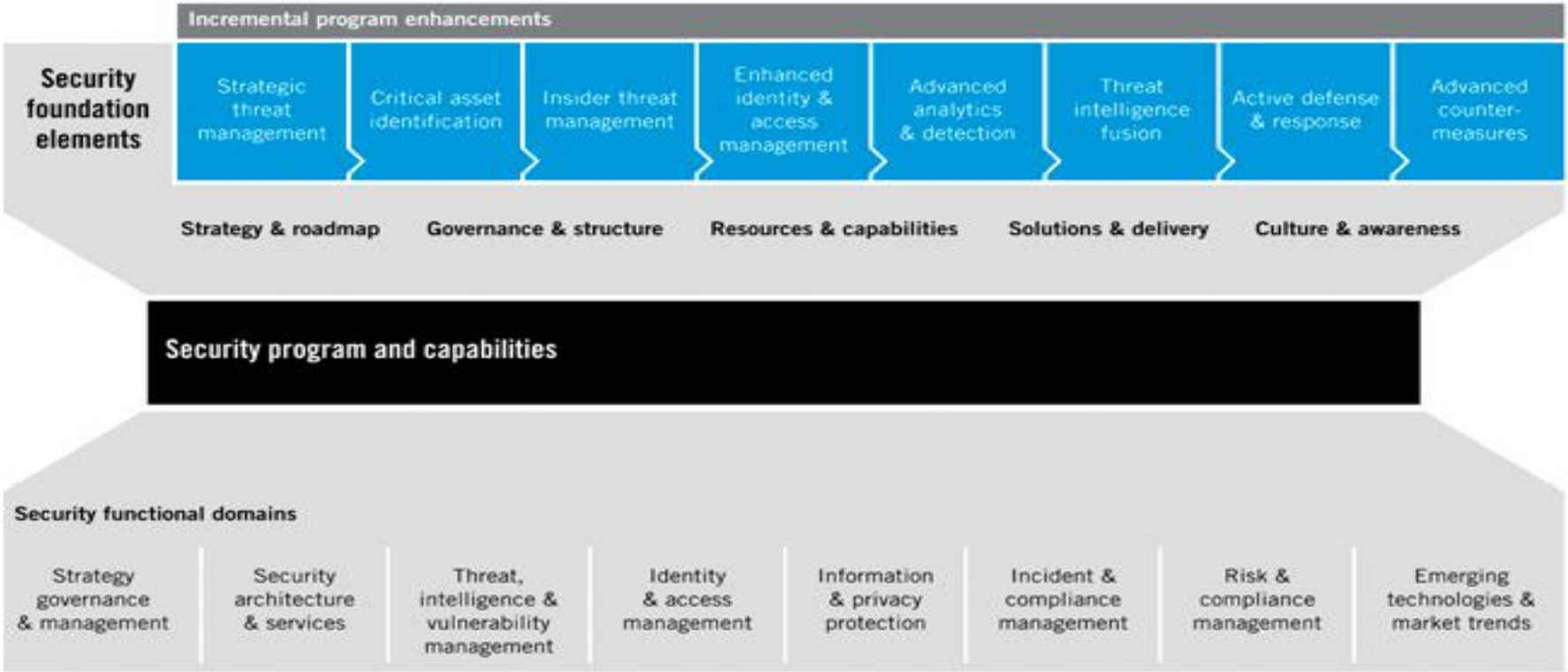


TRANSACTIONAL EFFICIENCIES

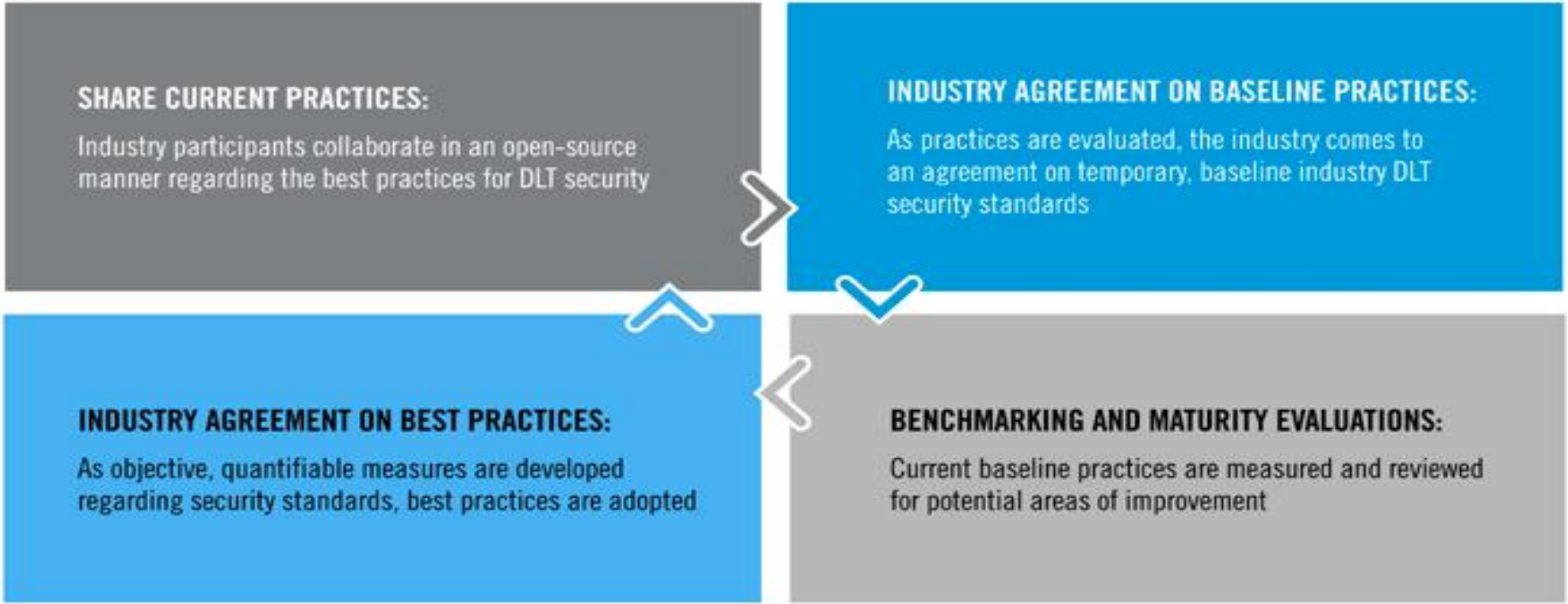
SECURITY ASSURANCE CONSIDERATIONS FOR DLT

- Governance and Compliance
- Identification, authorization and access.
- Secure coding
- Cryptographic key management
- Network & Consensus
- Data Information & Integrity
- Incident Management
- Financial and performance metrics
- Transactions
- Systems
- Vendor Management
- Operations
- Maintenance

SECURITY BASELINE CONSIDERATIONS FOR DLT



CALL TO ACTION



DTCC CONTRIBUTIONS

InterWork Alliance

CSA cloud security alliance®

HYPERLEDGER

ENTERPRISE ETHEREUM ALLIANCE

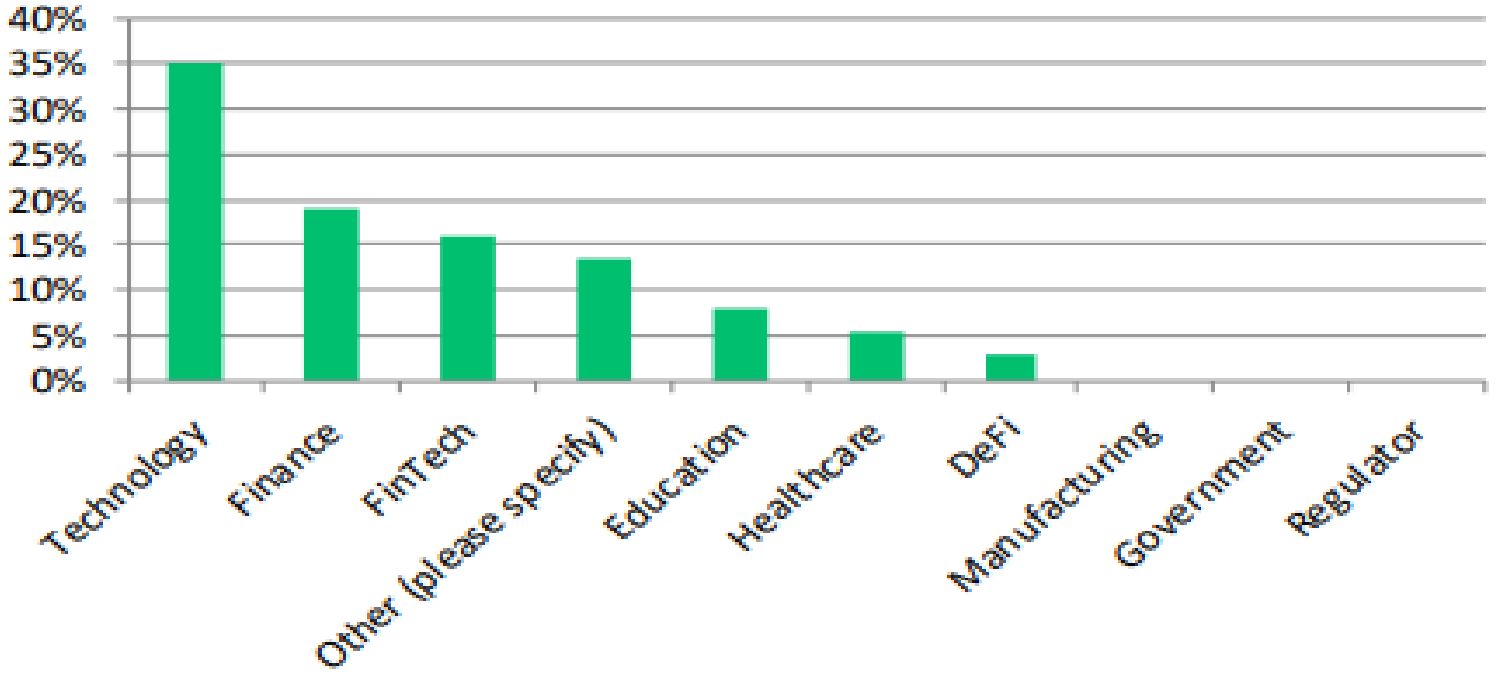
DLT SECURITY FRAMEWORK - KEY OBJECTIVES

- Standardized Security Assessments for DLT platforms and services
- Security Assurance guidelines for DLT providers and users
- Security Baselines for DLT Platform providers and users
- Best practices, guides, assessment and testing tools, standards, and commercial services
- Comprised of a combination of Open Source and commercial items
- Refined and matured through existing open Financial Services Industry organizations
- Assist with the collaboration with regulators for standards for DLT Security

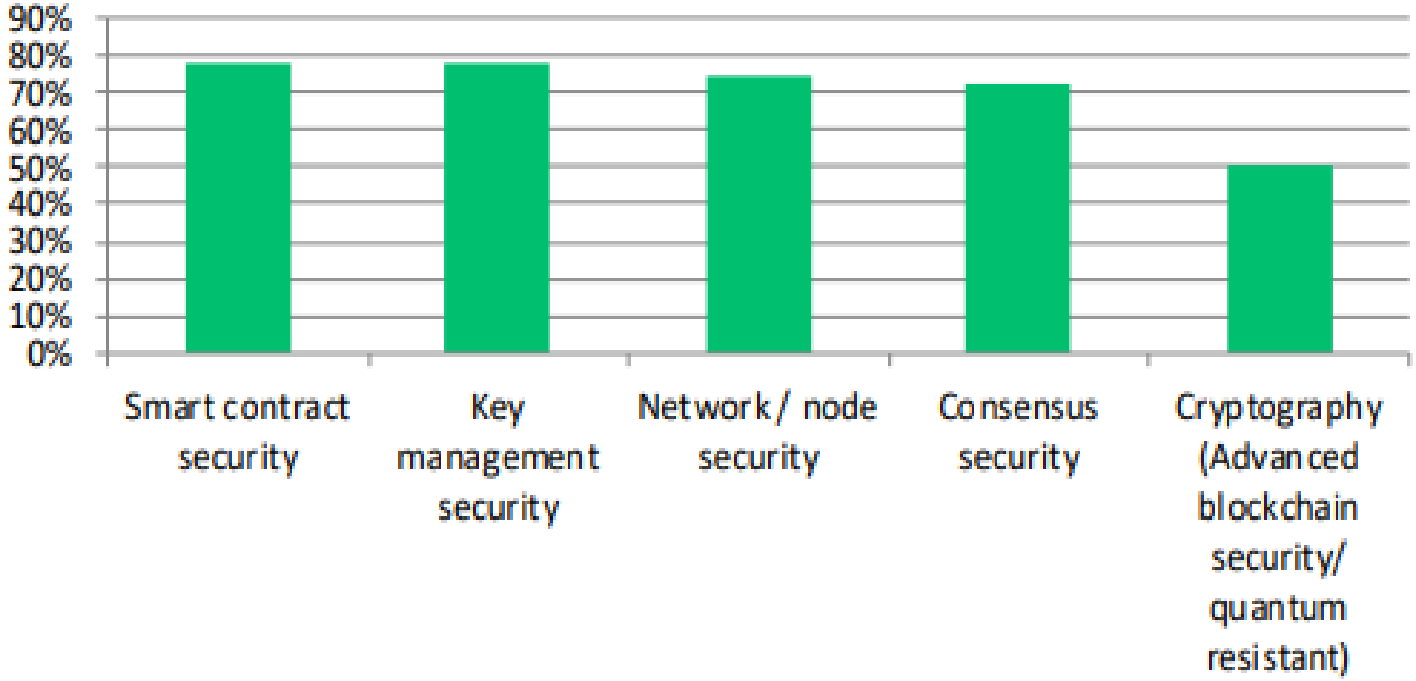
GLOBAL DLT SECURITY FRAMEWORK CONSORTIUM

- Community : 99 DLT/Blockchain Experts
- Cadence : Biweekly
- Time zones : EST, IST, CST, PST, GMT
- Global Distribution
- Affiliations : DTCC, BNY Mellon, JP Morgan, Hyperledger, Microsoft, etc.
- Global Academic Institutional Representation.

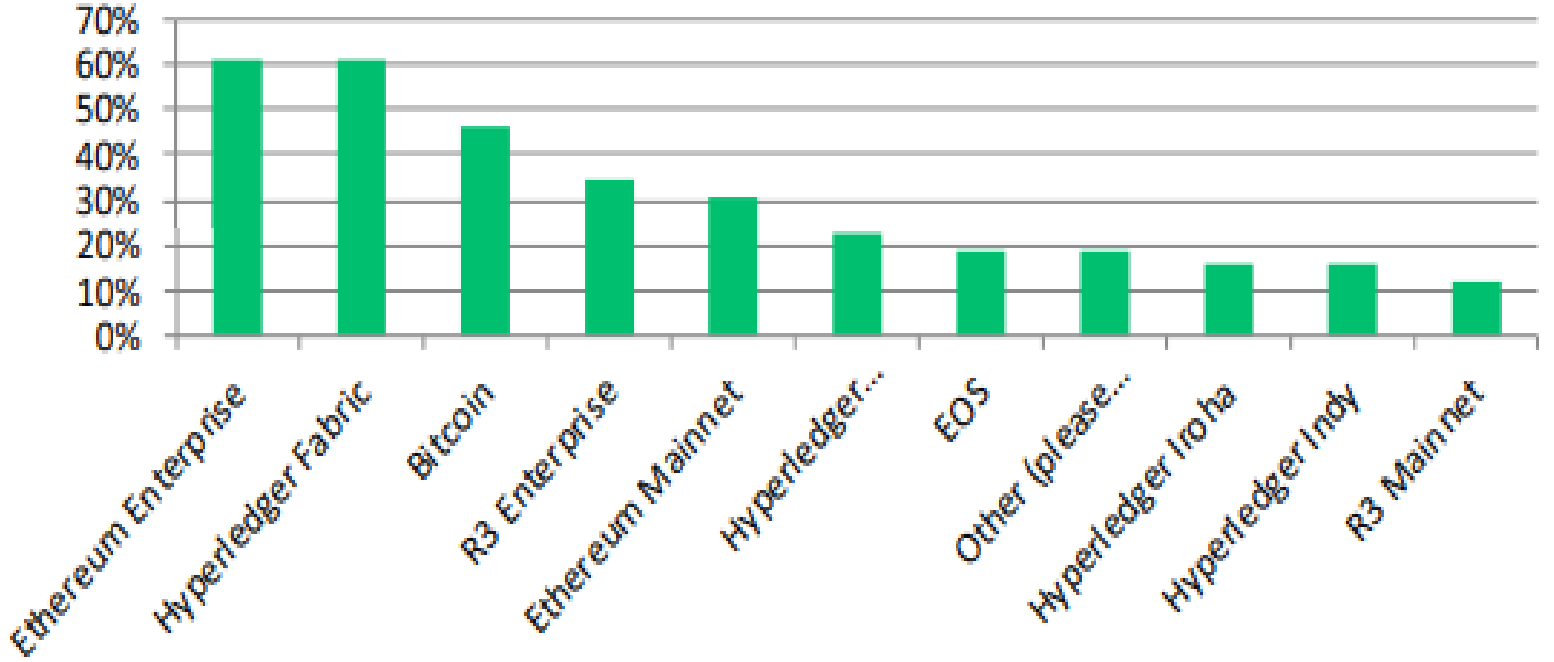
INDUSTRY REPRESENTATION



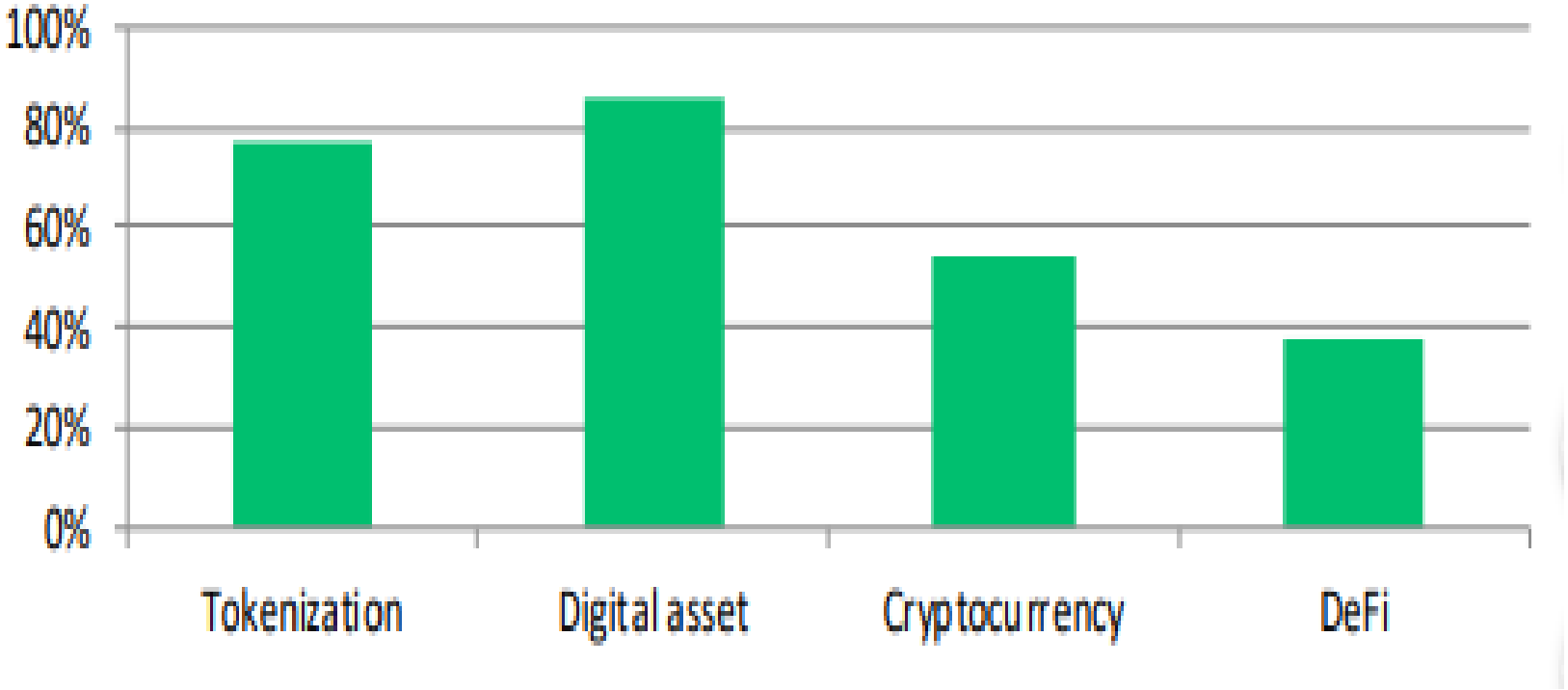
FOCUS AREAS


90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Smart contract security
Key management security
Network / node security
Consensus security
Cryptography (Advanced blockchain security/ quantum resistant)

PROTOCOLS


70%
60%
50%
40%
30%
20%
10%
0%
Ethereum Enterprise
Hyperledger Fabric
Bitcoin
R3 Enterprise
Ethereum Mainnet
Hyperledger...
EOS
Other (please...
Hyperledger Iroha
Hyperledger Indy
R3 Mainnet

USE CASES


100%
80%
60%
40%
20%
0%
Tokenization
Digital asset
Cryptocurrency
DeFi

CONTACTS

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