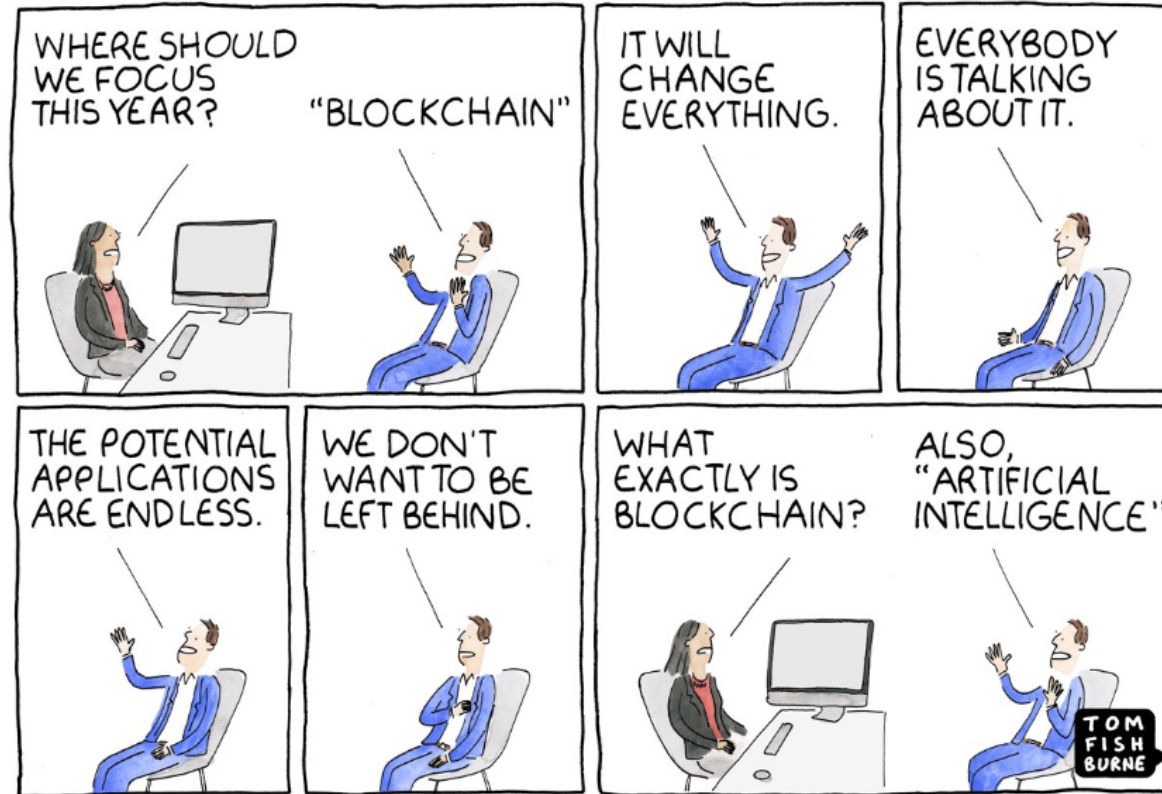


Blockchain / Distributed Ledger Technology

Emerging Legal Issues and Business Trends

Michael D. Palage
(Michael@Palage.com)

Blockchain: Hip or Hype



© marketoonist.com

Blockchain/DLT - Cryptocurrency

- October 2008 – White Paper entitled “Bitcoin: A Peer-to-Peer Electronic Cash System” written by Satoshi Nakamoto is published.

- Bitcoin's valuation/market cap (today)

\$6,586.09 USD (0.01%)
1.00000000 BTC (0.00%)

Buy ▼ Trade ▼ Get Wallet ▼ Get Loan ▼

◀ Share ★ Watch

Market Cap	Volume (24h)	Circulating Supply	Max Supply
\$114,009,964,415 USD 17,310,712 BTC	\$3,302,509,862 USD 501,702 BTC	17,310,712 BTC	21,000,000 BTC

- Ethereum's valuation/market cap (today)

\$224.86 USD (0.05%)
0.03415333 BTC (-0.37%)

Buy ▼ Trade ▼ Get Wallet ▼ Get Loan ▼

◀ Share ★ Watch

Market Cap	Volume (24h)	Circulating Supply
\$23,033,839,504 USD 3,498,587 BTC	\$1,407,821,430 USD 213,833 BTC	102,437,645 ETH

Source:
<https://coinmarketcap.com/currencies>

Blockchain/DLT - Cryptocurrency

- Total cryptocurrency market capitalization: 223.3 billion

	Parameter	1-Jan-18	1-Apr-18	QoQ, %	1-July-18	QoQ, %	1-Oct-18	MoM, %
1	Total market capitalization, USD billion	612.9	263.9	-56.9%	257.7	-2.3%	223.3	-13.3%
2	Altcoin market capitalization, USD billion	376.2	145.2	-61.4%	147.9	1.9%	108.8	-26.4%
	Altcoin dominance, %	61.4%	55.0%	-	57.4%	-	48.7%	-
3	Bitcoin price, \$	14 112.2	7 003.1	-50.4%	6 411.7	-8.4%	6 619.9	3.2%
	Bitcoin market capitalization, USD billion	236.7	118.7	-49.9%	109.8	-7.5%	114.5	4.3%
	Bitcoin dominance, %	38.6%	45.0%	-	42.6%	-	51.3%	-
4	Ethereum price, \$	755.8	397.3	-47.4%	455.2	14.6%	233.2	-48.8%
	Ethereum market capitalization, USD billion	73.1	39.1	-46.4%	45.7	16.8%	23.9	-47.8%
	Ethereum dominance, %	11.9%	14.8%	-	17.7%	-	10.7%	-
5	Bitcoin Cash price, \$	2 534.8	688.0	-72.9%	749.2	8.9%	531.6	-29.0%
	Bitcoin Cash market capitalization, USD billion	42.8	11.7	-72.6%	12.9	9.9%	9.2	-28.4%
	Bitcoin Cash dominance, %	7.0%	4.4%	-	5.0%	-	4.1%	-
6	Litecoin price, \$	231.7	116.9	-49.5%	81.5	-30.3%	61.1	-25.0%
	Litecoin market capitalization, USD billion	12.6	6.5	-48.3%	4.7	-28.6%	3.6	-23.3%
	Litecoin dominance, %	2.1%	2.5%	-	1.8%	-	1.6%	-
7	Volume (24h) 4 crypto, USD billion	15.7	6.4	-59.2%	7.1	11.3%	7.5	4.7%
	Market cap 4 crypto, USD billion	441.6	189.7	-57.0%	186.7	-1.6%	170.9	-8.5%
	ZAK-4 Crypto index	3.6%	3.4%	-	3.8%	-	4.4%	-
	4 crypto dominance, %	72.0%	71.9%	-	72.4%	-	76.5%	-
8	Volume (24h) 8 crypto, USD billion	17.2	7.2	-58.0%	8.2	14.1%	8.7	5.9%
	Market cap 8 crypto, USD billion	488.6	208.7	-57.3%	205.9	-1.4%	186.7	-9.3%
	ZAK-8 Crypto index	3.5%	3.5%	-	4.0%	-	4.7%	-
	8 crypto dominance, %	79.7%	79.1%	-	79.9%	-	83.6%	-

* Data as of October 2, 2018 (all figures calculated at 03:00 UTC)

** Since December 1, 2017, the ZAK-4 index has been calculated using the cryptocurrencies Bitcoin, Ethereum, Ripple, and Bitcoin Cash.

*** When calculating the ZAK-8 index, the cryptocurrencies with the largest capitalization (not including Tether) are used. At present (October 2, 2018), the cryptocurrencies Bitcoin, Ethereum, Ripple, Bitcoin Cash, Cardano, Litecoin, Stellar, and EOS are used to calculate the ZAK-8 index.

**** This report uses the data of ICBox, ICBox Blockchain Research Center (IBRC), and coinmarketcap.com

Source: <https://medium.com/icobox-io/quarterly-cryptocurrency-and-ico-market-analysis-q3-2018-5e75961d931c>

Blockchain/DLT Has Gone Viral - Marketing

Forbes CommunityVoice Connecting expert communities to the Forbes audience. What is This?

2,094 views | Oct 4, 2018, 08:00am

How Much Will Blockchain Really Affect Digital Marketing?



Kristopher Jones CommunityVoice

Forbes Agency Council CommunityVoice ⓘ

POST WRITTEN BY

Kristopher Jones

Founder of LSEO, a full-service SEO Company, and APPEK Mobile Apps, a mobile app development agency. Raised \$1.5M for [Special Guest App](#).

Blockchain/DLT Has Gone Viral - Environment

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Solving The Carbon Problem One Blockchain At A Time



Dr. Jemma Green Contributor ⓘ

Crypto & Blockchain

Blockchain/DLT Has Gone Viral – Supply Chain



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Lettuce on the blockchain: Walmart's push lends legitimacy to much-hyped technology

After an E.coli outbreak in romaine lettuce sickened more than 200 people in April, Walmart pushed suppliers to use IBM's blockchain-based tracking software.

by Jasmin Boyce / Oct.03.2018 / 5:18 PM EDT

Blockchain/DLT Has Gone Viral – Banking

TheStreet

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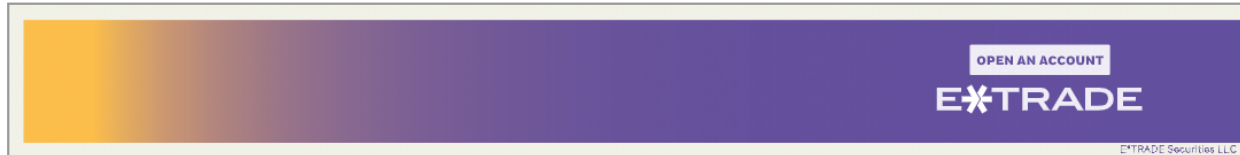
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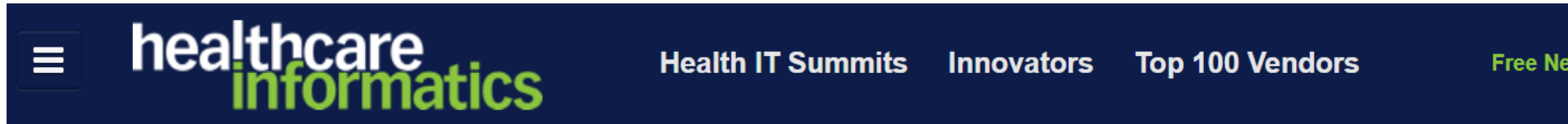
Blockchain Grows Up as Bankers Take the Place of 'Crypto Cowboys'

Many banking and finance execs see blockchain as a transformative technology. But for its potential to be realized, the industry must reckon with its crypto-anarchist roots.

By [Annie Gaus](#)

Oct 6, 2018 10:00 AM EDT

Blockchain/DLT Has Gone Viral – Healthcare



How Blockchain Technology Can Revolutionize Healthcare

September 26, 2018 by David Hanekom, M.D., and Pradeep Goel, Industry Voices



Arizona Care Network, an accountable care organization (ACO) based in Phoenix, and its partner Solve.Care will put blockchain technology to the test



How do providers get better access to patients, deliver the best possible care, and get paid for their services in an accurate and timely fashion? The answer could be found in a game-changing technology called blockchain.

Blockchain is one of the hottest topics in healthcare today because of its promise to improve transparency, drive clinical quality, relieve administrative burdens and reduce costly waste within the system.

One need only look at the financial services industry to understand the value of blockchain technology. Initially used to lower the worldwide cost of cross-border payments, security trading and compliance,

blockchain technology now has the potential to save the banking industry an astounding \$20 billion by 2022, according to estimates by the management consulting firm Accenture.

Blockchain/DLT Has Gone Viral – Security



Blockchain/DLT Has Gone Viral – Government



By Helen Partz

OCT 04, 2018

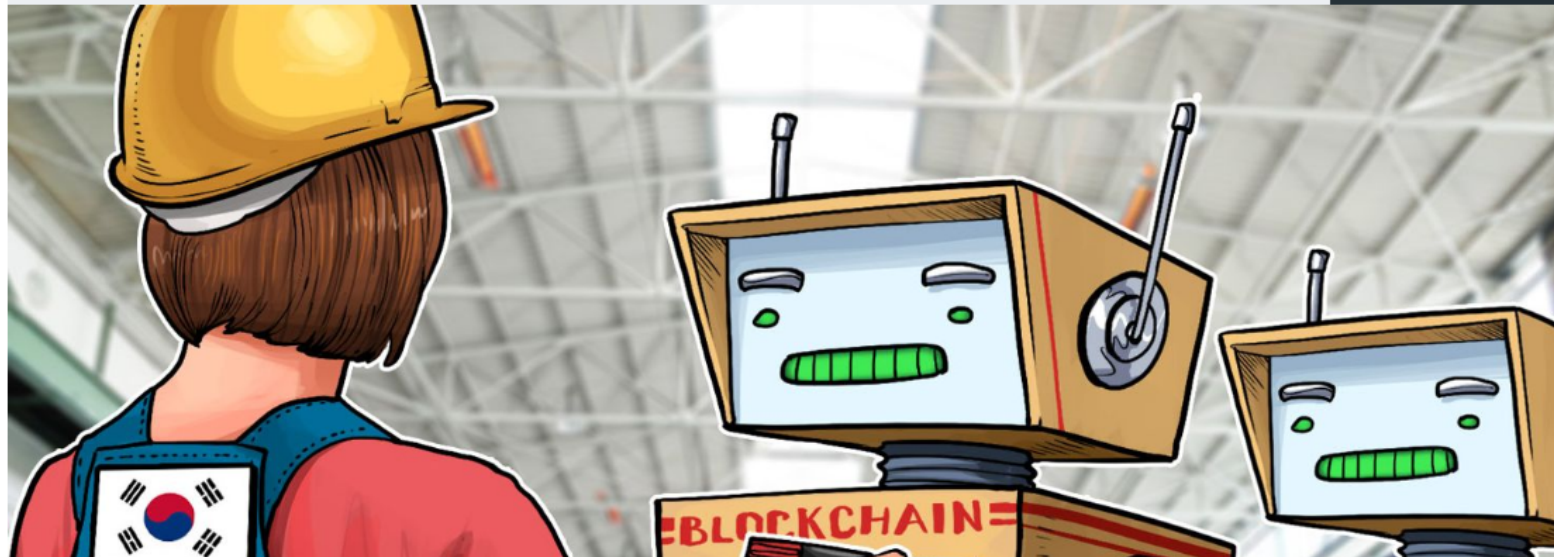
Seoul Mayor Announces Five-Year Plan for Promoting Blockchain Industry

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Blockchain/DLT Has Gone Viral – Intellectual Property

BLOCKCHAIN

Blockchain Patent Filings Spike

By PYMNTS [Twitter](#) [Email](#)

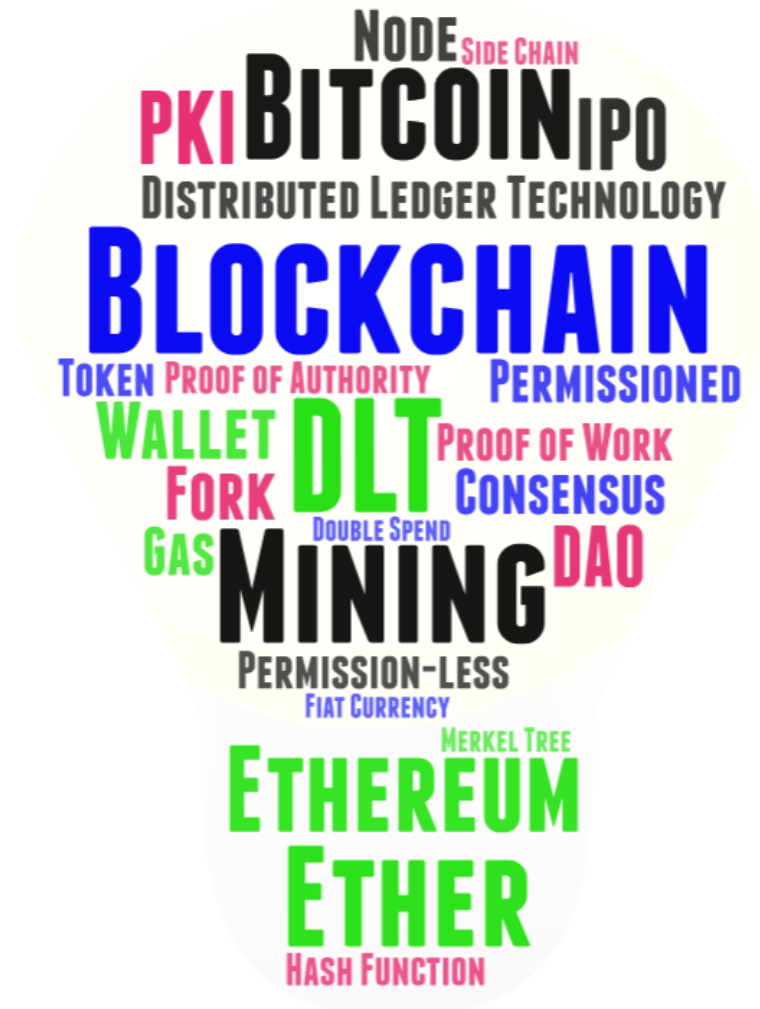
Posted on October 3, 2018



Blockchain/DLT Non-Cryptocurrency Use Cases

- There are a variety of business use cases involving blockchain/DLT that are not cryptocurrency dependent:
 - Health Care / Insurance
 - Cyber Security
 - Digital Identity
 - Internet of Things
 - Financial - Mortgages
- Blockchain: A Multi-Functional 'Swiss Army Knife' for Cybersecurity
<https://www.scmagazineuk.com/blockchain-a-multi-functional-swiss-army-knife-for-cyber-security/article/671040/>

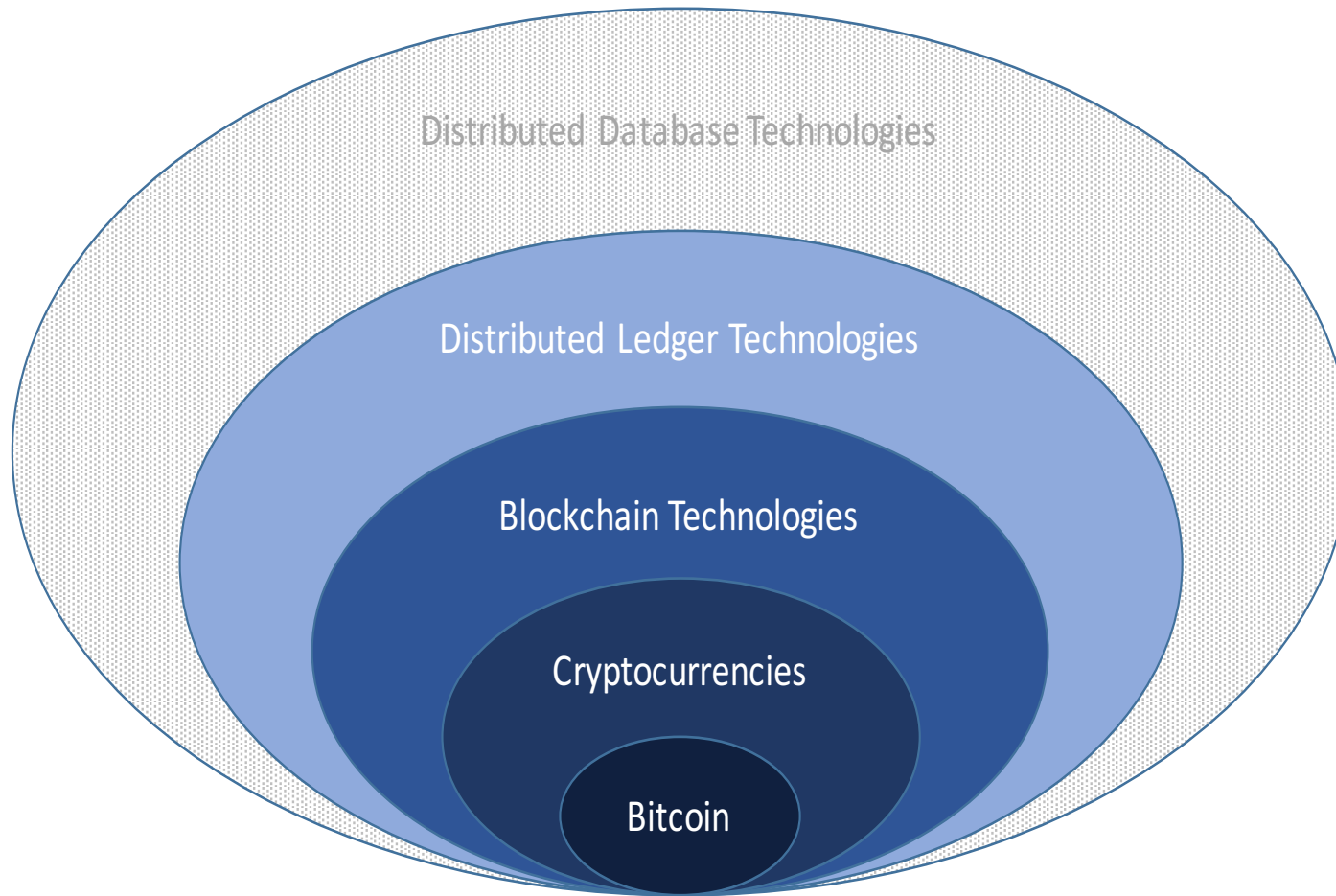
Definitional Level Setting



Statutory Language – AZ HB-2417

“BLOCKCHAIN TECHNOLOGY” MEANS DISTRIBUTED LEDGER TECHNOLOGY THAT USES A DISTRIBUTED, DECENTRALIZED, SHARED AND REPLICATED LEDGER, WHICH MAY BE PUBLIC OR PRIVATE, PERMISSIONED OR PERMISSIONLESS, OR DRIVEN BY TOKENIZED CRYPTO ECONOMICS OR TOKENLESS. THE DATA ON THE LEDGER IS PROTECTED WITH CRYPTOGRAPHY, IS IMMUTABLE AND AUDITABLE AND PROVIDES AN UNCENSORED TRUTH.

Bitcoin vs. “Blockchain” vs. “DLT”



- Bitcoin is the original cryptocurrency using a “blockchain” distributed ledger
- There are now numerous other blockchain cryptocurrencies (e.g. Ethereum, Litecoin, XRP)
- Blockchain technology is now being used as a platform for **Distributed APPLICATIONS**
- There are a number of different distributed ledger architectures (e.g., Hyperledger)
- Distributed ledgers are one type of decentralized data store...

Blockchain/DLT Building Blocks

- The Ledger
- “Blocks” of data
- Peer to Peer Network
- Protocol
- Cryptography
- Consensus
- Permissioned (Closed) / Permission less (Open)

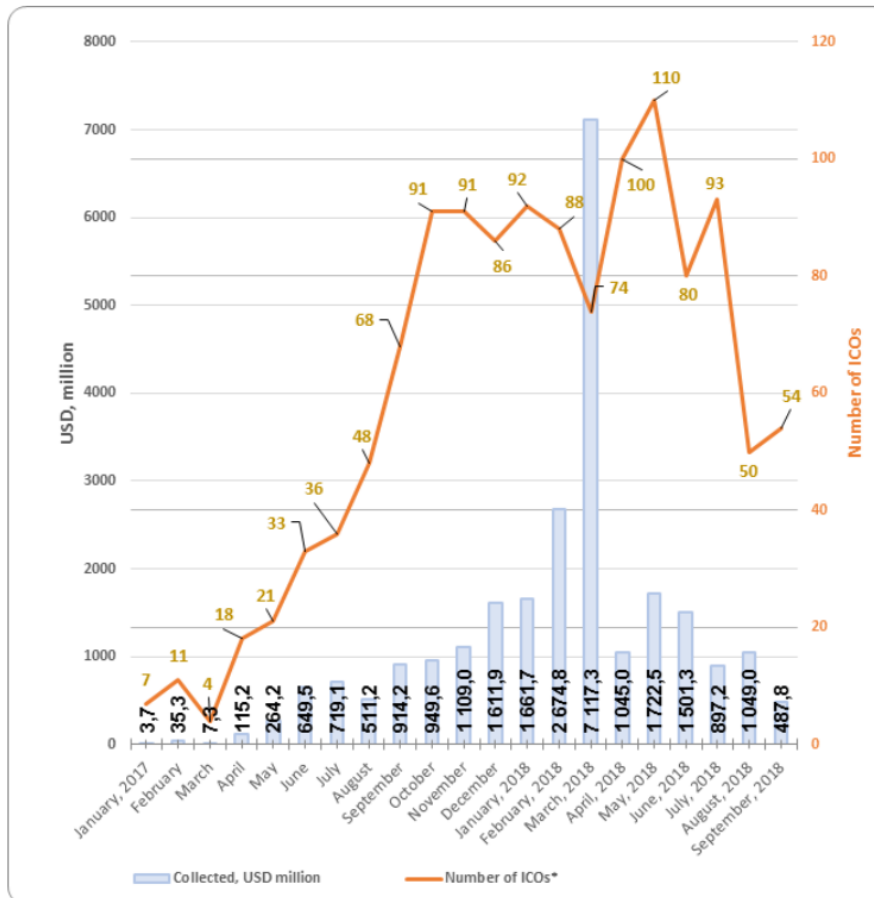
Blockchain/DLT – Emerging Legal Issues

- Initial Coin Offering (ICOs)
- Digital Identity
- Blockchain Specific Legislation/Regulation

Emerging Legal Issues - ICOs

- ICOs have emerged as an alternative to traditional Venture Capital for start-ups.

Figure 1.1. Trends in funds collected and number of ICOs since the start of 2017



Source:

<https://www.coinspeaker.com/2018/10/04/quarterly-ico-market-analysis-q3-2018/>

Emerging Legal Issues - ICOs

- ICOs generally involve the issuance of “tokens”.
- The two most common type of token classifications are “utility tokens” and “security tokens”
- On 25 July 2017, the Security and Exchange Commission (SEC) issued an investigative report in connection with Decentralized Autonomous Organizations (DAOs) regarding the offering and sale of digital assets by "virtual" organizations that are subject to the requirements of the federal securities laws. See <https://www.sec.gov/litigation/investreport/34-81207.pdf>
- SEC v. W.J. Howey Co., 328 U.S. 293, 301 (1946)
- Four prong Howey test:
 - 1- There is an investment of money
 - 2 - There is an expectation of profits
 - 3 - The investment of money is in a common enterprise
 - 4 - Any profit comes from the efforts of a promoter or third party
- The SEC has initiated a number of actions against non-compliant ICOs, see <https://www.sec.gov/ICO>

Blockchain/DLT – Digital Identity

- Cross-border transactions create jurisdictional and conflict of laws issues regarding verification of identity and access to Personal Data
- Tension between immutable blockchain records and the “right to be forgotten”
- Tension between clear text public blockchain records and data anonymization / pseudonymization obligations
- Some links:
 - https://www.infonetworks.global/papers/InfoNetworks_UNOPS_RFI_submission.pdf
 - <https://press.vub.ac.be/vub-research-professor-mireille-hildebrandt-has-been-awarded-a-prestigious-grant-by-the-european-research-council#>)
 - <https://www.coindesk.com/blockchains-personal-data-protection-regulations-explained/>
 - <https://biglawbusiness.com/top-5-privacy-and-security-challenges-for-adopters-of-blockchain-technology-in-health-care/>
 - https://www.hlengage.com/_uploads/downloads/5425GuidetoblockchainV9FORWEB.pdf

Blockchain/DLT – Digital Identity – Trump Administration

- Treasury Report - A Financial System That Creates Economic Opportunities, Nonbank Financials, Fintech, and Innovation, Presidential Report in response to Executive Order 13772 (July 2018)
- This report (page 5) identified “digital legal identity” as one of four key areas thematic areas and specifically acknowledged that:

This report includes a limited treatment of blockchain and distributed ledger technologies. These technologies, as well as digital assets, are being explored separately in an interagency effort led by a working group of the Financial Stability Oversight Council. The working group is a convening mechanism to promote coordination among regulators as these technologies evolve.

Blockchain/DLT – Digital Identity – Trump Administration

- Other technology developments that are poised to impact innovation in financial services include advances in cryptography and distributed ledger technologies, giving rise to blockchain-based networks. (Page 8)
- This digital transformation of the economy and financial services requires wide-ranging changes to the U.S. regulatory system. For example, there is a need to modernize regulations for digitally communicating with consumers. Other regulations that should be implemented are discussed throughout this report and include: updating regulations to better facilitate secure access to digitized data, authentication of digital identity, and support for core financial service activities such as lending, payments, and investment advice. (Page 19)

Blockchain/DLT – Digital Identity – Trump Administration

- Digital Legal Identity

Digital identity products and services hold promise for improving the trustworthiness, security, privacy, and convenience of identifying individuals and entities, thereby strengthening the processes critical to the movement of funds, goods, and data as the global economy races deeper into the digital age. Digital identity systems also have the potential to generate cost savings and efficiencies for financial services firms. For instance, trustworthy digital identity systems could improve customer identification and verification for onboarding and authorizing account access, general risk management, and antifraud measures.

- Legal Identity

Legal identity is distinct from broader concepts of personal and social identity. Legal identity is the specification of a unique natural or legal person that (1) is based on certain pre-specified characteristics or attributes of the person that are intended to establish the person's uniqueness, (2) is recognized by the state under national law, and (3) ascribes legal rights and duties to that person. Proof of legal identity is required to open a bank, brokerage, or other account at a regulated financial institution. Digital legal identity uses electronic means to unambiguously assert and authenticate a real person's unique legal identity.

Emerging Legal Issues – Legislative/Regulatory

- National Conference of State Legislatures

<http://www.ncsl.org/research/financial-services-and-commerce/the-fundamentals-of-risk-management-and-insurance-viewed-through-the-lens-of-emerging-technology-webinar.aspx>

			Reset	Select a State
BLOCKCHAIN LEGISLATION - 2018 LEGISLATIVE SESSION				
STATE	BILL NUMBER	BILL SUMMARY		
Arizona	H.B. 2602 <i>Signed by governor 4/12/18, Chapter 208</i>	Defines running a node on blockchain technology as delivering the computerized processing power to confirm or encrypt transactions in the blockchain. Declares that regulating the act of running a node on blockchain technology in a person's residence is of statewide concern and prohibits further regulation by any city, town or county. Prohibits a city, town or county from impeding a person running a node on blockchain technology in a residence.		
Arizona	H.B. 2603 <i>Signed by governor 4/3/18, Chapter 122</i>	States that the terms written or any writing within Title 10 (Corporations and Associations) sections of law apply to blockchain technology. Establishes that blockchain technology applies to electronic transactions within Title 10 (Corporations and Associations).		
California	A.B. 2658 <i>Passed Assembly 5/30/18</i>	Existing law, the Uniform Electronic Transactions Act, specifies that a record or signature may not be denied legal effect or enforceability solely because it is in electronic form and that a contract may not be denied legal effect or enforceability solely because an electronic record was used in its formation. Among other things, the act provides that if a law requires a record to be in writing, or if a law requires a signature, an electronic record or signature satisfies the law. Existing law specifies that there is, in the Government Operations Agency, the Department of General Services, which shall develop and enforce policy and procedures and institute or cause the institution of those investigations and proceedings as it deems proper to assure effective operation of all functions performed by the department and to conserve the rights and interests of the state. This bill, until Jan. 1, 2022, requires the secretary of the Government Operations Agency to		

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[2018 Legislation](#)

[2017 Legislation](#)

[2016 Legislation](#)

[2015 Legislation](#)

[Additional Resources](#)

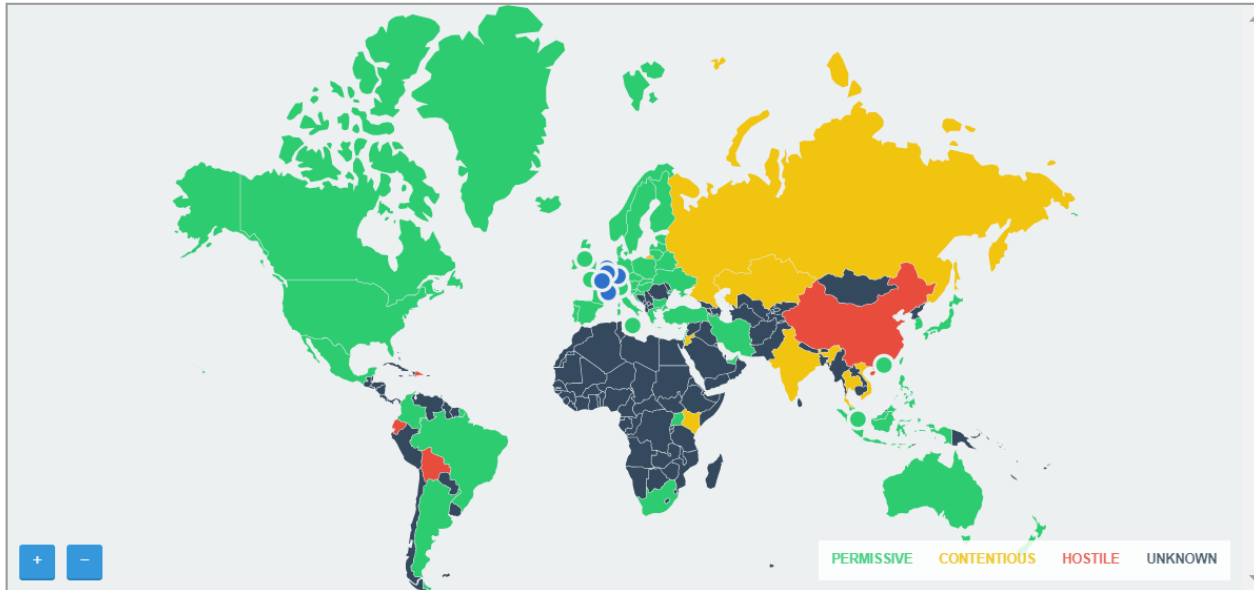
CONTACT

[Heather Morton](#)

Emerging Legal Issues – Legislative/Regulatory

- BitLegal
<http://www.bitlegal.io>

bitlegal.io



LATEST NEWS

Uzbekistan Approves New Crypto Trading Law for Foreign Companies

Uncategorized September 20, 2018

A new presidential resolution ("Resolution") came into effect on the 2nd September 2018 in the Republic of Uzbekistan, which will cover the regulation and...

Philippines Crypto Law to Regulate ICOs

Uncategorized September 20, 2018

The Philippines Securities and Exchange Commission (PSEC) published a draft Memorandum Circular ('Memorandum') that would govern initial coin offerings (ICOs) in the country. In its...

Cryptocurrency Regulation in the UK

United Kingdom September 12, 2018

Although, the UK stands as the hot spot for leaders in Fintech innovation and financial entrepreneurs, with regard to cryptocurrency, the UK seems to...

Carpe diem