

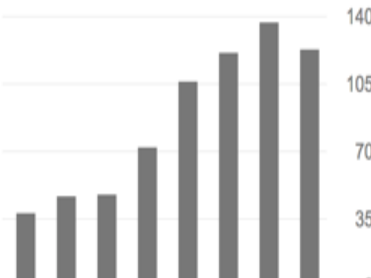


The Rise of Cryptocurrency Malware

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TITLE	CITED BY	YEAR
Emerging Cyber Threats and Cognitive Vulnerabilities V Benson, J McAlaney Elsevier 1, 450		2019
An empirical study of purchase behaviour on social platforms: The role of risk, beliefs and characteristics V Benson, JN Ezingear, C Hand Information Technology & People		2018
Risk, trust, and the interaction of perceived ease of use and behavioral control in predicting consumers' use of social media for transactions JM Hansen, G Saridakis, V Benson Computers in Human Behavior 80, 197-206	5	2018
The role of learning analytics in networking for business and leisure: A study of culture and gender differences in social platform users V Benson, F Filippaios Computers in Human Behavior		2018
Measuring the Social Impact: How Social Media Affects Higher Education Institutions V Benson, S Morgan	2	2018
International Journal of Information System Modeling and Design (IJISMD) G Remigijus, V Benson International Journal of Information System Modeling and Design (IJISMD) 8 (3)		2018

About

Psychological and Behavioral Examinations in Cyber Security
John McAlaney, Lara A. Frumkin, Vladlena Benson. © 2018. 334 pages.
Cyber security has become a topic of concern over the past decade. As many individual and important to examine the...

Emerging Threats for the Human Element and Countermeasures
Vladlena Benson, John McAlaney, Lara A. Frumkin. © 2018. 6 pages.
The chapter presents an overview of emerging issues in the psychology of human behaviour the role of social engineering...

Measuring the Social Impact: How Social Media Affects Higher Education Institutions
Vladlena Benson, Stephanie Morgan. © 2018. 18 pages.
Effective social media usage has particular challenges for HE institutions. The many opportunities by students, have negative...

Analyzing the Strategic Role of Social Networking in Firm Growth
Vladlena Benson, Ronald Tuninga, George Saridakis. © 2017. 525 pages.
Social media platforms have emerged as an influential and popular tool in the digital era. No social media have expanded...

Justifying the ROI of Social Media Investment in Education
Vladlena Benson, Stephanie Morgan. © 2016. 13 pages.
To invest or not to invest? In the context of Higher Education, the decision around social media investments—increasingly demanding in...

Implications of Social Media Use in Personal and Professional Settings
Vladlena Benson, Stephanie Morgan. © 2015. 362 pages.
Social technology is quickly becoming a vital tool in our personal, educational, and professional world stay connected, its use...

Cutting-Edge Technologies and Social Media Use in Higher Education
Vladlena Benson, Stephanie Morgan. © 2014. 436 pages.
The inclusion of social media in higher education has transformed the way instructors teach students in this networked...

Thought Leadership



WED, 30 MAY 18:00
CyberSecurity Talks & Networking - FREE DRINKS & NIBBLES!
Rise Barclays, London

#Business #Networking



WED, 16 MAY 18:00
GDPR COMPLIANCE: A 10-DAY NOTICE (Event starts at 18:00)
THE PILLARS RESTAURANT, EALING, LOND...

£0 - £20

ISACA®

London Chapter

WED, 13 JUN 18:00
A Security Leader's Guide to Augmented Intelligence (Event start...
IBM SOUTHBANK, Lambeth, London

"Any organisation handling EU consumer data will be forced to comply with the new ...General Data Protection Regulation (GDPR) ... Because the Conservatives' position on their new data privacy law is unclear, it adds... uncertainty and potentially new challenges for data compliance.

Dr Vladlena Benson

SECUR!OUS
Data and cyber security
www.securious.co.uk

What will the UK election mean for online privacy?

Jun 12, 2017

Dr Vladlena Benson of Kingston University, writing in The Conversation,



INTRODUCTION – KEY EVENTS



- 2018 saw cryptocurrency become an established part of many people's lives, and a more attractive target for cybercriminals across the world.
- The blockchain and cryptocurrency industry faced a major development: falling prices for cryptocurrencies.
- The impact was felt across the landscape, with rapid decline in public interest, the activity of the crypto community and traders, and in the related activity of cybercriminals.

Bitcoin Price (BTC)

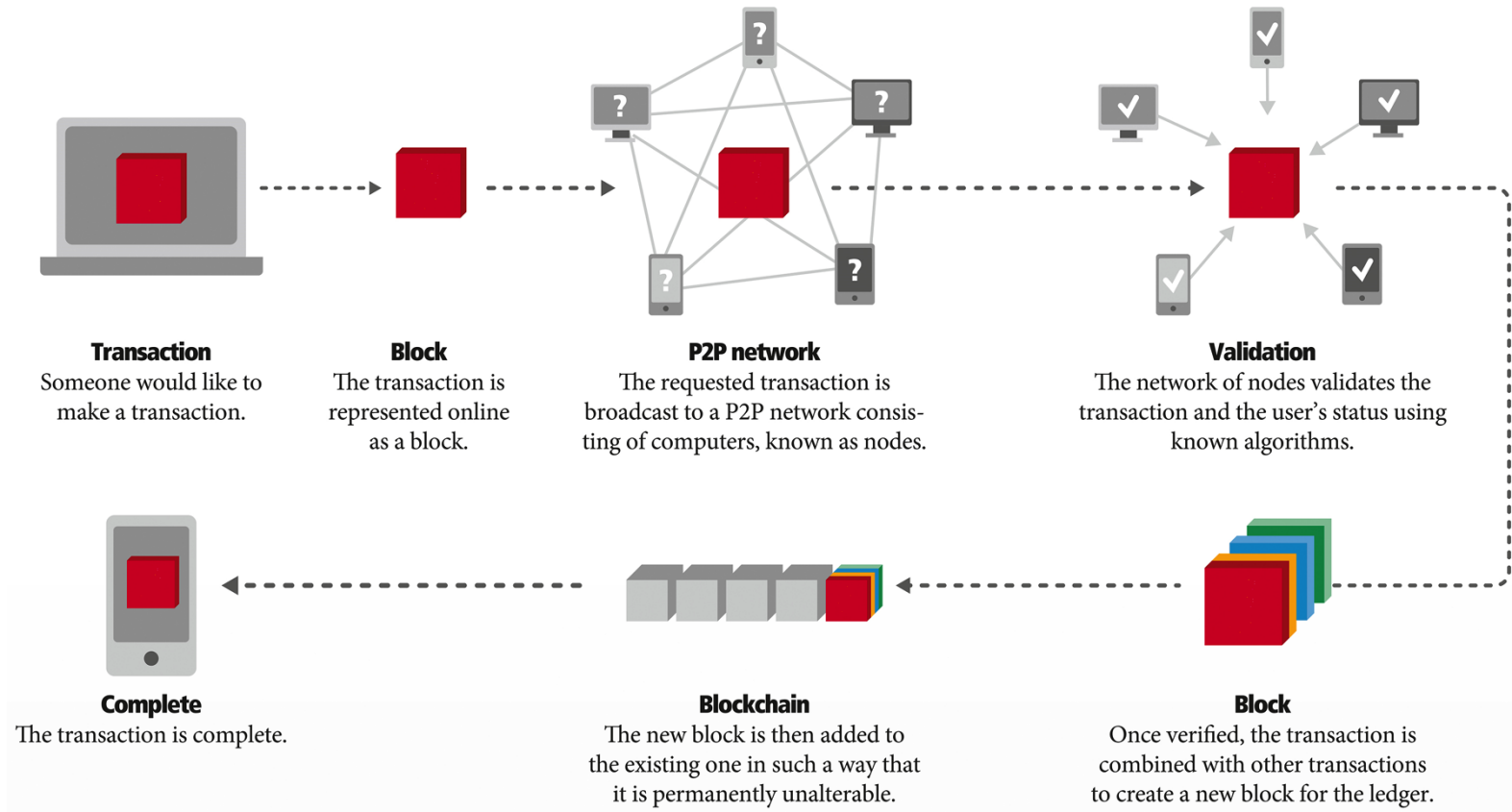
 **\$3,535.24** ▼ **-0.774128%**



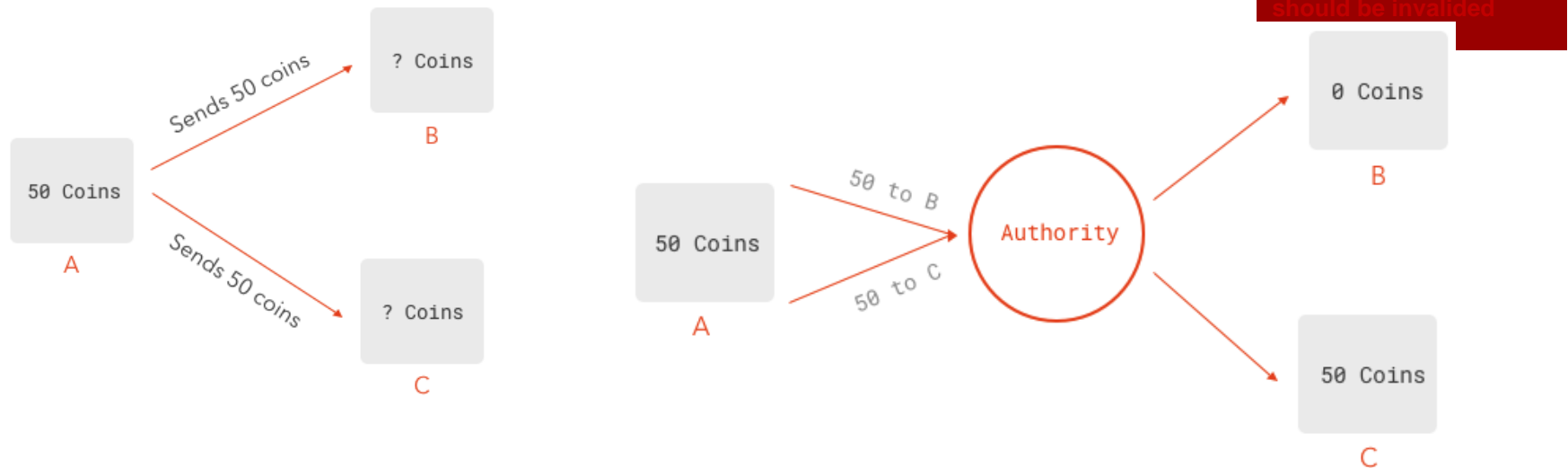
Bitcoin Price (BTC)



Blockchain Background



Centralised Model

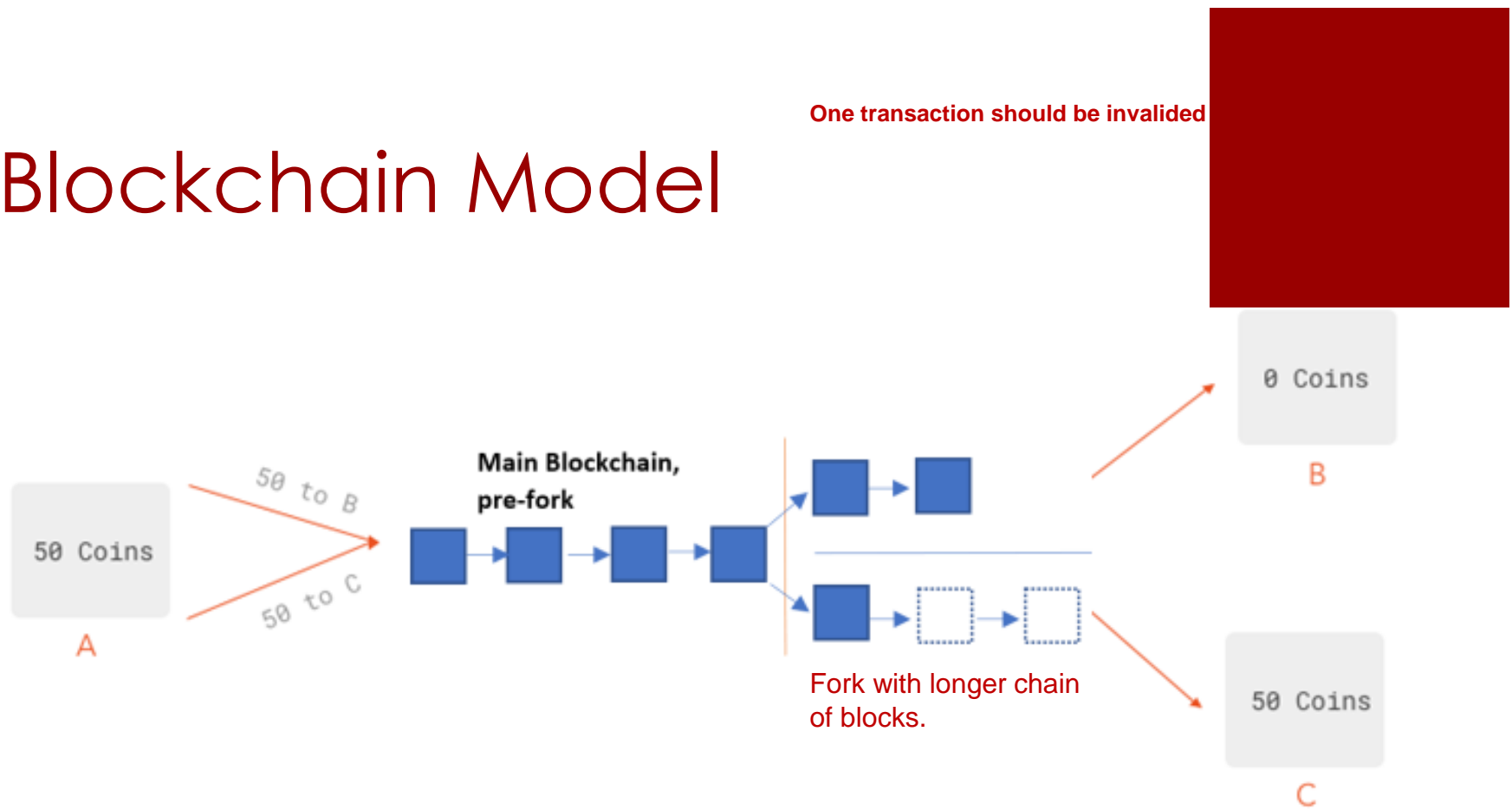


Traditionally, a centralised banking system acting as the Authority to resolve this problem.

But, there is no central authority in Blockchain where the transaction is validated by “democratic” and “consensus” among all participating distributed compute node.

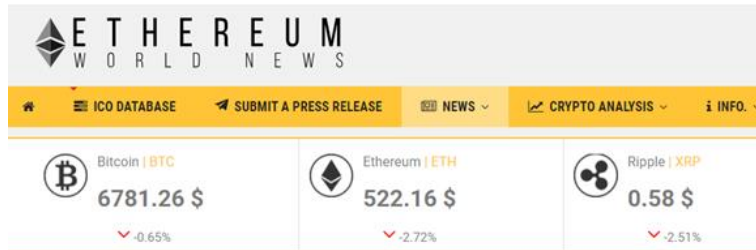
Blockchain Model

One transaction should be invalidated



A fork with longer chain of blocks is the majority, hence transactions are accepted to be the valid, even though they may not !!

Breaking News!



51% Attack: ZenCash The Latest Victim Of A Suspected Double-Spend Attack

ZenCash Suffer 51% Attack

By Osato Avan-Nomayo — On Jun 4, 2018

EXCHANGES | ALTCOIN NEWS



zencash



744 0 Comments

CZ 300 X 250

ZenCash is the latest cryptocurrency to suffer a suspected 51% attack in the last two months. Others like Electroneum, Verge, and Bitcoin Gold have also fallen victim to the 51% percent attack – the number one scourge of the poorly secured public blockchain network.

Facts:

- A loss of **\$550,000 USD** in double spent transactions at current price estimates.
- ZenCash's price has been declining since the attack.

Zencash Charts



Attack on June 04

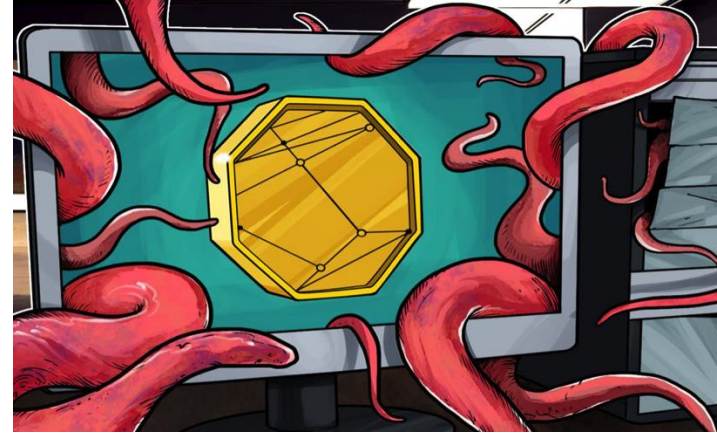
- 51% attack
- Double-spend attack

Analysis of ZenCash 51% Attacks

- Target blockchain platform: ZenCash
 - Hashing algorithms: Equihash
 - Current network hashing power: 48 MH/s
- Theoretical 51% attack cost calculation:
 - Example attack hashing power: 32 MH/s
 - Attacking hashing power can be increased for higher chance success on the 51% attack.
 - Minimal hacking time: at least 60 mins
 - ZenCash's confirmation requirement is 30 blocks
 - Block processing time approx. 2.5 mins.
 - Attack cost
 - Hashing cost for 0.01 MH/s = 1.57 USD
 - 1 hour attack cost : $32 / 0.01 \times 1.57 = 5,024$ USD
 - 4 hour attack cost: ~20,000 USD



Cryptojacking



- Cryptojacking malware activity rose by over 4000 percent in 2018, according to McAfee Labs (12/18)
- Cryptojacking is the practice of using a computer's processing power to mine for cryptocurrencies without the owner's consent or knowledge.
- The McAfee statistic of over 4000 percent specifically refers to total instances of a cryptojacking malware,- **“coin miner.”**

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New crypto mining malware threat vectors



- “New mining malware targeting IoT devices grew 72%, with total malware growing 203% in the last four quarters.
- New coinmining malware grew nearly 55%, with total malware growing 4,467% in the last four quarters.”
- The rise in IoT-targeting threats is somewhat surprising, given the low CPU processing power of the devices.

Smominru

- Cryptocurrency mining botnet malware
Smominru has infected more than 526,000 computers using a leaked NSA exploit
- Smominru botnet has been infecting computers since May 2017, mining about 24 Monero coins per day.
- To date, the botnet has reportedly managed to mine about 8,900 Monero, or about \$2.1 million at press time.
- The highest number of Smominru-infected PCs has been found in Russia, India, and Taiwan,



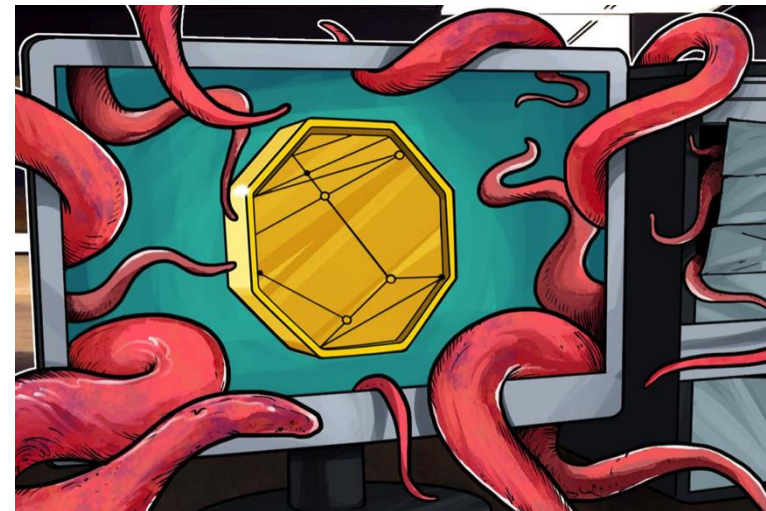
Power in numbers

- cybercriminals have taken notice of the growing volume and lax security of many IoT devices and have begun to focus on them, harnessing thousands of devices to create a mining super-computer
- the workings of a MacOS crypto mining malware threat — dubbed OSX.Dummy distributed on mining chats
- The threat actor reportedly suggested to users on Slack, Telegram and Discord channels that they download software “to fix crypto problems.” This software — which is in fact fake — then “executes with a single line in Bash”:



OSX Dummy

- “The users essentially infected their own devices instead of falling victim to an unknown exploit or an exploit kit.”
- In execution, OSX.Dummy opens a reverse shell on a malicious server, giving an attacker access to the compromised system.”



Global Risk?

- A mission from the International Monetary Fund (IMF) has judged that the growth of blockchain in Malta has created significant risks of money laundering and terrorism financing in the island's economy.



The VFA Act 2018

- The Virtual Financial Assets Act, 2018 (The VFA Act), sets out to regulate the field of Initial Virtual Financial Asset Offerings and Virtual Financial Assets and to make provision for matters ancillary or incidental thereto or connected therewith.



The VFA Act 2018

Cryptocurrency may be classed as a **Virtual Financial Asset (VFA)** and the Act provides a comprehensive set of rules that will both protect consumers and support the growth of the industry and its stakeholders.

The Act outlines stringent requirements for those that are launching cryptocurrencies, as well as other service providers including

- brokerages,
- portfolio managers,
- custodian and nominee service providers,
- eWallet providers,
- investment advisors, and perhaps most crucially,
- cryptocurrency exchanges.



ICO not as we know it

- Initial Coin Offerings (ICOs) as 'a method of raising funds whereby an issuer is issuing virtual financial assets and is offering them in exchange for funds'. This definition underscores the central role of initial VFA offerings as a means of raising capital by selling virtual financial assets to investors.



VFA



- The Act defines a VFA as 'any form of digital medium recordation that is used as a digital medium of exchange, unit of account or store of value and that is not
 - electronic money
 - a financial instrument, or
 - a virtual token.

Virtual Token

- Virtual tokens, or 'utility tokens', are DLT assets which have no utility, value or application outside of the DLT platform on which they were issued and may only be redeemed for funds on the platform directly by the issuer of the DLT asset.
- Under the VFA rules, ICOs issuing virtual currencies that do not qualify as financial instruments are still subject to minimum transparency requirements and other obligations of the relevant parties involved.



Canada

- Canadian crypto exchange QuadrigaCX made global headlines after its founder and CEO Gerald Cotten died in 2018, apparently without passing on access to the company's cryptocurrency wallets.
- With the exchange owing customers \$190 million that it could not access, it went into bankruptcy in April under the guiding hand of EY as trustee.



Regulation?

- The Canadian government published the amendments to the Proceeds of Crime (Money Laundering) and Terrorist Financing Act
- Affects platforms “dealing in virtual currency” and include “virtual currency exchange services and value transfer services.”
- Canadian and foreign crypto platforms as money servicing businesses (MSBs), which must “fulfill all obligations, including implementing a full compliance program and registering with FINTRAC [the Financial Transactions and Reports Analysis Centre of Canada].”
- Further, any “reporting entity” across all sectors that receives CA\$10,000 (US\$7,667) or over in cryptocurrency – such as deposits received or in payment – must record details of the transaction, identify the sender and report the transaction.



Forecasts 2019?



1. Excessive expectations about the use of blockchain beyond the cryptocurrency sphere will disappear

2. Cryptocurrencies as a means of payment will decline further in the face of huge commissions (an acute problem in December 2017), slow transfers, a large price for integration, and, most importantly, a small number of customers, its use as a method of payment declined steadily. The use of cryptocurrencies by a legitimate business is still questionable.

3. There will be no return to 2017's sky-high exchange rates

Bitcoin Price (BTC)



Bitcoin Price (BTC)



6m 1y all 07/18/2010 to 07/11/2019



24 Hour Open **\$13,028.34**

24 Hour High **\$13,175.69**

24 Hour Low **\$11,202.03**

Change **▼ \$1,381.42**

Market Cap **\$207.45B**

Supply **17.81M**

Libra “a stable global cryptocurrency”



The screenshot shows the Coindesk website interface. At the top, there is a navigation bar with the Coindesk logo and menu items: Blockchain 101, Technology, Markets, Business, Data & Research, Events, and a Search box. Below the navigation bar is a yellow banner with the text: "Stay Up to Date on Crypto & Blockchain With Our Suite of Newsletters. Subscribe Here!". The main content area is split into two columns. The left column features a large image of several gold and silver coins on a blue surface with the Libra logo. Below the image is the headline: "Libra Isn't a Cryptocurrency. It's a Glimpse of a New Asset Class". The right column displays a "coindesk | data" section with a table of cryptocurrency prices and their percentage changes.

Cryptocurrency	Price	% Change	Change
Bitcoin	\$11,692.6	-10.40%	(-1357.2)
Ethereum	\$272.7	-11.57%	(-35.6)
Litecoin	\$102.9	-12.94%	(-15.3)
XRP	\$0.335	-14.3152%	(-0.056)
Bitcoin Cash	\$344.4	-17.11%	(-71.1)

Libra not a cryptocurrency



- one key characteristic of cryptocurrencies is their resistance to censorship
- “decentralized enough”
- the value of a Libra coin is not created by the underlying technology, the market, math or however you choose to understand bitcoin, etc
- a digital representation of a basket of fiat currencies and other securities.
- The only thing Libra coin has in common with cryptocurrencies is that they all move on a blockchain.

Quiz: What companies said this?

“We have a responsibility to protect your data, and if we can't then we don't deserve to serve you”

“_____’s mission is to enable a simple global currency and financial infrastructure that empowers billions of people.”

The Cambridge Analytica scandal changed the world - but it didn't change Facebook



“NOT a “data breach” ..“no systems were infiltrated, and no passwords or sensitive pieces of information were stolen or hacked”.



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2018 – £5,500,000 in funding and doubled it in 2019.



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blockchain,
emergent tech.

- Cryptocurrency Compliance Frameworks in the Caribbean – GCRF funded project
- Blockchain in supply chain and food provenance: UK & Brazil – UK Research Councils