DIGITAL TRANSFORMATION
ASPROM CONFERENCE

20171109

PHILIPPE DENIS
HEAD OF CIB BLOCKCHAIN LAB

BNP PARIBAS

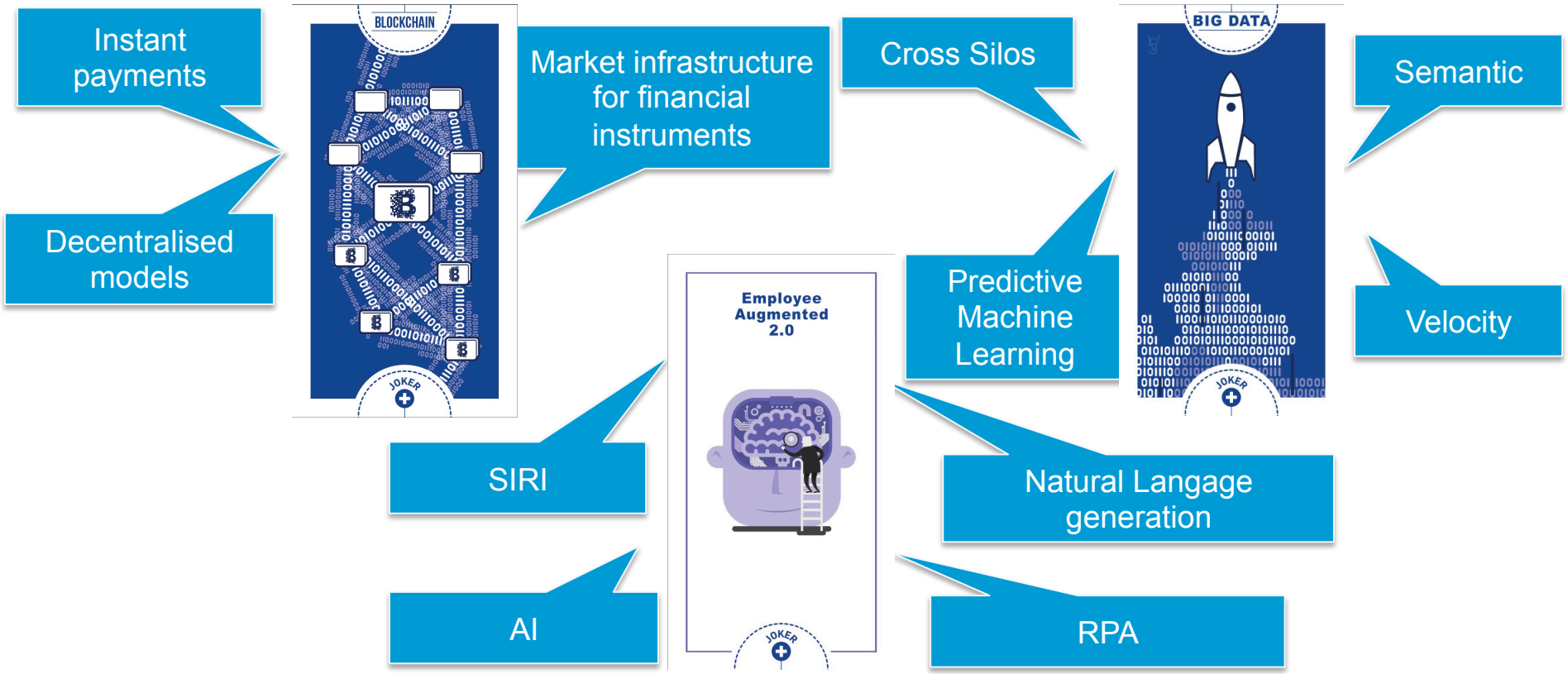
The bank for a changing world

2018 nov

Agenda

- Digital Strategy
- (Big Data)
- Blockchain
- (Employee Augmented 2.0)
- Conclusion
- Q & A

Digital Transformation Strategy Three waves at the same time



Three digital waves at the same time

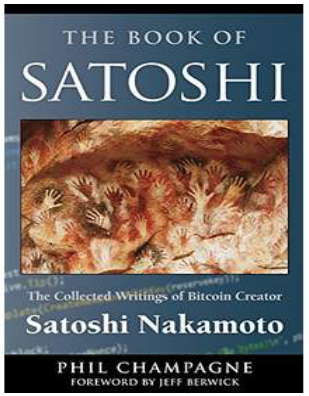
I have seen the waves

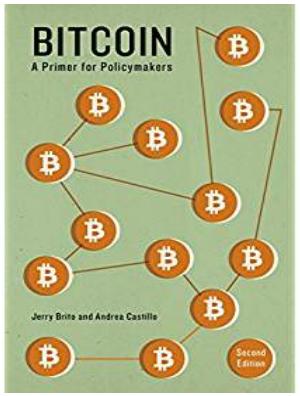
I am on MY spot with my partners

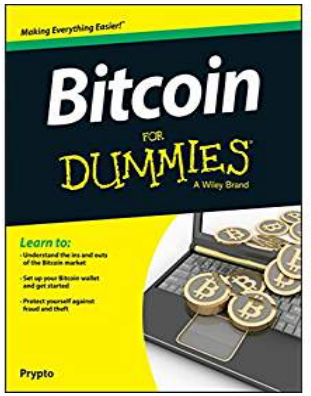
I am going to take the waves

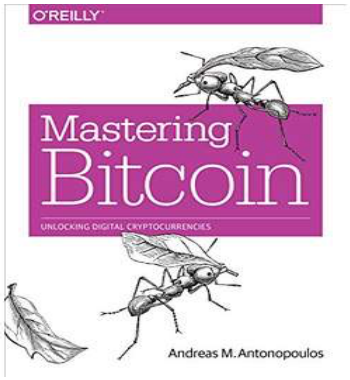
I am contemplating the mount FUJI

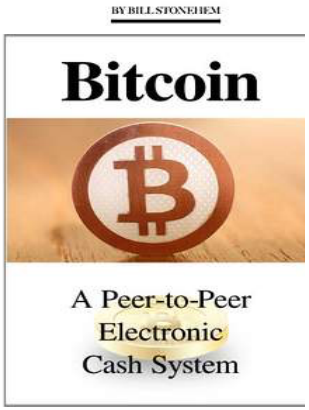
Bitcoin on Amazon

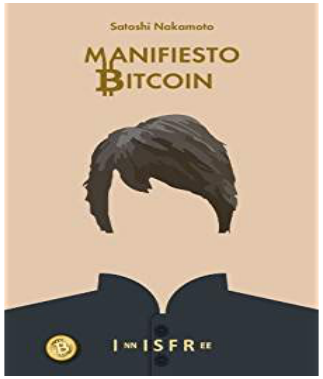


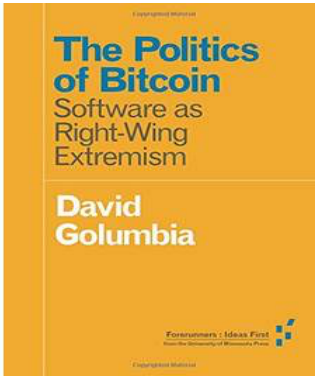


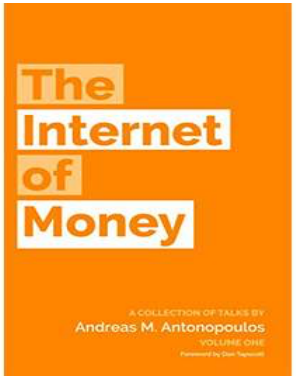




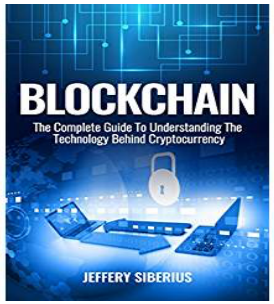


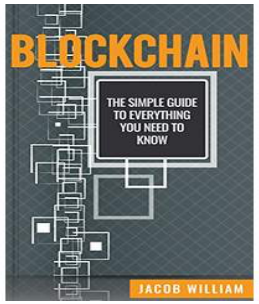


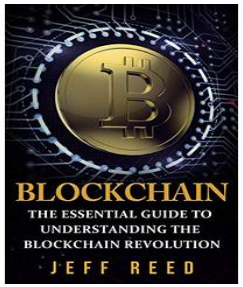


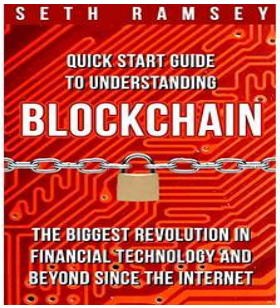


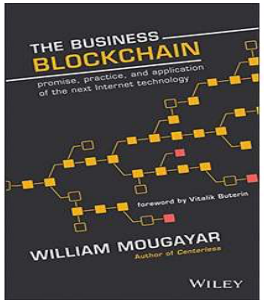
Blockchain on Amazon

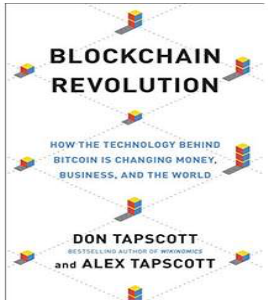


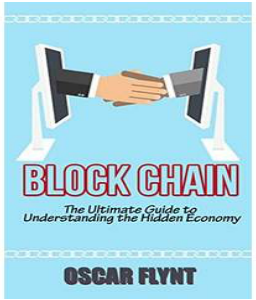


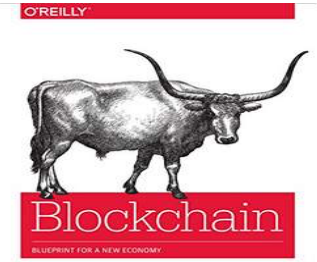


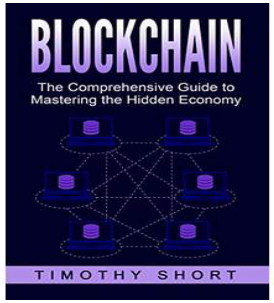


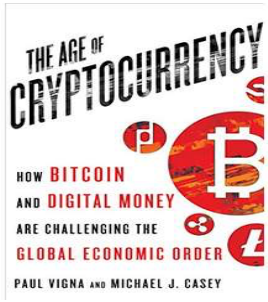


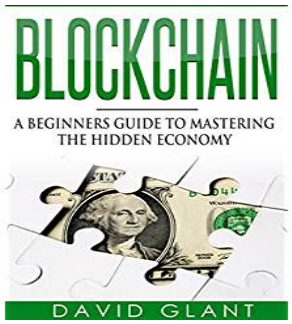


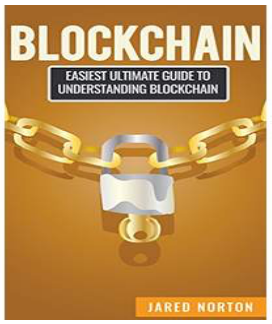


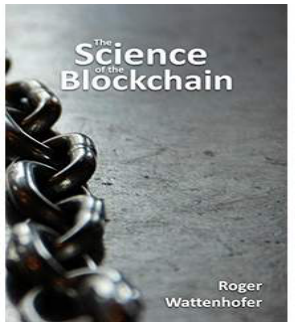




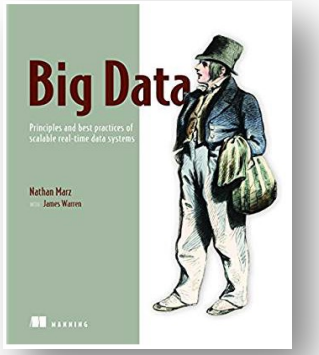


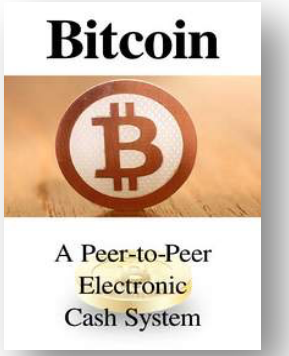


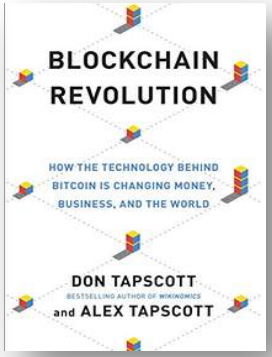


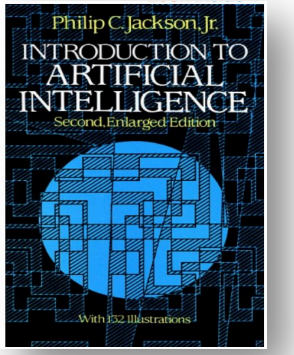


Digital Hype Metering Platform







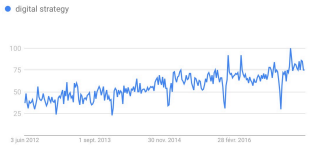


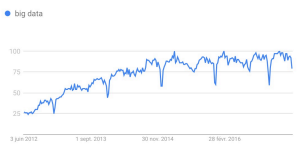
	Books	Pages
amazon	72 000	
Google Australia		291 M
	5 400	319 M
	1 200	136 M
	330	19 M
	32 000	85 M

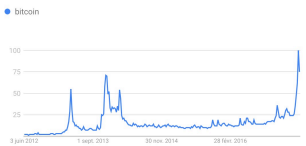
1

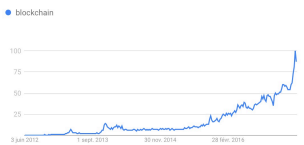
1

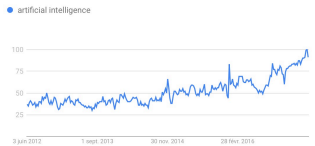
Trends of



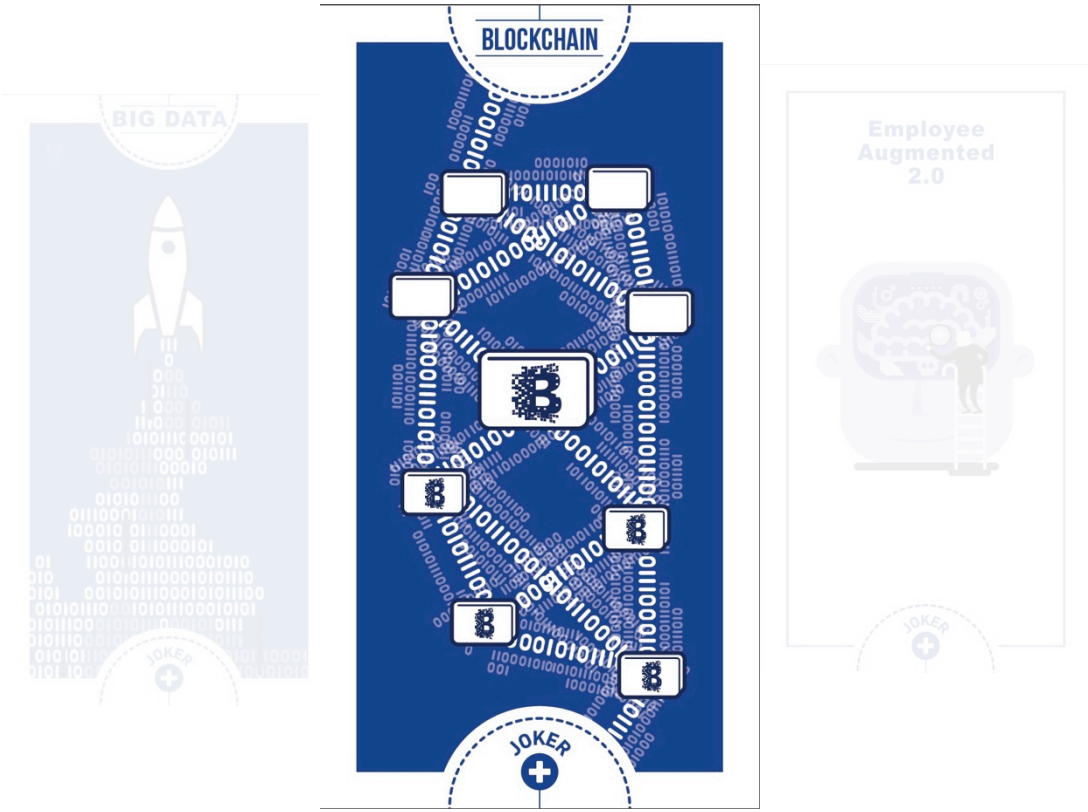








DIGITAL TRANSFORMATION



BNPP has positioned itself with 5 key steps in the last 5 years

June 2011

BNPP identify CC/BC

- **Bitcoin /** Blockchain topic identified and handled by R&D team
- "**Forget Currency, Think Protocol"**
- **Participants:** Evangelization with internal teams, Connection with participants, Exchange with clients

June 2014

BIZ HACKATHON on Crypto Cur / 36 hours

- **40 BP2S participants**, 10 crypto-currency experts and 10 facilitators
- **Develop their knowledge** and identify the **most promising opportunities**
- **Objectives** : launching projects in 2015

June 2015

BNPP Blockchain Lab

- Develop identified POC
- **Participants:** BP2S
- **Location:** Paris
- **BNPP joins : R3, CDC, DAH**

Jan 2016

BIZ HACKATHON on Trade Finance & Cash

- 40 BNPP, 4 experts, 15 facilitators and **5 clients**
- 25 ideas and **5 POC**

BNPP Digital Therapy

- **Description:** Digital Therapy and expedition and education
- **Participants:** 500 top managers

Sep 2016

BIZ HACKATHON Americas

- 45 BNPP, 6 experts, 4 facilitators
- **5 ideas**

BIZ HACKATHON Insurance (2017)

- 45 BNPP, 6 experts, 4 facilitators
- **5 ideas**

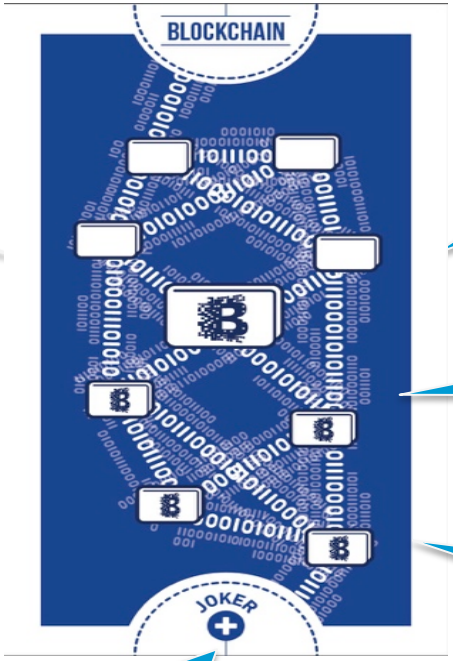
Objective to identify, prototype, develop and commercialize usage scenarios

What is it ?

Ledger visible from all parties

Irrevocable and indelible transactions

Distributed model on a network of computers



Transactions since the beginning

Cryptography
Private / Public Key

Consensus

Satoshi Nakamoto 2009

Value proposition of Blockchain

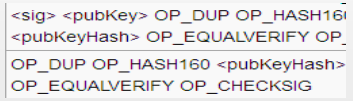
No Intermediary

Pseudonimous
and public

Worldwide network

Fast

Irrevocable transactions

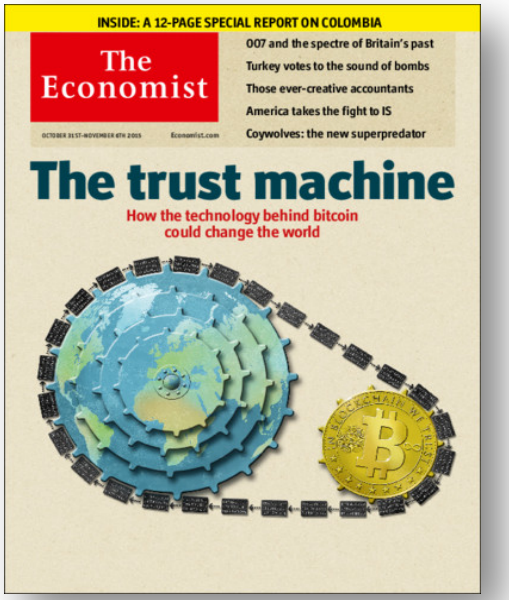


Script
(e.g escrow, collateral, delay)

Blockchain is a shared distributed ledger which tracks, verifies, settles and permanently renders public all transactions.

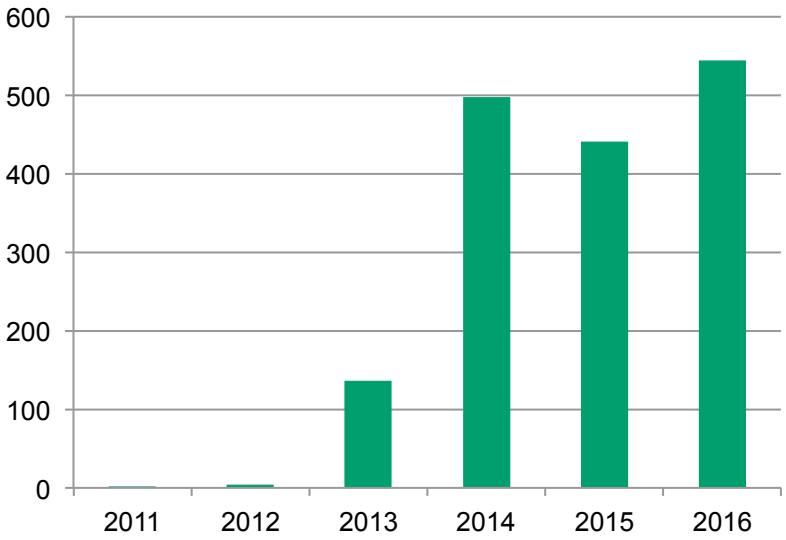
A little bit of history

Reminder



Financial Institutions make significant investments into blockchain / DLT realizing the economic potential of the technology

Venture investment in blockchain – related companies 2011-2016 $mn



Source: KPMG / CB Insight, « *The Pulse of Fintech* ». Includes investments in bitcoin

Selected external highlight initiatives to develop DLT/Blockchain 2016 - 2017

- **Nasdaq Linq:** Facilitating the issuance, cataloguing and recording of transfers of privately held companies (Partnership Nasdaq/Chain).
- **Citi-Nasdaq Partnership** on Blockchain payment system: A series of payment transactions have been made using Citi's automated processing of cross-border payments (WorldLink) via a link between the CitiConnect for Blockchain and Nasdaq Linq.
- **JP Morgan** developed and open-sourced Quorum, a permissioned version of the Ethereum DLT. Piloted DLT-powered equity swap post-trade using technology from Axoni.
- **BNY Mellon** working on DLT protocol for IoT. Developed a test system that works alongside existing transaction record system and uses DLT to create a backup record of brokerage transactions.
- **State Street** created blokchain prototype for OTC derivatives. Started collaboration with Irish funds.
- **Nordea** presented KYC pilot outcomes – executed in cooperation with other Nordic peer financial institutions – that aimed to improve customer experience and providing an efficient KYC process for the Nordic financial sector.
- **Credit Suisse** eyes 2018 launch for Blockchain loan platform.

Objectives: Lower cost of transaction, more security, improving compliance and privacy

Understand the big trends

An opportunity to redesign how finance operates

AND / OR

A new generation of IT systems & core banking sofware

Cryptocurrency

1150 Cryptocurrencies / 5707 Markets Market Cap: $144,509,707,942 / 24h Vol: $2,711,265,892 / BTC Dominance: 49.4%

Cryptocurrency Market Capitalizations

Market Cap ▾ | Trade Volume ▾ | Trending ▾ | Tools ▾ | Search Currencies

All ▾ | Coins ▾ | Tokens ▾ | USD ▾ | Next 100 → | View All

#	Name	Market Cap	Price	Circulating Supply	Volume (24h)	% Change (24h)	Price Graph (7d)
1	Bitcoin	$71,353,872,716	$4297.85	16,602,225 BTC	$1,269,850,000	-2.45%	
2	Ethereum	$27,686,502,999	$291.63	94,938,065 ETH	$319,640,000	-1.79%	
3	Ripple	$7,733,454,438	$0.201687	38,343,841,883 XRP *	$51,924,300	-1.42%	
4	Bitcoin Cash	$6,657,365,796	$399.86	16,649,325 BCH	$130,109,000	-3.51%	
5	Litecoin	$2,767,360,102	$52.00	53,216,007 LTC	$89,415,800	-2.77%	
6	Dash	$2,227,587,732	$293.29	7,595,068 DASH	$36,116,000	-5.87%	
7	NEM	$2,002,428,000	$0.222492	8,999,999,999 XEM *	$3,441,720	-4.08%	

source: coinmarketcap.com

Key positive declaration for Cryptocurrencies development

… But some doubts remain.

Pros

International Monetary Fund

"So in many ways, virtual currencies might just give existing currencies and monetary policy a run for their money. The best response by central bankers is to continue running effective monetary policy, while being open to fresh ideas and new demands, as economies evolve."

Bank of England Conference, Sep 29th 2017

Cad-Coin – Project Jasper: on-going collaboration between R3 and six private Canadian banks, Payments Canada and the Bank of Canada that began to explore the possibility of clearing & settling large value payments using distributed ledger technology. CAD-Coin=Central bank issued digital asset.

BANK OF CANADA

Central Bank Digital Currencies: A Framework for Assessing Why and How

MAS Monetary Authority of Singapore

MAS partnered with R3, to launch Project Ubin for developing a proof-of-concept to conduct inter-bank payments through DLT.

Cons

"Bitcoin is a fraud."

"Bitcoin is a bubble."

BRIDGEWATER

EUROPEAN CENTRAL BANK
EUROSYSTEM

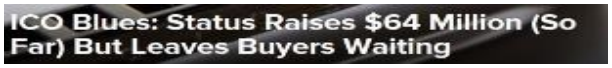
"No member state can introduce its own currency; the currency of the euro is the euro."

China banned Initial coin Offering and start-ups cannot use an ICO to raise money. It does not stop Chinese crypto – currency developers and service providers from getting in on action.

Initial Coin Offering – Mainstream in crypto communities

Initial Coin Offering

2,377 m USD
raised in 2017
8% of 2016 US IPO(3)

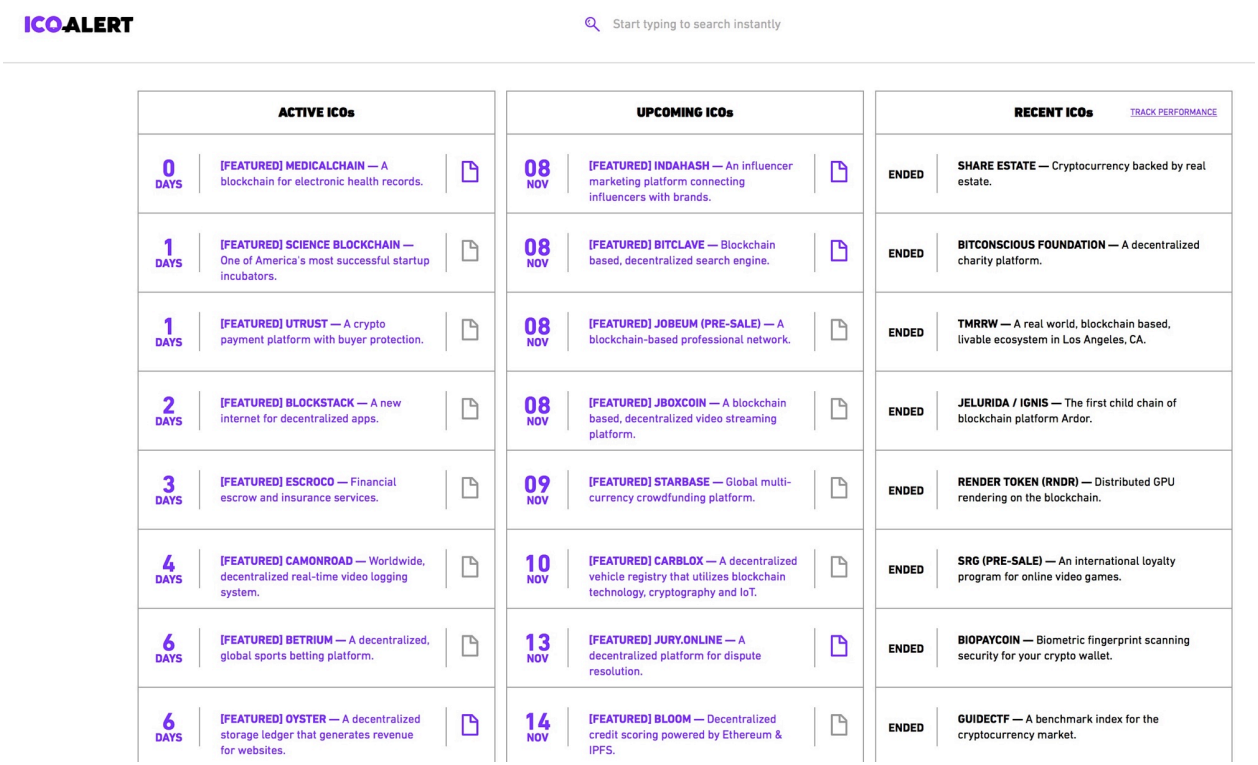


Usually try to avoid falling under securities regulations (utility token solution)

Regulator paying close attention and starting to act

(1) As of 21 June 2017 (over last Imonths) Source coinmarketcap.com
(2) As of 9 June 2017
(3) https://corpgov.law.harvard.edu/2017/05/25/2017-ipo-report/
Euronext Volumes May 2017 : https://www.euronext.com/investors/news-detail/709169/title

ICO.Alert


ICO.ALERT
Start typing to search instantly
ACTIVE ICOs
0 DAYS [FEATURED] MEDICALCHAIN — A blockchain for electronic health records.
1 DAYS [FEATURED] SCIENCE BLOCKCHAIN — One of America's most successful startup incubators.
1 DAYS [FEATURED] UTRUST — A crypto payment platform with buyer protection.
2 DAYS [FEATURED] BLOCKSTACK — A new internet for decentralized apps.
3 DAYS [FEATURED] ESCROCO — Financial escrow and insurance services.
4 DAYS [FEATURED] CAMONROAD — Worldwide, decentralized real-time video logging system.
6 DAYS [FEATURED] BETRIUM — A decentralized, global sports betting platform.
6 DAYS [FEATURED] OYSTER — A decentralized storage ledger that generates revenue for websites.
UPCOMING ICOs
08 NOV [FEATURED] INDAHASH — An influencer marketing platform connecting influencers with brands.
08 NOV [FEATURED] BITCLAVE — Blockchain based, decentralized search engine.
08 NOV [FEATURED] JOBEUM (PRE-SALE) — A blockchain-based professional network.
08 NOV [FEATURED] JBOXCOIN — A blockchain based, decentralized video streaming platform.
09 NOV [FEATURED] STARBASE — Global multi-currency crowdfunding platform.
10 NOV [FEATURED] CARBLOX — A decentralized vehicle registry that utilizes blockchain technology, cryptography and IoT.
13 NOV [FEATURED] JURY.ONLINE — A decentralized platform for dispute resolution.
14 NOV [FEATURED] BLOOM — Decentralized credit scoring powered by Ethereum & IPFS.
RECENT ICOs TRACK PERFORMANCE
ENDED SHARE ESTATE — Cryptocurrency backed by real estate.
ENDED BITCONSCIOUS FOUNDATION — A decentralized charity platform.
ENDED TMRRW — A real world, blockchain based, livable ecosystem in Los Angeles, CA.
ENDED JELURIDA / IGNIS — The first child chain of blockchain platform Ardor.
ENDED RENDER TOKEN (RNDR) — Distributed GPU rendering on the blockchain.
ENDED SRG (PRE-SALE) — An international loyalty program for online video games.
ENDED BIOPAYCOIN — Biometric fingerprint scanning security for your crypto wallet.
ENDED GUIDECTF — A benchmark index for the cryptocurrency market.

ICO
To Bubble or not to bubble ?

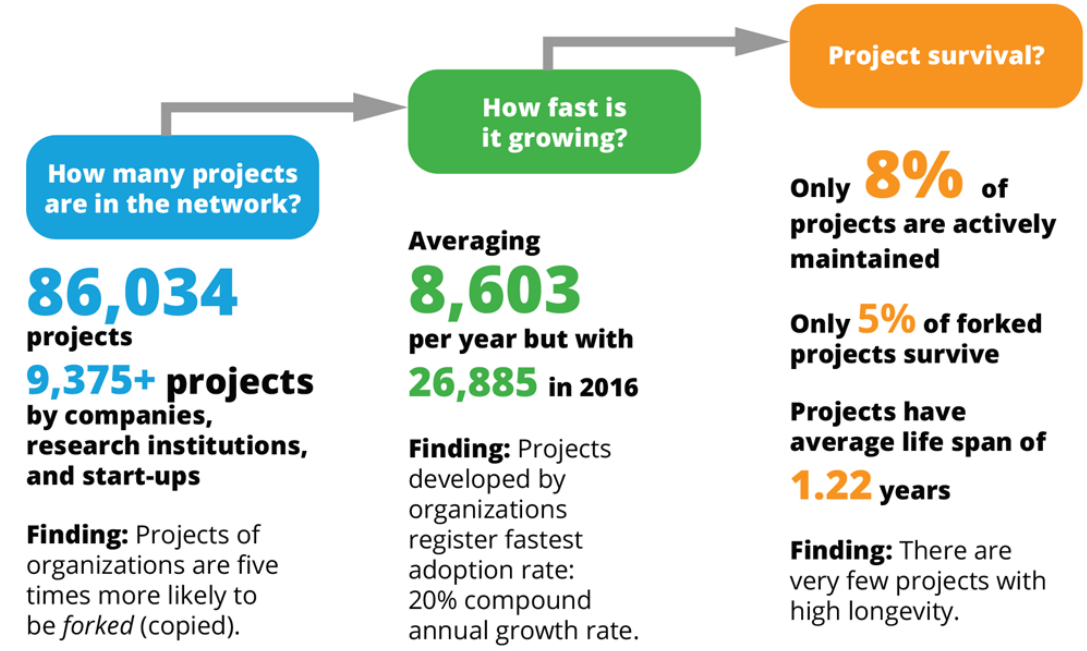
Project	Category	Platform	Amount raised
Star Citizen	Video game	Kickstarter, Independent	$153,000,000
Bancor	Blockchain	Ethereum	$152,000,000
The DAO	Blockchain	Ethereum	$150,000,000
Status	Blockchain	Ethereum	$103,000,000
Elio Motors	Other	Independent	$102,000,000
TenX	Blockchain	Ethereum	$80,000,000
AEternity	Blockchain	Ethereum	$62,500,000
MobileGo	Blockchain	Ethereum, Waves platform	$53,069,235
Basic Attention Token	Blockchain	Ethereum	$35,000,000
Aragon	Blockchain	Ethereum	$25,000,000
Pebble Time	Smartwatch	Kickstarter	$20,338,986
Prison Architect	Video game	Independent, Steam Early Access	$19,000,000
Ethereum	Blockchain	Independent	$18,439,086
TokenCard	Blockchain	Ethereum	$16,516,286
Waves	Blockchain	Independent	$16,436,095
Qtum	Blockchain	hybrid blockchain platform	$15,664,829
Cofound.it	Blockchain	Ethereum	$14,700,000
Coolest Cooler	Computing hardware	Kickstarter	$13,285,226
Ubuntu Edge	Computing hardware	Indiegogo	$12,814,196
Gnosis	Other	Ethereum	$12,500,000
Flow Hive	Food	Indiegogo	$12,174,187
iEx.ec	Other	Ethereum	$12,158,963
Shroud of the Avatar: Forsaken Virtues	Video game	Kickstarter, Independent, Steam Early Access	$11,610,287
Iconomi	Other	Ethereum	$10,682,516
BauBax	Other	Kickstarter, Indiegogo	$10,271,965
Pebble	Smartwatch	Kickstarter	$10,266,845
Exploding Kittens	Board game	Kickstarter	$8,782,571
Golem	Blockchain	Ethereum, Independent	$8,600,000
Ouya	Video game	Kickstarter	$8,596,474
Gut Weißenhaus	Other	Companisto	$8,148,450
Shenmue III	Video game	Kickstarter, Independent	$6,333,295
FirstBlood	Software	Ethereum	$6,267,767
Pono Music	Computing hardware	Kickstarter	$6,225,354
Mayday PAC	Other	Independent	$6,132,554
Fidget Cube	Other	Kickstarter	$6,038,945
Veronica Mars	Movie	Kickstarter	$5,702,153
Lisk	Software	Bitcoin, Independent	$5,700,000
Bloodstained: Ritual of the Night	Video game	Kickstarter	$5,545,991
DigixDAO	Blockchain	Ethereum	$5,500,000
The Grid	Software	Independent	$5,489,376
Project Bring Back Reading Rainbow for Every Child, Everywhere	Movie	Kickstarter	$5,408,916
Augur	Blockchain	Ethereum, Independent	$5,133,000
Restore King Chapel Now. Every Day & Dollar Counts	Other	Indiegogo	$5,048,213
An Hour of Code for Every Student	Other	Indiegogo	$5,024,281
Mastercoin	Software	Bitcoin, Independent	$5,000,000

https://en.wikipedia.org/wiki/List_of_highest_funded_crowdfunding_projects

THE DAO IS CODE.
GET DAO TOKENS

Projects and their longevity

Figure 3. Blockchain on GitHub

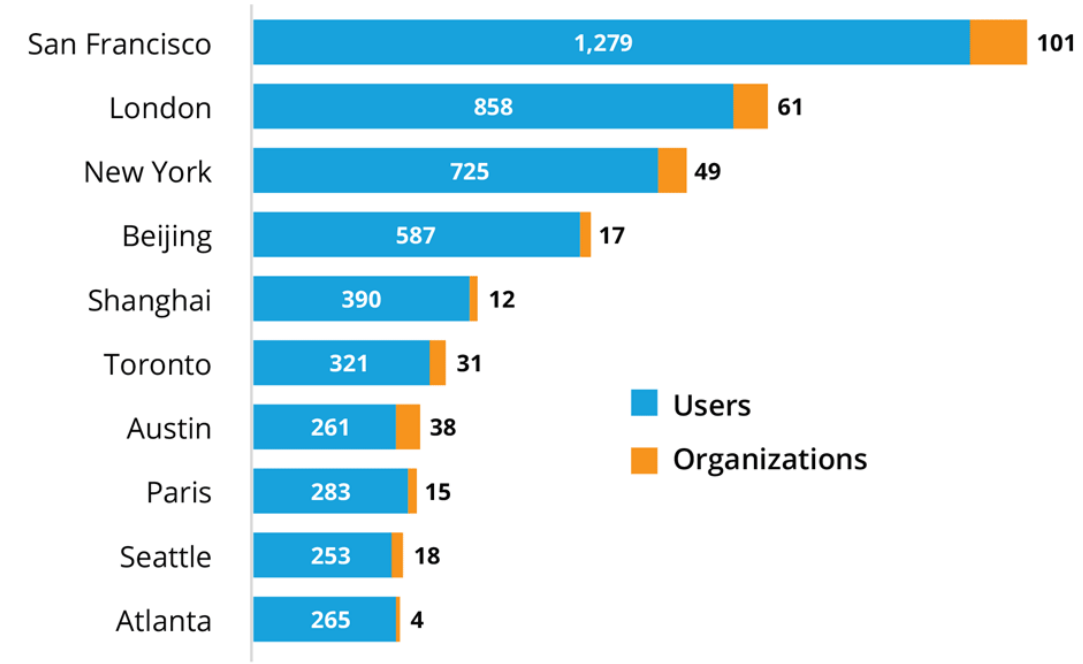


Source: Deloitte analysis of GH Torrent data and GitHub API data, as of October 12, 2017.

Deloitte Insights | deloitte.com/insights

Cities of these projects

Figure 5. Top 10 cities for blockchain development (number of projects)[17]

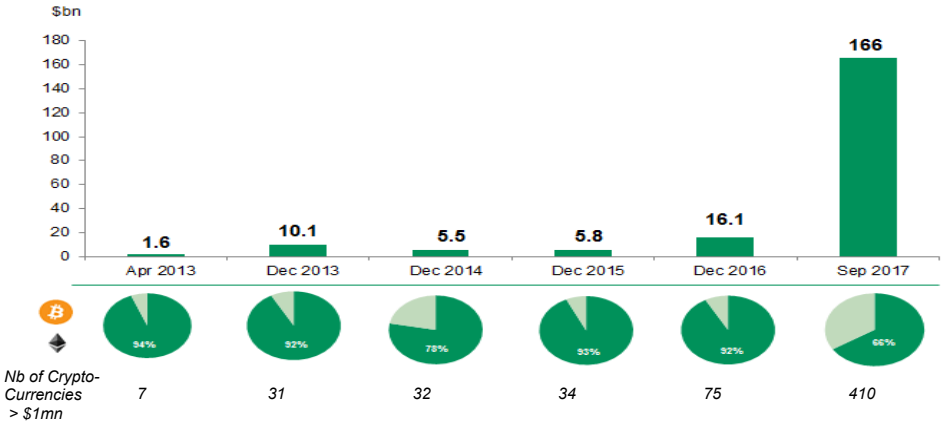


Source: Deloitte analysis of GH Torrent data and GitHub API data, as of October 12, 2017.

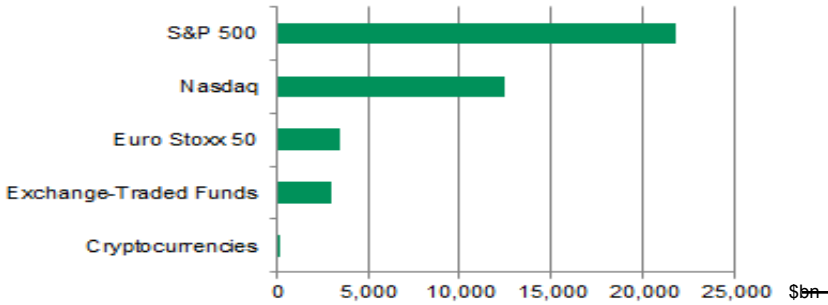
Deloitte Insights | deloitte.com/insights

Cryptocurrencies have surged in value in less than a year

Market Cap of all Coins.
Bitcoin & Ethereum's percentage of total market cap



Comparison of Market Cap – September 2017



Sources: coinmarketcap.com / Bloomberg

But Market Cap remains extremely low vs major mature markets

- The number of cryptocurrencies worth >$1mn soared in 2017
- While the total value of all currencies together skyrocketed
- Developers and enterprises have embraced the crypto-currencies (Ethereum) for the POC use-cases as Blockchain infrastructure and speculators note the cryptocurrencies' scalability and cooperative community
- Many people and companies are launching new cryptocurrencies through a mechanism known as and ICO (Initial Coin Offering)

A new and still maturing technology
Where to start ?

Private Markets
Non listed
Lack of infrastructure

AND / OR

Public and listed
Listed Markets
Existing
infrastructure

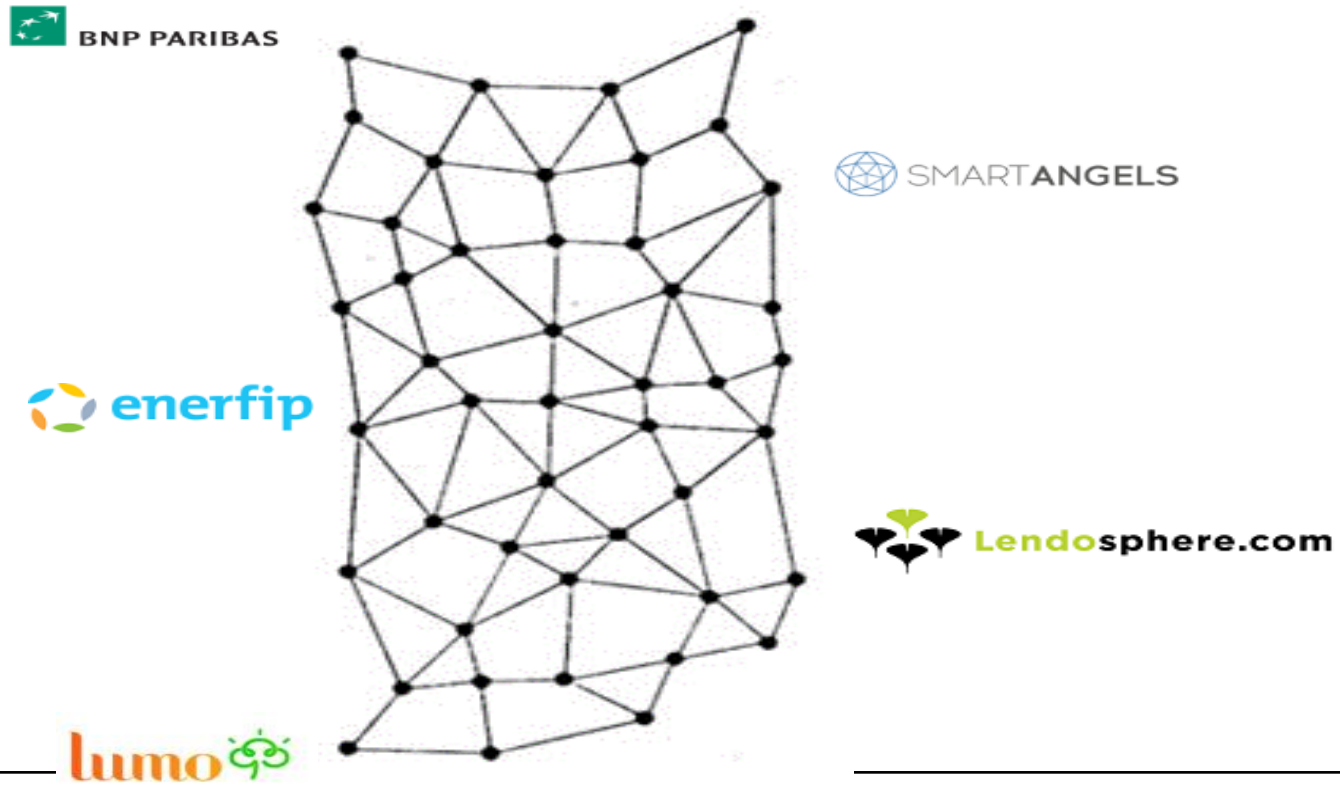
BNP Paribas loads first share registers on to blockchain platform

05 July 2017 | 18704 views | 0

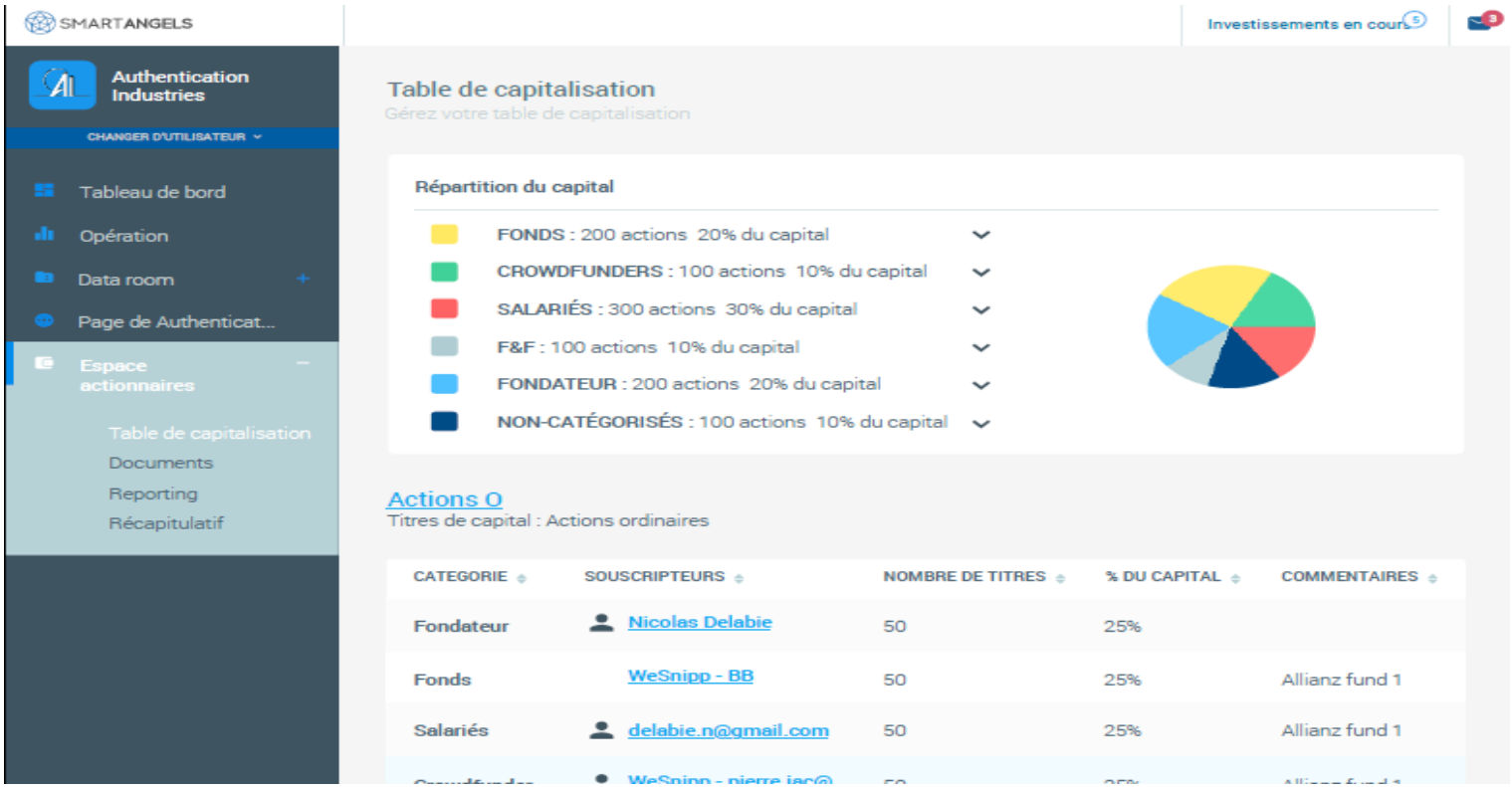
BNP Paribas Securities Services and crowdfunding outfit SmartAngels have loaded the share registers of five of their clients onto a new platform designed to allow private companies to issue securities on the primary market and give investors access to the secondary market using blockchain technology.

The two announced plans to develop the service last year and say they have now designed a number of critical functions that will enable private companies to manage the lifecycle of their financial securities, from issuance to the sale and purchase of securities.

A new system for the register of non listed stocks and bonds



Crowd Equity Platform - Smart Angels



Afterall, why do we use a blockchain for this ?

ISSUER

INVESTOR

REGULATOR

- ***Open source development*** *– Use of a new type of core banking system*
- ***A distributed architecture ease the deployment of a standard*** *in private markets. It will for instance allow interoperability between the crowdfunding or private investment platforms*
- ***Protect the investors*** *in a market that do not possess the safeguard of public markets*
- ***Facilitate tedious reconciliation processes.*** *As more actors join our platform we believe that the benefits of a blockchain architecture will increase.*

Listed / Public Markets progress : the Australian world

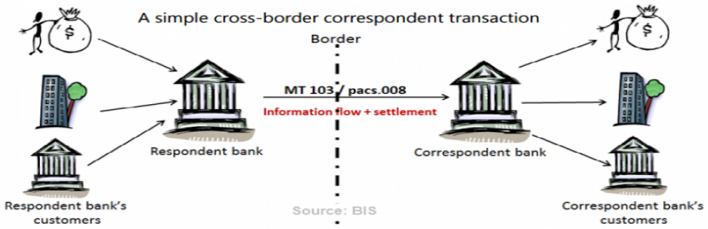
Australian Stock Exchange (ASX)

"Digital Asset Holdings Raises $52 Million, Will Bring Blockchain to Australian Stock Market" –

DAH is partnering with the Australian Stock Exchange to **bring Australian stock settlement into "the digital age" through the use of permissioned DLT** to cut costs, reduce capital and risk and improve regulatory compliance

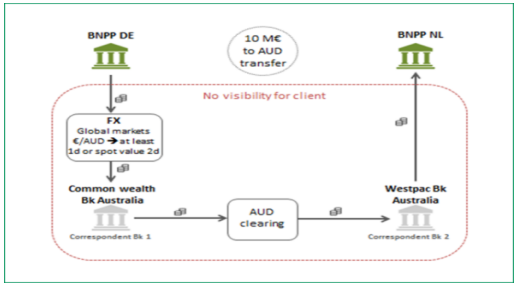
- Other investors in the project include BNP Paribas, JPMorgan, Citi, Accenture, DTCC and CME Group

Blockchain : The cash Without Borders project



In the current global payments ecosystem, corporate clients are experiencing many pain points such as delays, additional fees and processing errors.

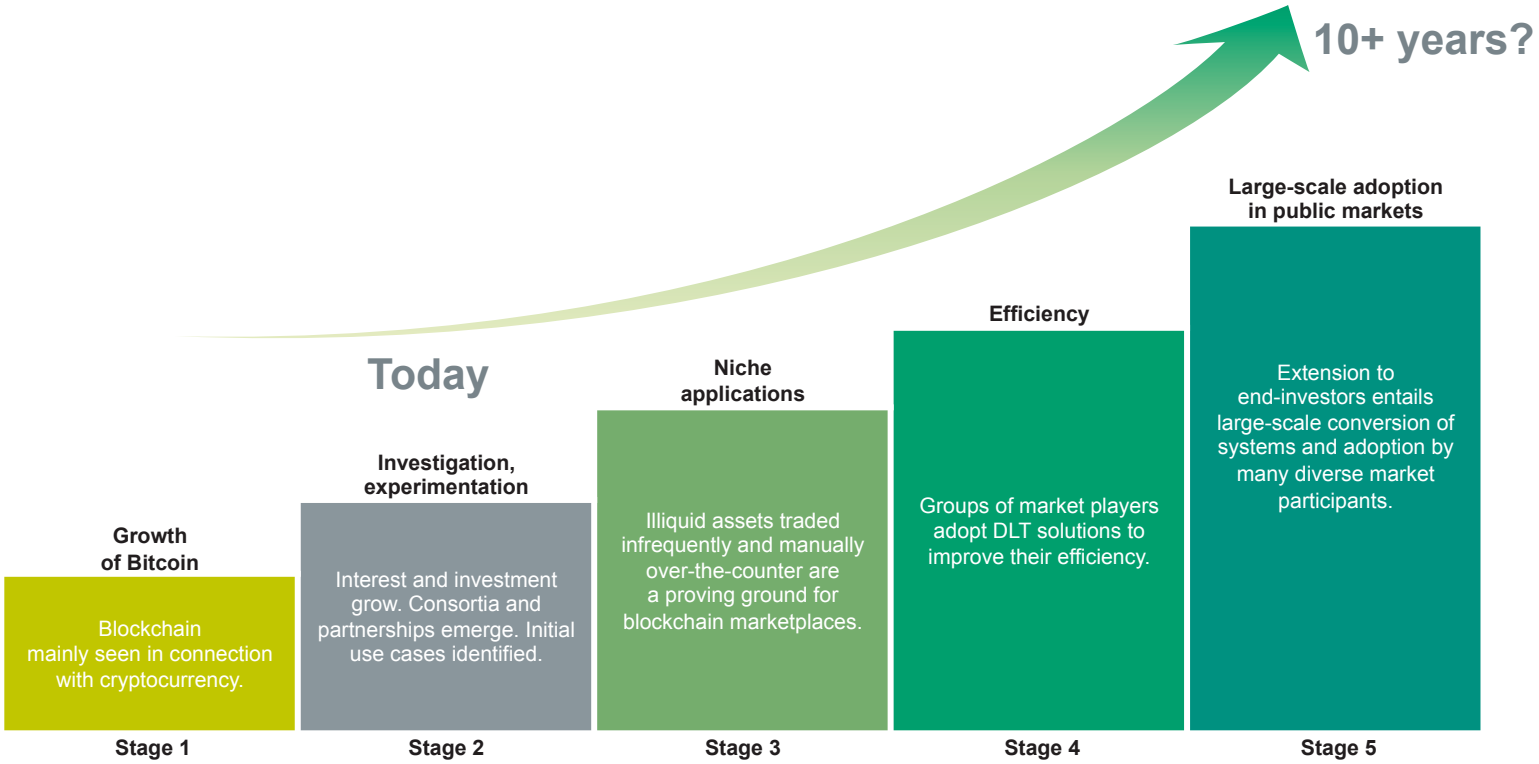
When transferring funds intra BNPP group these pain points remain the same.



Cash without borders = materialize the 'One Bank'-concept
→Leveraging an internal blockchain to enable real time cash transfers and reporting between counterparties within the BNPP Group.

https://vimeo.com/173930300/15de9564f7

Industry adoption timelines



Blockchain Lab is connected to Consortia regrouping peers, academia and tech companies

Name	LaBChain	r3.	Digital Asset	HYPERLEDGER	ENTERPRISE ETHEREUM ALLIANCE
Participants	Banks, Insurers, Fintechs, Academia	Mainly banks	Financial services	Banks, Insurers, Industrials, Fintechs, Academia	Banks, Insurers, Industrials, Fintechs, Academia
POCs	▪ Trade Repository ▪ Crypto-Fund	▪ Voltron: pilot-ready codebase to issue letters of credit ▪ AUDR Trade Finance: DLY enabled solution for classic factoring ▪ Procure2Pay: Open trading account for SMEs ▪ ThreeDBO: Smart Contracts for FX ▪ HQLAX Collateral lending for liquidity transfer on Corda ▪ Janus Securities: DLT solutions applicable to ABS process ▪ Argent: Cross-border & cross-currency international payments & settlements	▪ ASX: Cash Equity Market for Australian Stock Exchange ▪ US Treasury Repos ▪ Syndicated Loans	The Hyperledger Project is a collaborative effort created to advance blockchain technology by identifying and addressing important features for a **cross-industry open standard for DL** that can transform the way business transactions are conducted globally.	▪ The Enterprise Ethereum Alliance connects Fortune 500 enterprises, startups, academics, and technology vendors with Ethereum subject matter experts. Target: learn from and build upon the only smart contract supporting blockchain currently running in real-world production – Ethereum – to define enterprise-grade software capable of handling the most complex, highly demanding applications at the speed of business.
Other initiatives	▪ Creation of a Think Tank	▪ Corda training for free c·rda	▪ Digital Asset Modelling Language ▪ Software Development Kit	▪ To be defined	▪ To be defined
Thought Leadership	Nov/Dec Public Roundtable envisaged to introduce « 1st European Blockchain Consortium »	**Sep 20th: BNPP workshop on Corda and different projects**	Participation of **Blythe Masters in 10th January DAH workshop**	Linux Foundation Leadership	Vitalik Butherin

Challenges

- While the technology is very promising and initiatives are popping up everywhere, challenges will need to be overcome to deliver on these promises, such as :
  - **Technology still in infancy** (stability of protocols, scalability, reliability, interoperability, public versus private, permissioned versus permissionless, consensus, integration with legacy systems, distributed privacy, zkp…).
    - Bitcoin 7 tps / 0.10 to 2.5$ per transaction, timing 10 minutes
    - Ethereum 20 to 30 tps / 0.2 to 5.0 $ per transaction / 15 seconds
  - **Identity framework**
  - **Regulatory landscape & Legal implications**
  - **Intellectual Property**
  - Ability of different players and regulators to **continue to cooperate** beyond POC season

Conclusions : A range of applications

Identified impacts of blockchain	Disruption Scale
Open source development model for software	Low
Improvement of operational efficiency in reconciliations and distribution of information	integrate blockchain concepts and become digital friendly in day to day operations.
24/7, Worldwide infrastructure, Instant Payments	
Move to T+0 when relevant or Straight Through Settlement	
Automatic calculation and enforcement of contractual obligations (Smart Contracts)	Structural changes in the organisation of capital markets.
Distributed trading and clearing	High
Distributed network (ie without intermediary) to record and trade financial assets	

Technology still in infancy (stability of protocols, scalability, reliability, interoperability, public versus private, permissioned versus permissionless, consensus, integration with legacy systems, distributed privacy, **high level frameworks required**, r**egulatory landscape - sandboxes or ordonnances-, use case facing reality)**

Digital dashboard for Blockchain

VISION | **TALENT** | **BUDGET** | **CONSISTENCY**

- Drive the **vision**
- **Client** experience at the center
- **Disruptive**
  - Digital is not a commodity (not done before)
  - Packages do not exist and cannot be implemented (new culture)
  - Digital world is a very dangerous and competitive place (speed)
  - Digital IT is key to implementing the business digital strategy and need to be set-up apart from standard IT (bi-modal IT)
- **Transversality** is key
- **Shorten the 6 years percolation theory** through new ways of thinking

THANK
YOU
GRACIAS
ARIGATO
SHUKURIA
GOZAIMASHITA
EFCHARISTO
DANKSCHEEN
JUSPAXAR
BOLZÏN
MERCI
BÏYAN
SHUKRIA
TINGKI
YAQHANYELAY
TASHAKKUR ATU
SUKSAMA
EKHMET
MEHRBANI
GRAZIE
MAAKE
KOMAPSUMNIDA
SPASSIBO
NUHUN
SNACHALHUYA
CHALTU
WABEEJA
MAITEKA
YUSPAGABÀTAM
HUI
DHANYABAAD
ANHA
ATTO
MERSI
SPASIBO
DENKAUJA
NENACHALHYA
UNALCHÉESH
GUI
HATUR
EKOJU
SIKOMO
MAKETAJ
MINMONCHAR
PALDIES
LAH
SAMCO
MERASTAWHY
GAEJTHO
TAVTAPUCH
MEDAWAGSE
BAIKA
AGUYJE
FAKAAUE