

Technology Advisory Committee

Distributed Ledger
Technology
Sub-Committee

Presenters:
Shawna Hoffman
Charley Cooper
Jesse Drennan

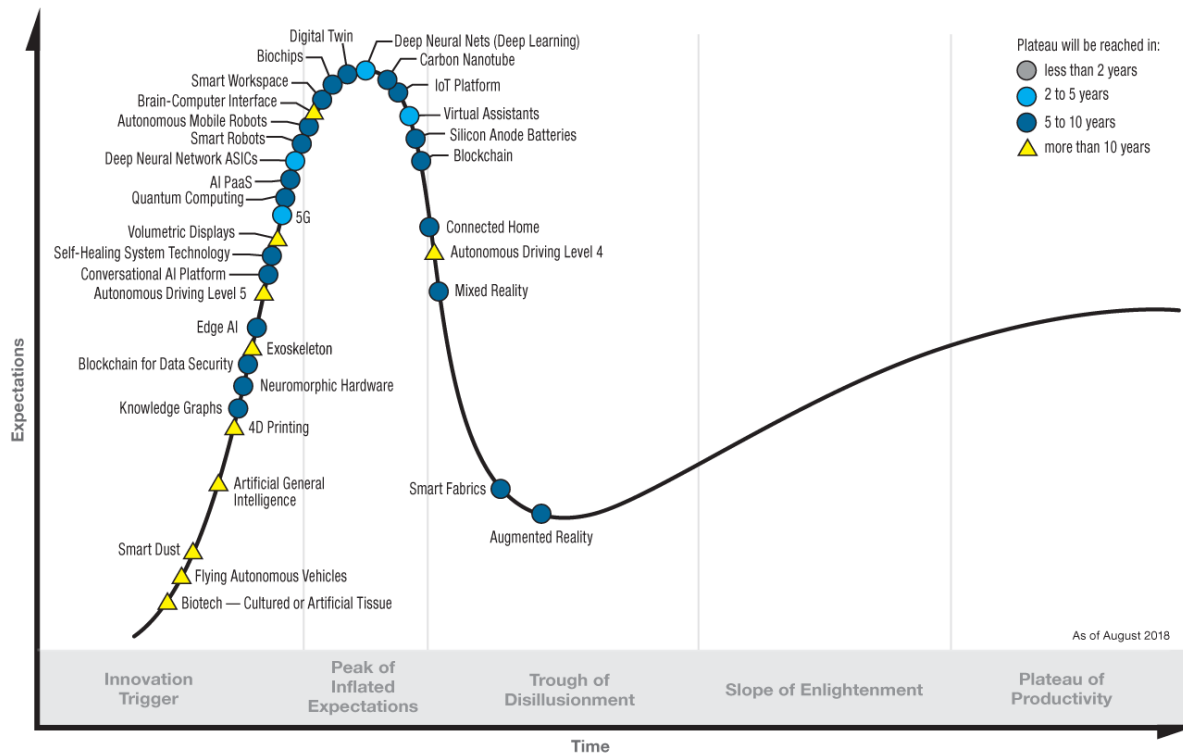
Agenda

- ▶ Blockchain: State of the state by Shawna Hoffman
- ▶ The Technology Forward for the DLT Space by Charley Cooper
- ▶ Real World Applications of DLT by Jesse Drennan
- ▶ Next Steps

Hype Cycle for Emerging Tech

Blockchain is moving from the Peak of Inflated Expectations to the Trough of Disillusionment

Hype Cycle for Emerging Technologies, 2018



gartner.com/SmarterWithGartner

Source: Gartner (August 2018)
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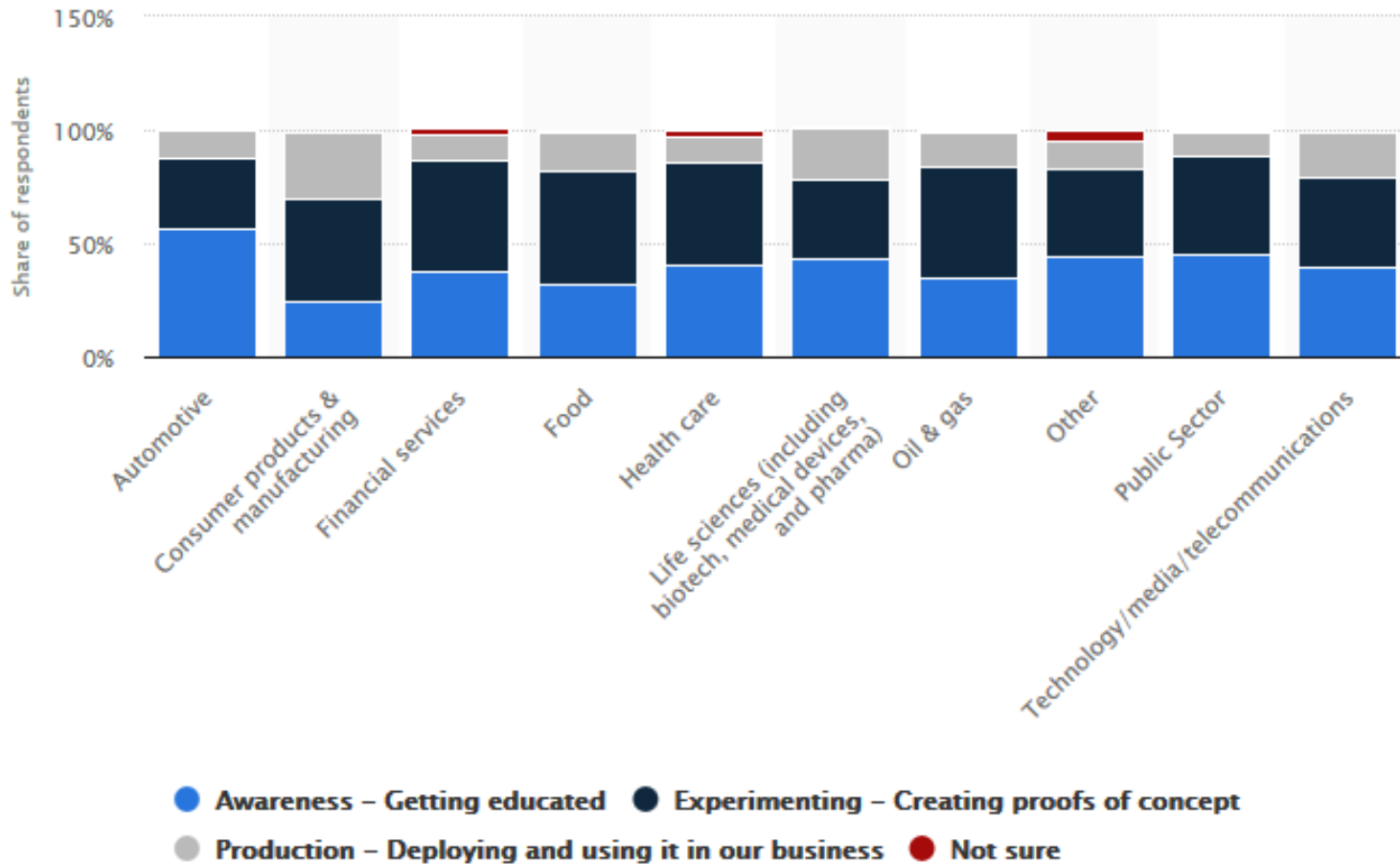
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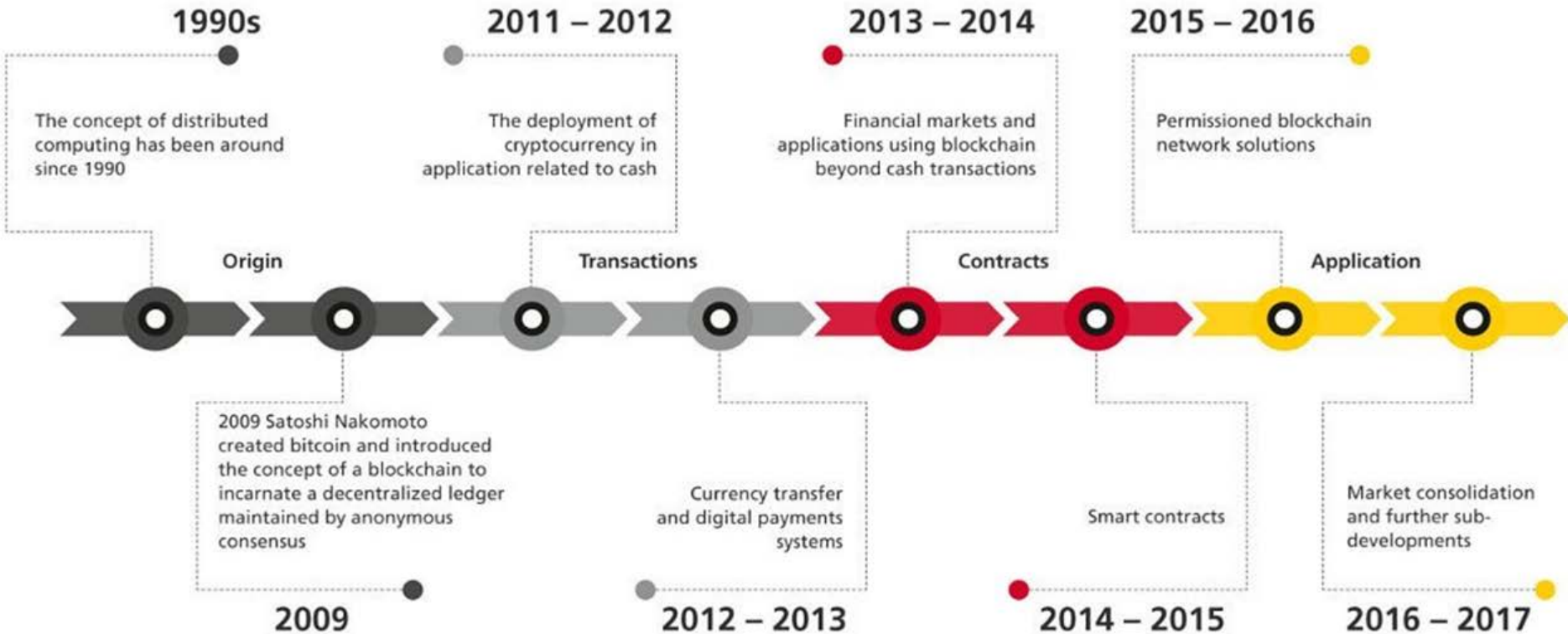
Source:
<https://www.gartner.com/smarterwithgartner/5-trends-emerge-in-gartner-hype-cycle-for-emerging-technologies-2018/>

Blockchain Adoption

By industry



Blockchain History



Blockchain Future

Deployment

Convergence of Technology

2019-2020

2024-2026

Other examples of DLT deployment e.g. HQLAX, WeWork, Supply chain, insurance gold trading, linked payment services, TradeLens, FoodTrust, Healthcare & Adjudication Process Blockchains, etc.

Smart Contract Adoption, Digital Currencies Adoption, etc.

- **BLOCKCHAIN**
- **AI/ MACHINE LEARNING**
- **BIG DATA**

Go live ASX Chess replacement clearing and settlement cash equities.

2021-2023

Regulation

1. Regulation has not thus far hindered permissioned DLT adoption.
2. Fully support "Do no harm" approach.
3. Smart contracting technologies will provide market efficiencies including:
 1. improved margin management
 2. capital charges
4. The outcomes of smart contracting will likely require regulatory recognition.
5. The focus of regulatory discussions should be on the outcomes the technology provides and not on the technology itself as technology is proving to advance at an exponential rate.

Possible Applications of DLT

DLT has the potential to introduce efficiencies across trading processes in derivatives markets. For example:

Smart contracting

Trade reporting

Delivery-vs-payment and collateral management

In addition, DLT can harness as well as enhance the usefulness of emerging technologies such as cloud, machine learning and big data.

These various applications (and others) merit regulatory study and analysis. We consider three briefly: (i) smart contracts; (ii) trade reporting; and (iii) payments

Example 1: Smart Contracts

- ▶ Smart contracts, broadly, refer to algorithmic, self-executing processes that can enable various types of value transfer between users.
- ▶ Algorithms can be programmed to perform a task (e.g. moving margin between user accounts) upon receipt of pre-specified data and triggers.
- ▶ DLT systems can facilitate data entry and verification in accordance with agreed-upon standards. Once verified according to pre-set protocols, smart contracts automate value transfer between users.

Example 1: Smart Contracts (II)

DLT-Based Transaction Data Verification
(e.g. \$ exposure on a credit-default swap)



Swap User A
(e.g. Credit
Protection Seller)

Smart Contract:
Margin

Swap User B
(e.g. Credit
Protection Buyer)

Example 2: Trade Reporting

- ▶ DLT systems help verify trades according to an agreed-upon set of domestic/international standards, creating an up-to-date ledger of trades for regulators and market participants.
- ▶ With single, authoritative record of trades continuously posted to the ledger, regulators and market participants access and utilize the same records in real-time.
- ▶ This structure ensures regulatory bodies have the same view as market participants of contracts and exposures.
- ▶ Trade reporting as first use case may act as catalyst for market structure transformation if parties are allowed to introduce services and apps to the chain.

Example 3: Payments... linked, light and easy

Ubin & Jasper

Universal Settlement Coin

JPMCoin

HSBC Everywhere

IBM Blockchain Worldwide

IHS Markit Stax Payments

Next Steps & Recommendations

- ▶ Uptake for DLT requires action:
 - ▶ Study to determine which aspects of derivatives trading can benefit from DLT.
 - ▶ Public and/or private pilots or small-scale testing of new technologies for markets.
 - ▶ Industry coordination to facilitate understanding of switching benefits, costs and barriers.
 - ▶ Consideration of migration and adoption patterns.
 - ▶ Regulatory guidance on the application of current regulation to DLT (e.g. can DLT systems support trade reporting regimes?).
 - ▶ International coordination with regulators to create common standards for cross-border uses of DLT (e.g. in swaps).
 - ▶ Establish criteria for evaluating the impact of Smart Contract technologies on safety and soundness of institutions and systemic risk.
 - ▶ **Examples:**
 - ▶ **Collateral & Margin** - If smart contract technology can protect against non delivery and other non performance risks and it can facilitate bankruptcy remote transactions, collateral and margin requirements may be relaxed.
 - ▶ **Clearing Credit** - If smart contracts can synchronize all flows of cash in a transaction without the need for any liquidity or clearing credit from intermediary entities, capital charges could be relaxed.