

# BLOCKCHAIN **REWIRING THE INTERNET**

Teach-In

Digital Capital Research

# AGENDA

What is the Internet? And What is Blockchain?

Blockchain as a New Technology

Decentralised Applications – *Example (Facebook)*

Blockchain as a New Asset Class

Digital Currency

Crypto-assets

Blockchain's Full Potential

# DID WE REALLY NEED THE INTERNET?

“A solution searching for a problem?”

Foundational technologies we didn't know we needed

- The wheel
- Steam engine
- Railroads
- Electricity
- Internet

Once created, endless use cases

# WHY WAS THE INTERNET A TECHNOLOGICAL REVOLUTION?

The internet is a network of computer networks

The internet decentralised communication

# KEY CONCEPT DECENTRALISATION

Blockchain decentralises value transfer

# KEY CONCEPT DIGITAL SCARCITY

What is digital scarcity?

Scarcity does not create value by itself, but

Anything of which there is demand and limited supply, will have a market price different from zero

We know data is valuable – ‘data is the oil of the information economy’

We can now give ‘bits’ some of the characteristics of ‘atoms’

# BLOCKCHAIN THE INTERNET OF VALUE

Cryptographically secured digital representations of value or contractual rights that can be:

- transferred
- stored
- traded electronically

# A NEW TECHNOLOGY

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Every Company is a Digital Company



"Every company is a software company. You have to start thinking and operating like a digital company. It's no longer just about procuring one solution and deploying one. It's not about one simple software solution. It's really you yourself thinking of your own future as a digital company."

— Satya Nadella, CEO, Microsoft



# COMPUTING A BRIEF HISTORY

## Hardware Era – 1950-1980

- IBM
- Microprocessors
- Disrupted by open architecture

## Software Era – 1980-2000

- Microsoft
- Linux and the Web
- Disrupted by open source software and free distribution

## Networks Era – 2000-Present

- Google
- Open source data?

# OPEN STANDARDS DISRUPTING THE DISRUPTORS

Shared open standards reduce production costs

New firms enter the market – the ‘disruptors’

Lower prices attract new users, increasing market size

Disruptor builds a ‘moat’, vanquishes competition, creates new environment

Demand builds for new, low cost, alternative open standard

Process begins again

# OPEN SOURCE DATA CRYPTO ERA

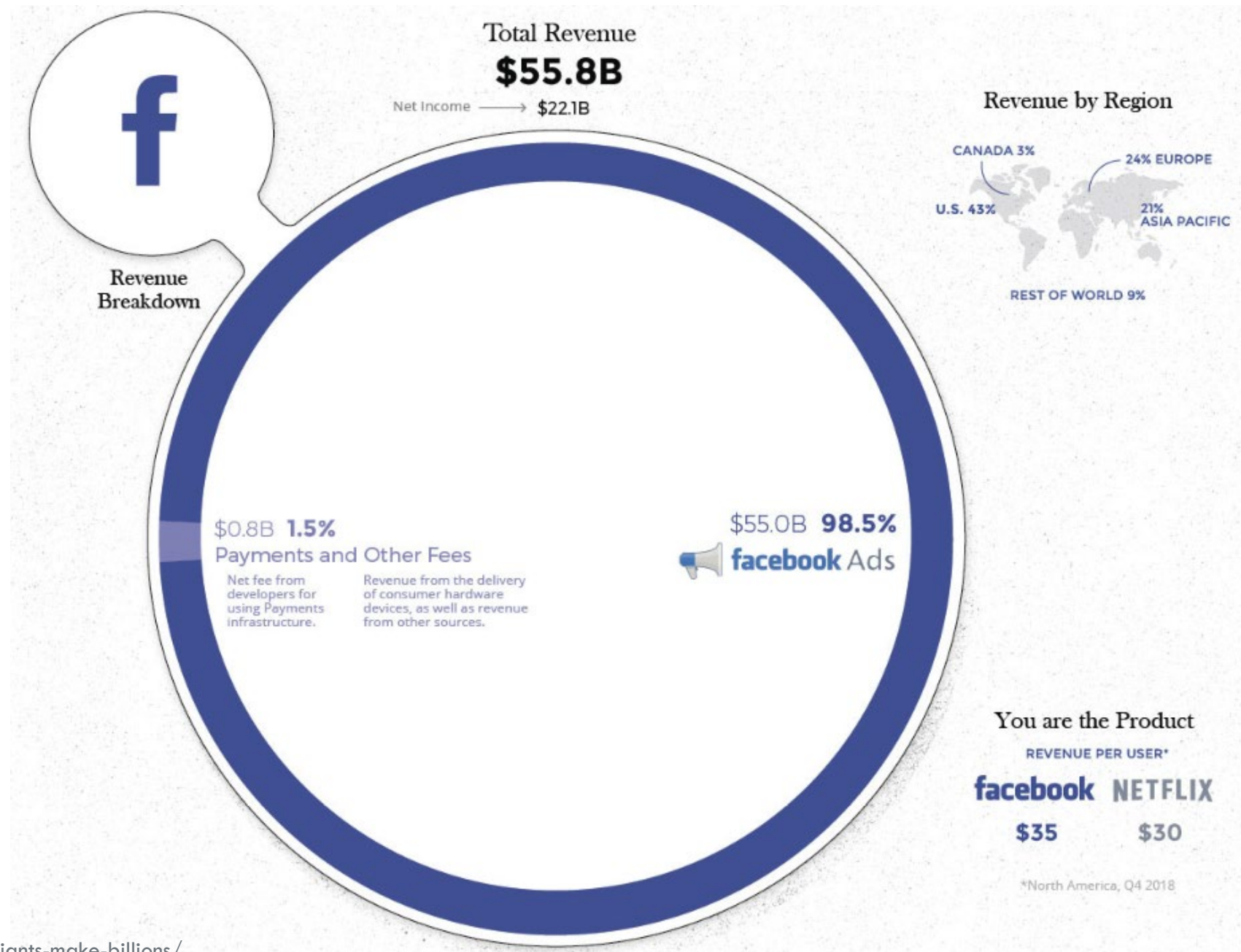
Current business model of the internet – **information monopolies**

Centralised information monopolies disrupted by *crypto-networks* – Blockchain

A decentralised information network coordinated through a scarce digital asset ('token')

- Services produced by a collaborative network, who are paid in a native digital currency
- Consumers must hold and spend tokens
- Price of the token increases with usage of the network

# EXAMPLE SOCIAL MEDIA



# EXAMPLE DECENTRALISED SOCIAL MEDIA

Who provides value to social media networks?

- Users data
- Service contributors/provider

How is this value monetised?

- Information aggregation
- Data analysis

Who pays for this value?

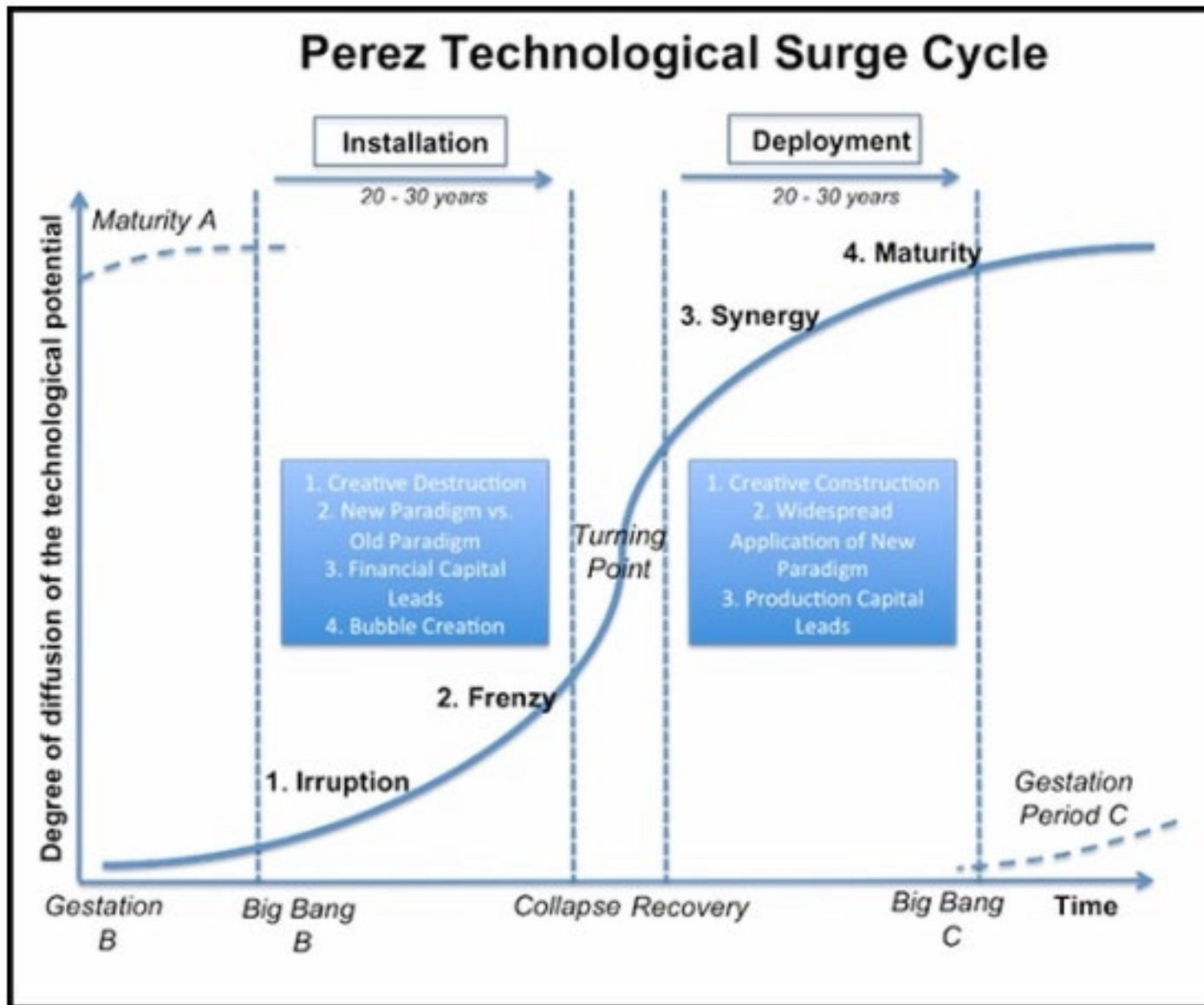
- Data consumers must buy tokens for access

Who earns money for this value?

- Users are paid tokens for their data
- Token holders developers

# TIMING

How many times have we seen  
this before?



# TRACKING BLOCKCHAIN GROWTH

Tracking the developer ecosystem

GitHub Data Analysis by Deloitte

source:  
<https://www2.deloitte.com/insights/us/en/industry/financial-services/evolution-of-blockchain-github-platform.html>

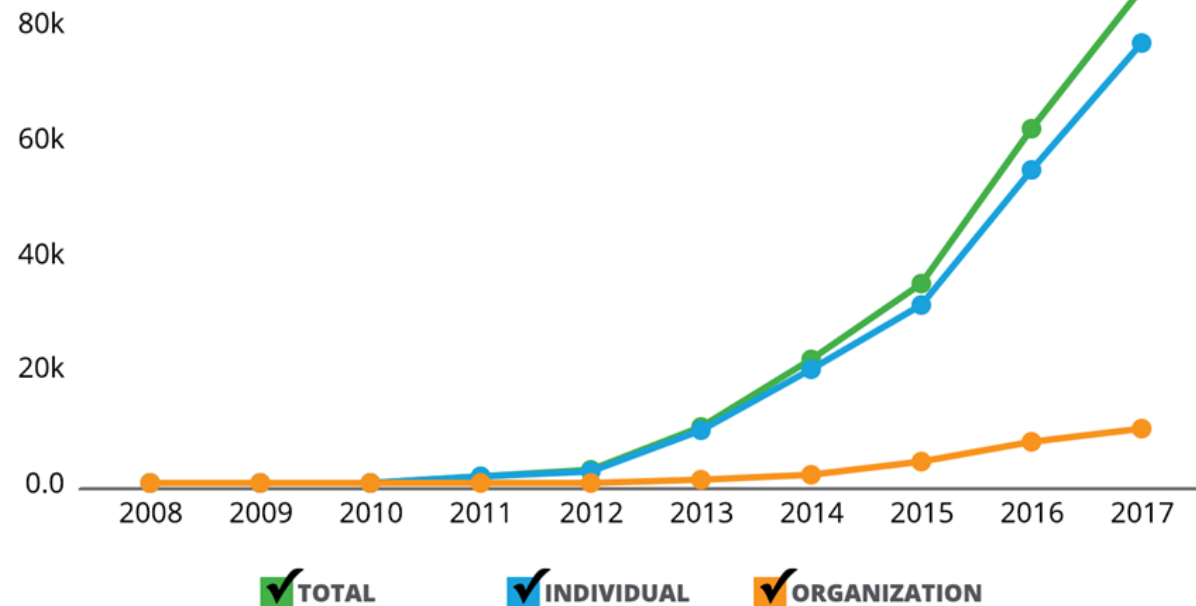
## Evolution of blockchain technology

By [Jesus Leal Trujillo](#), [Steve Fromhart](#), [Val Srinivas](#)



### REPOSITORIES BY YEAR

Detail view: **New repositories added** **Total repositories**



Deloitte Insights | [Deloitte.com/Insights](https://deloitte.com/insights)

# A NEW ASSET CLASS

Once in a lifetime?







# I HATE CRYPTO I LOVE BLOCKCHAIN

Is 'enterprise' blockchain really blockchain?

## Levels of decentralisation

Access permission(less)

Governance authority

Logic software implementation

# BLOCKCHAIN BASICS

Blockchains are a two-sided system:

- Users create transactions
- Miners validate and process transactions

# BLOCKCHAIN BASICS MINING

Value transfer systems have too many intermediaries?

- Increases cost
- Robustness

The Distributed Ledger – ‘No Intermediaries’

*Everyone* is an intermediary

- Monopolistic system to ‘perfect competition’
- Trust in the system – No trust between nodes

Economic incentives for participants to secure the network

- Miners are paid in the native asset of the blockchain

# I HATE BITCOIN

## What is Bitcoin?

- A religion
- A blockchain
- A protocol
- A computer network
- Software
- Money

# DIGITAL CURRENCY PAPER CURRENCY

Different architecture, philosophy, and goals

## Digital Currency

- Censorship resistant unseizable asset
- Programmable money

## Central Bank Currency

- Solved past problems of 'private money'
- Single currency; Optimum Currency Area
- Financing sovereign nations

# A MONETARY SYSTEM IS A NETWORK

## The US Dollar

### Access

- Hold physical cash
- Open dollar bank account

### Governance

- Centralised
- US Government democratically elected
- The Federal Reserve unelected officials
- Regulators govern use

### Logic

- Demand: Purchase goods and services priced in dollars
- Supply: Money supply managed by central bank

## Bitcoin

### Access

- Hold digital token
- Download digital wallet (free)

### Governance

- Decentralised
- The Bitcoin protocol
- Community
  - Foundations
  - Miners

### Logic

- Demand: Purchase goods and services priced in bitcoin
- Supply: Fixed/Algorithmic, set by the protocol

# PAYING IN 'CASH' ON THE INTERNET

Unpack what you pay for on the internet

- Retain ownership of data
- Privacy



# CRYPTOASSETS TAXONOMY

The joint HM Treasury-Financial Conduct Authority-Bank of England Cryptoassets Taskforce, identify:

exchange tokens

utility tokens

security tokens





# POTENTIAL USE CASES

Currency

Smart Finance

Tokenisation of assets

Digital Identity

Voting

Fundraising

Distributed computing

Decentralised services

# THE PROMISE OF BLOCKCHAIN

## Ronald Coase's Theory of the Firm

- “people begin to organise their production in firms when the transaction cost of coordinating production through the market exchange, given imperfect information, is greater than within the firm.”

## Transaction costs

- Search and information
- Bargaining
- Policing and enforcement

Can blockchain, through digital assets, markets, and smart contracts, reduce transaction costs to zero?



**QUESTIONS?**



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