

What Are Blockchains, and What Are They Good for?

SPEAKER

Chris Dixon, Andreessen Horowitz

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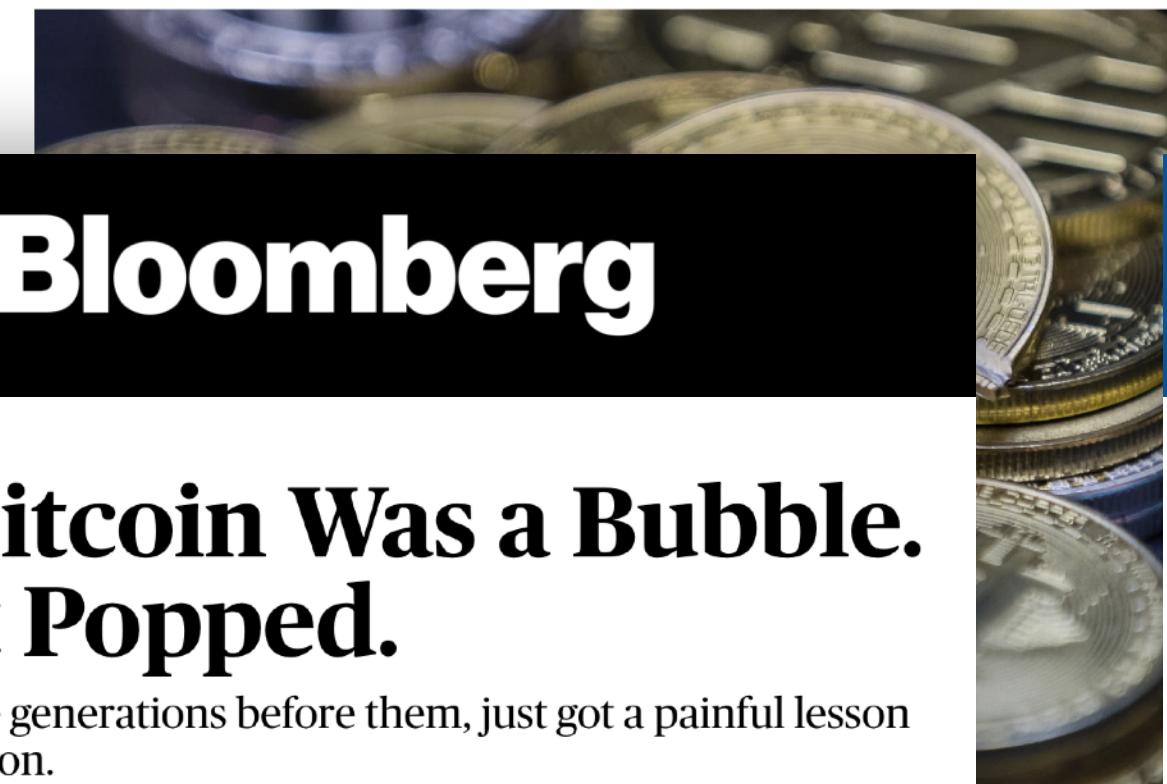
State of Crypto

Crypto Skeptics in the Media

FORTUNE

THE LEDGER • BITCOIN

3 Reasons for the Crypto Collapse



Bloomberg

Yep, Bitcoin Was a Bubble. And It Popped.

Millennials, like generations before them, just got a painful lesson about speculation.



WIRED

BRUCE SCHNEIER

OPINION 02.06.2019 09:00 AM

There's No Good Reason to Trust Blockchain Technology

Forbes

From Bitcoin To No Coin, Crypto World Under Pressure As Values Tumble



MIT Technology Review

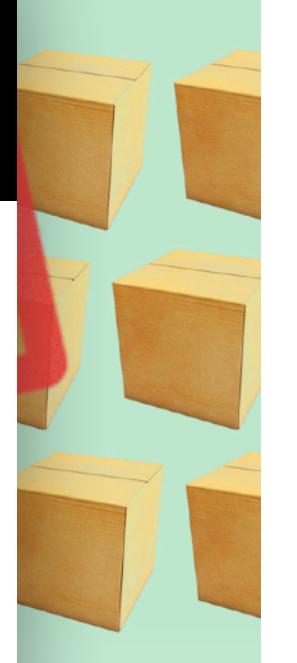
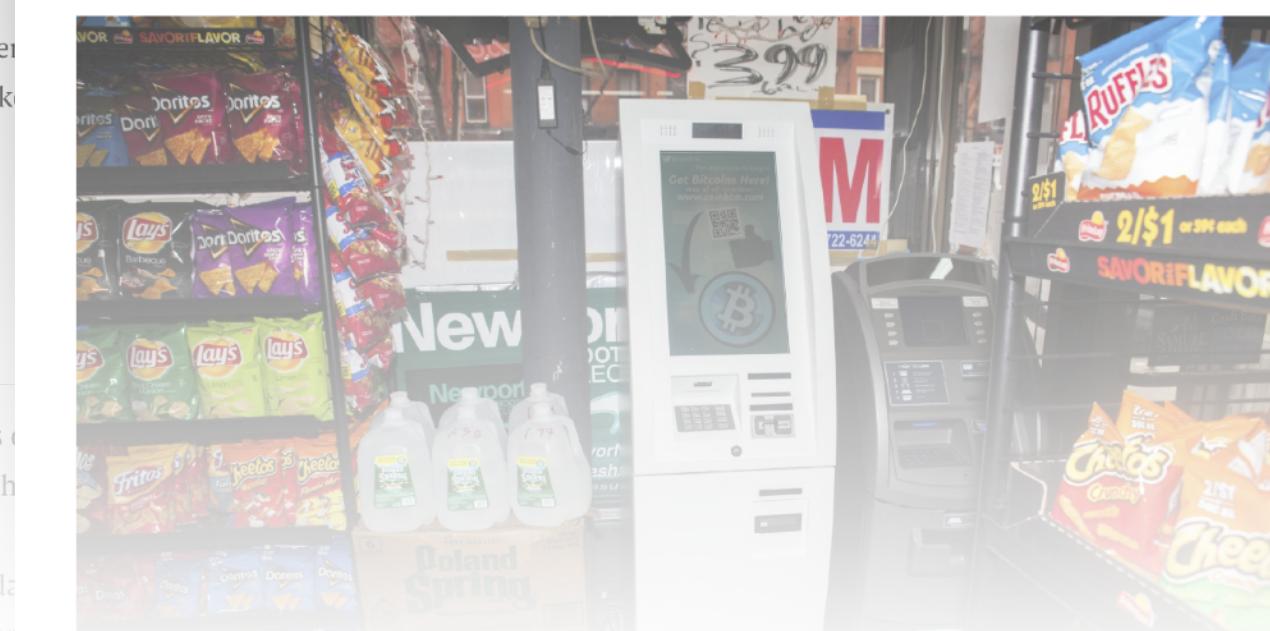
In 2019, blockchains will start to become boring

After the Great Crypto Bull Run of 2017 and the monumental crash of 2018, blockchain technology won't make as much noise in 2019. But it will become more useful.

The New York Times

Bitcoin Has Lost Steam. But Criminals Still Love It.

The police hoped that taking down online black markets would chase away criminals. But the amount of Bitcoin spent on illegal purposes has reached a new high.



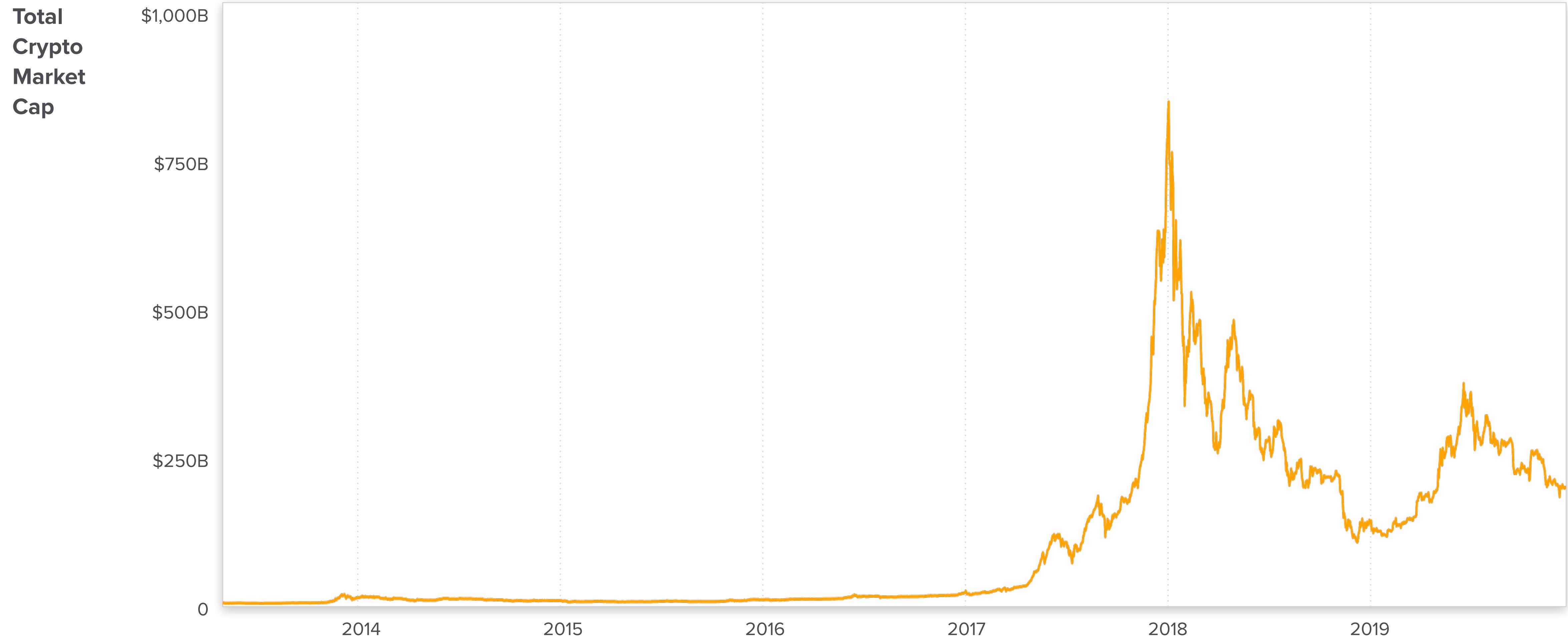
posed to disrupt
in 2019, it will

peak in late
Although still
with precursor
covered from
the developers
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cts in 2019.

ain technology

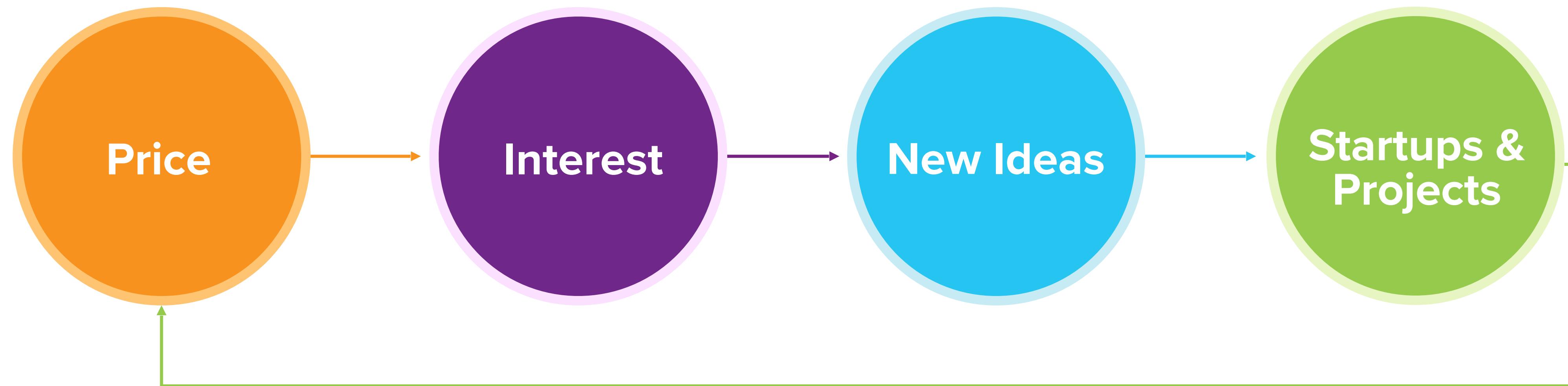
Crypto Skeptic's Perspective

“Crypto had a bubble in 2017, which then popped and the space lost momentum.”



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The Reality: Crypto Develops in Cycles That Appear Chaotic But Have an Underlying Order



The Insiders' Take: First Wave of Innovation

2010–2012

WAVE ONE

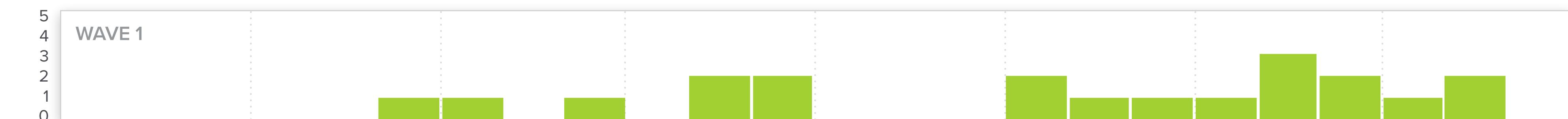
BTC Price
\$USD



Developer Activity¹



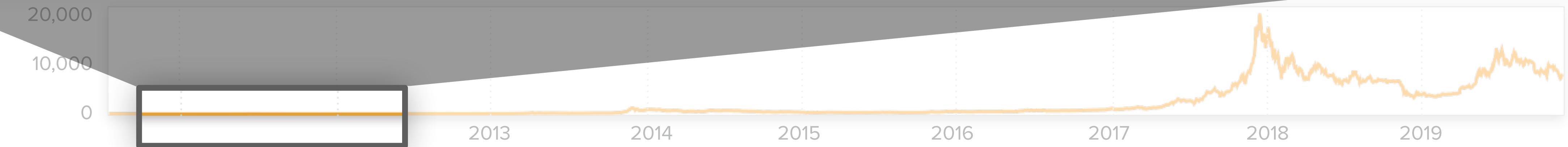
Startup Activity²



Social Media Activity³



Total Crypto Market Cap



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¹Developer activity based on crypto stars on Github

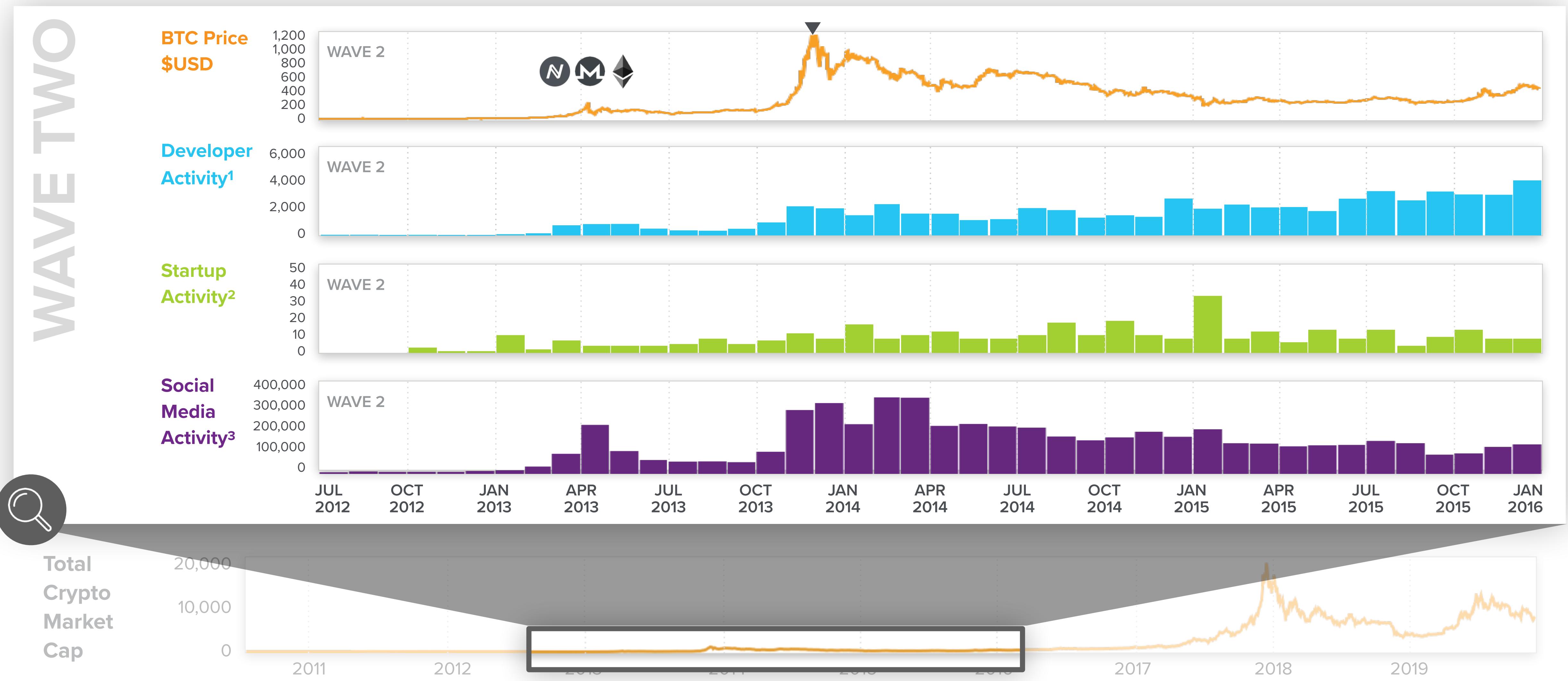
²Startup activity based on crypto first rounds funding via Pitchbook

³Social media activity based on comments on crypto-related subreddits

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The Insiders' Take: Second Wave of Innovation

2012–2016



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¹Developer activity based on crypto stars on Github

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³Social media activity based on comments on crypto-related subreddits

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The Insiders' Take: Third Wave of Innovation

2016–2019

WAVE THREE

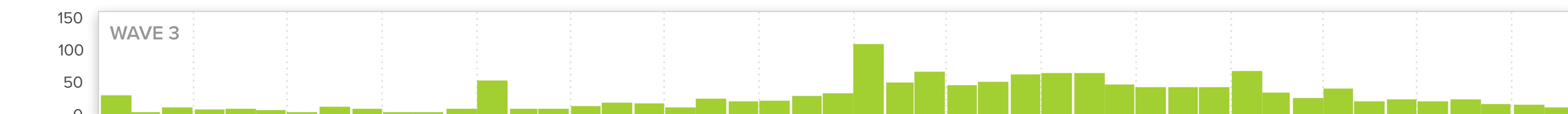
BTC Price
\$USD



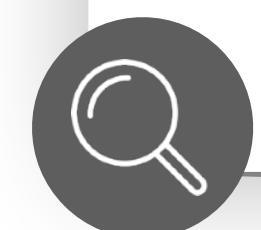
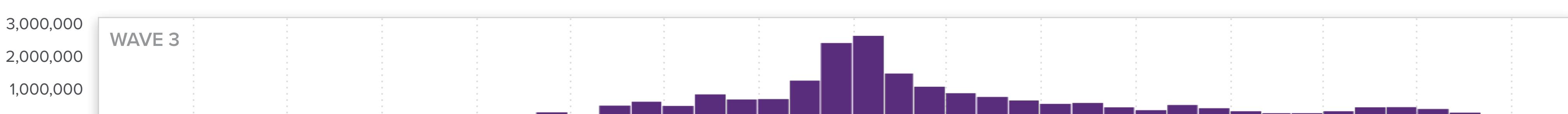
Developer Activity¹



Startup Activity²



Social Media Activity³



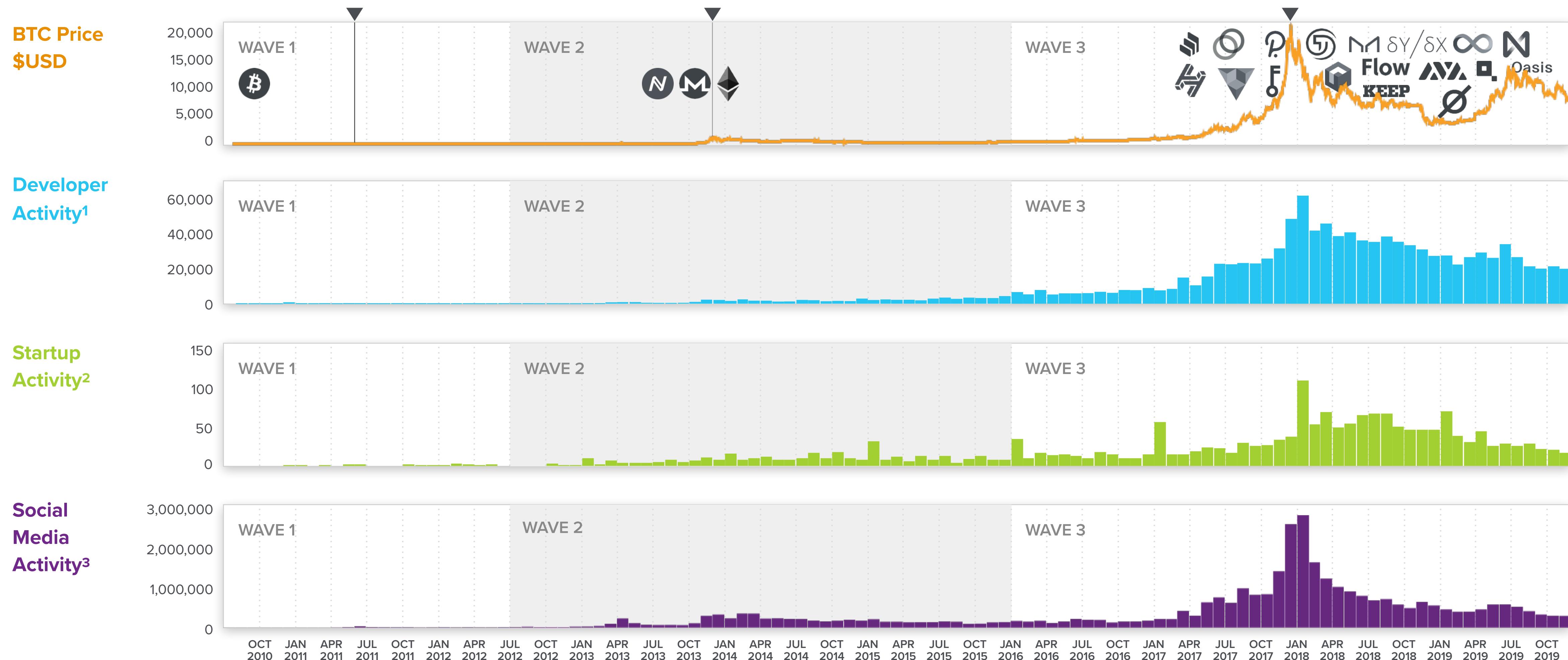
Total Crypto Market Cap



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Crypto Innovation: All Waves

Crypto progresses in waves that from the outside look chaotic but have an underlying order



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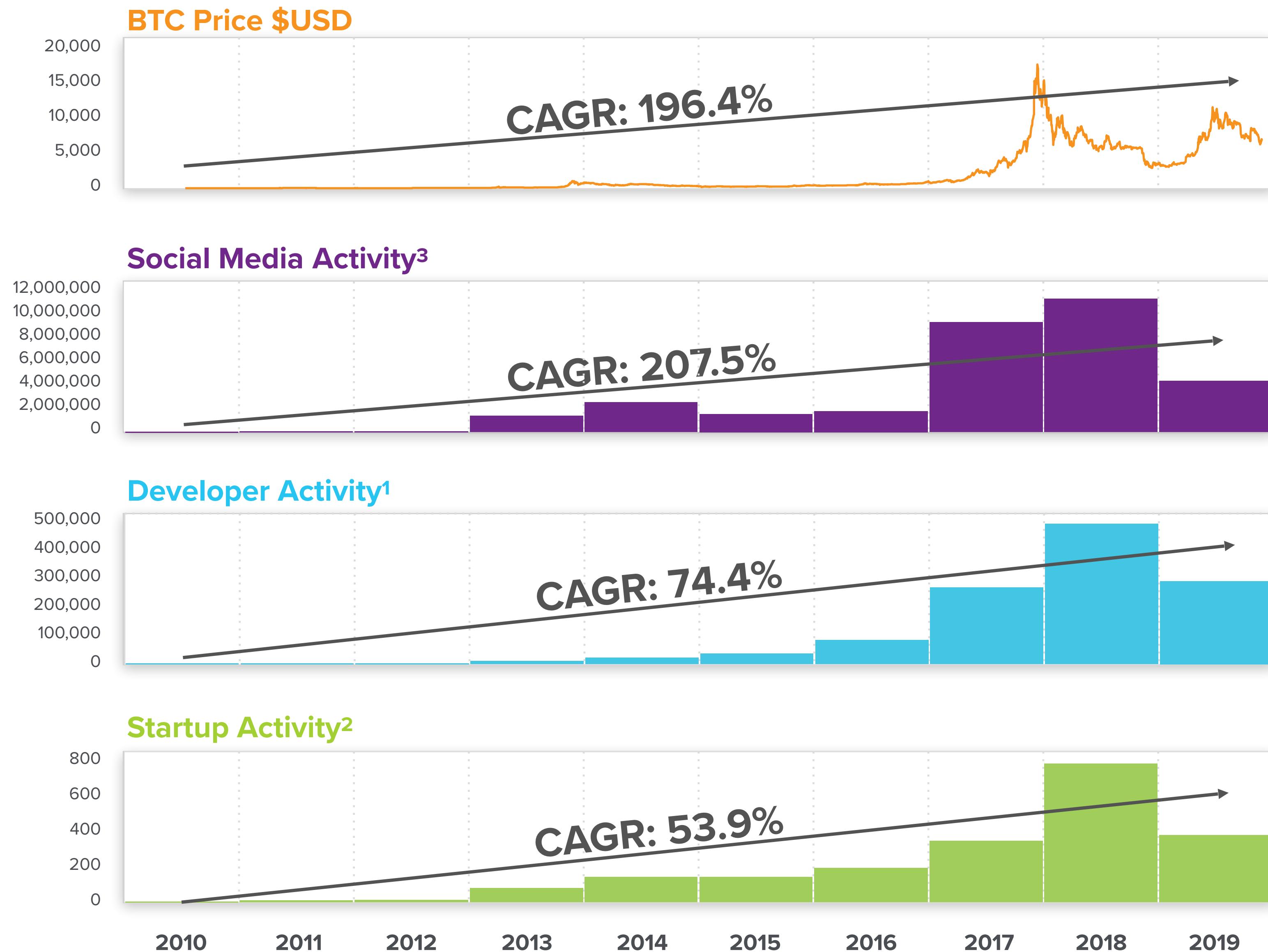
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The result is consistent long-term growth, driven by a feedback loop between interest and innovation.



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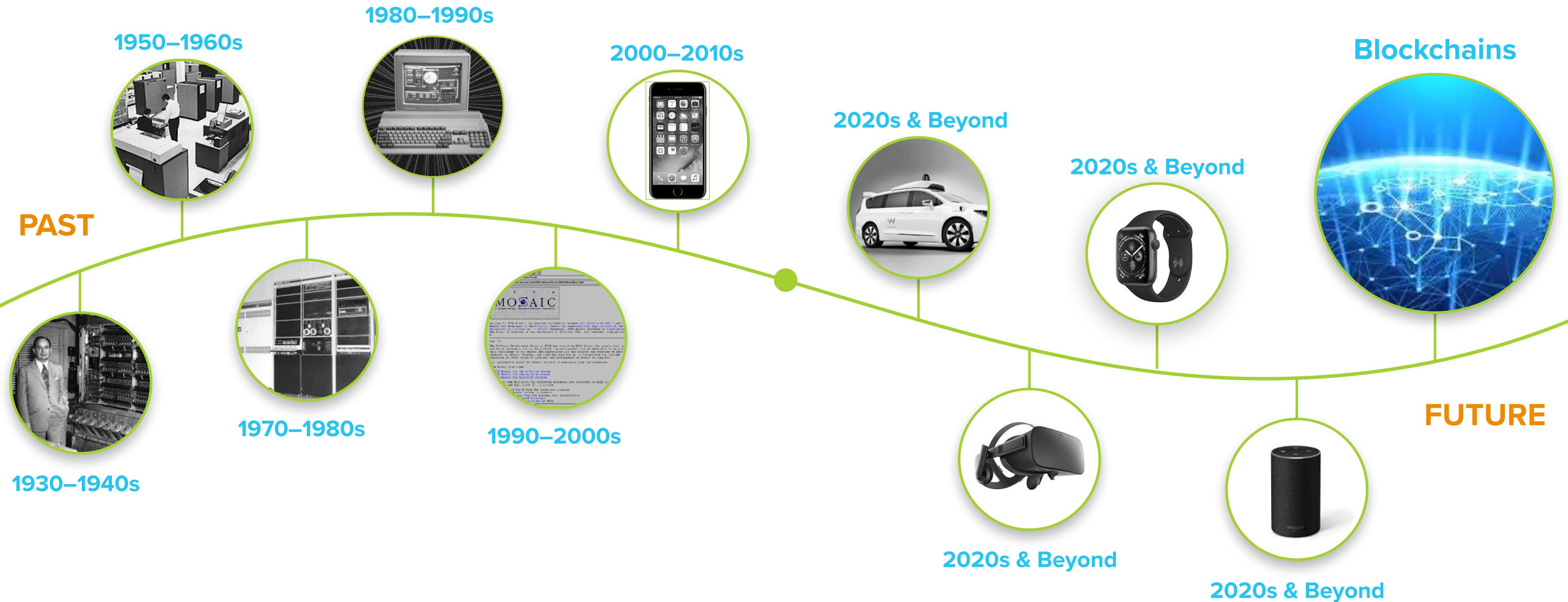
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**The best way to think of blockchains
is as a new type of computer.**

History of Computing Platforms



Blockchain: A virtual computer that runs on top of a network of physical computers that provides strong, auditable, game-theoretic guarantees that the code it runs will continue to operate as designed.

Computers That Can Make Commitments

EXAMPLE



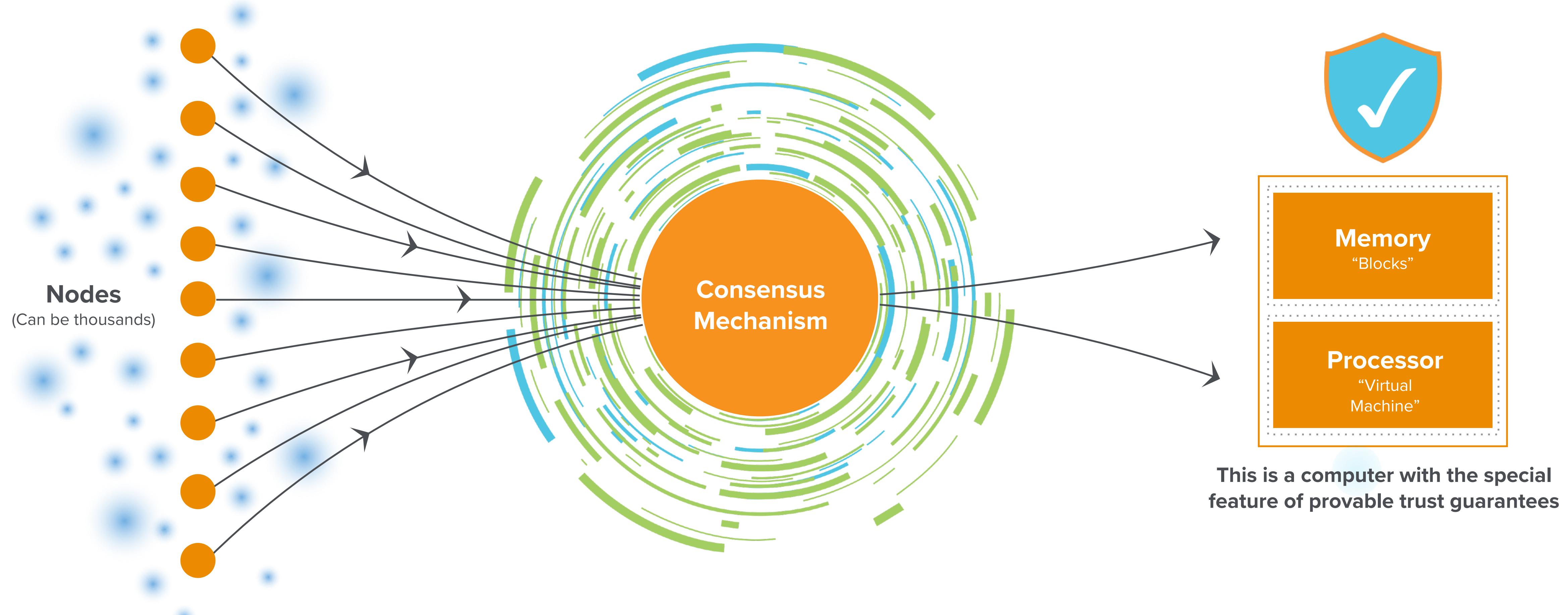
Fixed Supply:
21 Million

**No Double
Spend**

**Your Bitcoin Is
Yours**

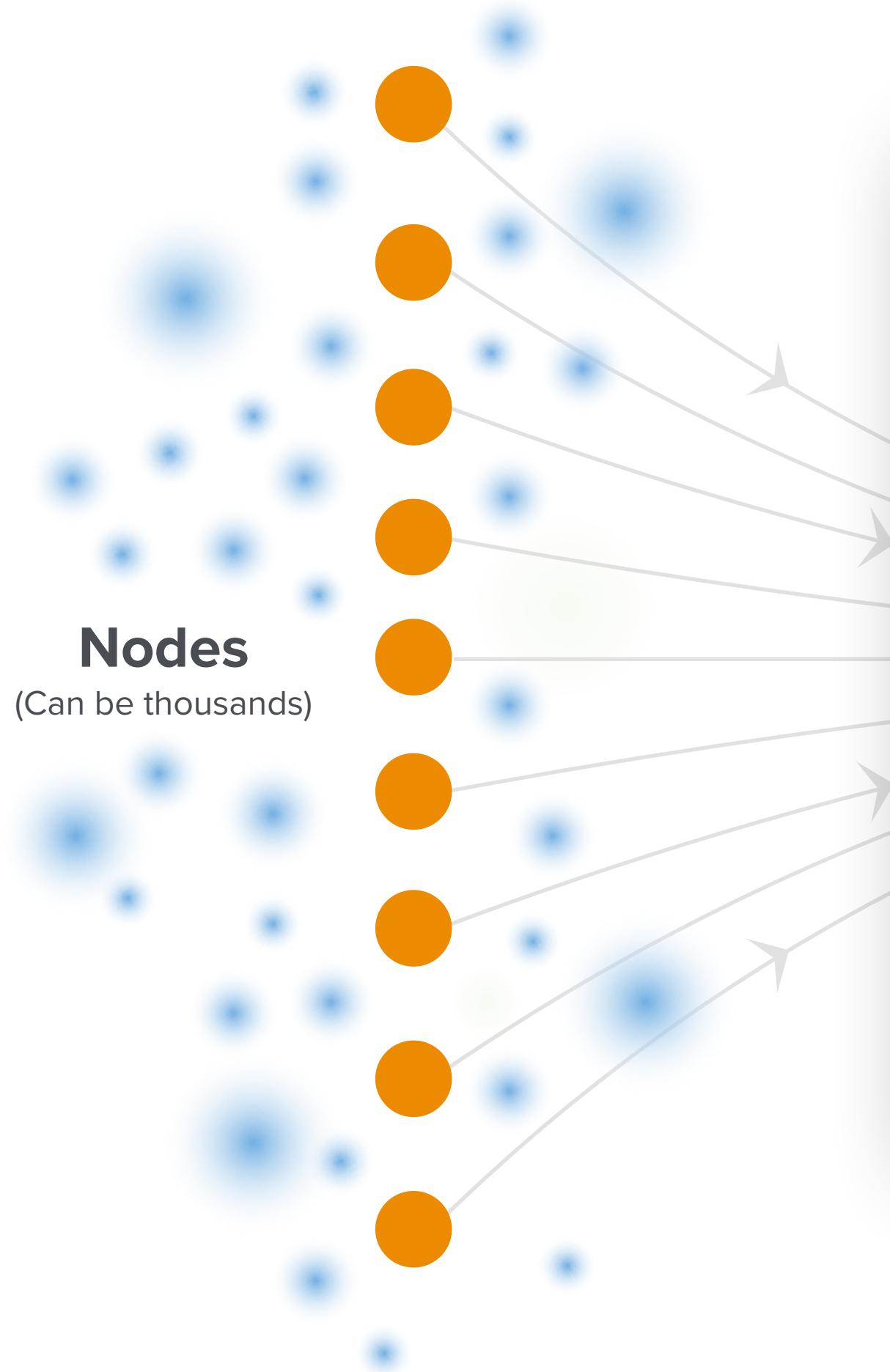
Architecture of Blockchain Computers

Computer composed of nodes which are physical computers (e.g. PCs), joined together via a consensus mechanism.



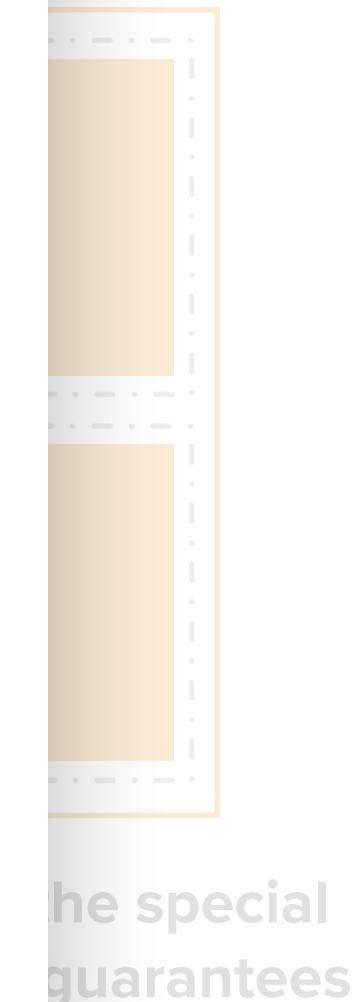
Nodes

Nodes are the method by which anyone—without needing permission—can join the network and become part of the blockchain computer.



Each node runs all or part of the code required to make the system function.

Nodes are incentivized to behave honestly, but a well-designed consensus mechanism enforces the correct operation of the blockchain computer even if a significant number of nodes misbehave.



Consensus Mechanism

Consensus mechanism aggregates the “votes” from the nodes to determine the correct operation of the blockchain computer.

The rounds of voting are broken into “blocks” which are then chained together, hence the term “blockchain.”



A well-designed consensus mechanism gives mathematically provable guarantees about trustworthiness of the computer as a whole.

feature of provable trust guarantees

The Result: Trust Guarantees

The game theory of nodes + consensus mechanism provides **trust guarantees** to anyone using it—users, developers, creators, businesses, other computers or services—that no previous computer architecture could provide.

These trust guarantees means that the rules of the system can't change without due process as defined by the system's governance protocols. “**Don’t be evil**” becomes “**Can’t be evil**.”

These trust guarantees also enable the credible creation of **new computing primitives** such as digital money, digital goods, smart contracts, decentralized organizations, etc.

Like All Early Computers, Blockchain Computers Have Strengths and Weaknesses

	Strengths	Weaknesses
Early PCs	Smaller, cheaper	Slow, expensive, user experience
Early Smartphones	Portable, GPS, camera, cellular connectivity	Performance, price, inputs (keyboard)
Early Blockchains	Provable trust guarantees	Scalability, user experience

Killer Apps Took Advantage of Strengths: Weaknesses Diminished Over Time.

PCs
Smartphones
Blockchains

Killer Apps

Word processing, spreadsheet, desktop publishing

Took advantage of price/size to become ubiquitous

Ride hailing, photo sharing

Took advantage of GPS, camera, connectivity, portability

Trust enables new digital primitives:

Digital money, digital goods, smart contracts, DAOs, trusted software platforms, community owned and operated digital services, + much more as-yet-invented?

Computers Can Be General Purpose or Application Specific

General Purpose

DEC minicomputer

WWW

iPhone

Apple Watch

Ethereum

BENEFIT:

Unlocks third-party developer creativity

Application Specific

Wang word processor

AOL

Blackberry

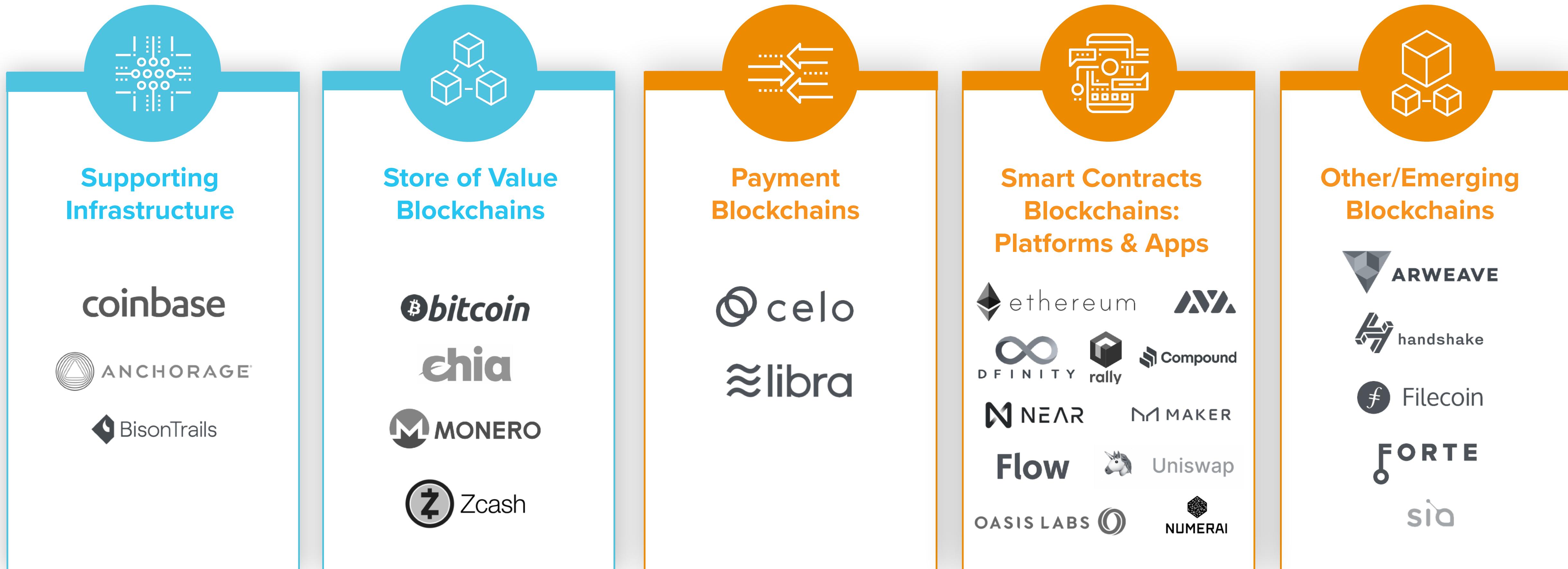
Fitbit

Bitcoin

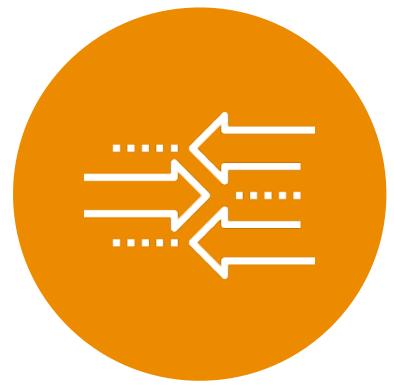
BENEFIT:

Optimize full-stack for specific application

Crypto Landscape



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PAYMENT BLOCKCHAINS

Mobile Peer-to-peer Payments



 celo
 libra



SMART CONTRACT BLOCKCHAINS

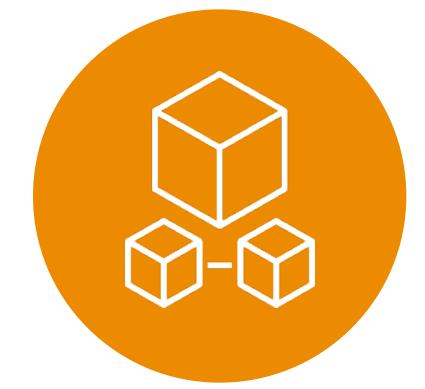
Decentralized Finance

The laptop screen shows the MakerDAO homepage. At the top, there is a navigation bar with the Maker logo, followed by links for Products, Learn, Foundation, and Community. Below the navigation, there are two main sections: "Freedom from volatility" and "Economic opportunity for everyone".

Freedom from volatility
Dai stands to transform the financial industry by creating a stable and decentralized currency that will allow businesses to realize the future of money.

Economic opportunity for everyone
Financial services once only for the select few, are now open to all. Maker is an open platform that allows equal access to high quality financial services, including fair credit for everyone.

 **Compound**
 **MAKER**



OTHER EMERGING BLOCKCHAINS

Gaming/NFTs



FORTE

Flow

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