

The Future of Finance: Crypto Assets, and Bitcoin – Should we Take it Serious?



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Head of Frankfurt School
Blockchain Center



WHAT WE DO

The Frankfurt School Blockchain Center was **founded in 2017** by Professor Philipp Sandner. We are a **think tank and research center** which investigates implications of the blockchain technology for companies and their business models.



**Consulting,
prototypes
& research**



**Education
& trainings**



**Startups advisory
& incubation**



**Community
& events**

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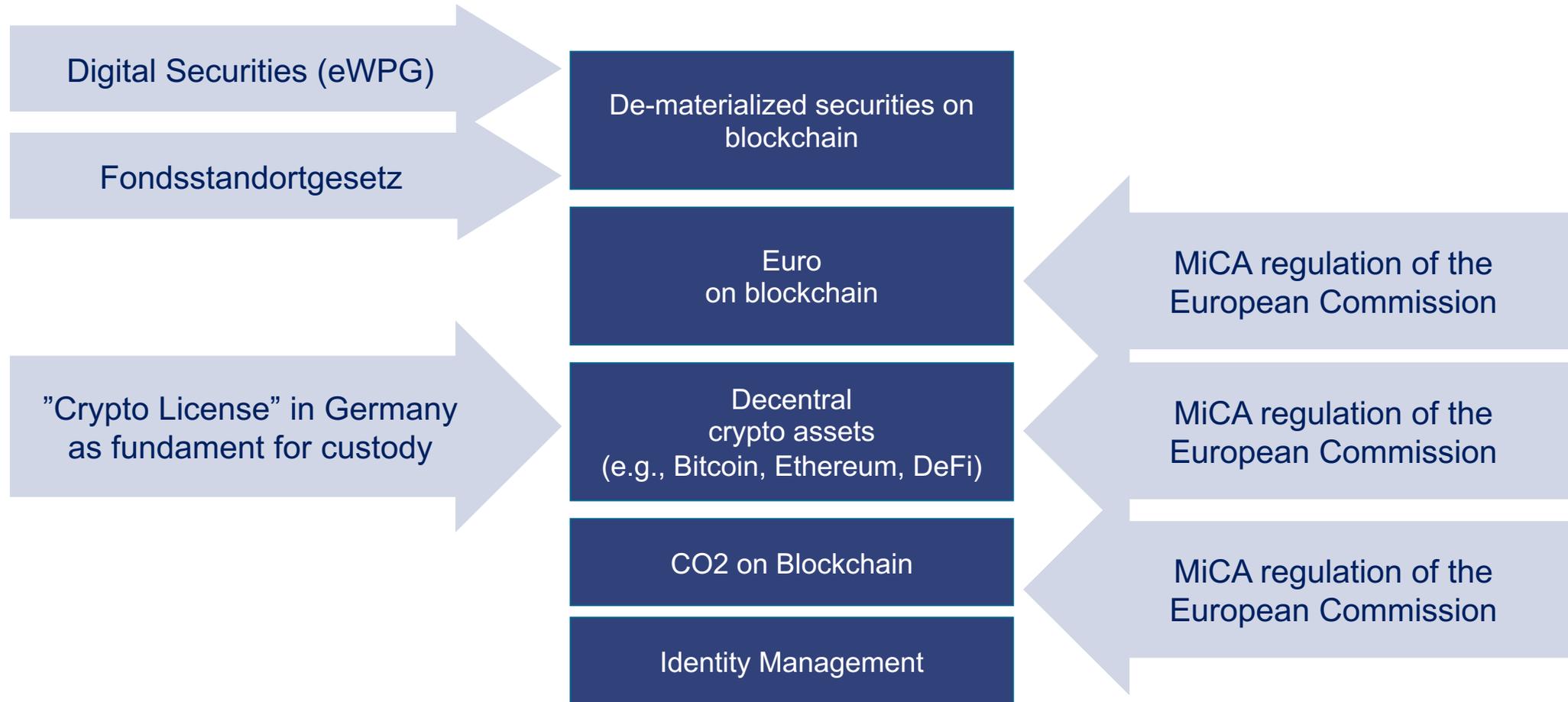
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- Head of the **Frankfurt School Blockchain Center (FSBC)**
- Professor at the faculty of the Frankfurt School of Finance & Management
- Board of Directors of **21e6 Capital**, **FiveT Fintech Fund** and **Blockchain Founders Group**
- **Member of the Fintech Council (FinTechRat)** of Germany's Federal Ministry of Finance
- Blockchain technology in general, crypto assets such as Bitcoin and Ethereum, the digital programmable Euro, tokenization of assets and rights, digital identity.

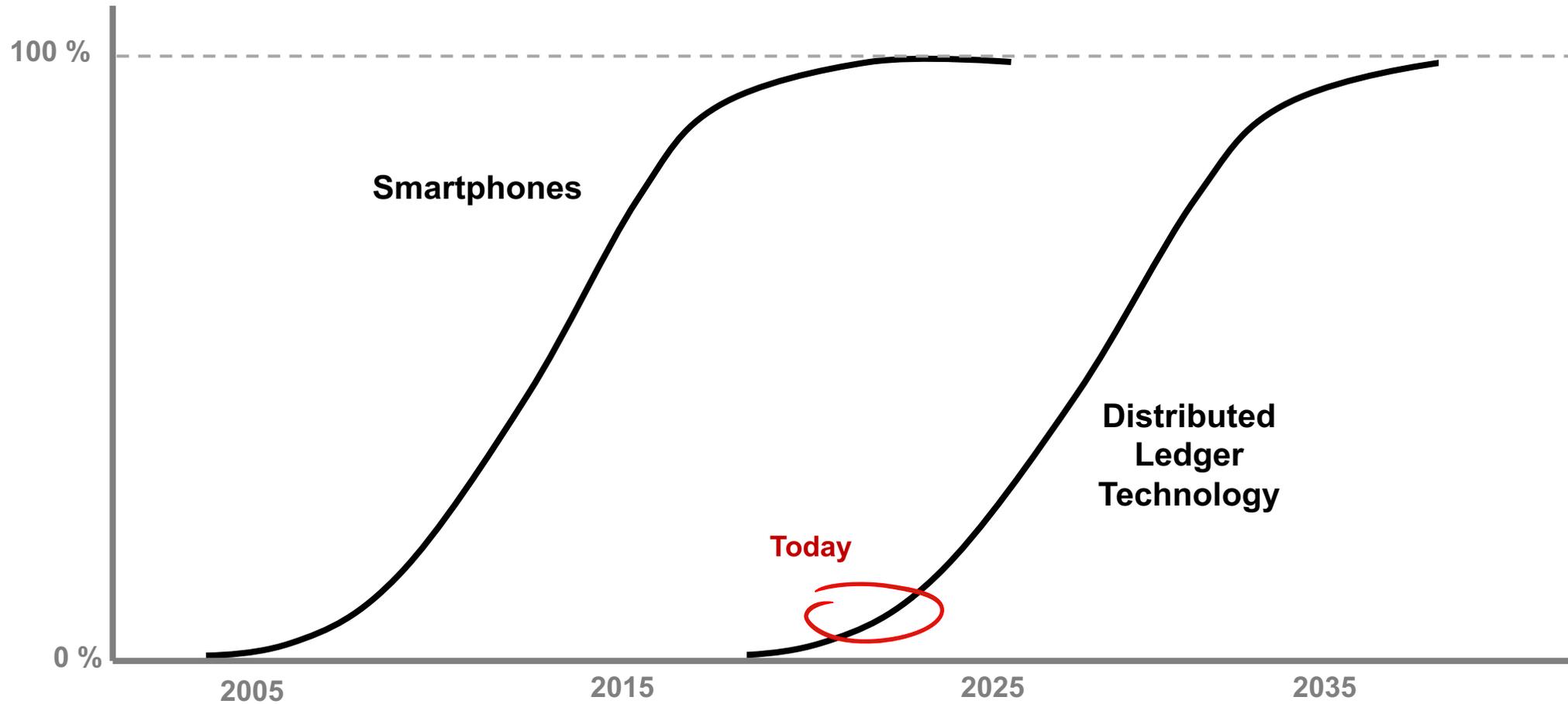
OUR PARTNERS

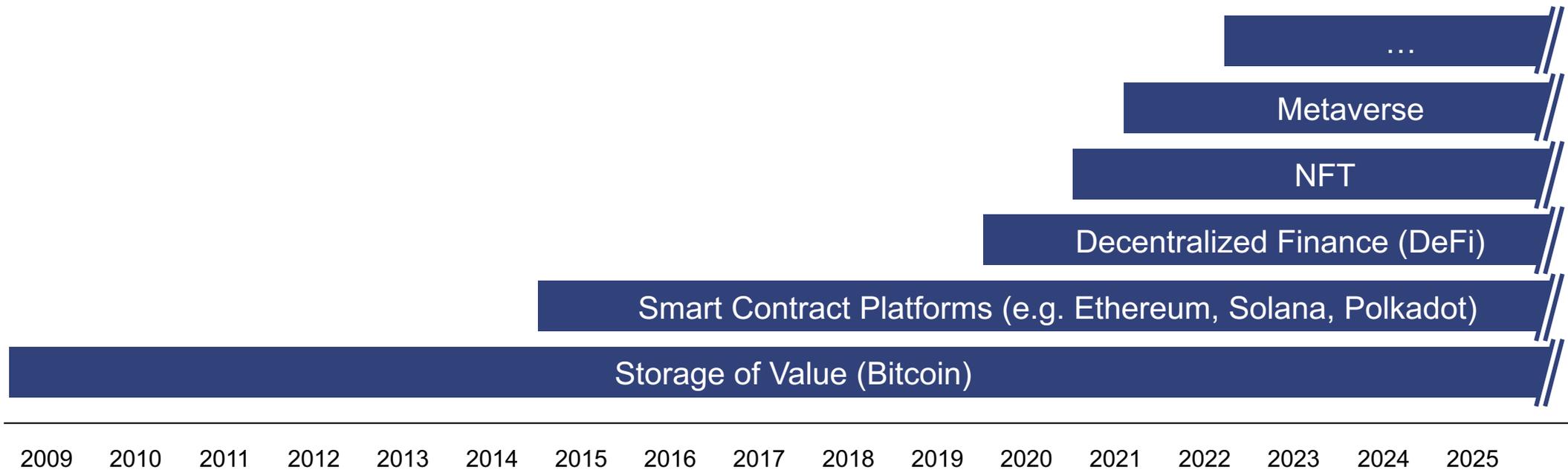


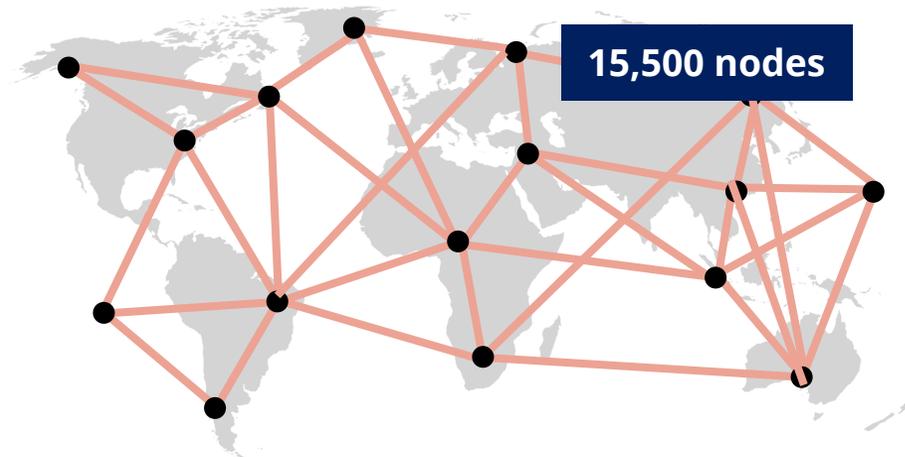
There will be no finance, no capital market without blockchain



What is the current state of DLT?

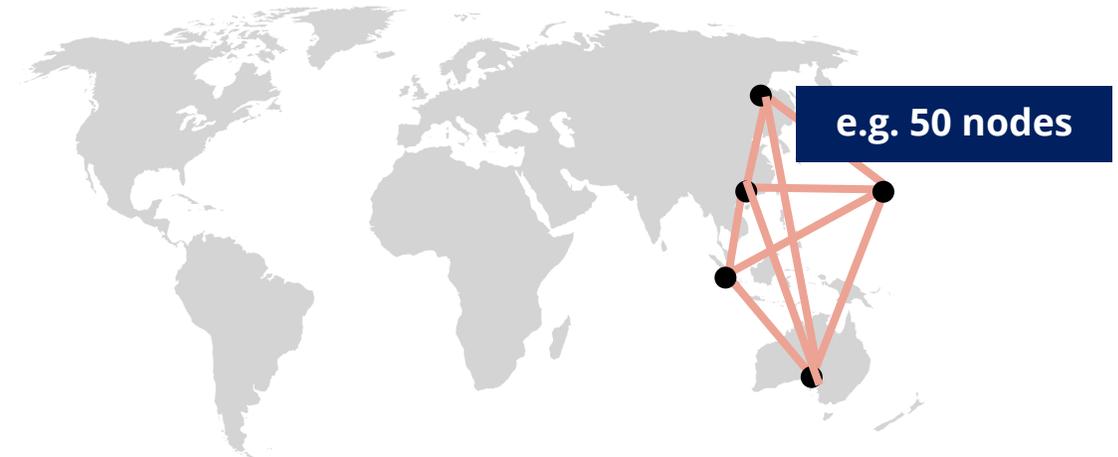






- Bitcoin (15,500 nodes), Ethereum (6,200 nodes)
- Everybody can set up a node; unrestricted
- Geographically dispersed
- No legal body, no access by government
- Large network, lower throughput

Public Blockchain¹



- Consortium of banks (e.g. 50 nodes)
- Only selected parties can participate
- Nodes are participants and have a legal entity
- Legal entity that is liable and can be contacted
- Slim network, higher throughput

Enterprise Blockchain¹

¹Note: The term Blockchain is used here synonymously with DLT

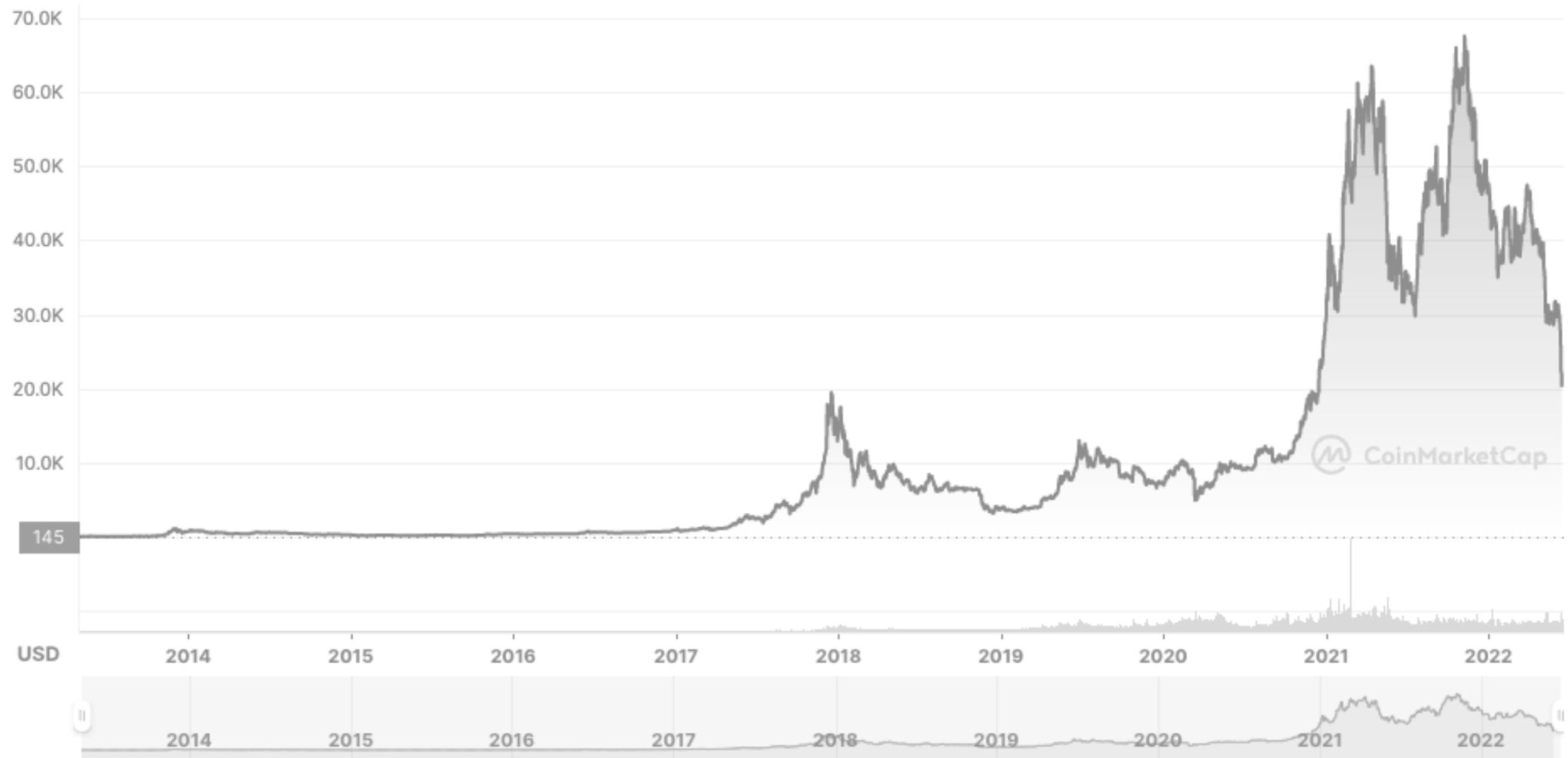
Ranking of crypto currencies

ca. 60% of the market

Name	Price	24h %	7d %	Market Cap	Volume(24h)	Circulating Supply	Last 7 Days
Bitcoin BTC	\$20,238.00	▼10.48%	▼33.53%	\$386,526,049,093	\$43,443,557,243 2,143,141 BTC	19,067,956 BTC	
Ethereum ETH	\$1,030.12	▼15.64%	▼42.84%	\$125,568,789,453	\$26,294,840,730 25,375,506 ETH	121,178,585 ETH	
3 Tether USDT	\$0.9983	▼0.04%	▼0.12%	\$70,753,056,373	\$69,747,803,868 69,863,593,332 USDT	70,870,514,674 USDT	
4 USD Coin USDC	\$1.00	▼0.01%	▲0.00%	\$54,148,378,102	\$7,909,338,924 7,906,321,048 USDC	54,127,717,325 USDC	
5 BNB BNB	\$200.26	▼11.77%	▼31.38%	\$32,795,704,668	\$1,653,855,532 8,233,899 BNB	163,276,975 BNB	
6 Binance USD BUSD	\$0.9999	▼0.25%	▼0.01%	\$17,460,267,363	\$6,553,398,524 6,546,502,400 BUSD	17,441,893,967 BUSD	
7 Cardano ADA	\$0.4561	▼9.62%	▼28.09%	\$15,454,052,894	\$1,728,439,703 3,773,500,507 ADA	33,739,028,516 ADA	
8 XRP XRP	\$0.3008	▼5.18%	▼24.75%	\$14,587,246,508	\$1,582,025,075 5,242,935,892 XRP	48,343,101,197 XRP	
9 Solana SOL	\$26.90	▼10.67%	▼31.69%	\$9,241,232,306	\$1,784,243,359 66,071,888 SOL	342,209,857 SOL	
10 Dai DAI	\$1.00	▼0.01%	▼0.00%	\$6,855,655,007	\$674,731,361 674,401,900 DAI	6,852,307,488 DAI	

Source: CoinMarketCap (2022)

Ranking of crypto currencies



Source: CoinMarketCap (2022)

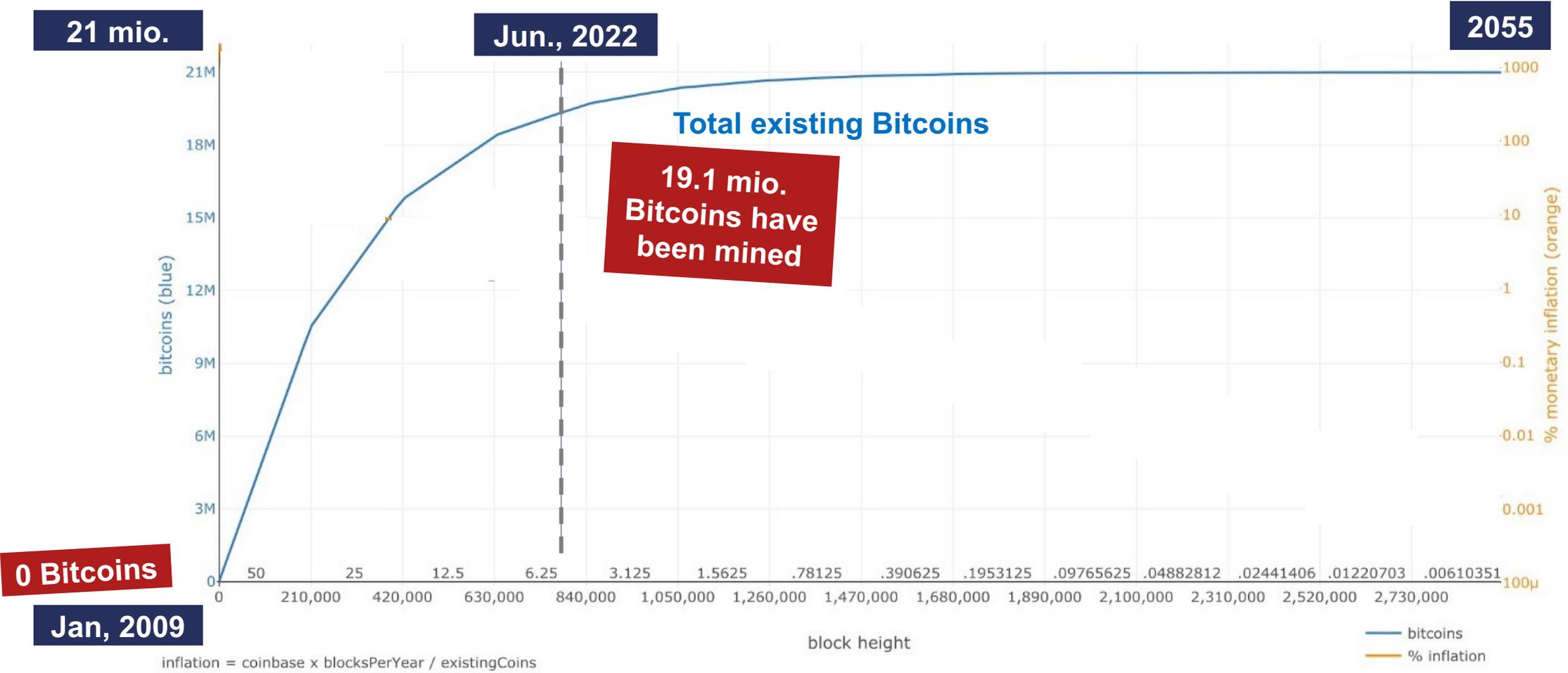
Development of the Bitcoin price 2014 to 2022

Logarithm
of price



Source: CoinMarketCap (2022)

Bitcoin supply 2009 to 2055



Unstoppable value
transfer, transport,
and possession



Bitcoin Archive 🗄️ 🚀 🌕 @BTC_Archive · 1h ...
Someone sent \$475m #Bitcoin ₿ last night with just a few clicks.

Total cost: \$15
Try that with gold! 😂

94

197

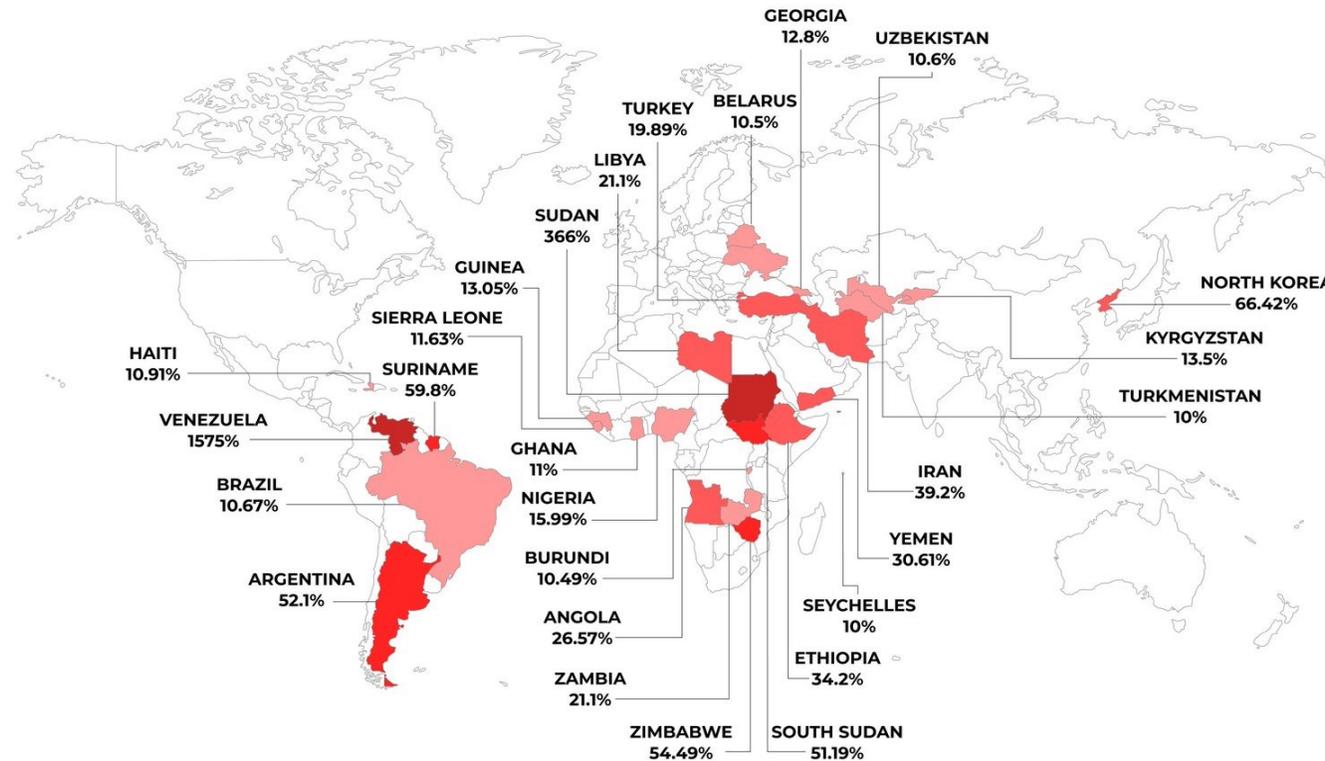
1.538



**Unstoppable value
transfer, transport, and
possession**

In countries with low quality institutions, Bitcoin introduces a minimum "technological institution"

BLOCKDATA COUNTRIES WITH CONFIRMED DOUBLE-DIGIT INFLATION REPRESENTING 1.1+ BILLION PEOPLE NOVEMBER 2021



BLOCKDATA IS A CB INSIGHTS COMPANY

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Inflation rates are increasing

Headline inflation

% change year on year

		2020												2021											
		2019																							
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	Global	2,7	3,0	2,8	2,2	1,4	1,1	1,4	1,6	1,5	1,4	1,1	0,9	1,0	1,3	1,4	2,0	2,7	3,3	3,3	3,4	3,5	3,7	4,3	4,5
	Developed	1,7	1,9	1,7	1,1	0,3	0,1	0,5	0,7	0,6	0,6	0,5	0,4	0,5	1,0	1,1	1,7	2,5	3,1	3,3	3,4	3,7	3,9	4,6	4,8
	Emerging	4,2	4,7	4,4	3,8	3,2	2,6	2,8	2,9	2,8	2,6	2,1	1,7	1,9	1,7	1,9	2,5	2,9	3,5	3,3	3,3	3,3	3,3	3,9	4,1
Eurozone	Eurozone	1,3	1,4	1,2	0,7	0,3	0,1	0,3	0,4	-0,2	-0,3	-0,3	-0,3	-0,3	0,9	0,9	1,3	1,6	2,0	1,9	2,2	3,0	3,4	4,1	4,9
	France	1,6	1,7	1,6	0,8	0,4	0,4	0,2	0,9	0,2	0,0	0,1	0,2	0,0	0,8	0,8	1,4	1,6	1,8	1,9	1,5	2,4	2,7	3,2	3,4
	Germany	1,5	1,7	1,7	1,4	0,9	0,6	0,9	-0,1	0,0	-0,2	-0,2	-0,3	-0,3	1,0	1,3	1,7	2,0	2,5	2,3	3,8	3,9	4,1	4,5	5,2
	Italy	0,5	0,4	0,2	0,1	0,1	-0,3	-0,4	0,8	-0,5	-1,0	-0,6	-0,3	-0,3	0,7	1,0	0,6	1,0	1,2	1,3	1,0	2,5	2,9	3,2	3,9
	Spain	0,8	1,1	0,9	0,1	-0,7	-0,9	-0,3	-0,7	-0,6	-0,6	-0,9	-0,8	-0,6	0,4	-0,1	1,2	2,0	2,4	2,5	2,9	3,3	4,0	5,4	5,5
	Greece	1,1	1,1	0,4	0,2	-0,9	-0,7	-1,9	-2,1	-2,3	-2,3	-2,0	-2,1	-2,4	-2,4	-1,9	-2,0	-1,1	-1,2	0,6	0,7	1,2	1,9	2,8	4,0
	Ireland	1,1	1,1	0,9	0,5	-0,3	-0,8	-0,6	-0,6	-1,1	-1,2	-1,5	-1,0	-1,0	-0,1	-0,4	0,1	1,1	1,9	1,6	2,2	3,0	3,8	5,1	5,4
Developed	Sweden	1,7	1,5	1,3	0,8	-0,2	0,1	0,9	0,7	1,0	0,6	0,4	0,2	0,6	1,9	1,8	2,1	2,8	2,4	1,8	1,8	2,5	3,0	3,3	3,9
	Switzerland	-0,1	0,2	-0,2	-0,4	-1,0	-1,0	-1,3	-1,2	-1,4	-1,1	-0,9	-0,8	-1,0	-0,6	-0,4	-0,2	-0,1	0,3	0,5	0,5	0,8	0,8	1,3	1,5
	UK	1,3	1,8	1,7	1,5	0,8	0,5	0,6	1,0	0,2	0,5	0,7	0,3	0,6	0,7	0,4	0,7	1,5	2,1	2,5	2,0	3,2	3,1	4,2	5,1
	US	2,3	2,5	2,3	1,5	0,3	0,1	0,6	1,0	1,3	1,4	1,2	1,2	1,4	1,4	1,7	2,6	4,2	5,0	5,4	5,4	5,3	5,4	6,2	6,8
Emerging	Japan	0,8	0,7	0,4	0,4	0,1	0,1	0,1	0,3	0,2	0,0	-0,4	-0,9	-1,2	-0,7	-0,5	-0,4	-1,1	-0,8	-0,5	-0,3	-0,4	0,2	0,1	0,6
	China	4,5	5,4	5,2	4,3	3,3	2,4	2,5	2,7	2,4	1,7	0,5	-0,5	0,2	-0,3	-0,2	0,4	0,9	1,3	1,1	1,0	0,8	0,7	1,5	2,3
	Indonesia	2,6	2,7	3,0	3,0	2,7	2,2	2,0	1,5	1,3	1,4	1,4	1,6	1,7	1,6	1,4	1,4	1,4	1,7	1,3	1,5	1,6	1,6	1,7	1,7
	Korea	0,7	1,5	1,1	1,0	0,1	-0,3	0,0	0,3	0,7	1,0	0,1	0,6	0,5	0,6	1,1	1,5	2,3	2,6	2,4	2,6	2,6	2,5	3,2	3,7
	Taiwan	1,1	1,9	-0,2	0,0	-1,0	-1,2	-0,7	-0,5	-0,3	-0,6	-0,3	0,1	0,0	-0,2	1,4	1,2	2,1	2,4	1,8	1,9	2,3	2,6	2,5	2,8
	India	7,4	7,6	6,6	5,8	7,2	6,3	6,2	6,7	6,7	7,3	7,6	6,9	4,6	4,1	5,0	5,5	4,2	6,3	6,3	5,6	5,3	4,3	4,5	4,9
	Brazil	4,3	4,2	4,0	3,3	2,4	1,9	2,1	2,3	2,4	3,1	3,9	4,3	4,5	4,6	5,2	6,1	6,8	8,1	8,3	9,0	9,7	10,2	10,7	10,7
	Mexico	2,8	3,2	3,7	3,3	2,2	2,8	3,3	3,6	4,1	4,0	4,1	3,3	3,2	3,5	3,8	4,7	6,1	5,9	5,9	5,8	5,6	6,0	6,2	7,4
	Russia	3,0	2,4	2,3	2,5	3,1	3,0	3,2	3,4	3,6	3,7	4,0	4,4	4,9	5,2	5,7	5,8	5,5	6,0	6,5	6,5	6,7	7,4	8,1	8,4

Source: JP Morgan (2021)

An aerial view of a city skyline, likely New York City, with a blue overlay and a white network diagram. The network diagram consists of white dots connected by white lines, forming a complex web across the image. The text "Analysis of crypto funds" is centered in white, bold font.

Analysis of crypto funds

When investing in crypto assets, consider: (i) the scale of crypto price movements, (ii) strategic asset allocation, and (iii) potential of style diversification.

Scale of Crypto Assets

Crypto assets move at a larger scale than other assets. This makes direct comparisons difficult.

Strategic Allocation

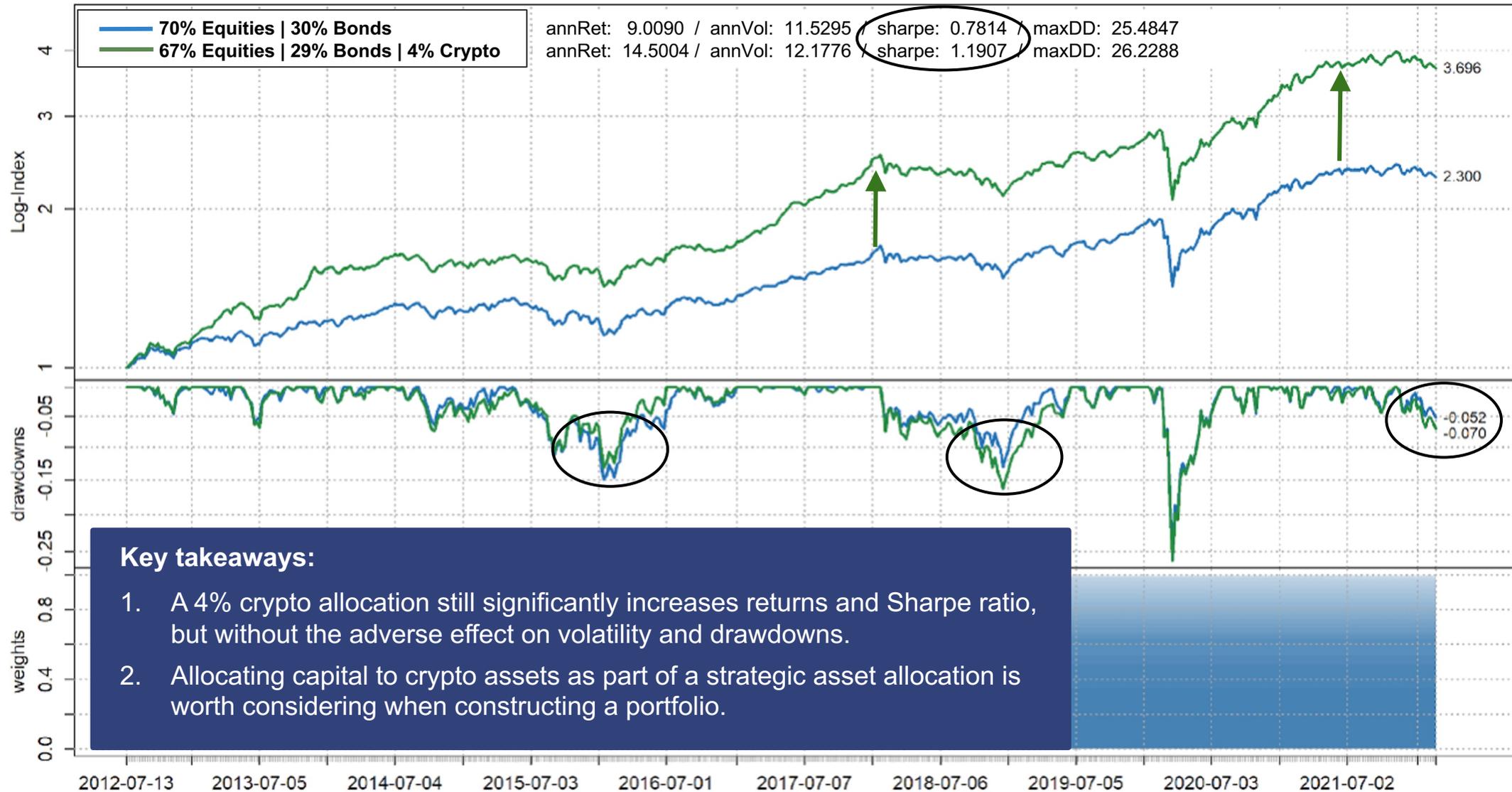
Adding a small proportion of crypto assets (4%) to a typical portfolio significantly improves risk-adjusted returns.

Style Diversification

Active strategies offer the additional dimension of style, which allows for a broader solution space when designing portfolios.

From a pure portfolio-optimization-perspective, a small crypto allocation of around 4% can yield thoroughly positive results.

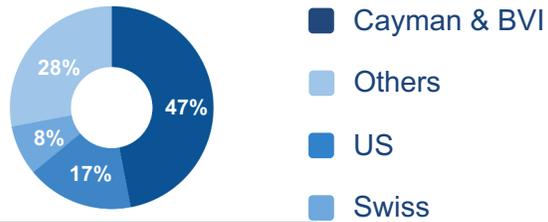
Impact of 4% Crypto Exposure on a 70/30 Portfolio



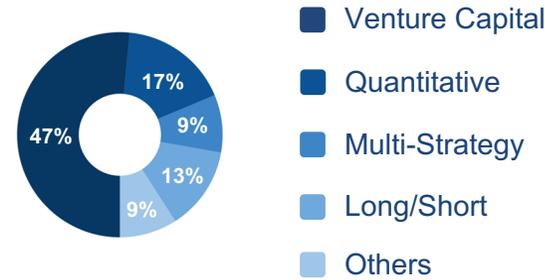
Crypto funds regularly outperform the Bitcoin benchmark, and only 24% of funds had negative returns in Q4 2021.

The Crypto Fund Universe

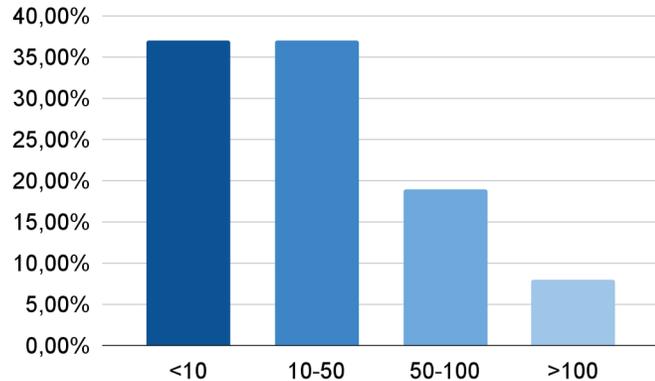
Funds by legal domicile



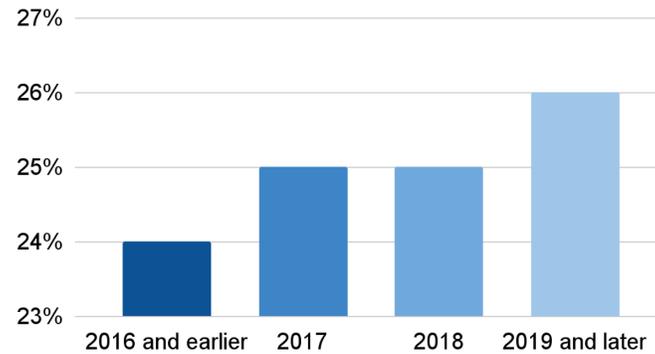
Strategies



AuM per fund



Fund launches by year



- End of 2021: ~\$69.7B AuM across ~950 funds.
- \$31M median AuM.
- New launches outpaced closures for six consecutive quarters.
- 2021: 89 launches, 46 closures.
- Over two thirds of crypto funds outperformed Bitcoin in Q4 2021.
- Multi-Strategy Funds had the strongest performance in Q4 2021.



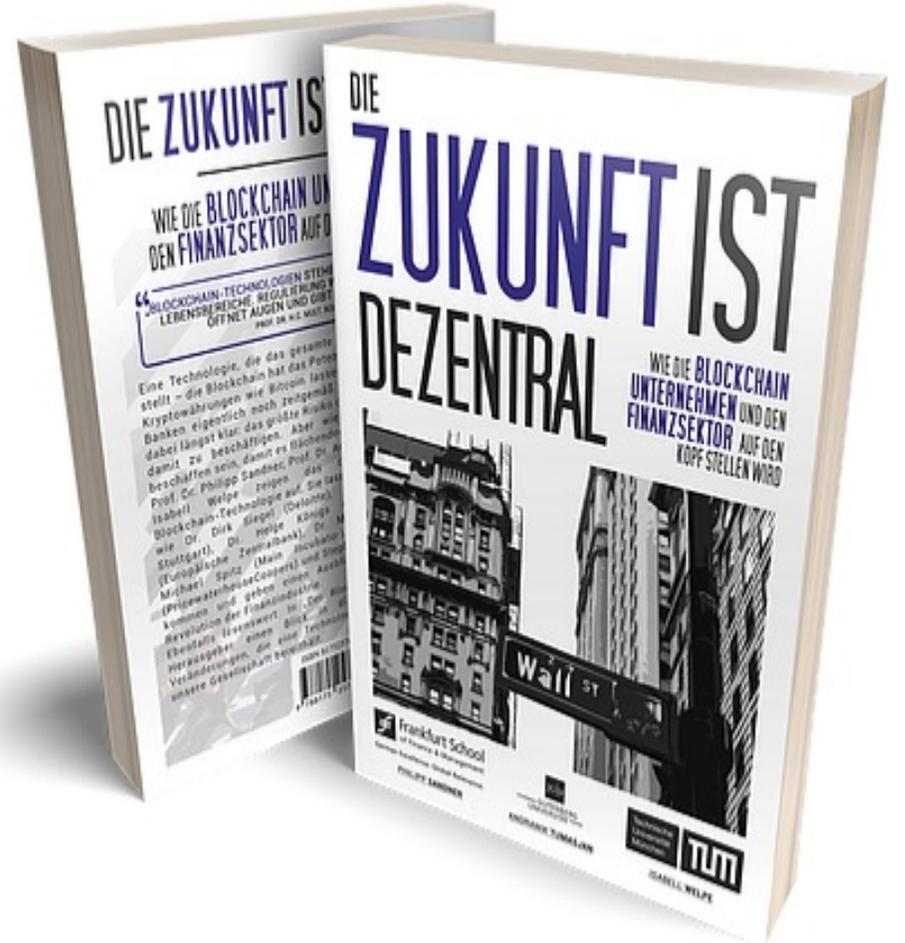
Prof. Dr. Philipp Sandner

Please feel free to contact me via mail (p.sandner@fs.de), LinkedIn or Twitter ([@philippsandner](https://twitter.com/philippsandner))

- Head of the Frankfurt School Blockchain Center (FSBC)
- Board of Directors of 21e6 Capital, FiveT Fintech Fund, and Blockchain Founders Group

LinkedIn





Current position

- Professor at the faculty of the Frankfurt School of Finance & Management
- Head of the Frankfurt School Blockchain Center (FSBC)

Memberships and affiliations

- Member of the Fintech Council (FinTechRat) and the Digital Finance Forum (DFF) of Germany's Federal Ministry of Finance
- Member of the EU Blockchain Observatory established by the European Union
- Co-founder of the International Token Standardization Association (ITSA), the Digital Euro Association (DEA), the German Blockchain Association, and the Multichain Asset Managers Association

Expertise

- Blockchain technology in general, crypto assets such as Bitcoin and Ethereum, decentralized finance (DeFi), the digital programmable Euro, stablecoins, tokenization of assets, digital identity.

Experience and education

- Board of Directors of 21e6 Capital, FiveT Fintech Fund, and Blockchain Founders Group
- Advising financial organizations, industrial corporations and startups concerning their blockchain activities
- Research fellow at the Technical University Munich, the Ludwig-Maximilians-University Munich and the Berkeley Center for Law & Technology
- Studies of business administration focusing on computer science at the University Mannheim, Copenhagen Business School
- Co-founder of a consulting company specialized in the area of innovation strategy, IP and technology transfer

Awards and prizes

- Ranked among the top economists by the Frankfurter Allgemeine Zeitung (FAZ) from 2018 until 2021
- "Top 40 under 40" ranked by the German business magazine Capital
- Awarded with several scholarships and research prizes

Publications

- Publications in international peer-reviewed journals such as Administrative Science Quarterly, Research Policy, the Journal of Marketing Research and the Journal of Business Venturing
- Editor of two books; one book focuses on the implications of blockchain technology on companies, the other one focuses on the implications for the society. More: www.die-blockchain.ist/die-zukunft/

Frankfurt School Blockchain Center

- Operating blockchain coaching programs receiving >4,000 applications per year: DLT Talents, Defi Talents, NFT Talents
- Launched the "Master of Blockchain and Digital Assets" in 2022 at the Frankfurt School
- Analyzing crypto assets and the implications of blockchain technology on companies and their business models
- Providing a platform for decision makers, startups, technology experts and industry professionals to exchange their knowledge