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1. 4. INITIAL RESEARCH QUESTIONS

Preface. The initial research questions were intentionally broad and numerous to allow tailoring during early interviews and to surface blind spots. After several interviews and a clearer definition of scope, they were consolidated into three final research questions, presented in §1.4.1, which guide the analysis and conclusions in Chapters 6–7.

Table 1– Research questions and theoretical anchors (DoI/TAM)

RQ #	Research Question	Theoretical Anchor (DoI/TAM)
RQ1	How do financial institutions perceive the relative advantage of tokenized investment funds compared to traditional fund structures?	Relative Advantage (DoI)
RQ2	How is the perceived relative advantage of stablecoins shaped by their speed, cost, and compliance features in payment operations?	Relative Advantage (DoI)
RQ3	How do financial professionals perceive the added value of using VASP services compared to traditional custody and exchange providers, in terms of efficiency, trust, or regulatory alignment?	Relative Advantage (DoI)
RQ4	How do financial professionals assess the compatibility of blockchain-based systems with existing infrastructure and workflows?	Compatibility (DoI)
RQ5	How does the perceived compatibility of tokenized assets with compliance and legal frameworks influence their adoption?	Compatibility (DoI)
RQ6	What specific features of blockchain services contribute to perceptions of complexity among traditional financial actors?	Complexity (DoI)

pool users who obfuscate their template signatures, and operators choosing privacy-preserving or nonstandard announcement paths. The largest identifiable pools (e.g., AntPool, F2Pool, ViaBTC) collectively account for most of the remaining revenue. This pattern suggests that effective decentralization hinges on the dispersion of independently governed hashrate— not node counts— and on the economics that sustain miners' participation.

Table 2 - Pool-level Bitcoin miner revenue and implied hashrate

Pool	Share (%)	Total Revenue (USD)	Avg Daily Revenue (USD)	Avg Implied Hashrate (EH/s)
Unknown	52.75	$20,172,874,470	$18,456,427	287.37
AntPool	15.63	$5,977,147,991	$5,468,571	85.15
F2Pool	14.21	$5,433,770,901	$4,971,428	77.41
ViaBTC	12.61	$4,822,471,675	$4,412,142	68.70
SBI Crypto	2.13	$815,065,635	$745,714	11.61
Braiins Pool	1.24	$475,454,954	$435,000	6.77
BTC.com	0.71	$271,688,545	$248,571	3.87
Ultimus	0.53	$203,766,409	$186,429	2.90
Poolin	0.18	$67,922,136	$62,143	0.97

Source. Blockchain.com Explorer — Mining Information (Hashrate Distribution; Miners Revenue; Total Hash Rate from Aug 15, 2022–Aug 11, 2025). Retrieved 2025-08-13

3. 3. 3. PoW Miner Economics: NPV Sensitivity and Power-Cost Dominance (2022–2025)

Using pool-share and revenue data from 15 August 2022 to 11 August 2025, I show that miner economics for a Poolin-sized counterfactual (fixed 0.18% network share; fleet ≈0.972 EH/s) hinge primarily on the *price of power* (USD/kWh). With explicit operating costs— energy, hosting surcharge, maintenance, overhead, and insurance— NPV turns positive only under cheap electricity and efficient hardware. For example, holding r = 12% p.a., fee = 2%, uptime = 95%,

Table 3 – Sensitivity analysis: Power-Cost Dominance in Mining

Efficiency (J/TH)	Power ($/kWh)	Operating CF/day (USD)	FCF NPV (Low capex)	FCF NPV (High capex)	Disc. Payback (Low)	Disc. Payback (High)
17	0.05	$26,316	$6,783,233	$-2,695,873	815 days	1,358 days
17	0.06	$22,549	$3,291,889	$-6,187,217	974 days	1,654 days
17	0.08	$15,014	$-3,690,799	$-13,169,905	1,603 days	2,976 days
20	0.05	$21,201	$2,043,436	$-7,435,670	1,047 days	1,794 days
20	0.06	$16,769	$-2,064,028	$-11,543,133	1,392 days	2,501 days
25	0.05	$12,677	$-5,856,225	$-15,335,331	2,010 days	4,035 days
25	0.06	$7,137	$-10,990,554	$-20,469,660	5,609 days	No payback
25	0.08	$-3,944	$-21,259,213	$-30,738,319	No payback	No payback
30	0.05	$4,153	$-13,755,886	$-23,234,992	No payback	No payback
30	0.06	$-2,496	$-19,917,081	$-29,396,187	No payback	No payback
30	0.08	$-15,793	$-32,239,472	$-41,718,577	No payback	No payback

Methods note. Daily cash flows are discounted with daily compounding: PV = CF/(1+r)^(t/365) at r = 12% p.a. Assumptions: fee 2%, uptime 95%, hosting surcharge $0.005/kWh, maintenance Calculation 2025-08-17. Source: Author

Table 4 – Drivers of validator participation (proof-of-stake)

Driver	**Increases validator participation when…**	**Notes**
Net staking yield	Gross yield (issuance + fees + MEV) rises or commissions/OPEX fall	Dominant variable; compare directly to r (opportunity cost).
Opportunity cost r	r is low relative to net yield	If net yield < r → negative NPV vs. holding the token.
Slashing risk	Low probability × loss (good operational security)	Expected loss = p(slashing) × stake × penalty.
Client/diversity	Validator set uses diverse clients/infra	Reduces correlated failures and systemic slashing.
Liquidity & custody	More solo/pooled options with low commission	Concentration risk if few providers dominate.

Source: Author. Notes. PoS validator economics— dominant drivers and how they affect NPV. Formulas: Gross staking yield ≈ issuance% + priority fees + MEV. Net validator APR ≈ gross yield − commission − infra OPEX − expected slashing loss. Dominant spread S ≡ (net validator APR − r). $S > 0 \rightarrow$ positive NPV; $S < 0 \rightarrow$ negative NPV.

3. 3. 6. Performance and Security Trade-off

Beyond PoW and PoS, numerous consensus algorithms exist (Proof of Authority, Delegated PoS, Byzantine Fault Tolerance variants, etc.), each balancing throughput, security, and decentralization differently. The performance-security trade-off is a recurring theme. Generally, more decentralized and open systems (lots of nodes, global participation) tend to have lower raw performance due to coordination overhead and security constraints. For example, Bitcoin's conservatism in throughput is directly tied to maintaining a high security margin against double-spending. On the other hand, permissioned chains or newer consensus methods can push performance higher (thousands of transactions per second in some cases) by reducing the number of validators or using more centralized consensus at the cost of some decentralization. Croman et

review of the EU DLT Pilot noted limited uptake and highlighted legal/interoperability frictions (ESMA, 2025).

Table 5 – Selected Security Token Case Studies (2023–2025)

Issuer / Project	Instrument	Size & Currency	Platform / Rail	Jurisdiction / Legal	Settlement (target)	Source(s)
HKSAR Government (Green Bond)	Multi-currency digital bond	HK$6bn eq. (HKD, USD, EUR, CNH)	HSBC Orion via HKMA CMU	Hong Kong law; CMU registrar	T+1 (vs. T+5)	HKMA, 2024; HSBC, 2024
AIIB (Digitally Native Note)	USD digital note (5-yr)	USD 300m	Euroclear D-FMI	English law note; DLT infrastructure	Near-real-time DvP	AIIB, 2024; Euroclear, 2024
EIB (GBP Digital Bond)	Sterling digital bond	£50m	HSBC Orion (private) + public mirror	Luxembourg DLT issuance law	Same-day	EIB, 2023

Regulatory Mapping (EU & Selected Jurisdictions)

- EU MiFID II/MiFIR: Security tokens that qualify as financial instruments follow securities rules; non-financial-instrument utility tokens fall outside MiFID and may be under MiCA.
- EU DLT Pilot Regime (2023–2026): Sandbox for DLT infrastructures; ESMA (2025) notes three authorised venues and low uptake with legal/operational complexities.
- MiCA (EU): Covers crypto-assets not in MiFID (incl. utility tokens); issuer whitepapers and CASP obligations apply.
- Hong Kong (SFC): Tokenised securities are ‘securities’ under SFO; 2023 circulars set expectations on AML/KYC and custody.

using multiple data sources, median values, time-weighted averages, and other techniques to make oracle inputs more attack-resistant.

3. 6. 4. Market Snapshot — Oracles

Oracle usage is highly concentrated: Chainlink is the default infrastructure layer, combining the broadest chain coverage with the highest value secured, which signals deep trust across major DeFi venues. Pyth shows strong multi-chain reach and growing traction, while RedStone is scaling quickly with a modular approach that appeals to newer protocols. Chronicle and "Internal" oracles secure large sums despite fewer chains— these are more concentrated deployments with high value per chain, reflecting tight integrations and stricter control. Mid-tier providers such as Switchboard, API3, DIA, Band, UMA, Stork, and Supra occupy specific niches or ecosystems. The presence of TWAP highlights that some protocols still lean on on-chain DEX pricing mechanisms rather than external networks. Overall, breadth (chains) and depth (value secured) tell a consistent story: a dominant incumbent, a fast-rising second tier, and a long tail optimized for particular chains, assets, or governance models.

Table 6 – Oracles Secured value

Oracle	**Chains**	**Secured value**
Chainlink	454	$57.011b
Chronicle	8	$8.035b
Internal	45	$6.89b
RedStone	84	$6.699b
Pyth	285	$5.848b
Edge	4	$2.764b
Switchboard	21	$2.103b
Supra	14	$740.44m
Stork	31	$732.02m
Api3	39	$444.96m
UMA	8	$253.59m

targeting retail consumers). The choice for a project might also consider community and longevity – Bitcoin and Ethereum have the longest track records and most decentralized communities, which can be important for trust. Solana, being newer and more "Silicon Valley" VC-backed in its early growth, carries more technology risk but also potential agility in updates.

Table 7 – Blockchains Layer 1

Project	**Active addrs (monthly)**	**FDV market cap**	**Coin volume (30d)**	**Fees (30d)**	**Daily active users**
Bitcoin (BTC)	10.8 M (-0.4%)	$2.3 T (-4.7%)	$1.3 T (+22.3%)	$15.2 M (+1.4%)	489.4 K (+3.8%)
Ethereum (ETH)	9.6 M (+23.0%)	$522.7 B (+15.6%)	$1.1 T (+41.5%)	$40.2 M (-15.2%)	550.7 K (+9.0%)
BNB Chain (BNB)	46.4 M (-0.1%)	$121.2 B (+10.6%)	$56.1 B (+70.1%)	$10.7 M (+3.4%)	4.9 M (+12.9%)
Solana (SOL)	56.2 M (-20.2%)	$113.8 B (-8.5%)	$266.9 B (+9.2%)	$41.5 M (+11.9%)	3.5 M (-5.2%)
Tron (TRX)	14.4 M (+1.8%)	$33.5 B (+12.1%)	$51.7 B (+15.3%)	$420.2 M (+16.6%)	2.6 M (+5.5%)
TON (TON)	1.4 M (-13.5%)	$16.8 B (-1.9%)	$8.8 B (+41.9%)	$570.5 K (-12.8%)	105.1 K (+16.0%)
Avalanche (AVAX)	663.6 K (-55.9%)	$10.7 B (-9.1%)	$21.8 B (+43.1%)	$633.4 K (+28.7%)	45.0 K (-49.0%)
Aptos (APT)	10.0 M (+6.1%)	$5.3 B (-16.4%)	$13.0 B (+57.1%)	$406.2 K (+383.1%)	682.5 K (-2.9%)
NEAR Protocol (NEAR)	51.1 M (+11.6%)	$3.2 B (-15.6%)	$7.6 B (+7.9%)	$319.3 K (+23.9%)	3.0 M (-1.8%)

Table 8 – DEX Volume & Market Cap

Project	**Trading volume (30d)**	**FDV market cap**	**Token volume (30d)**	**Fees (30d)**	**DAU (latest)**
Uniswap (UNI)	$107.5 B	$10.6 B	$18.0 B	$95.7 M	750.5 K
pump.fun (PUMP)	$3.1 B	$3.1 B	$11.8 B	$30.3 M	152.2 K
Curve (CRV)	$8.8 B	$2.0 B	$9.8 B	$4.7 M	2.6 K
PancakeSwap (CAKE)	$143.0 B	$973.5 M	$3.9 B	$121.0 M	437.8 K
Raydium (RAY)	$41.5 B	$1.9 B	$3.6 B	$66.5 M	1.1 M
Aerodrome (AERO)	$21.6 B	$2.4 B	$2.7 B	$15.6 M	60.4 K
SushiSwap (SUSHI)	$290.8 M	$225.6 M	$1.4 B	$580.2 K	21.2 K
SUN (SUN)	$468.6 M	$1.1 B	—	—	—
Orca (ORCA)	$18.7 B	$172.2 M	$1.1 B	$11.5 M	56.3 K
Maverick Protocol (MAV)	$44.3 M	$117.5 M	$836.1 M	$5.8 K	27.4 K
IDEX (IDEX)	$0.0	$25.7 M	$715.9 M	$0.0	—
Thena (THE)	$156.1 M	$107.7 M	$669.4 M	$182.9 K	4.0 K
Cetus (CETUS)	$97.5 M	$664.4 M	—	—	—
0x (ZRX)	$0.0	$249.6 M	$580.3 M	$0.0	0.0
Loopring (LRC)	$122.6 M	$504.8 M	—	—	—
Velodrome (VELO)	$1.1 B	$113.3 M	$367.3 M	$684.9 K	7.3 K
WOO (WOO)	$166.5 M	$340.1 M	—	—	—
Balancer (BAL)	$1.0 B	$96.1 M	$328.9 M	$604.6 K	27.0 K
Shadow (SHADOW)	$768.1 M	$53.4 M	$314.3 M	$1.7 M	3.1 K
Biswap (BSW)	$43.7 M	$15.0 M	—	—	—

Source: Token Terminal. (n.d.). DEX dashboards. Retrieved August 21, 2025.

Table 9 – Yield activity

Project	Trading volume (30d)	FDV market cap (latest)	Token volume (30d)	Fees (30d)	DAU (latest)
Aave (AAVE)	$26.9 B	$4.8 B	$15.2 B	$91.8 M	9.0 K
Morpho (MORPHO)	$3.2 B	$2.2 B	$748.0 M	$15.8 M	2.4 K
Spark (SPK)	$2.1 B	$758.4 M	$10.5 B	68.0	—
Fluid (FLUID)	$1.4 B	$691.0 M	$93.0 M	$8.5 M	6.4 K
Onyx Protocol (XCN)	$619.6 M	$826.5 M	—	—	—
Kamino (KMNO)	$1.7 B	$577.9 M	$563.1 M	—	—
Maple Finance (SYRUP)	$1.3 B	$501.9 M	$3.3 B	$7.4 M	—
Compound (COMP)	$1.2 B	$464.5 M	$1.6 B	$5.2 M	226.0
JustLend DAO (JST)	$334.8 M	$1.2 B	—	—	—
Euler (EUL)	$1.4 B	$277.0 M	$86.1 M	$5.6 M	1.5 K
Dolomite (DOLO)	$116.7 M	$227.8 M	$830.4 M	$817.3 K	412.0
Venus (XVS)	$805.6 M	$183.9 M	$301.3 M	$2.7 M	613.0
Moonwell (WELL)	$232.0 M	$142.8 M	$134.7 M	$1.1 M	1.5 K
Avalon Finance (AVL)	$140.8 M	$323.8 M	—	—	—
Goldfinch (GFI)	$98.4 M	$70.6 M	$23.1 M	$162.7	3.0

Source: Token Terminal. (n.d.). Lending / Money Markets dashboards. Retrieved August 21, 2025.

3. 8. 5. Derivatives (Perpetuals)

Perpetual futures (often called perpetual swaps) are margined derivatives with no expiry date. Instead of converging at a maturity, the contract price is kept close to an external index (a basket of spot prices) through a periodic "funding rate" exchange between longs and shorts: when the perp trades above the index, longs typically pay shorts; when it trades below, shorts pay longs. This mechanism allows continuous trading and price anchoring without settlement, and it is now widely documented in the academic literature on blockchain-based markets (Schär, 2021). In decentralized finance, two implementation patterns dominate. A first family uses hybrid designs

Table 10 – Perps Volume

Project	Notional volume (30d)	FDV (latest)	Token volume (30d)	Fees (30d)	DAU (latest)
dYdX (DYDX)	$8.6 B	$627.9 M	$498.4 M	$1.9 M	2.6 K
GMX (GMX)	$8.4 B	$157.6 M	$1.1 B	$10.0 M	1.6 K
SynFutures (F)	$2.4 B	$72.9 M	$276.0 M	$506.2 K	2.7 K
ApolloX (APX)	$1.5 B	$288.0 M	$32.9 M	$369.1 K	174
Merkle Trade (MKL)	$618.6 M	$6.3 M	$160.2 K	$241.8 K	102
HMX (HMX)	$201.5 M	—	$1.1 M	$70.0 K	22
MUX (MCB)	$75.2 M	$10.3 M	$138.7 K	$52.3 K	18
Synthetix (SNX)	$71.0 M	$228.6 M	$538.7 M	$315.1 K	8
Kwenta (KWENTA)	$65.9 M	$8.8 M	$129.3 K	$20.6 K	3
BMX (BMX)	$28.0 M	$19.3 M	$2.0 M	$58.9 K	97
Hegic (HEGIC)	$3.6 M	$72.2 M	$5.0 M	$163.0 K	6
IPOR Protocol (IPOR)	$2.3 M	$0.0	$213.1	0.0	—
Perpetual Protocol (PERP)	$1.5 M	$41.9 M	$283.3 M	$1.6 K	10
Polynomial Protocol	$489.7 K	$293.3	0.0	0.0	—
Holdstation (HOLD)	$244.7 K	$38.9 M	$34.3 M	$211.1	2
Volmex	$3.7 K	$11.1	0.0	—	—

Source: Token Terminal. (n.d.). Derivatives / Perps dashboards. Retrieved August 21, 2025.

3. 8. 7. Liquid Staking (LSTs) and Re-/Restaking

Liquid staking tokens (LSTs) convert a locked proof-of-stake position into a transferable claim that accrues staking rewards while remaining usable as collateral across DeFi. In practice, designs differ: some tokens "rebase" by increasing the holder's balance as rewards accrue, while others are reward-bearing claims whose unit price drifts upward with pooled rewards. A recent peer-reviewed study in the Journal of Futures Markets shows that LSTs exhibit a persistent "liquid-staking basis," i.e., a price spread versus the native asset, and that this basis widens when LST

Table 10 – Perps Volume

Project	Notional volume (30d)	FDV (latest)	Token volume (30d)	Fees (30d)	DAU (latest)
Lido Finance (LDO)	$38.3 B	$1.3 B	$5.8 B	$84.1 M	461.0
Rocket Pool (RPL)	$2.8 B	$160.2 M	$410.8 M	—	8.0
Jito (JTO)	$2.8 B	$1.7 B	$1.3 B	$39.1 M	646.3 K
Marinade (MNDE)	$2.0 B	$115.2 M	$66.3 M	$12.5 M	112.0
cbETH	$1.9 B	—	—	—	—
Liquid Collective	$1.6 B	—	—	—	3.0
StakeWise (SWISE)	$1.4 B	$24.2 M	$1.1 M	$1.8 M	74.0
Swell (SWELL)	$1.3 B	$103.7 M	$572.4 M	0.0	—
Stader (SD)	$671.3 M	$83.8 M	$490.8 M	$80.8 K	13.0
Symbiotic	$405.0 M	—	—	—	245.0
Frax Ether	$398.4 M	—	$900.1 K	0.0	—
BENQI Liquid Staking	$369.2 M	—	$2.1 M	—	50.0
StakeStone	$99.7 M	—	—	—	11.0
Ankr (ANKR)	$41.3 M	$157.4 M	$521.4 M	—	1.0
StaFi (FIS)	$9.0 M	$19.0 M	$374.0 M	0.0	—
Allstake	—	—	—	—	—

Source: Token Terminal. (n.d.). Liquid Staking dashboards. Retrieved August 21, 2025.

3. 9. EXCHANGE (CEX)

In regulatory terms, an exchange is a market intermediary that matches and executes orders and gives access to price discovery and liquidity. Under the FATF framework, an exchange that swaps virtual assets for fiat or other virtual assets— or transfers/safekeeps customers' assets— qualifies as a Virtual Asset Service Provider (VASP) and must be licensed/registered and comply with AML/CFT controls (e.g., customer due diligence and the "travel rule"). In the EU, exchanges

Table 11 – CEX Transparency

Exchange	Assets	Inflows (1m)	Spot vol (24h)	Open interest (24h)	Avg leverage	Custom-range inflow
Binance	$183.385b	$1.489b	$18.967b	$38.966b	0.24x	$1.99b
OKX	$28.126b	$3.663b	$10.929b	—	0.39x	$362.17m
Bybit	$23.924b	$270.68m	$3.037b	$25.448b	1.06x	-$330.04m
Robinhood	$21.69b	-$844.61m	—	—	—	-$835.73m
Bitfinex	$27.391b	$38.34m	$249.97m	$2.115b	0.10x	$5.63m
Gemini	$9.856b	$211.25m	—	—	—	—
HTX	$7.189b	-$778.05m	$3.198b	$9.008b	1.27x	-$662.2m
Gate	$8.566b	-$101.13m	$3.053b	$19.534b	3.03x	—
Bitget	$5.713b	-$122.28m	$3.288b	$25.038b	4.40x	-$157.08m
BitMEX	$5.589b	-$52.0m	$75,942	$1.93b	0.35x	-$72.67m
Deribit	$5.05b	-$45.96m	$3.667b	—	0.73x	-$274.63m
KuCoin	$5.076b	-$144.14m	$1.682b	$4.163b	0.99x	-$147.57m
MEXC	$4.058b	$2.575b	$2.953b	$8.899b	2.32x	$2.59b
Crypto.com	$3.838b	-$140.32m	$3.602b	$2.223b	0.62x	-$142.65m
Bitstamp	$3.158b	$427.04m	—	—	—	—

DefiLlama. (n.d.). CEX transparency. Retrieved August 22, 2025

3. 9. 2. Exchange Evolution & Trust: From Early Faucets to FTX – Building Institutional Confidence

In the early days of cryptocurrency (circa 2009–2013), obtaining Bitcoin or other crypto often involved informal methods such as “faucets” (websites that gave small amounts of Bitcoin for free) or peer-to-peer forums. As the industry grew, centralized exchanges became the primary on-ramp for users – these are companies like Mt. Gox (the dominant Bitcoin exchange in 2013),

4. 3. 2. Valuation Benchmarks

Median post-money valuations cluster by stage— top buckets include Series C+: USD 2300.0m, Series B: USD 1250.0m, Series A: USD 160.0m. Valuation fields are sparse and indicative

4. 3. 3. Investor Landscape

Recurring leads and ecosystem specialisation are summarised in the Excel pack's league tables. Associated volume inflates counts versus deployed capital when allocations are undisclosed.

4. 3. 4. Finance's implication

Cycle and concentration patterns argue for disciplined pacing and reserves. Token vs equity liquidity paths differ materially (TGE/unlocks vs M&A/IPO). Platform and validator dependencies require custody and counterparty controls. Debt terms should tighten when market depth is thin.

Table 12 – Deal size

Deal	**Date range**	**Total capital (USD billions)**	**Median deal (USD m)**	**Mean deal (USD m)**	**Top-10 share (%)**	**HHI by category (0–1)**
6080	2014-06 to 2025-08	121.37	5.00	19.96	11.5	0.296

Table 13 – Stage Bucket

Stage Bucket	Total (USD m)	Deals	Median (USD m)
Unspecified	29,058.88	1134	6.00
Token Sale/SAFT	19,815.62	529	9.00
Series B	15,804.95	259	31.00
Series A	15,419.35	903	10.90
Series C+	13,892.97	109	80.00
Seed	10,996.38	2170	3.20
Debt/Convertible	6,017.79	112	5.21
Public/IPO	5,900.25	105	8.82
Bridge/Strategic	2,858.88	226	5.40
Pre-Seed	1,346.47	502	1.80
Grant	262.35	31	1.50

Table 14 – Deal categories

Deal category	Total (USD m)	Deals	Median (USD m)
DeFi & CeFi	34,588.98	1413	4.90
Web3 Infrastructure & Tools	19,023.68	875	6.00
Base Layers & Scaling	13,524.54	372	9.95
NFT, Gaming & Metaverse	7,940.97	570	4.72
AI, Analytics & Data	2,140.22	218	5.00
Security & Audits	650.23	47	6.00
Social, DAO & Identity	351.38	28	5.00

Table 15 – Comparable Companies Valuation Metrics

Company	EV/Revenue (x)	EV/EBITDA (x)	Source
Coinbase (COIN)	14.71×	32.58×	WSJ Markets
Marathon Digital (MARA)	10.34×	5.79×	Yahoo Finance
Bitfarms (BITF)	2.46×	16.52×	WSJ Markets
Block (SQ)	1.91×	18.82×	WSJ Markets
PayPal (PYPL)	2.33×	10.94×	WSJ Markets
Adyen (ADYEN)	13.81×	23.04×	Yahoo Finance

Note. TTM = trailing twelve months. N/M = not meaningful (negative EBITDA or negative enterprise value). Enterprise value to Revenue (EV/Revenue) and Enterprise value to EBITDA (EV/EBITDA) — TTM, retrieved August 22, 2025.

4. 5. FROM NICHE TO MAINSTREAM: THE RISE OF CRYPTO ETFS/ETPS

Crypto exchange-traded exposure has moved from niche to mainstream in just a few years: Canada authorised the first physically backed Bitcoin ETF in February 2021, establishing a template for regulated, exchange-listed crypto exposure (via the Ontario Securities Commission), and the U.S. followed on 10 January 2024 by approving multiple spot Bitcoin ETPs, later green-lighting spot Ether products in May 2024. Evidence from peer-reviewed studies shows that the launch of spot crypto ETFs/ETPs increased Bitcoin's perceived legitimacy, price impact, and liquidity (Finance Research Letters, 2024) and that ETF introductions reshape market microstructure— e.g., the Bitcoin futures market around BITO— by shifting investor composition and improving liquidity without harming long-run efficiency (International Review of Financial Analysis, 2025). One-year flow analytics further document rapid AUM concentration in a small number of funds and price-elastic net flows, indicating demand is tightly coupled to underlying spot returns (Economics Letters, 2025). In Europe, most exchange-traded crypto products are structured as ETPs/ETNs rather than UCITS ETFs because UCITS diversification rules (the 5/10/40 logic in Article 52) constrain single-asset funds; MiCA explicitly excludes "financial instruments," so crypto ETFs/ETNs remain under the legacy UCITS/MiFID perimeter rather than

Table 16 – Exchange-Traded Funds (Spot BTC/ETH): Net Flow, AUM, Volume

Ticker	Issuer	Net flow (USD)	AUM (USD)	Volume (USD)
IBIT	BlackRock	-$127.5m	$83.908b	$2.142b
FBTC	Fidelity	-$31.8m	$22.316b	$319.14m
ETHA	BlackRock	$233.6m	$14.787b	$1.189b
ARKB	Ark/21Shares	-$43.3m	$4.689b	$83.81m
BITB	Bitwise	$0	$2.124b	$71.16m
HODL	VanEck	$0	$1.917b	$11.04m
BTCO	Invesco/Galaxy	$0	$615.95m	$5.86m
EZBC	Franklin Templeton	$3.2m	$600.79m	$3.88m
ETHW	Bitwise	$7m	$537.73m	$32.87m
ETHV	VanEck	$6.2m	$253.59m	$7.83m
BTCW	WisdomTree	$0	$176.52m	$2.8m
EZET	Franklin Templeton	$0	$80.18m	$2.64m
QETH	Invesco/Galaxy	$0	$32.99m	$1.12m
FETH	Fidelity	$28.5m	$55.79m	
ETH	Grayscale	$6.4m	$0	$146.73m
ETHE	Grayscale	$5.9m	$0	$148.95m

Note. Values are reproduced as provided by the user. Abbreviations: m = million, b = billion.

4. 6. Corporate Adoption of Bitcoin: A Managerial Lens on Risk–Return and Liquidity

Companies who add bitcoin to corporate treasuries typically cite three goals: (1) portfolio diversification and macro hedging, (2) capital-markets signaling and investor-base expansion, and (3) financing optionality. Empirically, recent studies find that bitcoin can improve risk-adjusted performance in mixed-asset portfolios in many (though not all) windows, consistent with a diversifier role rather than a universal safe haven (Baur & Oll, 2022; Kang, 2025). At the macro

4. 6. 1. Market Snapshot — Companies treasure

Table 17 – Public Companies Holding Bitcoin as Treasury Assets (with Estimated BTC)

Company	**USD Value**	**Est. BTC @ $116,515**
MicroStrategy	$52,413,816,248.14	449,846.08
TwentyOne Capital	$4,889,812,001.60	41,967.23
MetaPlanet	$1,933,490,337.47	16,594.35
MARA	$1,848,194,442.12	15,862.29
Tesla	$1,293,334,884.44	11,100.16
Hut 8	$1,002,612,165.65	8,605.01
CleanSpark	$978,478,952.30	8,397.88
SpaceX	$931,061,016.15	7,990.91
Riot Platforms	$796,353,687.91	6,834.77
Semler Scientific	$567,270,903.55	4,868.65

Note. “Est. BTC” divides the USD value by the BTC spot price shown in the header; rounding to 2 decimals. Figures are point-in-time and indicative; holdings may be distributed across wallets and subject to price changes. Source list: Arkham Intel — Treasury Company tag (22 August 2025)

5. 3. 1. Mini-bios for low-literacy participants

Table 18 – Mini-bios for low-literacy participants

Pseudonym	Role & sector (≤ 40 words)	Dominant viewpoint
P1	Rolling-stock technician at Italy's state rail operator; daily tasks revolve around physical infrastructure, not fintech.	Prefers regulated bank rails for routine payments; sees crypto useful only for small discretionary buys (e.g., a low-value NFT) and stresses that client funds must be "al sicuro" (safe).
P2	Administrative clerk in the Italian public sector; uses government "app IO" and SPID digital ID for e-government services; minimal exposure to blockchain.	Values digital security and sees tokenization's promise in stronger identity/authentication, but believes adoption hinges on widespread uptake by public bodies.
P3	Accounting assistant at a Luxembourg SME; familiar with SEPA but not with RWA.	Questions the practical use-case of tokenised funds—"our custodian already gives same-day NAV".
P4	Law-student intern at an asset-management boutique; coursework includes broader digital-law frameworks (e.g., GDPR, PSD2), but no hands-on DLT work.	Sees regulation as a pre-condition for safety but is unclear on operational steps to onboard investors.

Source: Author's interviews (2025).

5. 3. 2. Mini-bios for high-literacy participants

Table 19 – Mini-bios for high-literacy participants

Pseudonym	Role & sector (≤ 40 words)	Signature insight
P5	Regulatory lawyer at Homsy Legal; advises EU fund managers on MiCA compliance.	Tokenized funds can cut intermediated costs by up to 30 % and increase liquidity; warns the annual MiCA audit cadence is the biggest schedule risk.
P9	Policy officer at CSSF (Luxembourg supervisor).	Risk-assessment guidance and key-management standards, setting the regulatory baseline for VASPs and banks.
P11	Head of Digital Assets Operations at Swissquote Bank Europe.	Built API connectors to core-banking; cites whitepaper approvals and ongoing audit requirements as the hardest MiCA hurdles.
P10	Strategy lead at WM Datenservice / Deutsche Börse digital-assets unit.	Stresses governance structures & dedicated budgets as accelerators; promotes modular compliance frameworks for cross-border MiCA variability.

Source: Author's interviews (2025).

5. 3. 3. Respondent overview (chronological order)

Table 7: -1 preserves the chronological sequence of the raw transcripts while masking identities. A sealed key table links pseudonyms to real names and is stored on drive for audit purposes.

Table 20 – Interview participants (roles, seniority, knowledge, value-chain position)

ID	Role	Seniority	Knowledge	Value-chain position
P1	Operations	Mid	Low	Bank
P2	Strategy	Junior	Low	Asset manager
P3	Compliance / Operations	Mid	Low	Consultancy
P4	Strategy	Junior	Low	Regulator liaison
P5	Compliance / Legal	Senior	High	Legal-tech vendor
P6	Operations	Senior	High	VASP exchange
P7	Risk (cyber)	Senior	High	Tech vendor
P8	Compliance / Strategy	Senior	High	Consultancy
P9	Regulator	Senior	High	Supervisor
P10	Strategy / IT	Senior	High	Tech vendor
P11	Strategy	Senior	High	Bank
P12	IT / Operations	Senior	High	Bank
P13	Strategy	Mid	High	Market-data provider
P14	Strategy	Mid	Medium	Custodian
P15	Operations	Mid	Medium	VASP support

Source: Author's interviews (2025).

5. 4. 2. High-literacy insights sub-analysis

A targeted review of expert transcripts (P5, P9, P10, P11) surfaced four institution-level enablers and friction points absent from the low-literacy set:

Table 21 – Interview themes to implementation mapping (DoI/TAM)

Illustrative quote	DoI/TAM linkage	Implementation takeaway
"Governance disclosures and reserve-audit mandates stand out." (P5, 00:26)	Complexity (CX)	Allocate audit-readiness squads and budget early to de-risk timelines.
"We built connectors to our core banking APIs, translating on-chain events into internal postings." (P11, 00:02)	Compatibility (CP)	Provide reference middleware and data-mapping templates in vendor toolkits.
"Firms with clear governance structures and allocated budgets move faster from pilot to production." (P10, 00:02)	Trialability (TR) → Adoption intent	Embed steering-committee KPIs into pilot charters to secure scale-up funding.
"We issued specific guidance on Vasp risk assessments and key-management standards." (P9, 00:20)	Observability (OB)	Leverage regulator whitepapers as third-party validation in stakeholder comms.

Source: Author's interviews (2025).

Analytic contrast. Experts converge on institutional capability (APIs, governance, audits), while non-experts stress personal safety and cost. This divergence supports proposition P-CP-SC that

6. 2. PROPOSITION MAPPING TABLE

Table 22 – Proposition and Key Evidence

Proposition	Support Level	Key Evidence (Respondent Codes & Brief Quote)
P-RA	Supported	P5: "reducing fees… minutes instead of days"; P11: "transaction speed, cost reduction, failure rates."; EXT-A: "available solutions are already good… Revolut, Wise…" (shows baseline against which RA must be proven to low-literacy users).
P-CP	Partially Supported	P11: "connectors to our core banking APIs…"; P5: "legacy batch vs. instant; data-mapping challenges."; EXT-M: "speed of instant bank transfers is already satisfying" (indicates compatibility gap perception among medium-literacy users).
P-CX	Supported	P5: "governance disclosures and reserve-audit mandates…"; P11: "approvals and ongoing audit… coordination across teams."; EXT-D: "wouldn't know if a platform was trustworthy unless my bank endorsed it" (reflects perceived complexity/trust barrier for low-literacy users).
P-TR	Supported	P11: "validating FX netting in under two hours"; P5: "pilots expose gaps and build support"; P10: "governance + budgets move faster."; EXT-VZ: "would only consider using if merchants visibly accept it" (shows trialability trigger for non-experts).