BINANCE RESEARCH

Web3: The Household Name in the Making

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Table of Contents

1 Key Takeaways

- While Web3 has made notable progress across key innovation and adoption indicators, it is still dealing in minority proportions when compared to Web2. Active on-chain users account for less than 1% of the global population and average retention rate of networks stands at 5.4%. In comparison, 67.1% of the global population uses the internet, and Web2 retention rates are significantly higher, with a good rate considered between 25-40%.

- Two noticeable market trends are distorting Web3 adoption and retention metrics. First, excessive speculation, especially around meme coins, leads to temporary demand and short-lived engagement. Second, the strong investor focus on infrastructure projects has overshadowed the essential development of consumer-facing dApps needed to drive lasting adoption among everyday users.

- Building decentralized applications ("dApps") that provide real utility for everyday users is fundamentally important to scaling Web3 and addressing retention challenges. Consumer-focused Web3 dApps, particularly those centered on speculation, social interaction, or gaming, have shown notable promise in drawing active users, as reflected in the growth of unique active wallets ("UAWs") over the past year.

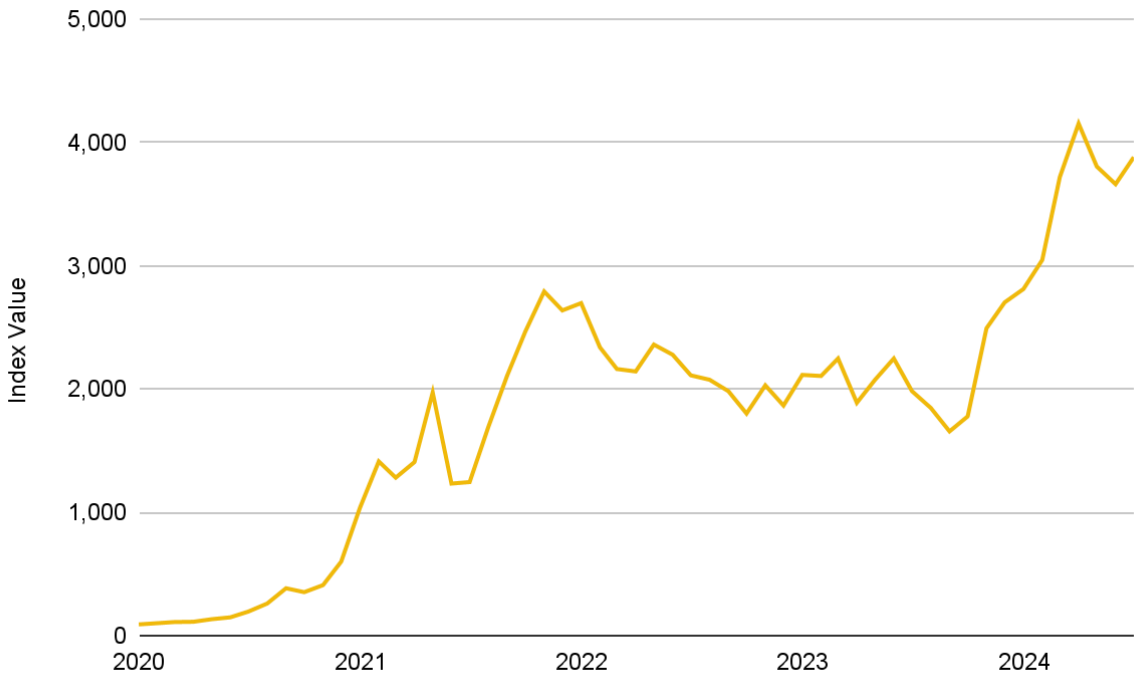
- Expanding the presence of Web3 dApps across various distribution channels will be key to achieving broader market reach, especially as overlaps with Web2 ecosystems become more prevalent. Tapping into existing product bases like Telegram or creating shortcuts to the blockchain like Blinks can significantly boost exposure and capitalize on the vast network effects of Web2 users.

- Fewer than 10% of leading Web3 dApps offer native mobile experiences. Given the growing dominance of mobile internet traffic, enabling mobile accessibility is crucial for engaging users where they are most active.

2 Where Crypto Needs to Take Its Next Leap

As we pass yet another milestone in the ever-evolving crypto landscape, a familiar question emerges: How far has crypto adoption progressed, and what is the current state of the market? This year has seen encouraging performance across key demand metrics, including active addresses, transaction volumes, and stablecoin activity. On the supply side, we have witnessed notable growth in active developers, academic research, and the deployment of new projects and contracts. When these indicators are aggregated into a "state of crypto" index, as a16z crypto does, the upward trend becomes clear, signaling steady market momentum.

Figure 1: The crypto industry continues to make notable progress, with key innovation and adoption indicators reaching new highs this year

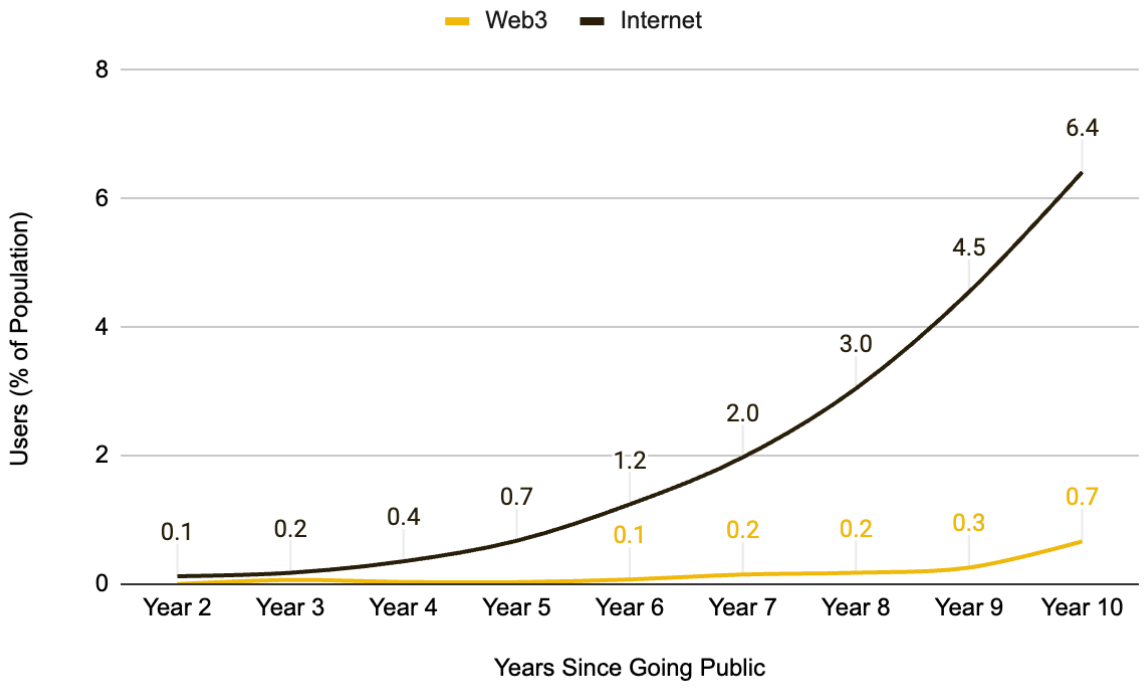


Source: a16z crypto, Binance Research, as of August 21, 2024

Despite this positive outlook, there remain critical areas where the crypto industry must improve. **Web3 has yet to break into the mainstream**, with only a small fraction of the global population onboarded and actively engaged. For context, there are approximately **54.4M on-chain active addresses—less than 1% of the global population**[(1)]. By comparison, around **5.5B people, or 67.1% of the global population, are internet users**[(2)]. This stark difference highlights just how early we are in Web3's lifecycle and the immense growth potential it holds. If we look at the early adoption curve of the internet, we

see that usage accelerated exponentially as more people came online. Web3, similarly, stands to benefit from network effects, where a product or service becomes more valuable as more people use it. However, for this potential to be realized, crypto must become more accessible and widely adopted by mainstream audiences.

Figure 2: Although Web3 user growth is gaining momentum, it still trails behind the early adoption rates of the internet



Source: Kepios, Nansen, Worldometer, Binance Research, as of August 21, 2024

Yet, adoption alone does not guarantee long-term success. **User retention remains a significant challenge for decentralized applications ("dApps")**. Although dApps have been around for over a decade, many have struggled to maintain meaningful user engagement over time. An analysis of blockchain networks with dApps reveals high churn rates among users who engage with Web3 products.

For instance, examining user data from January 1, 2024 — during a period of market resurgence — shows that most networks retained only a small percentage of those users six months later. In Web2[3], retention rates of 25-40% at the six-month mark are considered good, depending on the nature of the product, be it consumer social, transactional, or software as a service ("SaaS"). In Web3, retention metrics are far lower, even when factoring in variables such as the rise of cross-chain usage, which implies users may be switching between networks rather than abandoning them altogether. Nevertheless, the data indicates that beyond **broadening crypto's reach to mainstream audiences**, the industry must focus on **developing products that can sustain user interest**.

Figure 3: The average retention rate of networks, based on user cohorts from the beginning of this year, stands at 5.4%

Network	Retention Rate (%)							
	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24
Ethereum	100	15.4	11.2	9.3	7.1	6.6	6.4	3.3
BNB Chain	100	22.3	15.5	10.1	6.6	5.2	4.6	3.5
Arbitrum	100	18.5	15.7	17.0	12.7	9.8	8.7	3.7
Base	100	33.9	30.6	34.1	25.5	24.3	18.7	13.7
Avalanche	100	16.7	14.2	8.6	5.2	5.0	4.2	2.3
OP Mainnet	100	32.3	21.1	17.6	15.7	11.9	9.4	4.4
TON	100	25.2	34.1	24.7	32.2	35.2	21.0	14.0
Starknet	100	21.5	18.0	4.3	4.5	3.9	2.5	1.1
Manta	100	26.0	23.5	15.1	11.6	10.6	6.6	2.7

Source: Token Terminal, Binance Research, as of August 21, 2024

A prime example of crypto's retention struggles is seen in Starknet, where user retention fell sharply from 18.0% post-March to just 4.3%. This decline was likely driven by the conclusion of their airdrop campaign, illustrating the **limited impact of speculative incentives on long-term engagement**. On the other hand, networks like Base and The Open Network ("TON") have shown stronger retention, thanks in part to their focus on building robust consumer ecosystems with a solid product-market fit. These cases highlight the **crucial role that consumer dApps play in addressing Web3's retention problem**.

For Web3 to truly advance and mirror the network growth of Web2, the focus must shift to everyday users who regularly engage with on-chain products and services. That is why, in this report, we turn our attention to **expanding crypto's adoption frontier beyond mere speculation and profit-making purposes**. This requires improving two key areas: **(1) Use Cases** and **(2) Distribution**. The first involves creating compelling consumer crypto products that generate intrinsic demand and keep users engaged. The second involves leveraging Web2 channels to introduce Web3 products to non-crypto-native audiences, thereby accelerating the transition from Web2 to Web3.

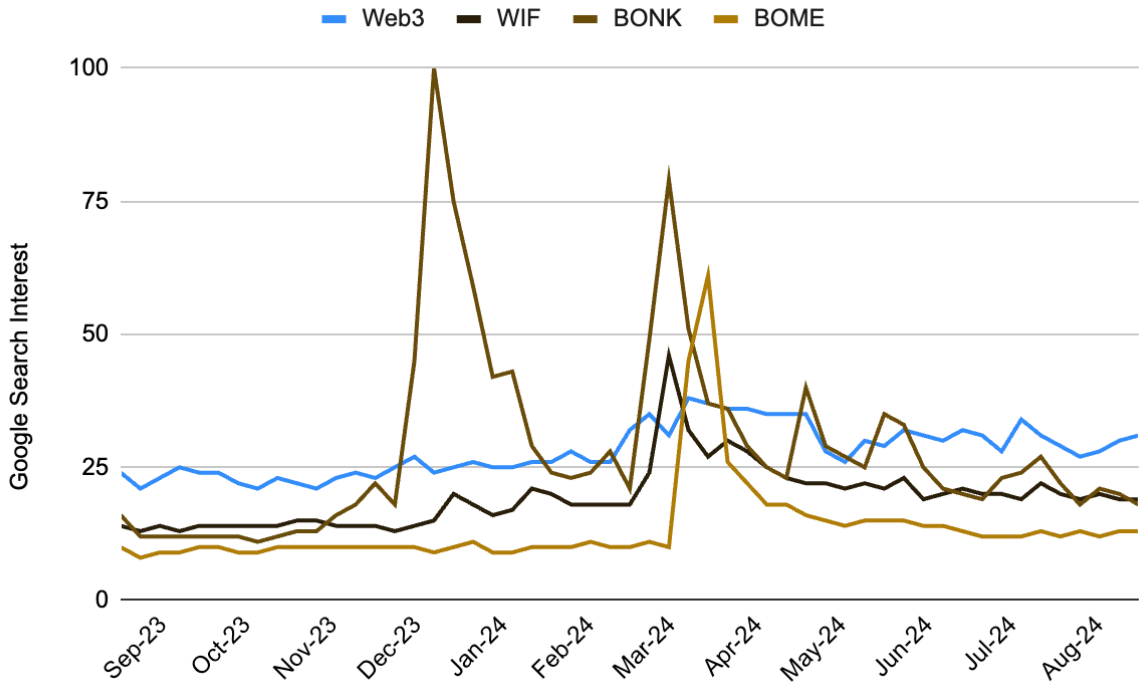
Market Dynamics Shaping Web3

This year, two prominent market trends have stood out: **consumer speculation on meme coins** and **investor focus on infrastructure**. Both trends, while significant, have somewhat diverted attention from the larger goal of making Web3 a household name. As highlighted in our previous reports on Low Float and High FDV and The Importance of Providing Real Value, market narratives, sentiment, and hype can generate short-term interest and capture attention, but they often fall short of fostering long-term, organic growth. Achieving that requires products with real, everyday use cases. Let's explore how these two diverging trends are influencing Web3 adoption metrics.

Excessive Hype, Insufficient Utility

Hype can generate a buzz, but it rarely sustains long-term growth. Utility, on the other hand, has lasting value. Outside of Bitcoin, meme coin speculation appears to dominate public discourse in crypto. When comparing search interest for popular meme coins against Web3-related terms, meme coins have consistently generated more attention, signaling how **speculation can overshadow the underlying utility of Web3**. This cyclical hype, driven by the periodic rise and fall of meme coins, complicates efforts to measure sustainable adoption. As hype fades after two or three months, so does user interest, leading to fleeting engagement as users chase the next speculative opportunity.

Figure 4: Web3 has yet to see the periodic surges of hype that meme coins have generated



Source: Google, Binance Research, as of August 21, 2024

As Polyna emphasized earlier this year[4], crypto needs a cultural shift — one that moves away from meme coins and speculation and focuses more on real-world utility. If user experiences ("UX") are primarily characterized by the volatility of speculative assets or financial losses, the future of the crypto industry will remain tied to speculation cycles and constant liquidity inflows and outflows. In the current environment of high interest rates, relying on speculative activity for growth becomes even more precarious. To build a more resilient future for Web3, we must **prioritize creating viable products that improve experiences of mainstream users** and **enable speculation to have a lesser role in the product experience**. Speculation can be a powerful tool, but it should not be the foundation of long-term adoption.

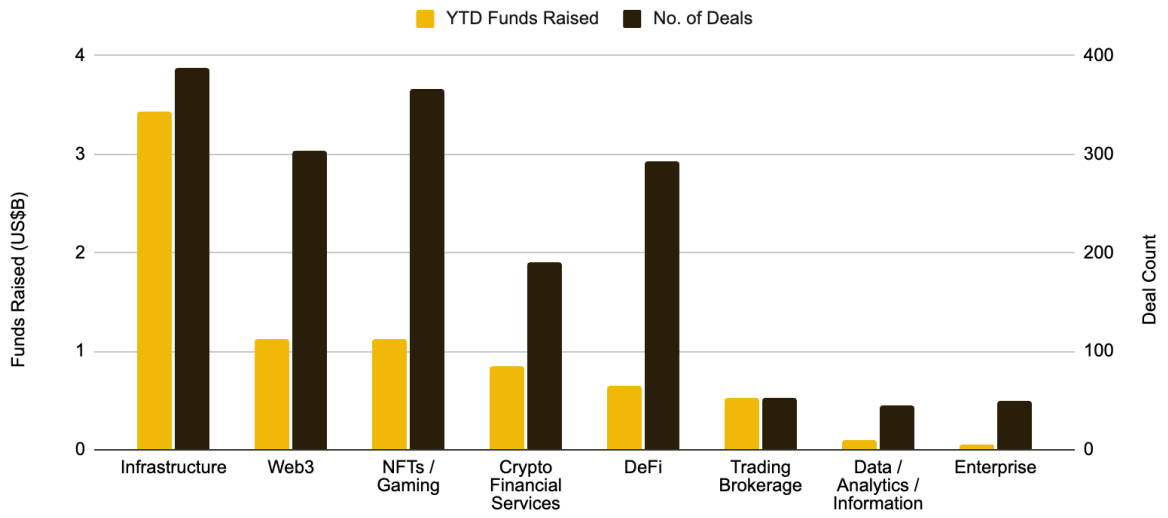
That said, speculation isn't entirely negative. As Vitalik Buterin has suggested[5], meme coins can potentially evolve into more positive-sum use cases. In fact, **the combination of speculation and utility can be quite powerful**. Speculation can serve as an effective tool for early user acquisition[6]. The internet itself thrives on attention, and in a world where competition for attention is growing exponentially, every dApp needs a certain level of attention to remain relevant. Speculation creates hype, offering crypto an entry point into the attention economy. This could help onboard users, especially those unfamiliar with the industry. However, for this to be effective, Web3 products need to be compelling enough to retain these users beyond their initial engagement. Without strong use cases to keep users engaged, attention gained through speculation is likely to be short-lived.

Large-Scale Infrastructure, Small-Scale dApps

Infrastructure continues to dominate the investment landscape in this cycle, with the **majority of capital flowing into blockchain infrastructure rather than the application layer**. Billions have been invested in Layer-1 ("L1"), Layer-2 ("L2"), oracle networks, and other infrastructure projects. Notable examples include a US$225M investment in the parallelized EVM Monad and US$100M in the Proof-of-Liquidity ("PoL")-based L1 Berachain. However, **infrastructure is inherently not consumer-facing**, raising important questions about how much it can contribute to adoption if there aren't enough usable dApps to attract mainstream users. Consumer-facing front-ends are essential for onboarding and retaining users, so **where are the Web3 consumer applications?**

This disconnect between infrastructure development and application creation stems from the current state of demand within the industry. Historically, infrastructure has been a bottleneck for application development, attracting the majority of capital. While the magnitude of this need has somewhat started to diminish, this shift is not yet reflected in investment patterns. One reason for this is that consumer crypto dApps still struggle to find sustained product-market fit, making them riskier due to their subjective demand. In contrast, infrastructure projects offer more concrete data points to go by and have generally attracted larger fully diluted valuations ("FDVs") compared to other sectors.

Figure 5: Infrastructure remains the top-funded sector in the industry, attracting over US$3.4B and accounting for nearly 50% of total funding

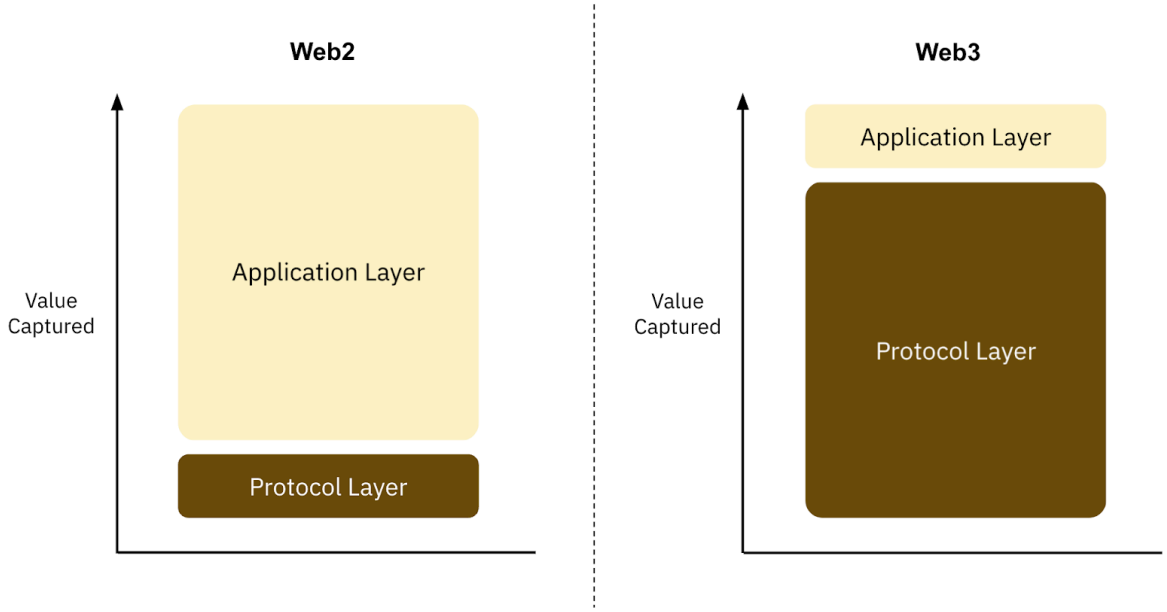


Source: The Block, Binance Research, as of August 9, 2024

As infrastructure continues to command higher valuations than applications, developers are incentivized to focus on infrastructure projects, leading to an **oversaturation of infrastructure layers**. While innovation is a driving force behind the expansion of infrastructure layers, misaligned incentives are also to blame. The more developer talent that is funneled into building infrastructure instead of applications, the more oversaturated the infrastructure market becomes.

To change this dynamic, investors must begin incentivizing developers to build consumer dApps rather than continuing to channel funds into excessive infrastructure without sufficient demand. Ultimately, **infrastructure exists to support end-user applications**, and without dApps, value will not accrue to the underlying infrastructure layers. The crypto market has seemingly fallen into a trap of bloating infrastructure without allowing dApps to achieve the same level of success.

Figure 6: Value capture in Web3 has predominantly occurred at the infrastructure layer, resulting in its bloat compared to the application layer

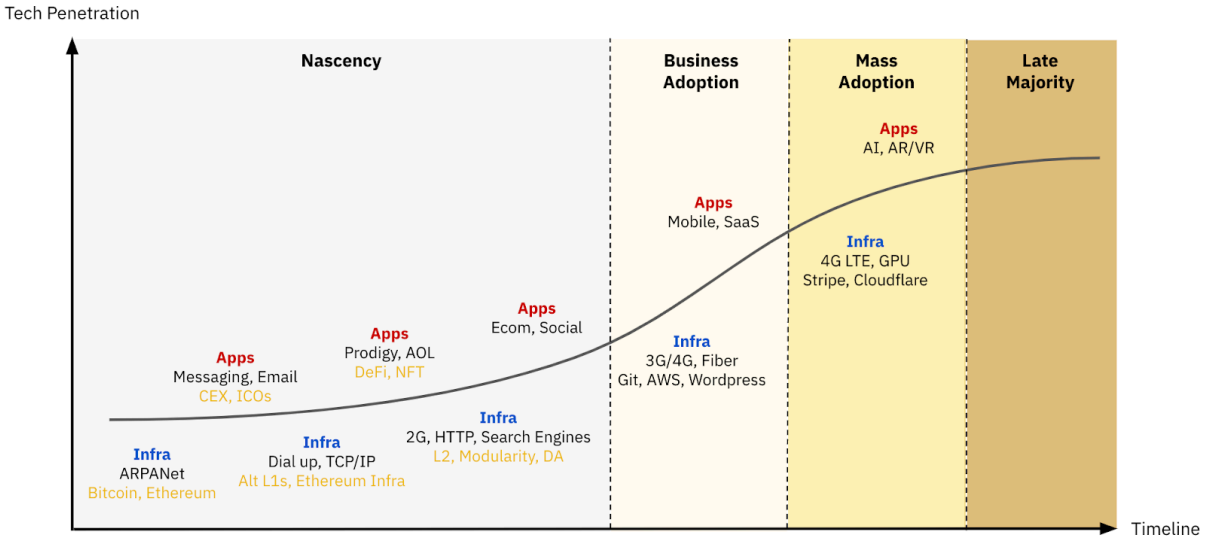


Source: Union Square Ventures, Binance Research

Nevertheless, this shift is inevitable and will likely be driven by market fundamentals. We're already seeing diminishing returns from new L1 and L2 chains, as **the growing number of blockchains and protocols striving to "own their own stack" has led to a fragmented ecosystem**, spreading liquidity thin and complicating the user experience. Currently, infrastructure projects are competing for market share, and the best go-to-market strategies will prevail. Over time, infrastructure will become commoditized, and the focus will naturally shift toward the application layer.

A look at **Web2 adoption patterns offers a glimpse of this future**: Infrastructure came first and was essential for the development of consumer-facing applications[7]. Companies like Cisco and Intel initially attracted the highest valuations, but eventually, big tech firms like Facebook and Amazon overtook them, accruing more value as consumer adoption grew. If Web3 follows a similar trajectory, it's only a matter of time before the focus shifts from infrastructure to consumer applications, which are primed for mass adoption and attention.

Figure 7: If similar trends from Web2 hold, as crypto infrastructure reaches maturity, Web3 dApps are likely to emerge at scale



Source: Folius Ventures, Binance Research

A combination of factors[8] — including reduced on-chain costs, widespread adoption of modular solutions, smoother fiat on- and off-ramps, and the maturation of token design and financialization—has significantly improved infrastructure, enhancing user and developer experiences. With over 50M active addresses and the ability for developers to quickly launch consumer dApps on network layers like Ethereum, BNB Chain, Solana, TON, Berachain, Farcaster, and others, there are no more excuses. Web3 is ready for the next step: a boom in front-end consumer applications. **Success will depend on executing this shift effectively, striking the right balance between use case and distribution**.

Please note that the mention of specific projects in this report does not constitute an endorsement or recommendation by Binance. Instead, the projects cited are merely used for the purpose of illustrating the aforementioned concepts. Additional due diligence should be taken to better understand the projects and associated risks.

3 Use Cases: Building dApps That Matter

Since the launch of Ethereum in 2015, the industry has seen relatively **few use cases emerge outside of speculation**. The largest current use case remains as a **store of value**, which continues to be the primary entry point for many users. The **number of people holding crypto has surpassed 560M**[9], a figure boosted by the introduction of investment vehicles like spot Bitcoin ETFs. While this form of adoption has positive spillover effects for the broader industry, it is still largely driven by Bitcoin, with **over 75% of ownership attributed to BTC**[10] . The only other significant use case has been **value transfer through stablecoins**, often used for payments. **Web3 dApps have yet to achieve the consistent daily active user counts seen in Web2**, and the industry is still awaiting the proliferation of killer use cases that the advanced infrastructure was expected to enable.

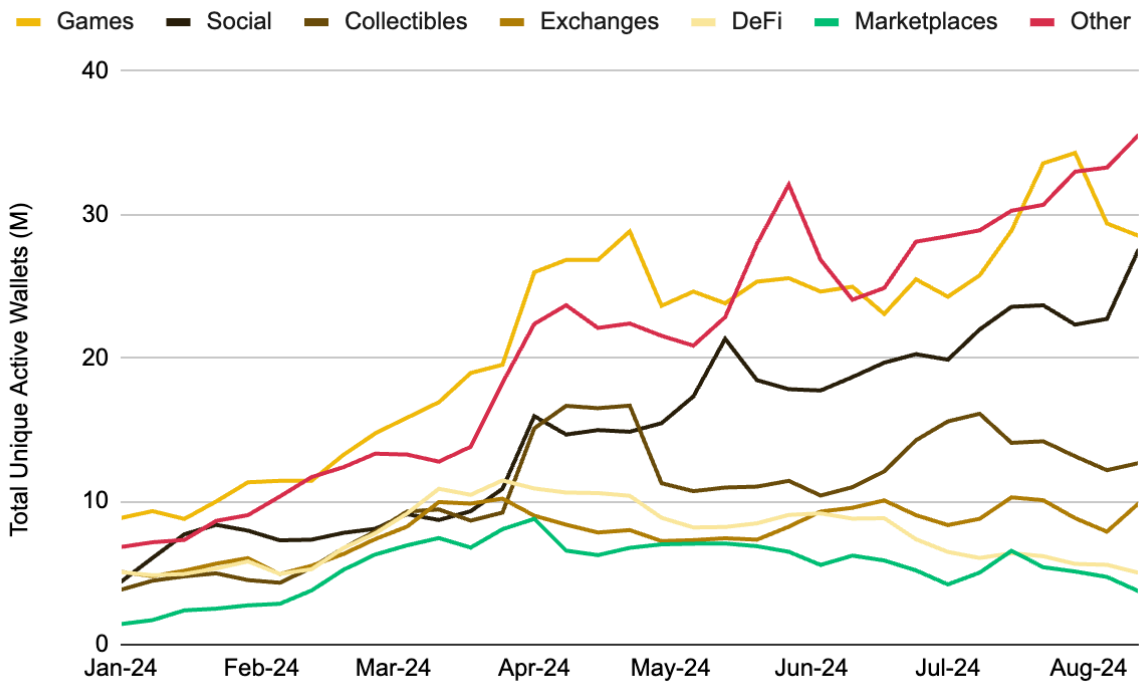
Achieving this requires Web3 dApps to have market appeal beyond just the crypto-native community, unlocking a path to achieving wider product-market fit. **Users are drawn to "painkiller" products—those that solve immediate and pressing problems—rather than "nice-to-have" solutions**. If a product addresses a unique pain point and offers better unit economics than existing alternatives, it will naturally attract and retain more users. **The key question is whether someone, especially a non-crypto-savvy individual, would willingly use your product without extrinsic rewards like points or airdrops**. Over-reliance on these rewards without first establishing a core value proposition creates warped incentives, leading to short-lived and inorganic user behavior.

Part of the problem is that crypto is relatively a more backend technology, making many products less user-friendly compared to everyday Web2 applications like social media or ride-sharing. Not every user entering Web3 needs to immediately engage in complex activities like trading tokens or derivatives. For Web3 to generate real demand and sustained user engagement, it needs products that can **seamlessly integrate into daily life**. This is why consumer-friendly products are the missing link in Web3's growth. **The consumer crypto economy offers a collection of use cases that can scale Web3 to the everyday user**, helping solve the retention problem. In many ways, consumer crypto serves as the bridge between the complex world of blockchain technology and the average user.

The Consumer Crypto Economy

An application is considered part of the consumer economy if users **engage with it habitually** — just as they might check Instagram stories, watch videos on Netflix or even play an iOS game. The practical nature of these products demonstrates their high penetration potential for engaging and retaining users. We've seen similar trends in Web3, where consumer dApps have driven the most growth in unique active wallets ("UAWs").

Figure 8: Consumer-focused categories like Games and Social exhibit the highest potential for drawing active users, with total UAW showing strong growth over the year



Source: DappRadar, Binance Research, as of 25 August, 2024

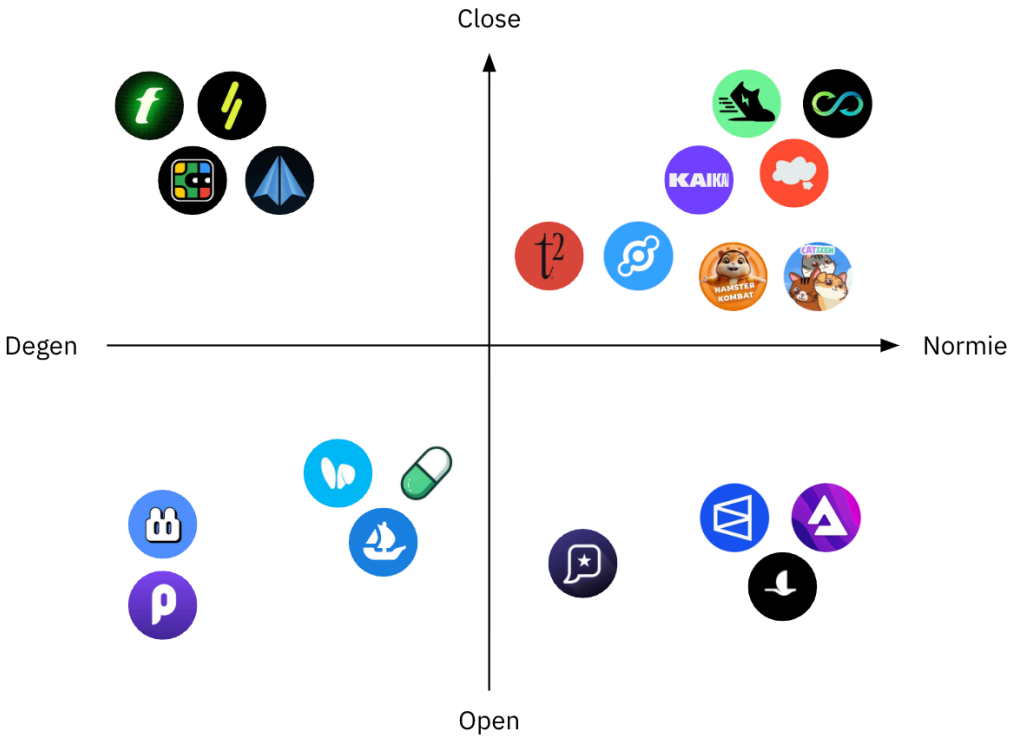
Consumer crypto has seen some success in attracting recurring users from the crypto-native community, but to appeal to a broader audience, these dApps need to **meet the high expectations set by world-class Web2 products**. Unfortunately, building for the consumer market is one of the toughest challenges in Web3[11], and it's not simply a matter of crypto ownership or financialization. Consumer crypto operates in a largely uncharted territory, with the real challenge being how to capture and sustain users' attention over time.

Prospective dApps have several paths: compete in crypto's existing strengths like speculation, build entirely new verticals with no established demand, or improve Web2 use cases by bringing them on-chain, though this carries the risk of directly competing with Web2 applications. Social media, payments, and gaming are already well-established in Web2, so the tricky question becomes: What would motivate users to operate on-chain

rather than use their current off-chain applications[12]? **Rather than simply reskinning successful Web2 apps, consumer crypto should aim to push boundaries and reinvent the wheel**. At the very minimum, Web3 products need to match the UX of their Web2 counterparts and ensure low switching costs.

Despite these challenges, several products have begun to demonstrate what's possible when consumer experiences are combined with decentralized systems. The consumer crypto ecosystem now includes social products, gaming, and marketplaces like prediction markets, among others, spanning a **spectrum of accessibility** and **varying degrees of crypto nativeness**. One notable difference between this new generation of dApps and those of previous cycles is that many now cater to mainstream audiences. Users onboard with familiar methods like email or social logins (often in addition to wallets), pay with credit cards, and don't need to worry about network compatibility or gas fees.

Figure 9: Although still early, the consumer crypto economy has branched into several sub-verticals



Source: @zk7hao, Binance Research

Ultimately, consumer dApps must navigate a **broad range of user expectations**, making a **product-first approach** essential. To reach product-market fit, many dApps will likely need to go through several cycles of feature releases, user feedback collection, and development iterations. Let's briefly introduce some areas that show potential in engaging users.

Speculation-Driven Products

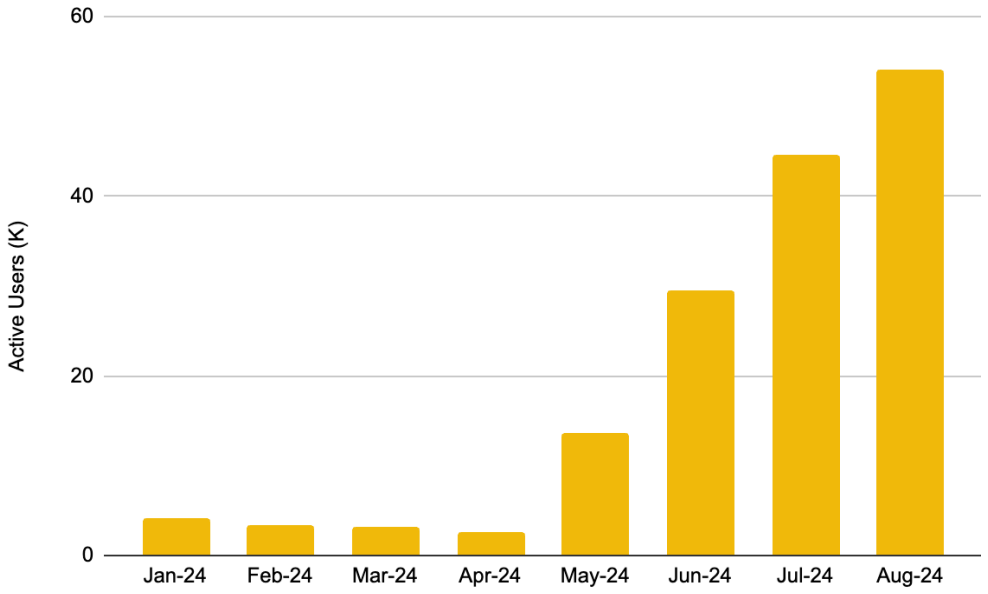
While speculation alone isn't sustainable, strong use cases built around it can tell a different story. The **productization of speculation** has seen success with platforms like Polymarket (a prediction market) and Pump.fun (a tokenized launchpad). Both **combine speculation with utility**, resulting in engaging consumer products. Polymarket, for instance, generated over US$421M in volume in August 2024[13], while Pump.fun had a day with over US$2.3M[14] in revenue, placing both among the largest crypto platforms in terms of user traction.

Prediction Markets: A Mainstream Success

Prediction markets, particularly Polymarket, have emerged as one of the most successful Web3 products this cycle. While prediction markets existed before Polymarket, blockchain technology allowed it to overcome traditional limitations such as restrictions on capital allocation and the ability to accept stablecoins. Polymarket's success lies in providing a platform where users can **express opinions on topics that cater to broad public interests**, ranging from politics and sports to niche markets like Olympic medal counts and GPT-5 launch dates.

Polymarket's popularity has experienced exponential growth, as reflected in its web traffic. Over the past year, **daily page views have increased tenfold,** with **cumulative views surpassing 32M**[15]. In late July, **daily page views peaked at 1.3M**, while **daily visitors hit 185K**. This surge in engagement has translated into **over US$1B in trading volume** year to date, with **monthly active users soaring from around 4,000 to 58,000**. Its influence has grown to the point where even mainstream media, including CNN with its global audience of over 100M[16], has turned to it as a **real-time sentiment tracker**, using its odds for political commentary.

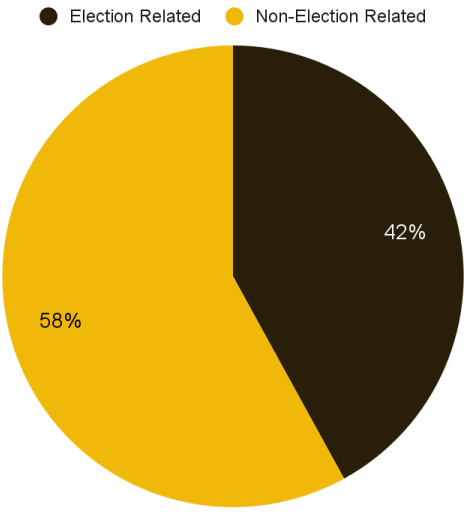
Figure 10: In yet another record-breaking month, Polymarket surpassed 50,000 active traders in August



Source: Dune Analytics (@rchen8), Binance Research, as of August 26, 2024

Although Polymarket previously struggled to gain traction outside of election cycles, this time, **58% of users made their first trades in non-election markets**, such as culture, business, and science. Additionally, retention has been strong: **of the 28,000 users who placed their first bet in an election-related market, 56% went on to trade in other markets**[17]. This suggests that Polymarket has the potential to continue onboarding users through major global events beyond elections. It will be interesting to see how it performs post election in November and whether it can maintain traction in non-election markets.

Figure 11: Polymarket is witnessing an increased proportion of first-time traders placing bets on non-election markets this cycle



Source: ParaFi, Binance Research

Productization of Meme Coins

Another speculation-driven product that has gained traction this year is Pump.fun, a token launchpad that enables users to buy or create fair-launch tokens. Pump.fun specifically caters to the demand for meme coin speculation, **adding utility through a productized meme coin generator** and marketplace. Unlike individual meme coins, which often lose attention after a few months, Pump.fun provides a **platform for a large cohort of meme coins**, enabling the creation of tokens on any topic.

Since its inception in January 2024, the platform has facilitated the **deployment of over 1.8M tokens**[18]. It has also successfully attracted and retained users, **averaging over 20,000 new users per month**, with **active user counts averaging 54,000** this month. This consistent influx of new users, alongside strong retention, highlights the platform's product-market fit and stickiness, though it will be interesting to see how Pump.fun performs in alternate market cycles. Given its success, we may see more products emerge that capitalize on different speculation verticals within crypto and add utility to them, just as Pump.fun has done.

Social

Decentralized social ("DeSoc") applications have long been seen as one of the most promising use cases for Web3, offering benefits such as greater composability, ownership, and censorship resistance. DeSoc spans a wide spectrum, **from decentralized social networks focused on user sovereignty to social financialization ("SocialFi"), which combines DeFi with social media to enable monetization**. Given the prevalence of social networking in our daily lives through Web2 platforms like X (formerly Twitter), Instagram, and Discord, Web3 social has often been regarded as a potential golden egg.

The Boom-and-Bust Cycles of Decentralized Social ("DeSoc")

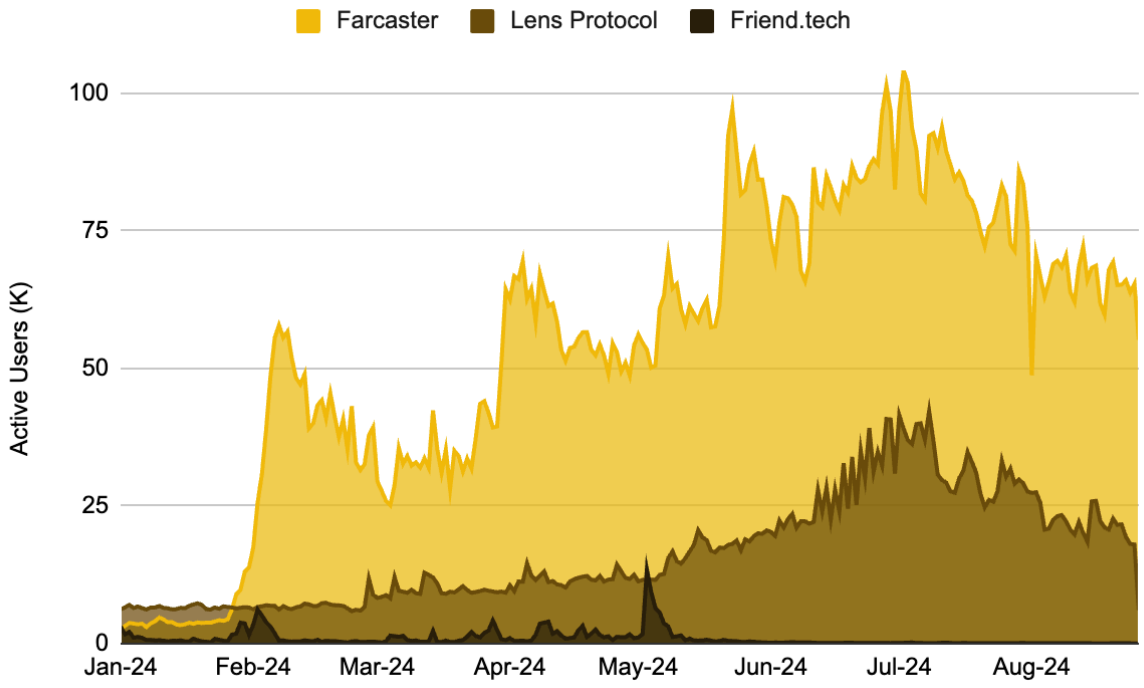
DeSoc has faced its own boom-and-bust cycles, with **activity often concentrated around a single dApp that dominates during different periods**. This is particularly evident in the SocialFi space, where acquiring users has been easier than retaining them. For instance, platforms like Fantasy.top and Friend.tech have seen rapid spikes in daily active users, only to experience significant declines as user interest wanes[19]. Fantasy.top peaked at 16,000 daily active addresses but has since dropped to under 1,000, while Friend.tech's activity plummeted from 73,600 daily users to just a few hundred.

To sustain user engagement, these SocialFi dApps must build stronger utility, including features that **resonate with non-crypto-native audiences**, rather than relying solely on speculation and hype. As innovation and competition increase, we may eventually see more sustainable adoption rates. Currently, **creator tokenization is the most common SocialFi dApp model**, leveraging the influencer economy. While **content tokenization has yet to see similar traction**, it could become more prominent in the future, especially across a wide range of media types, from articles and blogs to art, podcasts, music, and videos.

On the other hand, dApps built on social network protocols like Farcaster and Lens are proving to be more sustainable in terms of user growth, with millions of user profiles created on these platforms. Both have seen notable increases in daily active users, though this has dipped slightly from their peaks in July. To attract users beyond the crypto space and compete with Web2 platforms like X (formerly Twitter), which boasts around 220M daily active users[20], these protocols must address the volatility in their user activity.

Nevertheless, their modular architectures, which foster continuous innovation from channel creators, give these protocols the potential to maintain user activity. Both platforms support frameworks that **enable third-party developers and social media creators to build and launch their own DeSoc applications**. Farcaster's most successful application, Warpcast, exemplifies this potential, and as more high-value use cases are developed, it could help mitigate user volatility. Moreover, the introduction of features like Frames and Open Actions allows these platforms to **attract dApps from outside their native ecosystems**, offering greater flexibility to engage users directly through social interfaces.

Figure 12: Despite a dip since July, both Farcaster and Lens Protocol have experienced significant growth in daily active users throughout the year



Source: Dune Analytics (@filarm, @cryptoian), Binance Research, as of August 26, 2024

Gaming

The Web2 gaming industry is vast, with an estimated 3.38B gamers and generating US$184B in revenue in 2023. However, data suggests that traditional gaming platforms — mobile, PC, and console — are becoming increasingly stagnant[21], creating opportunities for new mediums to emerge within the industry. The integration of Web3 technologies holds significant potential as this new medium[22], especially given its promising monetization models and the interest from major Web2 gaming companies like Epic Games, Sega, EA, and Ubisoft in incorporating Web3 elements into their offerings.

For Web3 games to succeed, they must **meet the quality and gameplay standards of Web2 games**. Many Web3 gaming projects have raised significant funding and are pushing for AAA-quality experiences. While these high-quality games are still in development, lighter, **hyper-casual Web3 games** have started to gain traction, targeting not just Web3 natives but a broader audience.

While content and infrastructure are critical components in the gaming industry, distribution remains the key factor for success. To onboard billions of gamers to Web3, it will be essential for Web3 games to be embraced by traditional game distribution platforms like the Apple App Store, Google Play Store, Steam, Xbox, and PlayStation. Complementing these efforts with robust marketing and a strong social media presence will also be crucial to fostering user investment in the culture created by these games.

Tap-to-Earn ("T2E") Mania

The rise of hyper-casual games, which began with the release of Flappy Bird in 2013, has been remarkable. Over the past four years, this genre has come to dominate the gaming landscape, capturing 40% of the total market share and generating US$2-2.5B in annual revenue. **Hyper-casual "clicker" games have now made their mark in the crypto gaming world, fueling the recent T2E craze**[23].

One of the popular innovations in this cycle has been T2E games on the TON blockchain. Games like Hamster Kombat, Citizen, and Notcoin have achieved **impressive user acquisition numbers in a short period**. Notcoin, for example, attracted around ~30M users in under two months, Hamster Kombat reached ~200M users in less than three months, and Citizen drew in ~10M users in just ten weeks. Even accounting for the possibility of inflated metrics, these numbers surpass anything we've seen so far in Web3 gaming, showing the potential of this model to engage a massive user base.

Looking ahead, we might see the adoption of an approach that transitions from **hyper-casual to hybrid-casual games**. Hybrid-casual games blend the simplicity of hyper-casual games with the depth of more complex gameplay, including progression systems, upgrades, and live events that keep players engaged. These games also incorporate social elements and leaderboards, enhancing competitiveness and player interaction. By maintaining easy-to-learn mechanics while adding layers of complexity,

hybrid-casual games could serve as a bridge, transitioning users from hyper-casual games to a more comprehensive Web3 gaming experience.

Real-Life Experiences

Looking at popular Web2 applications, categories such as social media, entertainment, hospitality, and consumer goods drive the most usage. dApps that can **create unique real-life experiences** by combining blockchain technology with familiar Web2 elements may have a key advantage in attracting everyday users. However, these dApps must offer experiences that are superior to what already exists in Web2. Although still in its early stages, this trend has started to take shape through several channels.

- **Digi-Physical Intersection:** The crypto earn model, combined with low-cost transactions, provides substantial benefits for consumer loyalty and rewards programs, particularly in the hospitality, retail, and fashion sectors. While token incentives are already employed on-chain to drive activity and liquidity, this approach can be equally effective off-chain, through social and fan tokens, NFTs, digital collectibles, and subscription or membership products.

  These initiatives also help to deepen community connections, enhancing the relationship between brands and their audiences, and fostering ongoing engagement and loyalty. A notable example is Blackbird, a platform that allows restaurants to curate unique dining experiences for their members. By utilizing NFTs and blockchain-based rewards, Blackbird enables restaurants to creatively identify, engage, and reward their most loyal customers.

  Another promising use case for Web3 is the tokenization of physical items or incentivizing real-world actions, such as promoting physical activity or ride-sharing. By creating on-chain experiences that integrate with users' daily lives, these projects can help address retention challenges. Projects like Moonwalk, Skytrade, Puffpaw, and Trip are exploring ways to seamlessly blend blockchain with everyday behaviors.

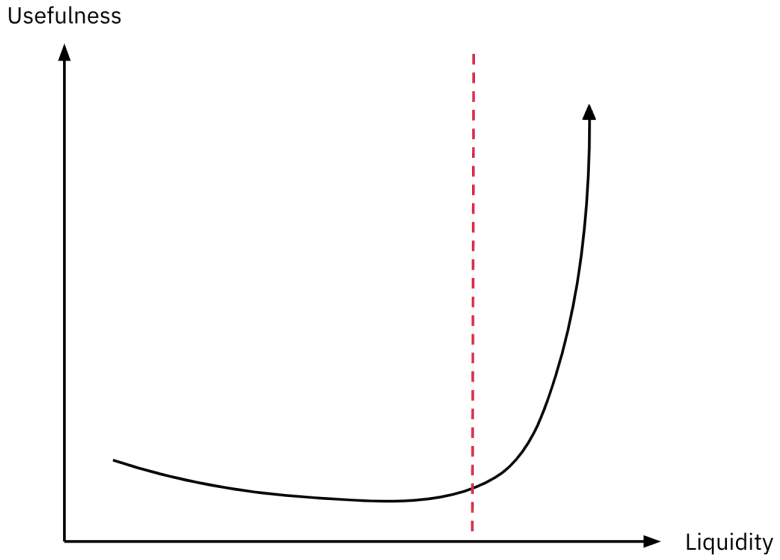
4 Distribution: Expanding Market Reach

While a great go-to-market and distribution strategy cannot compensate for poor product design or weak incentive structures, even the best products won't thrive without strong distribution. Effective distribution is crucial for making Web3 products more accessible and placing them in front of a broader audience.

The most significant impact on user acquisition for many dApps will stem from their distribution strategy. Distribution is about bringing Web3 products to users by integrating them into their everyday experiences—whether in news, politics, sports, social media, music, live streaming, or podcasting. **Meeting users where they already spend time is essential**, rather than expecting them to navigate the complexities and fragmented nature of Web3. This involves **tapping into successful product bases** and **seamlessly connecting on-chain products with more familiar interfaces**.

A typical Web3 dApp user funnel includes steps like user acquisition, wallet connection, account funding, and activation. Each step presents challenges and relies on the user completing the previous step without dropping off. While activation depends on the product's inherent use case, acquisition is the starting point of any onboarding funnel and hinges on effective distribution. Without sufficient users and in turn liquidity, many Web3 dApps will struggle to remain relevant. **Strong distribution strategies are essential for bootstrapping these dApps to a level where they become useful**.

Figure 13: Web3 grapples with a cold start issue, where many dApps only become useful once a critical threshold is reached



Source: mhonkasalo, Binance Research

Web2 to Web3: Tapping into Existing Product Bases

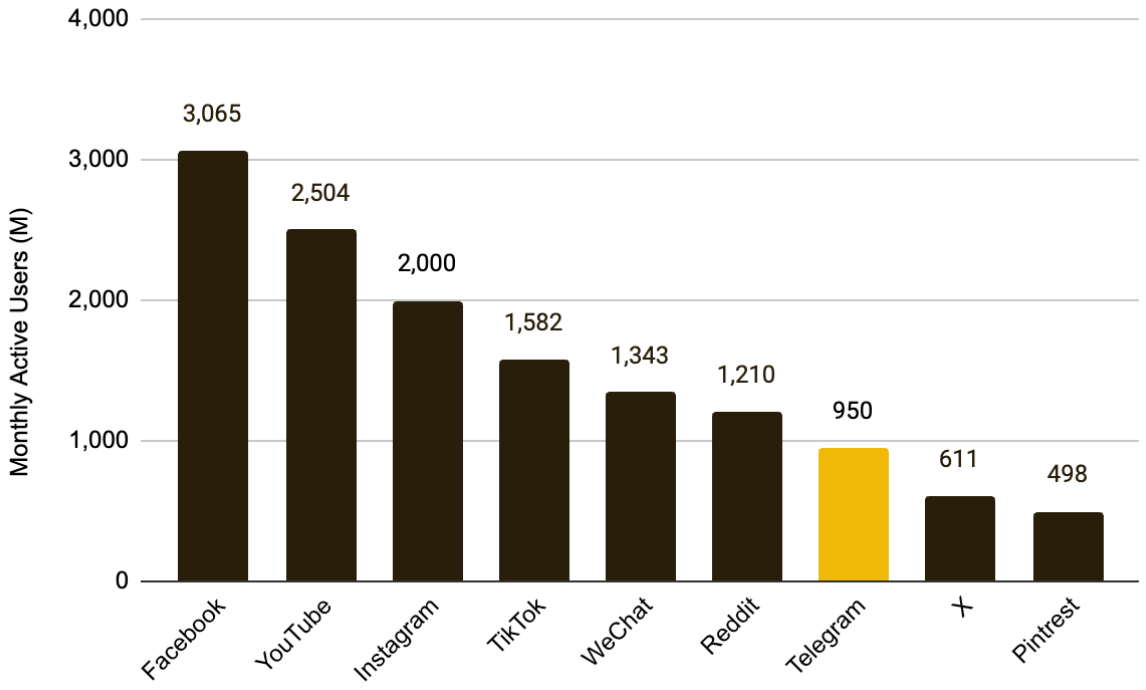
Web3 doesn't need to operate in isolation from the broader economy. Rebuilding the entire market economy for Web3 isn't necessary when successful Web2 products can be leveraged or built on top of. Successful consumer dApps with strong communities often gain significant exposure across multiple platforms. Rather than relying solely on crypto-native channels, leveraging **Web2 as an onboarding platform for Web3** presents substantial potential synergies.

Over the past few decades, the Web2 industry has produced tech giants and super apps with **strong consumer use cases** and **vast user networks**. These Web2 products have excelled in consumer insights, product design, user acquisition, growth hacking, and monetization, making them powerful distribution channels. With **growing overlaps between Web2 and Web3**—whether in payment networks like PayPal or social media messaging platforms like Telegram—there is a ripe **opportunity for Web3 to tap into these established ecosystems**.

Telegram x The Open Network ("TON")

With 950M monthly active users and a direct partnership with the TON blockchain, Telegram stands as the **largest blockchain-enabled distribution platform in the market**[24]. Telegram's global reach and extensive user base create a massive funnel for TON. By offering a **suite of on-chain products**, including wallets, bridges, and stablecoins (such as Tether's USDT), Telegram provides one of the easiest entry points for consumer dApps to onboard users, reducing on-chain friction.

Figure 14: With 950M monthly active users, Telegram emerges as the largest blockchain-enabled distribution platform

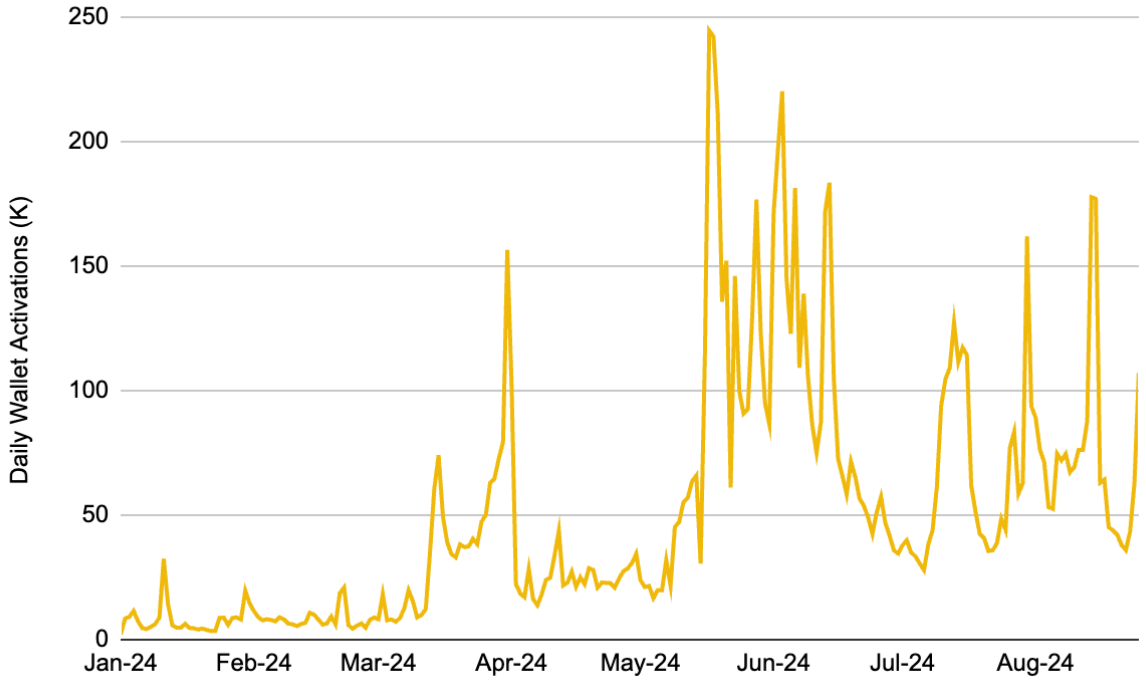


Source: Statista, Binance Research

TON's relationship with Telegram positions it uniquely for success, already seeing significant growth in liquidity and user activity. TON has become one of the fastest-growing blockchains in 2024, with daily wallet activations averaging 74,000 in the past month. As the **TON Foundation aims to onboard over 30% of Telegram's active users**[25] onto the blockchain by 2028, there is immense potential for further growth.

dApps building and distributing on Telegram are likely to face less competition in the early stages, allowing them to activate users more effectively. At the same time, Telegram's revenue currently stands at US$45M[26], but comparing it to WeChat — when it had a similar user base — illustrates the potential for billions in revenue[27]. This highlights the opportunity to **acquire untapped users at a low cost and monetize them at a higher rate** through in-app purchases, subscriptions, or ad-sharing models.

Figure 15: TON's daily wallet activations have seen a significant rise this year, averaging 74K new wallets per day in the past month



Source: TonStat, Binance Research, as of 26 August, 2024

The Mini App Revolution

Mini apps have taken distribution to the next level by offering a simplified interface familiar to a global audience. These apps allow users to interact with dApps directly from within the Telegram chat interface. For dApp developers, mini apps provide an easy framework for deploying products and tapping into Telegram's user base. This innovation **transforms Telegram from a simple messaging app into a central hub for dApps**, accessible across Android, iOS, PC, Mac, and Linux without additional installations.

Telegram serves as a top-of-the-funnel mechanism for bringing users on-chain, but it's up to the dApps to convert these users meaningfully. The most successful mini apps so far have been T2E games like Notcoin, Hamster Kombat, and Catizen. These games capitalize on immersive experiences and have driven immediate engagement by launching on Telegram, acquiring over 100M users. Catizen, in particular, reported a **7% conversion rate**[28] — significantly **higher than the 0.66% average for other Telegram crypto interactions** — highlighting the potential of this channel to onboard users. The demographics of Telegram's user base — particularly in emerging markets — play a significant role in the success of these hyper-casual games.

In the near term, we will likely see similar strategies to acquire and engage users, with mini apps dominated by social games catering to the experience economy before larger use cases like payments emerge. As mini apps continue to evolve, they will likely serve as a **discovery point for users to experience the initial touchpoints of various dApps**. Future

mini apps may combine approaches like T2E with tokenized launchpads or prediction markets integrating social relationships, among other features. With increased deployments, we can expect stronger discovery features, including better in-app placements, richer product content, and more advanced analytics to guide mini app teams.

To take this distribution channel to the next level, it will be interesting to see whether the mini apps ecosystem can replicate its success in more hard-hitting areas, such as DeFi. The opportunity is there, especially as T2E games have captured users' attention and liquidity, which could potentially trickle down to other mini app categories. The competitive edge will go to projects that can offer streamlined experiences for complex on-chain functionality.

Hurdles On the Road Ahead

Despite the promising opportunities within the Telegram x TON ecosystem, challenges remain. A few key hurdles are worth noting below.

- **Tech stack complexities**: Developers working on TON face challenges due to the **lack of EVM compatibility** and the use of **TON's native programming languages** (FunC, Fift, and Tact). Solidity, with its similarities to JavaScript, has a strong following among developers, as does Solana's Rust community. FunC, however, lacks this familiarity, which may hinder developer adoption. Additionally, Telegram mini apps currently lack the comprehensive technical support available on other app stores, potentially hindering the deployment of more complex use cases.

  While efforts are being made to improve tooling and technical support, the lead time for developers could increase user acquisition costs for projects leveraging this distribution channel. The silver lining is that as more dApps launch in this ecosystem, more case studies will emerge to guide new developers. **The fact that this scale of deployment is happening even before these developer improvements highlights the importance of distribution**.

- **No One-Size-Fits-All solution**: Effective distribution requires **understanding diverse audience segments**. Telegram's global reach spans multiple countries, which presents both opportunities and challenges. While this reach helps distribute products widely, retention can be difficult due to the **varying cultural requirements of different user demographics**. Additionally, many users currently utilize Telegram for entertainment, socializing, and news, so it remains unclear how easily they will transition to crypto-native mini apps. Tools that provide deeper insights into user segments and help cater to their specific needs will help navigate these challenges.

- **Regulation**: Telegram faces regulatory risks, which could impact its wide reach. Any regulation that restricts Telegram's use in certain countries could undermine the core value proposition of this distribution channel.

Embedded Content x Polymarket

Another effective distribution strategy is **embedding Web3 content or experiences into existing products**, increasing the number of access points for users. This approach works best when it **enhances the product being embedded**. Polymarket's recent partnership with Perplexity, an AI-powered search engine, is a prime example. Now, when users search for events on Perplexity, they see news summaries paired with real-time probability predictions from Polymarket on topics such as election outcomes and market trends. With Perplexity reportedly having over 15M active users[29], this integration is a powerful way for Polymarket to acquire new users.

This partnership follows a similar collaboration with Substack, where writers can embed prediction data from Polymarket into their posts. With Substack boasting over 35M active users[30], this provides another channel for Polymarket to onboard users. As a curation market, Polymarket is likely to continue expanding through similar integrations across the Web2 space.

Web3 to Everywhere: Shortcuts to the Blockchain

Internet x Blinks

Blinks (Blockchain links) move Web3 closer to becoming a native feature of the internet by allowing users to share specific on-chain actions (such as sending a payment or buying an NFT) as a URL that can be displayed on any website. By enabling on-chain transactions anywhere on the internet, **Blinks brings the blockchain directly to the general user**[31].

This seamless integration reduces the friction of accessing Web3 dApps, making on-chain transactions as easy as browsing your favorite website or scrolling through social media. By merging online and on-chain experiences, both users and businesses can benefit in several key ways.

- **Easier access to on-chain**: **Blinks eliminate at least 1-2 steps typically required for on-chain transactions**, significantly reducing friction and improving accessibility. The ability to perform transactions directly from interactive elements across the internet is a positive step toward increasing on-chain user adoption.
- **Headless marketplaces**: **Blinks introduce a new distribution model for on-chain commerce**, enabling crypto-based transactions anywhere online. Payments, one of crypto's strongest use cases due to low fees compared to traditional networks, now extend to social channels. This allows businesses to seamlessly offer transactions at the point of distribution while benefiting from the lower costs associated with crypto payments.

While Blinks shares similarities with Farcaster's Frames and Lens Protocol's Open Actions feature, they are limited to the Farcaster and Lens interfaces, which has a relatively small, crypto-native user base. In contrast, Blinks can be integrated into any website, allowing it to **tap into the Web2 user base** and **reach a much larger audience**. Currently, Blinks are compatible with X (formerly Twitter), which has a significantly broader user base, and can also be supported on platforms like Reddit, TikTok, and others.

One caveat is that Blinks are currently **only available on desktop**, with no mobile compatibility at this time. However, it's not unlikely that additional programmability will be introduced in the future, including similar functionality from other blockchains. Despite these early limitations, it will be interesting to see how widely Blinks are adopted by both users and businesses. With enough volume, platforms where Blink transactions are conducted may be **incentivized to build native support for on-chain transactions**, further integrating Web3 into the broader internet experience.

Web3 for Mobile

Currently, only 8% of the top 100 Web3 dApps have a native mobile experience[32]**, despite more than 50% of internet traffic coming from mobile devices**[33]. The best channels for distributing consumer products today are the Google Play Store and Apple App Store. Until Web3-native systems or phones gain widespread adoption, dApps will benefit from enabling mobile experiences. Even starting with progressive web apps ("PWAs") can reduce friction for billions of potential Web3 users who prefer smartphones.

- **Mobile Stack**: Solutions like Mobile Stack help bridge the gap between Web3 and mobile by allowing dApps to easily build, customize, and manage a mobile-first experience.

- **Tap-to-Pay x iOS 18.1**: As technology evolves, Web3 must stay at the forefront to maximize distribution opportunities. One example is Apple's upcoming update that will **open its contactless payment technology to third-party developers**. This allows developers to **access Apple's NFC chip**, which **powers tap-to-pay features**, through the beta version of iOS 18.1. Seamlessly transacting with stablecoins via Apple Pay increases the accessibility of crypto and opens new pathways for direct crypto-to-merchant payments. Circle has already announced tap-to-pay using USDC on iPhones, and more dApps are likely to benefit from this new payment channel.

5 Closing Thoughts

In recent years, the focus on infrastructure — improving speed, reducing costs, and enhancing decentralization — was driven by the need to create a strong foundation for front-end applications. Now, with some of that groundwork in place, there has never been a better time to build a Web3 consumer dApp. Attention is increasingly shifting towards the application layer, where better software and tooling are making it easier for developers to innovate. As synergies between Web2 and Web3 become more apparent, it's important to recognize that the marginal gains from developing the next L1 or L2 are likely smaller for the industry than launching the next big killer dApp. A dApp that offers real use cases and uses strong distribution channels can have a far greater impact on the growth of Web3.

However, navigating this landscape is no simple task. There is no hard science to adoption and retention in Web3. Making Web3 a household name is truly uncharted territory. In a space where new technology emerges constantly and narratives shift rapidly, additional variables will always come into play.

- **Web2 vs. Web3**: Onboarding Web2 users is essential, as they represent the largest untapped market for Web3 adoption. However, it's important to recognize that Web2 and Web3 are inherently different in several ways.
    - **User behaviors**: Serving Web2 users versus Web3 users requires understanding different cultural contexts. The language, preferences, and behaviors of these groups vary widely, which impacts product design and UX. Web3 dApps must ensure their products are tailored to the specific needs and expectations of their intended audience.
    - **Product complexity**: Web3 is intrinsically more complex than Web2. While UX improvements through account abstraction, smart wallets, and better on-chain ramps can help, the nuances of on-chain operations, wallet management, and tokenomics are likely to take time for broader adoption. This is a behavioral shift that may gradually come with younger generations, similar to the evolution of internet adoption.
    - **Post acquisition engagement**: Engaging users post-acquisition in Web3 is different from traditional Web2 strategies. Customer experience programs, email marketing, and other standard Web2 engagement tactics don't seamlessly translate to the on-chain environment. Many dApps rely on wallet-based sign-ins, leaving little room for traditional means of outreach or ongoing engagement. Without clear channels for connecting with users, Web3 dApps must find ways to maintain relationships and drive retention.
- **User experience ("UX")**: While improving underlying use cases and distribution is crucial, UX improvements can also help. Fortunately, there are now a variety of

solutions that dApps can leverage to improve UX across different touchpoints, such as Privy, zkP2P, and Layer3. This shows how essential UX is for dApp success.

However, challenges remain, particularly at the network level, with issues like chain abstraction and liquidity fragmentation. Rather than waiting for the network layer to resolve these issues, dApps should take ownership of UX improvements at the application level. To attract users from Web2, switching costs must be low, and Web3 must offer a materially better UX — Web3 should be user-friendly, not just for experts. The success of smartphones, Netflix, and ChatGPT demonstrates how transformative improved UX can be for driving growth.

- **Brand awareness:** Branding is vital for the long-term success of consumer products, and Web3 is no exception. Building brand recognition fosters user trust and positions a product as the go-to choice in its category. While some Web3 networks like Solana and Berachain have started building recognizable brands, it's even more critical for dApps to cultivate strong communities around their products. Web3 dApps that can effectively market themselves, attract engaged communities, and build a lasting culture will emerge as winners.

- **Adapting to opportunities for growth**: Several factors may influence the next wave of Web3 adoption, and it is crucial for dApps to remain attuned to these market trends and opportunities, as being a first-mover can still provide substantial value. In some instances, utility could emerge around speculative elements, particularly where social narratives intersect with the attention economy — such as through positive-sum meme coins serving as social primitives, or scene coins.

  Additionally, expanding the presence of Web3 dApps across various distribution channels will be key to achieving broader market reach. This expansion is likely to go beyond existing Web3-native platforms, particularly as overlaps with Web2 ecosystems become more prevalent. As opportunities emerge — whether through Web2 platforms adopting Web3 technologies, such as Telegram's integration with TON, or by embedding Web3 functionalities directly into everyday Web2 consumer products — these avenues will be actively pursued.

  Given the increasing dominance of mobile internet traffic, enhancing the mobile accessibility of Web3 dApps is also essential for engaging users where they are most active. Together, these developments may lead to the evolution of more full-stack on-chain brands, where dApps combine their core offerings with elements of social interaction, gaming, and tokenomics, creating more holistic and engaging user experiences.

Ultimately, a great product with mediocre distribution can still find success, but a subpar product with great distribution cannot. The challenge for Web3 founders lies in finding the right balance between the two. As we move forward, we look forward to seeing the next generation of dApps driving the forthcoming waves of adoption and retention.

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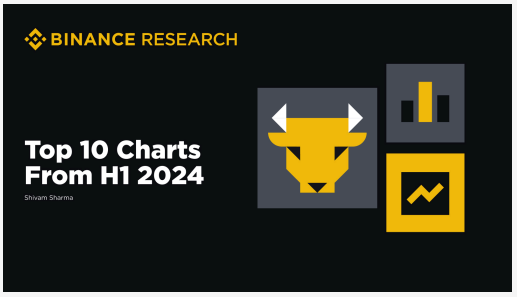

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