

WORKING PAPER

Realizing the Promise and Potential of “Web3” for Pakistan

FEBRUARY 2022 UZAIR YOUNUS

The last few months have exponentially increased societal, investor, and policy interest in the crypto, blockchain, and Web 3.0 technologies, increasingly referred to as Web3. Cryptoasset price volatility and the promise of exponential returns is a primary driver of interest, and a dramatic surge in cryptoasset investors is in turn forcing regulators to take notice of developments in this ecosystem. Pakistan ranks third in terms of crypto adoption in the Chainalysis 2021 Global Crypto Adoption Index; we estimate that Pakistan has more cryptoasset than public equity investors.¹

This growth, however, is creating several challenges for the country and its regulators, with a recent \$100 million scam drawing further attention from law enforcement agencies.² As a result, it is important for policymakers to proactively address emerging challenges, especially those related to investor protection, illicit flows of money (which can draw the ire of the Financial Action Task Force (FATF), the global money-laundering and terrorist-financing watchdog), and external sector stability risks due to the outflow of scarce foreign currency.

It also is critical for policymakers to recognize that the emerging ecosystem is about more than just cryptoasset investing, and that it presents a unique opportunity for Pakistan, especially its digitally connected youth. Realizing this opportunity is consistent with Pakistan’s recently unveiled national security policy, which argues for building “sufficient public and private capacity to take Pakistan into a new technological era.”³

Ongoing technological advancements in crypto and blockchain technologies are foundational elements to the ongoing evolution of the Internet economy. This evolution is gathering momentum and creating new economic opportunities: the emerging ecosystem is expected to grow by more than 40 percent per year, leading to a growth in blockchain technology market capitalization, of which cryptoassets are a core component, from around \$1.5 trillion today to almost \$50 trillion by 2030.⁴

The South Asia Center serves as the Atlantic Council’s focal point for work on the region as well as relations between these countries, neighboring regions, Europe, and the United States. With the intersection of South Asia and its geopolitics at the center of SAC’s vision, we work to find multilateral solutions to South Asia’s most vital challenges.

Paklaunch.com is a global community of talented Pakistani professionals, entrepreneurs and investors that was founded in San Francisco, CA in 2020 with the mission to connect the distinguished Pakistani diaspora with the entrepreneurial and investment ecosystem in Pakistan. The community has since opened doors to non-Pakistanis interested in learning more about Pakistan and expanded scope to cover 10+ focus areas including Education, Agriculture, Real Estate, Stock Market, Macroeconomics and Public Policy, Blockchain, Product Management etc.

- 1 “The 2021 Global Crypto Adoption Index: Worldwide Adoption Jumps Over 880% With P2P Platforms Driving Cryptocurrency Usage in Emerging Markets,” Chainalysis, October 14, 2021, <https://blog.chainalysis.com/reports/2021-global-crypto-adoption-index/>.
- 2 Amitoj Singh, “Pakistan’s Investigation Agency Contacts Binance About \$100M Scam,” CoinDesk, January 10, 2022. <https://www.coindesk.com/policy/2022/01/10/pakistans-investigation-agency-contacts-binance-about-100m-scam>.
- 3 National Security Policy of Pakistan, Government of Pakistan, 2022, <https://onsa.gov.pk/wp-content/uploads/2022/01/NSP.pdf>.
- 4 “Big Ideas 2022,” ARK Investment Management LLC, January 25, 2022, <https://ark-invest.com/big-ideas-2022/>.

Pakistan’s talent base has the capabilities to realize the benefits of this opportunity by innovating at home for the global Web3 ecosystem. If empowered to do so, this talent can bring in significant foreign exchange earnings, develop globally competitive Internet businesses within the country, and create an opening for the country to leapfrog ahead.

Based on the assessments made by our group of experts, this emerging ecosystem can generate almost \$100 billion in total income for technology talent over the next twenty-five years. This talent opportunity can significantly boost foreign exchange earnings, help slow the brain drain of top talent, and add billions of dollars to the local economy through additional direct and indirect tax revenues, investment in new businesses, and excess savings within the country.

Taking advantage of this opportunity requires a concerted effort to train talent, create on- and off-ramps for income earned through cryptoassets to be documented and converted into local currency, and an enabling environment built upon a regulatory framework that is biased toward innovation and entrepreneurship. This enabling environment must incentivize formalization of the emerging Web3 economy, such that citizens can formally own, trade, and sell cryptoassets. Formalizing this sector will unlock additional tax revenues through capital gains in the near term, and unlock direct and indirect economic opportunities in the medium to long term.

Enabling cryptoasset trading through a permissive regulatory environment also is critical because technology talent will, over a period of time, earn rewards in the form of cryptoassets for building applications for and innovating in the global Web3 ecosystem. Without being able to formally own, trade, and monetize cryptoassets, talent will leverage informal, unregulated mechanisms to transact in the crypto ecosystem, leading to a rise in an undocumented Web3 economy. Such a development would only increase the size of the undocumented economy in Pakistan and make it much more difficult for regulators and law enforcement agencies to track, trace, and tax legitimate transactions while deterring bad actors operating in the ecosystem.

To realize this emerging opportunity, policymakers in Pakistan must:

- ◆ recognize that Pakistan has a significant opportunity to participate in the development of global Web3 technologies;
- ◆ approach Web3 policymaking, including how citizens can invest in cryptoassets, with a bias toward innovation, inclusion, and entrepreneurship;
- ◆ explore through public-private partnerships ways in which Web3 technologies can empower citizens and improve governance in the country;
- ◆ promote the development of a talent base that can create start-ups capable of winning the global Web3 economy, creating wealth for Pakistan;
- ◆ incentivize entrepreneurs to set up and scale Web3 start-ups in Pakistan to serve emerging global technology demand;
- ◆ adopt a nimble and multistakeholder approach to policymaking to guard against near- and medium-term risks, especially those related to economic stability; and
- ◆ expand engagement with multilateral organizations such as FATF and the International Monetary Fund (IMF), and coordinate regulatory efforts with like-minded countries.

The body of this working paper explains why there is a need for public blockchain technologies in Web3 and why cryptoassets are a critical foundational element for developing Web3 infrastructure. The paper also explores ways in which Pakistan can take advantage of this opportunity to transform its economy. Given the near-term risks posed by an increasing number of crypto investors in the country, the paper also highlights key consumer protection risks that must be considered by policymakers and ways in which they can protect citizens.

This working paper is an initial attempt to catalyze a conversation between ecosystem participants, regulators, and the broader public about what this opportunity means and how Pakistan should approach policymaking in a rapidly evolving Internet economy. The transformation of the Internet is inevitable and the emergence of Web3 could allow Pakistan to leverage its talent to participate

and thrive in a new Internet economy. Realizing this opportunity can create long-term tailwinds for the Pakistani economy: a place where domestic talent can innovate for the world, generating wealth, and catalyzing innovation to accelerate Pakistan’s digital evolution.

Why is the world moving toward Web3?

The development of the early Internet economy, a period that roughly lasted until the dot-com bust, saw the rapid growth of technology companies like Yahoo. These companies created billions of dollars in new value in developed economies, particularly the United States. The nascent Internet economy also set in motion a series of events that changed the way human beings communicate with one another. The Internet economy during this period focused on developing interoperable standards such as hypertext transfer protocol (HTTP) to ensure that the Internet was truly global. Participation in this new economy was difficult for global south countries like Pakistan due to the need for expensive hardware, coupled with a lack of infrastructure.

By the time Web 2.0 emerged, countries like Pakistan were beginning to participate in the Internet economy, albeit on the margins. As hundreds of millions of citizens around the world came online, entrepreneurs came up with new ways in which the Internet could be utilized to modernize communication and commerce. Digitally connected mobile phones turbocharged this revolution, allowing citizens to create and share information across the world. This connectivity birthed centralized platforms like Google and Facebook and e-commerce businesses like Alibaba and Amazon. As trillions of dollars in new wealth was created, economies like Pakistan’s once again sat on the margins: while only a fraction of the new wealth flowed to the global south, they were left having to deal with challenges related to misinformation, hate speech, and loss of control over user data. Additionally, policy missteps such as the protracted YouTube ban meant that the country’s citizens were playing catchup in terms of benefiting from changes in how global citizens created, consumed, and monetized content.⁵ A lack of opportunity at home also accelerated the brain drain, meaning that highly skilled people left their country of origin to innovate and create wealth for businesses based in places like the United States and Singapore.

The centralization of power witnessed during the Web 2.0 era created the need for a third phase of development, which is currently a work in progress. Web3 promises to revolutionize the Internet by empowering the individual over the company, so the Internet can be accessed by one and all with security and privacy, without the need to go through corporations acting as gatekeepers. While critics are right to view this promise with skepticism, the fact of the matter is that the Internet is evolving, thereby creating new opportunities and bringing to the fore new challenges, especially as the technologies relate to or affect state sovereignty.

Another key issue for global south countries like Pakistan is related to their ability to participate in and develop norms for this emerging Internet economy. While this ability is limited in the present moment, investments in technical talent and infrastructure can allow Pakistan to build capacity over time that can lead to the emergence of a vibrant, innovative, and competitive Web3 ecosystem. Another issue is related to the influx of venture capital funding into the global ecosystem, which creates the risk that new gatekeepers may erode Web3’s touted promise of decentralization. However, this inflow of capital is an opportunity for Pakistan to further build momentum in its technology and start-up ecosystem, with the ultimate goal of birthing new businesses that can compete in the global Internet economy.

Pakistan policymakers’ angst around Web3 is warranted, mainly due to the fact that the nation is still grappling with crafting effective policy responses to existing Web platforms. However, policymakers also ought to note that the record inflows into the domestic start-up ecosystem are a direct result of improved connectivity, growing talent capacity, and a shift toward innovation and entrepreneurship. All of this means that the country has the foundational building blocks to participate and compete in the emerging Web3 economy.

To create a runway for further growth, Pakistan must approach policymaking with a bias toward entrepreneurship and innovation, paired with proactive efforts to develop the talent pool across the length and breadth of the country.

A singular focus on curbing downside risks, driven by an attitude that Web3 innovations are unimportant for the country, will mean that a unique opportunity to catalyze

5 “Pakistan Lifts YouTube Ban After Three Years,” CNBC, January 18, 2016, <https://www.cnbc.com/2016/01/18/pakistan-lifts-youtube-ban-after-three-years.html>.

investment, innovation, and wealth creation in the country will be missed.

Cryptoassets and blockchain are foundational to Web3

Blockchains enable and record transactions between two parties without the need for a centralized authority acting as a trusted third party. Advancements in cryptography make this possible, which is why tokens issued on public blockchains are often referred to as cryptocurrencies or cryptoassets. These tokens serve a critical function by helping secure, validate, and record transactions on public blockchains.

Cryptoassets are foundational elements for public blockchains for one key reason: they resolve the double-spending problem that would otherwise exist. Without a single source of truth recording when a transaction was conducted and recorded, it would be easy to falsify and/or delete records on a blockchain, which would undermine security and trust across the blockchain.

Cryptoassets also serve as an incentive mechanism for innovators and developers, who play a critical role in the upkeep and improvement of blockchain technology. These communities earn rewards in the form of cryptoassets—a Bitcoin node, for example, earns bitcoin for mining a transaction—which can then be monetized. Furthermore, changes in the public market value of cryptoassets act as a market signal that further draws or deters additional participants to enter the ecosystem.

Ownership of cryptoassets also leads to community governance influence, allowing participants to set standards and play a key role in the overall functioning of the blockchain. This is similar to how stock market investors, as owners of public equities, play a role in the governance of joint stock companies: while many may choose to be passive owners, active participants of shares can use their influence and scale to change the strategic direction of a business.

Pakistani citizens are primarily drawn to cryptoassets as a form of investment that can offer them outsized returns. However, a number of entrepreneurs have developed their own applications and projects on public blockchains, earning rewards in the form of cryptoassets to generate income. In both these scenarios, citizens are choosing to make an investment in the future of the Internet. As that future is realized and it transforms the world, these early

adopters are likely to benefit and potentially experience an increase in the wealth that they own.

The onramp provided by cryptoassets, if formalized, can also be leveraged to educate citizens about developing risk-adjusted portfolios that include a significant holding of domestic public corporations. A regulatory framework that is inclusive and biased toward innovation, while seeking to protect legitimate investor protection and macroeconomic stability risks, can help deepen Pakistan’s capital markets and bridge the domestic savings gap that has handicapped the economy for decades.

Pakistan should participate and compete in the emerging Web3 economy

There are several factors that provide Pakistan with the ability to play a critical role in helping develop the global Internet economy. Key among them are:

- 1. Abundance of talent:** Pakistan is one of the youngest countries on Earth with a youth bulge of digitally connected citizens. While youth literacy stands at about 75 percent and lags the South Asia region, the size of the population means that there are tens of thousands of technology graduates in the country. This talent has made Pakistan one of the largest freelancing markets in the world, boosted the country’s information technology exports, and attracted global investors to the country’s start-up ecosystem. Additionally, outflowing technical talent has excelled at Internet companies around the world, rising to key positions.

While these technologists have largely created value and wealth for foreign companies, Web3 presents an opportunity to leverage this talent to create value and wealth at home. An emerging Web3 ecosystem, propelled by an enabling regulatory environment, presents an enormous opportunity for the country.

- 2. Emerging innovation culture:** Young graduates in Pakistan have historically aspired to either work at leading multinational companies or domestic conglomerates. This trend, however, has shifted in recent years, with the rise of Careem, a Dubai-based ride-hailing service co-founded by a Karachi-born entrepreneur, and the start-up’s alumni, popularly known as the “Careem mafia,” playing a key role in changing attitudes. Pakistan’s emerging start-up ecosystem, which has been supported by public

policy interventions in recent years, has meant that young Pakistanis now aspire to be entrepreneurs, particularly in the technology space. These Internet economy businesses are now attracting record inflows of foreign capital that is further fueling momentum for innovation and entrepreneurship.

As Pakistan’s start-up ecosystem deepens its linkages with the global Internet economy—with the Pakistani diaspora playing a critical role—its ability to develop solutions for the rest of the world will only multiply. A significant part of the demand will come from Web3 businesses, and a thriving culture of innovation will mean that Pakistan can play a critical role in the evolution of the global Internet.

- 3. Robust digital identity infrastructure:** Pakistan was one of the first countries in the global south to develop a digital identity management system through Pakistan’s National Database and Registration Authority (NADRA), which has over the years supported countries around the world to develop their own identity systems. In recent months the State Bank of Pakistan (SBP), in partnership with the Bill & Melinda Gates Foundation, has developed an interoperable payments system called Raast (or “direct way”), which leverages digital identity to provide seamless, low-cost payment services to citizens.⁶ In combination, these technologies allow policymakers to link identity with payments, thereby allowing the creation of an effective authentication, traceability, and transparency system that can be connected to Web3 architecture, including cryptoasset trading and investment. Policies that link identity to Web3 solutions, including cryptoasset exchange platforms, can solve traceability and taxation issues that currently exist due to a lack of regulations.

- 4. Growing digital connectivity:** The growing innovation and entrepreneurial culture in Pakistan would be impossible without increased digital connectivity across Pakistan. While there is still a long way to go in terms of achieving universal connectivity, the fact of the matter is that tens of millions of citizens today have access to reliable Internet. This transformation has been further accelerated by forward-looking policies to promote domestic assembly and manufacturing of mobile phones.

Over time, millions more citizens will have access to the Internet, including in remote towns and villages. This connectivity is expected to further democratize access to technology, knowledge, and innovation, which in turn will inspire more citizens to participate in the Internet economy.

The above factors can create a virtuous cycle of innovation for Web3 in Pakistan and fully realizing this opportunity can help grow the country’s economy, create wealth for tens of millions of citizens, and birth new economy businesses that can export their innovation to the rest of the world.

Our financial model quantifies the economic potential this opportunity presents for Pakistani talent (see Figure 1). The key assumptions are that:

- ◆ the talent pool starts at a low base of one hundred developers, and grows by 50 percent annually; and
- ◆ individual income starts at \$30,000 per year, increases by 10 percent per year for the first five years, and rises by 5 percent thereafter.

Using the above model, Pakistan would have a Web3 talent base of more than 300,000 individuals, whose collective, cumulative earnings would top \$100 billion over twenty years. This model does not take into account additional income earned through cryptoasset appreciation over time, ownership stakes individuals may take in Web3 start-ups, and the economic multiplier effect of this additional income on the local economy.

⁶ The World Bank, the United Kingdom, and the United Nations provided support for the system’s development. See Umar Farooq, “Pakistan Government Announces New Instant Digital Payment System,” Reuters, January 11, 2021, <https://www.reuters.com/article/us-pakistan-economy/pakistan-government-announces-new-instant-digital-payment-system-idUSKBN29G28C>.

Figure 1: Projected Web3 Training and Financial Outcomes in Pakistan

Year	Trained Talent	Average Annual Income (\$)	Total Annual Earnings
0	100	36,000	\$3,600,000
1	150	39,600	\$5,940,000
2	225	43,560	\$9,801,000
3	338	47,916	\$16,171,650
4	506	52,708	\$26,683,223
5	759	57,978	\$44,027,317
6	1,139	60,877	\$69,343,024
7	1,709	63,921	\$109,215,264
8	2,563	67,117	\$172,014,040
9	3,844	70,473	\$270,922,113
10	5,767	73,997	\$426,702,328
11	8,650	77,697	\$672,056,167
12	12,975	81,581	\$1,058,488,463
13	19,462	85,660	\$1,667,119,329
14	29,193	89,943	\$2,625,712,943
15	43,789	94,441	\$4,135,497,885
16	65,684	99,163	\$6,513,409,169
17	98,526	104,121	\$10,258,619,442
18	147,789	109,327	\$16,157,325,621
19	221,684	114,793	\$25,447,787,853
20	332,526	120,533	\$40,080,265,869
Total Earnings			\$109,770,702,701

Source: Author’s projections based on salary and talent growth data estimates provided by subject-matter experts who contributed to this report.

Realizing this economic opportunity will also yield significant benefits in the form of direct and indirect taxes, provided that the ecosystem is allowed to formalize through an enabling environment. These additional revenue streams can help Pakistan reduce its growing reliance on foreign aid and loans to meet critical human and socioeconomic investment needs, and also create local innovation ecosystems that have a healthy indirect effect on the broader economy, particularly in urban environments.

Policymakers should regulate for innovation

Technological revolutions create both near- and long-term challenges for society: today’s urban pollution problem in cities such as Lahore and Karachi must be resolved due to the ubiquitous mobility made possible by the combustion engine. Web3 technology is no different, which is why it is critical for policymakers to educate themselves about its development and guard against deleterious effects.

Of particular concern is feverish speculation in cryptoassets; recent news about scams have only added fuel to the fire. Pakistan’s policymakers have a duty to protect the hard-earned savings of citizens, but this duty should be balanced against the need to promote innovation and entrepreneurship in the Web3 economy.

Given Pakistan’s challenges with terrorism financing and money laundering—the country continues to be on the FATF grey list—it is important for regulators to also develop processes to track flows into and out of cryptoassets. This tracking mechanism can only be developed by smart regulation that seeks to engage with industry; arbitrary bans will only push activity underground, making it that much harder to track and trace flows.

This is why it is important for all stakeholders, public and private, to collaborate on addressing current and future risks presented by Web3. Regulations, however, must balance between the need to guard against legitimate risks and the need for promoting innovation, as the latter is critical to ensuring that Pakistan competes in the global Internet economy.

In particular, stakeholders should seek to come to agreement on:

- 1. Tying identity to investment:** Crypto exchanges should be regulated entities that must comply with existing financial and investor protection laws in the country. Doing so will help with traceability of financial flows, simplify taxation, and formalize the broader cryptoasset market. It will also provide mature financial players with the certainty needed to provide cryptoasset services to their investor base. Standardizing the registration and regulatory environment in a way that balances between investor protection, financial stability, and innovation in the financial services sector will also attract capital flows

Figure 2: Comparative Approaches to Web3 and Cypto Policies

China	Singapore	Australia
Closed, government-led system	Balanced policymaking, leaning toward innovation	Open system, policy seeking to create a hub
Keeping a closed Internet ecosystem	Open system encouraging private-sector innovation	Investing heavily in becoming global leader
Building leadership for relevant use cases	Investing in building expertise	Wants to attract new companies and talent
Little cooperation interest from the rest of world	Smart regulation without stifling innovation	Pursuing global cooperation
Banned all community blockchains	Pursuing global cooperation	Allows businesses including exchange to operate with minimal reporting requirements
	Requires exchanges to register, have a know your customer (KYC) process, track them, and share data	

Source: Authors' compilation and summary.

into the Web3 ecosystem in Pakistan. NADRA should take the lead in this effort and engage with industry and legal experts, the SBP, and the Securities and Exchange Commission of Pakistan (SECP) to ensure that individuals operating in the crypto ecosystem have their identities linked through the national identity system.

2. Creating strong guardrails for protecting investors: It is important that industry participants and regulators develop multilingual education on cryptoassets and Web3 technologies to citizens. This outreach would help reduce the risk of investors falling for scams by fly-by-night operators and also deepen the overall societal knowledge about the Internet economy and how it is evolving. Additionally, policymakers must develop clear guidelines on advertising that is consistent with rules for participants in traditional finance and encourage the industry to develop effective ways to communicate the risk-reward profile of investing in cryptoassets. Regulators also should set clear capital requirements and account traceability guidelines for industry participants. Protecting investors falls under the regulatory authority of the

SECP, which should lead engagement with input from both the Federal Investigation Agency (FIA) and the SBP, and seek input from industry experts on how best to protect citizens' hard-earned savings while enabling them to take advantage of Web3 investment opportunities.

3. Leveraging data to combat illicit financial flows: Given that Pakistan is on the FATF “grey list,” its regulators must both complete the mandated work to be removed from it and cautiously deal with financial flows in the crypto ecosystem.⁷ The decentralized nature of blockchains means that transactions are pseudonymous, meaning that the data can be analyzed to track flows. This can be made easier by formalizing exchanges as registered entities, tying wallets to digital identity, and categorizing nonregistered wallets as foreign. Regulations should also be developed to create and analyze unified data streams from exchanges, and technology should be leveraged to flag suspicious transactions, similar to the approach taken to flag suspicious banking transactions. Finally, policymakers should consider making

⁷ “Jurisdictions under Increased Monitoring - October 2021,” Documents - Financial Action Task Force (FATF), February 10, 2022, <https://www.fatf-gafi.org/publications/high-risk-and-other-monitored-jurisdictions/documents/increased-monitoring-october-2021.html#pakistan>.

investments in improving the technical capabilities of law enforcement agencies so they are better equipped and trained to investigate financial crimes in the Web3 ecosystem. The FIA should take the lead in this matter and engage with international law enforcement organizations to identify best practices, build internal capacity, and stay aware of existing and future risks posed by bad actors in this ecosystem.

Policymakers should proactively engage domestically and internationally

These are early days: as Web3 technology matures, new opportunities and risks will arise. At its core, Pakistan should adopt a regulatory framework that leans toward innovation and entrepreneurship, while seeking to guard against legitimate risks in the ecosystem. Such an approach is necessary because of the need to modernize Pakistan’s economy, attract global capital flows, and broaden the country’s export and tax base.

To do so, policymakers, industry participants, and technical experts must take a collaborative approach to policymaking. Doing so can also help create a process that is inclusive, nimble, and effective in regulating the Web3 ecosystem as it matures (see varied approaches in Figure 2).

In addition, both the industry and policymakers should engage with countries such as Australia, Singapore, South Korea, and the United States to stay informed about innovations, both on the technological and policy fronts. For example, South Korea regulated crypto exchanges, and jurisdictions including Singapore and Australia have developed frameworks to bring this sector into compliance. Policymakers in Pakistan also must proactively engage with multilateral organizations like the IMF and FATF—and continued engagement with the latter is particularly important given Pakistan’s greylisting.

Conclusion

This paper is an initial attempt to frame debate about the Web3 ecosystem in Pakistan and make recommendations on how policymakers should approach regulating this sector. At its core, the evolution of the Internet is a tremendous economic opportunity for Pakistan. Developing an enabling environment can create millions

of new jobs, open new avenues for upward social mobility, and generate wealth for countless households across the country. In addition, excelling in this emerging Internet economy can help Pakistan leverage its talent to generate significant export revenues that are necessary to achieve sustainable economic development and stability.

Stakeholders should regard this working paper as an initial attempt to further the conversation. Deeper research and engagement is necessary in the short term, and one hopes that key stakeholders come together to ensure that Pakistan does not miss the emerging Web3 opportunities.

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List as of January 5, 2022



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