Pakistan

Potential 2035 economic impact of the metaverse

US$7-14B per year

Pakistan

As the third largest source of skilled tech labor in the world, Pakistan's labor force may be a significant source of talent to support the metaverse and metaverse-related businesses. With over 100 million broadband users and a median age of 22 years,[1] Pakistan's youthful population is in search of new economic opportunities.

With the establishment of new Special Technology Zones (STZs), Pakistan could be an attractive location for metaverse hardware manufacturers in search of low-cost hardware production and technological talent. Local firms specializing in AR and VR development are

emerging, such as WonderTree and Elytra Studios. There is also a growing trend towards e-commerce, with over half of all VC funding in Pakistan channeled towards e-commerce startups.[2]

Pakistani nationals own US$20 billion in cryptocurrency, a figure that has grown exponentially in the past two years.[3] This demonstrates the growth of crypto adoption in Pakistan despite the central bank's recommendation to ban cryptocurrency usage outright in January 2022, highlighting the strength of the population's interest in digital currencies.[4]

Pakistan ranks sixth in the Global Crypto Adoption Index 2021-22 – a development likely spurred by continued inflation of the Pakistani Rupee, which hit 24.93% in July 2022.[5] As cryptocurrency becomes increasingly mainstream, this provides an opportunity for digital payments in the metaverse to take root in Pakistan.

However, Pakistan's exploration of the metaverse will be contingent on its ability to overcome political, climate and economic instability. Advancing technological literacy and expanding internet connectivity will be necessary first steps towards materializing the metaverse there.

> ❝ Blockchain technology could become a powerful tool for tracking transactions, reducing corruption and increasing transparency in public and private sectors [...] A systemic and inclusive approach is needed to fully benefit from the transformative potential of Blockchain technology as well as further its implementation in Pakistan. ❞

Dr Arif Alvi, President of Pakistan

1. McKinsey & Company, "What's fueling Pakistan's emerging start-up ecosystem," accessed October 19, 2022.
2. Ibid.
3. VOI, "Pakistan Chamber Of Commerce Says Its Citizens Have IDR 284 Trillion In Crypto Assets, Third Largest In The World In Trade," accessed October 19, 2022.
4. Amitoj Singh, "Pakistan Plans to Ban Cryptocurrencies as Stance Hardens: Reports," CoinDesk, January 13, 2022.
5. CoinMarketCap, "Crypto Adoption in Pakistan is Growing Rapidly Despite Ban," accessed October 19, 2022.

Macroeconomic Determinants

- Pakistan is a service-based economy (56.7% of GVA). However, the single largest sector contributing to Pakistan's economy is agriculture, forestry and fishing (24.4% of GVA), followed by wholesale and retail trade, and manufacturing (12.4%). Retail and manufacturing, in particular, have the potential to be impacted by metaverse technologies in the near term.

- Pakistan is ranked 87th in the world on the Global Innovation Index 2022, suggesting that Pakistan is unlikely to lead the development of new and unique metaverse solutions.

- Pakistan's GDP per capita stood at US$5,144, suggesting that affordability of required immersive hardware on average may be a limiting factor on the economic impact of the metaverse.

- With a widening current account deficit and competing urgent priorities, such as political and economic concerns, there may be challenges in persisting with investments in economic, infrastructural and technological developments needed to support the metaverse.

PAKISTAN IN NUMBERS

Potential 2035 economic impact of the metaverse:

US$7-14B per year, 1.3-2.4% of GDP

2020 GDP:

US$320B

Per capita (Constant 2017 US$):

US$5,144 (lower middle income)

Key sectors:

Agriculture **24.4%** of GVA

wholesale and retail trade **15.9%** of GVA

Manufacturing **12.4%** of GVA

ICT sector:

1.7% of GVA

Population:

221M

- 37% urban
- 55% below 25
- 4% with basic digital skills
- 79% unbanked

Global innovation index: **#87/132**

EIU business environment ranking: **#89/99**
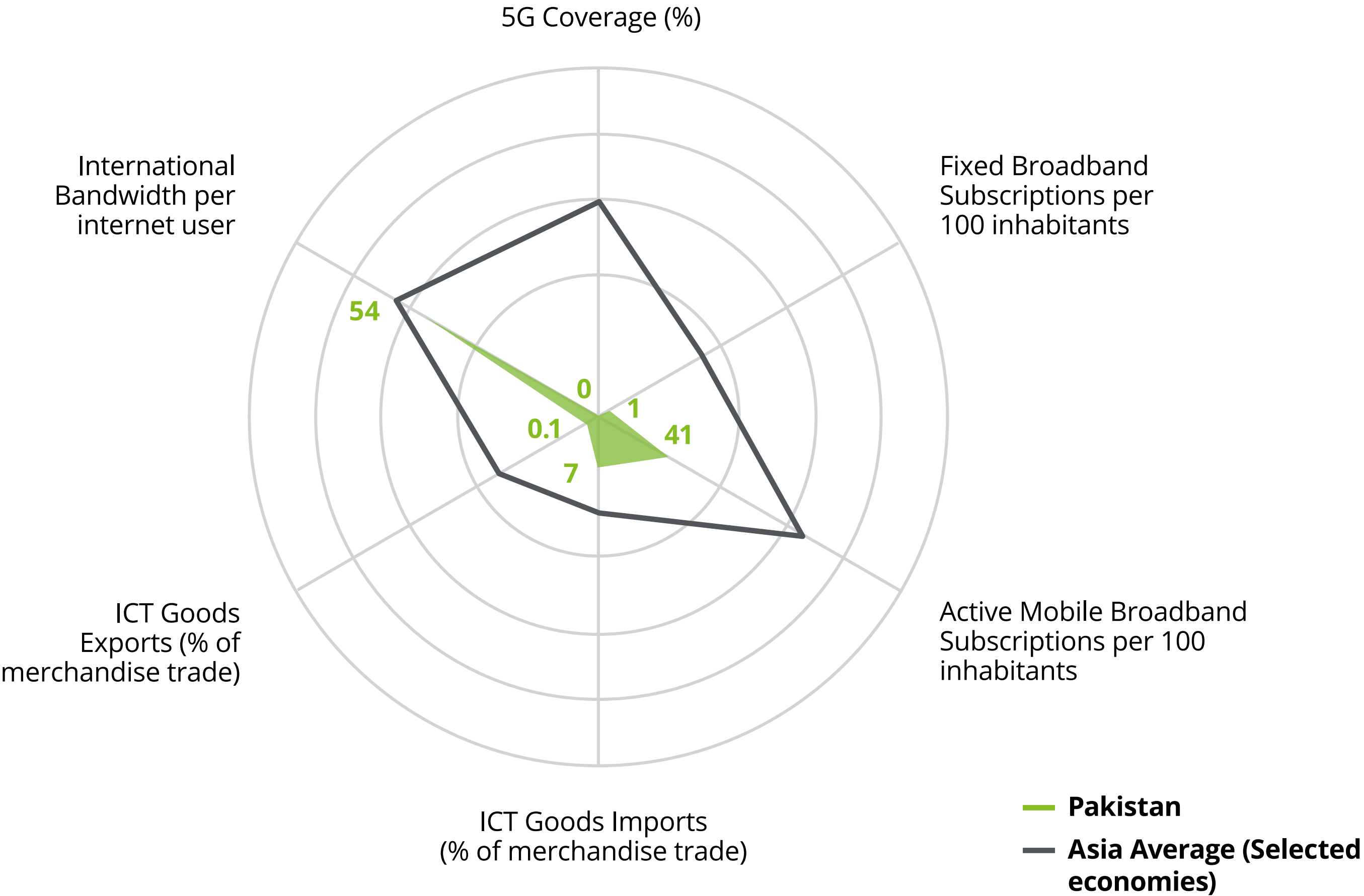
Digital readiness index: **#117/141**

Sources: World Bank World Development Indicators 2020, Our World in Data 2017, ITU Digital Development Dataset 2019, World Bank Global Findex, UN Data

Technology Fundamentals

- Relative to the Asian average, Pakistan has room for growth on most major technological development indicators.

- Mobile internet penetration rates in Pakistan are lagging behind those of many regional peers. Nevertheless, Pakistan has over 114 million 3G and 4G subscribers - a number that is growing.[6]

- For the metaverse to become a real part of the country's lifestyle, improved internet accessibility is essential. The Pakistani Government launched seven projects in March 2022 to provide broadband services to over 2.5 million people in areas currently lacking internet connectivity.[7]

- The Government has expanded optical fiber coverage, laying 820km of optical fiber through Gilgit Baltistan, Khyber Pakhtunkhwa, and Punjab between 2015 and 2018.[8] Internet accessibility must improve before the metaverse can be widely adopted by the population.

- Pakistan has a smartphone penetration rate of 22%, lagging behind that of many regional peers.[9] However, the mobile industry in Pakistan is growing – the GSMA predicts that the economic contribution of the mobile industry in Pakistan could reach $24 billion by 2023, accounting for 6.6% of GDP.[10] Growing smartphone ownership is an avenue through which Pakistan may begin to explore metaverse opportunities.

- Pakistan has yet to launch 5G networks, but a roadmap for the 5G rollout is being developed by the Pakistan Telecommunication Authority (PTA). The spectrum for 5G services is targeted to be auctioned to prospective telecommunications providers towards the end of the fiscal year of 2022/23.[11]

Sources: GSMA Mobile Connectivity Index 2021, ITU Digital Development Dashboard 2020, UNCTADStat 2019

6. Kamran Haider and Faseeh Mangi, "Pakistan Inflation Surges to 24.93% amidst Rupee Slump" Bloomberg, August 1, 2022.
7. The News, "Govt approves Rs8bn broadband projects for underserved areas," accessed October 5, 2022.
8. CPEC Authority, " Government has expanded optical fiber coverage, laying 820km of optical fiber through Gilgit Baltistan, Khyber Pakhtunkhwa, and Punjab between 2015 and 2018," accessed October 19, 2022.
9. GSMA, Pakistan: Progressing towards a fully fledged digital economy, 2020, p. 14.
10. GSMA, Pakistan: Progressing towards a fully fledged digital economy, 2020, p. 11.
11. Ahtasam Ahmad, "5G: Too soon to Tell?" Pakistan Today, August 29, 2022.

Ecosystem Enablers

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Digital Skills

Digital literacy and talent are crucial to both metaverse development and usage. Over 25,000 graduates enter the Pakistani job market each year with degrees in Software Engineering and Information Technology, making Pakistan the third-largest source of digital labor.[12] An edutech tie-up between ESP-Pakistan and Xero Tech is exploring the potential for joint activities in the metaverse for Technical Vocational Education and Training (TVET), cross-training of faculty, and skills development training programs for IT, e-commerce, and entrepreneurship.[13]

State-level solutions are emerging that simultaneously increase digital skills amongst youth while also creating employment opportunities. In the province of Khyber Pakhtunkhwa (KP) – the third-largest province in terms of economy and population – the Government has launched a digital strategy called "Digital KP" aimed at upskilling the province's workforce.[14] An Early Age Programming course teaches coding skills to secondary students across 225 schools,[15] while the Digital Ambassadors Program brings digital literacy programming to rural and underserved areas.

Pakistan still has a long way to go in increasing digital literacy, but sustained investment in digital skills will open up opportunities for both employment and leisure.

Competition within the metaverse

The rapid growth of the startup environment in Pakistan means that we may soon see tech-savvy Pakistani startups entering the metaverse space. Since 2016, almost 300 reforms were introduced to improve the investment climate in Pakistan, and Pakistan has been recognized as the top reformer in South Asia.[16] In response to these changes in business regulation, investment has been flowing into the country. In 2021 alone, Pakistani startups raised over $350 million – more than the previous six years combined.[17]

More Pakistani startups are exploring AR and VR spaces. For example, WonderTree is a Pakistani tech startup established in 2015 that develops interactive AR games for children with special needs. Backed by Samsung and Google for Entrepreneurs, WonderTree has almost 7,000 users, and is deployed in 57 schools and 19 hospitals.[18] More startups are likely to explore providing unique services in the metaverse if global interest, and consequently investment, in the metaverse continues to grow.

12. Mutaher Khan, "Pakistan's startup boom has triggered a "war for talent"," Rest of World, October 19, 2022.
13. Xero Tech, "MoU Signing between ESP-Pakistan and Xero Tech FZ LLC, Dubai, UAE," press release, August 14, 2022.
14. Anna O'Donnell, "How one province in Pakistan is looking to digital jobs for its youth," World Bank Blogs, March 26, 2018.
15. Khyber Pakhtunkhwa Information and Technology Board, "Early Age Programming," accessed October 5, 2022.
16. Board of Investment Pakistan, "Ease of Doing Business," accessed September 29, 2022.
17. Atlantic Council, "Pakistan sees growing culture of innovation amid tech startup boom," accessed October 5, 2022.
18. Wondertree, "Home," accessed September 29, 2022.

Sectors to Watch

Manufacturing

Developments across the manufacturing sector will be instrumental to the creation of hardware and software required to make the metaverse accessible. Pakistan is developing its manufacturing sector through sustained investment into special technology zones (STZs). Located across major cities such as Islamabad and Punjab, the STZs are intended to attract investment from both local and international companies. In a bid to encourage the growth of Pakistan's IT export industry which is expected to surpass $3 billion in value this year,[19] the STZs provide highly favorable conditions to ICT exporters. Enterprises that move their manufacturing processes into the STZs become eligible for tax exemptions, capital gains, and additional quality of life benefits. STZs have caught the eye of major international brands already: Samsung, the world's largest smartphone manufacturer, now assembles almost all models within Pakistan.[20] As Pakistan's new STZs are completed towards the end of 2022, attractive new manufacturing potential will be unlocked – both for Pakistan, and for metaverse hardware producers.

Retail and e-commerce

The metaverse is expected to revolutionize online shopping, and opportunities exist for this to take flight in Pakistan. Of the US$350 million in VC funding that Pakistani startups raised in 2021, over half of all funding was directed towards e-commerce startups.[21] Pakistan is the 37th largest market for e-commerce, with a revenue of US$5.9 billion in 2021.[22]

Both business-to-consumer (B2C) and business-to-business (B2B) startups have been emerging: offering online shopping, delivery services, and digitalizing the informal retail sector. The future may see the Pakistani e-commerce industry being transformed with virtual and augmented reality spaces for retail. For example, ARER is a newly launched augmented reality tool for furniture retail in Pakistan.[23] Similarly, Pakistan-based Elytra Studios works on developing a range of immersive experiences for businesses to utilize – ranging from 3D architectural visualizations and AR/VR experiences to game development.[24] Given the popularity of e-commerce in Pakistan, it is foreseeable that AR and VR retail experiences will soon become more accessible.

Entertainment

The Pakistani entertainment industry is highly responsive to global trends, and is already adapting to possibilities in the metaverse. Pakistani companies such as Big Immersive are partnering with Oculus and Vive,[25] to revolutionize gaming by creating 3D digital ecosystems for AR and VR experiences across multiple different platforms. Celebrity entertainers are often first entrants into metaverse spaces, and celebrities in Pakistan are no different. metAsia Celebs – a UAE-based entertainment startup – in collaboration with TrustVibes Inc. has launched an Exclusive Metaverse club for artists and musicians in Pakistan.[26] Solo Pakistani entrants are also gaining prominence in the metaverse. Award-winning Creative Director Shaikh Danial, for example, lends his expertise to 'BAPES™?' – a metavestor club focused on strengthening crypto native companies in the metaverse space through the purchase of NFTs.[27]

19. Tribune, "Pakistan's IT exports to surpass $3 billion this year," accessed October 19, 2022.
20. Saad Hasan, "Can Pakistan become the next tech manufacturing hub?" TRT World, July 13, 2022.
21. Itika Sharma Punit, "It's like drinking from a firehose: Inside Pakistan's tech investment boom," Rest of World, April 19, 2022.
22. ecommerceDB, "The eCommerce market in Pakistan," accessed October 19, 2022.
23. TechJuice, "Pakistan launches first AR based furniture app," accessed October 5, 2022

24. Elytra Studios, "Services," accessed September 29, 2022.
25. Hassan Baig, "The Metaverse opens up a world of possibilities for Pakistan. Can we take advantage?" Asian News Network, October 19, 2022.
26. News Update Times, "Launch of Pakistan's first exclusive metaverse club," accessed October 5, 2022.
27. Salman Sabit, "Shaikh Danial -- a Pakistani Artist shaping the future of NFTs," Daily Times, March 14, 2022.