India

Potential 2035 economic impact of the metaverse

US$79-148B per year

India

Set to become the third largest economy by 2030,[1] India has a population that is young, digitally connected, and ready for the metaverse. With over half of its population under the age of 30, the country produces the highest number of STEM graduates globally.[2] It is demographically well-positioned to contribute digital labor to the metaverse, especially since it is already a go-to destination for IT offshoring globally and is evolving rapidly into a product development hub.[3]

While the country has no shortage of labor, brain drain has been a growing concern.

Two in three Indian emigrants are highly educated,[4] and the development of the metaverse in India may help to retain talent by providing more opportunities for digitally skilled Indians. Beyond its demographics, attitudes of its population towards the metaverse are more optimistic than the rest of the world. Large Indian corporations such as Infosys and Tech Mahindra have set up metaverse subsidiaries.[5] Further, India's unique cultural propositions in language, religion, and entertainment can give its metaverse offerings a distinct flavor.

However, to reap the full benefits, existing challenges such as technology equity will first need to be addressed so that the full potential of the metaverse can be harnessed in India.

In this case, India's large population will prove to be both a boon and a bane – India will have to encourage its technologically advanced population to enter the metaverse, while ensuring that such progress includes all economic and social groups.

> ❝ When we're thinking about what the next generation is going to look like in terms of where all these creators and developers are going to come from, who are going to really build the foundation of the metaverse, I think it's just obvious that India is going to be a huge part of that. ❞

Mark Zuckerberg, Co-founder, Chairman and CEO of Meta Platforms at Fuel for India 2021, December 2021

1. Yogima Seth Sharma, "India can be 3rd largest economy by 2030 on back of four big reforms: Arvind Panagariya," The Economic Times, February 25, 2022.
2. Niall McCarthy, "The Countries With The Most STEM Graduates," Forbes, February 2, 2017.
3. Ananya Bhattacharya, "Brain drain: Two in three Indian emigrants are highly educated," Scroll.in, April 10, 2022.
4. Ibid
5. Ayushman Baruah, "IT firms tap nascent metaverse to help clients explore its potential," Mint, October 19, 2022.

Macroeconomic Determinants

- Services-led economy (55.0% of GVA), with the three largest sectoral contributors to India's economy being agriculture (18.4% of GVA), followed by manufacturing (14.7% of GVA), and wholesale and retail (11.3% of GVA).

- GDP per capita stood at US$6,187, suggesting that the affordability of required immersive hardware on average may be a limiting factor for a significant segment of the population to enter the metaverse.

- India received a record amount of VC investments in 2021, reaching US$38.5 billion. The record number of investments have fueled India's vibrant start-up ecosystem which is US$400 billion in valuation with 50,000 active start-ups including 107 unicorns.[6] Notably, consumer technology, fintech, and software as a service (SaaS) accounted for 75% of all VC investments by value. The composition of its vibrant ecosystem signify an innovation environment aligned with the metaverse's development.[7]

INDIA IN NUMBERS

Potential 2035 economic impact of the metaverse:

US$79-148B per year, 1.3-2.4% of GDP

2020 GDP:

US$**2.5**T

Per capita
(Constant 2017 US$):

US$**6,187**
(low middle income)

Key sectors:

Agriculture, forestry and fishing
18.4% of GVA

Manufacturing
14.7% of GVA

Wholesale and retail trade
11.3% of GVA

ICT sector:

6.1% of GVA

Population:

1.38B

46% urban

35% below 25

22% unbanked

Global innovation index:

#40/132

EIU business environment ranking:

#57/99

Digital readiness index:

#101/141

6. Invest India, "The Indian Unicorn Landscape," accessed October 25, 2022.
7. Bain & Company, India Venture Capital Report 2022, 2022.

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

- In 2020, smartphone penetration rate was approximately 43.5%. However, given its large population, the volume of smartphone users is high. Current predictions indicate that there will be 1 billion Indian smartphone users by 2026.[8] As the second largest smartphone market in the world, early iterations of the metaverse accessible via smartphone will find a large audience in India.

- There is a digital divide in India in the usage of the internet and access to digital infrastructure based on gender, rural-urban residence, caste, and age.[9] To that end, India also launched the world's largest rural broadband connectivity program, BharatNet, which aims to extend fiber connection to all villages in India by 2025.[10] However, beyond the urban-rural divide, more will need to be done to bridge other areas of the digital divide (for example, in gender) so that the full potential of India's large population can be harnessed for the metaverse.

- Real-time digital payments in India make up 40% of all such transactions globally, which is the highest in the world. The success of its fintech ecosystem in encouraging mass adoption can be attributed to a combination of low cost internet data, high smartphone penetration rate, and India's Unified Payment Interface (UPI).[11]

5G Coverage (%)

International Bandwidth per internet user — 54

Fixed Broadband Subscriptions per 100 inhabitants

0 2

2

53

11

Active Mobile Broadband Subscriptions per 100 inhabitants

ICT Goods Exports (% of merchandise trade)

ICT Goods Imports (% of merchandise trade)

— **India**

— **Asia Average (Selected economies)**

8. Deloitte, Technology, Media, and Telecommunications – Predictions 2022, 2022, p. 4.
9. Felix Richter, "The World's Largest Smartphone Markets," Statista, March 1, 2022.
10. Wire & Cable India, "Six Lakh Villages to be Fiberised by 2025: Devusinh Chauhan," February 9, 2022.
11. Subrata Panda, "India leads the world in real-time digital payments, says PM Modi," Business Standard, August 15, 2022.
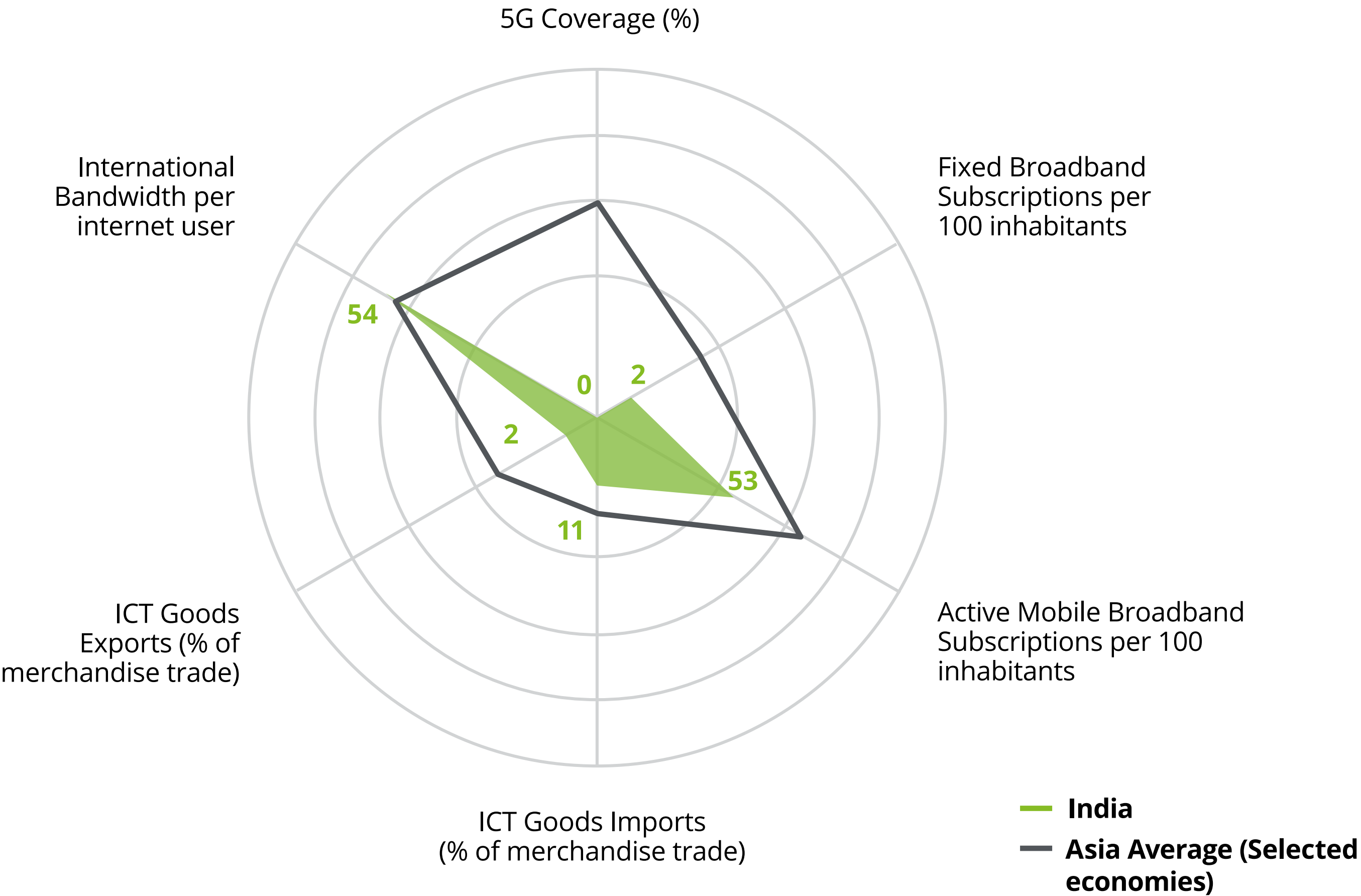
Sources: GSMA Mobile Connectivity Index 2021, ITU Digital Development Dashboard 2020, UNCTADStat 2019

Ecosystem Enablers

Social acceptance

Enthusiasm for the metaverse exceeds the global average in India. 80% were familiar with the metaverse, above the global average, and 75% of respondents expressed positive feelings about engaging with extended reality.[12] The enthusiasm and familiarity with the metaverse will support the development and social acceptance of the metaverse in India. Corporations are keen to invest in the metaverse, and consumers are excited to use related products. Already, India is making headway into the metaverse through their first metaverse influencer,[13] the first metaverse wedding,[14] the world's first food metaverse,[15] and several Indian production houses have used the metaverse to enable next generation entertainment.

Digital skills

With 46% of its population under age 25,[16] India can provide the necessary manpower to fuel the growth of the metaverse. Within this young population, 32% choose STEM tertiary education programs, and the country produced the most STEM graduates globally with 2.7 million graduates in 2018.[17] However, more needs to be done to upskill its broader population – 95% of workers in India reported that more digital skills are needed to cope with changes in their jobs due to COVID-19.[18] The development of the metaverse could create new opportunities that benefit its economy and retain talent within its shores.

Security and privacy

On the cybersecurity front, India is one of the first countries to explicitly mention the metaverse in its policy considerations on bullying and sexual abuse.[19] India's upcoming digital regulatory framework, the Digital India Act (DIA), will look at crimes in the metaverse that spread misinformation or incite violence.[20]

Nevertheless, some observers have expressed concerns over the potential scope of its censorship laws.[21] Such healthy debates are to be expected as India moves towards the complex task of regulating the metaverse ahead of its peers. Complementary to this, data protection laws will also have to quickly catch up. As the world's fastest-growing market for new internet users, India had a record number of cybersecurity incidents in the recent years with the exponential growth of personal data.[22]

12. Ipsos, How the world sees the metaverse and extended reality, 2022.
13. Bayar Jain, "Into the metaverse with Kyra, India's first meta influencer," Lifestyle Asia, September 1, 2022.
14. WION, "In a first, India couple to host wedding reception in Metaverse," January 18, 2022.
15. Rajiv Singh, "OneRare: Meet the world's first food metaverse", Forbes India, October 19, 2022.
16. Mint, "More than 50% of India's population 25 yrs or older: Survey," accessed October 19, 2022.
17. Katharina Buchholz, "Where Most Students Choose STEM Degrees," Statista, September 16, 2020.
18. Amazon, "95% of India workers say they need more digital skills to adapt to job changes due to COVID_19, but less than half of organizations have a training plan in place," press release, March 22, 2022.
19. Vallari Sanzgiri, "MeitY's Digital India Act Due In Winter Session, Says Report: OTT, Metaverse In Ambit," Medianama, August 17, 2022.
20. Sachin Dave, "Digital India Act to police social media and OTT platforms", Economic Times, October 19, 2022.
21. Ibid.
22. Economic Times, "India records 36,29 lakh cyber security incidents since 2019 till June this year," July 19, 2022.

Sectors to Watch

Digital Payments

Digital payments will be a crucial component of the metaverse to trade digital assets. India could feature strongly in this development, as it has the highest rates of real-time digital payments in the world.[23] This is driven by the digital infrastructure developed through the government-led India Stack which sought to bring its population into the digital age. The India Stack involves projects such as Unified Payments Interface, the world's largest real-time digital payment system, as well as Aadhar, the world's largest biometric ID system. Through such a digital infrastructure, India is making massive leaps in financial inclusion. Improvements in digital infrastructure have meant that significant progress in increasing the number of adults with bank accounts was made in just 7 years.[24]

Given this existing infrastructure, if India can build on the existing India Stack into the metaverse's digital components such as blockchain and NFTs, it should be able to rapidly create scale given their large population. To begin, the government released a national blockchain strategy in December 2021. The government is also considering a Digital Rupee, to be issued by the Reserve Bank of India from 2022-23.[25] With more regulatory certainty and a clear legal framework for Virtual Digital Assets, India's mature digital payments systems can be leveraged to orchestrate the economic infrastructure of the metaverse.

Gaming and Entertainment

India is the world's largest mobile gaming market in terms of app downloads.[26] The gaming market in India is anticipated to more than triple to US$7 billion by 2026,[27] a promising development as games are an entry point into the metaverse.

Already, Indian gaming companies such as Alter.game and The Spartan Group have begun to venture into the metaverse.[28] Beyond gaming, India is also making strides in the film industry – Pooja Entertainment bought its first virtual plot in the metaverse and plans to create immersive and life-like experiences for viewers.[29] India media conglomerate, Zee Entertainment, also welcomed its recruits via the metaverse for the first time and plans to introduce NFTs from TV shows, movies, music, and original web series.[30] Through entertainment platforms such as gaming and films, it could make the metaverse more accessible to many who already engage with these platforms.

23. Subrata Panda, "India leads the world in real-time digital payments, says PM Modi," Business Standard, August 15, 2022.
24. Aaryaman Vir and Rahul Sanghi, "The Internet Country," Tigerfeathers, January 15, 2021.
25. Ritwija Darbari, "India could have a key role to play in building the metaverse. Here's why," World Economic Forum, March 7, 2022.
26. Sensor Tower, The State of Mobile Gaming 2022, 2022, p. 11.
27. Lumikai, "Leveling Up: India's Gaming Market 2021," November 20, 2021.
28. Gulf News Report, "Spartan Group pioneers the technological adoption in the Indian online gaming industry," Gulf News, June 21, 2022.
29. Economic Times, "Bollywood's metaverse moment: Pooja Entertainment claims digital land, Deepika & Kamal Haasan venture into VR," February 15, 2022.
30. Hemant Kashyap, "ZEE To Dip Toes Into The Metaverse With NFTs From Movies, TV Shows, Web Series," Inc42, May 21, 2022.