6.? India's Internet in the 2020s: Growth, Challenges, and Path Forward

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India has established itself as a key player in the global digital landscape by the start of the decade. By 2020, India's Internet ecosystem had developed a critical mass driven by a large and diverse population (1.4 billion), a burgeoning middle-income class, and robust telecommunications and technology industries.

At the time of writing, India's economy is growing steadily, quarter by quarter, at over 7.5%, one of the highest growth rates globally since the end of the COVID-19 pandemic. According to information shared by the government in 2023, India's digital economy will contribute 20% of India's GDP in 2026. This decade promises to be that of economic transformation through technology in India.

Here is a top-level view of India's digital ecosystem:

1. The Growth of Internet Penetration: India has experienced exponential growth in Internet penetration, largely due to affordable smartphones and data plans. By the end of 2024, India is projected to have close to a billion internet users, making it one of the largest online markets in the world. This rapid growth has been facilitated by telecommunications companies, offering low-cost data services, leading to a significant increase in Internet adoption.

2. The Government's Role: Over the past decade the Government of India has invested in building a robust Digital Public Infrastructure that includes a layer of open-source digital platforms allowing citizens to access services provided by the government and the private sector. Important government initiates are:

a. **The Aadhar Number:** Aadhaar is a 12-digit individual identification number issued by the Unique Identification Authority of India (UIDAI), a Government of India entity. Citizen enrollment includes capturing and storing biometrics to validate proof of identity of a person and address, anywhere in India. The Aadhar number was a building block towards ensuring speedy frictionless disbursement of financial benefits to those eligible.

b. **The Unified Payment Interface (UPI):** UPI is a payment platform that integrates with bank accounts using the Aadhar number as a validation and proof of identity. Offered by the National Payments Corporation of India (NPCI), smartphone users can use UPI to transfer money. As per media reports, India has the second largest smartphone user base of over 600 million users and in the month of June 2024, there

were 602 banks who supported UPI, resulting in 13 billion transactions. Monthly data is available on this NPCI website.

c. **Bhashini:** A voice-based application designed to help Indians use the Internet more effectively. India has 22 official languages and everyone may not be comfortable speaking Hindi or English. Developed by the Digital India Corporation, Bhasini provides voice-based support to users in navigating online services.

d. **Open Network for Digital Commerce (ONDC):** ONDC is a set of specifications designed to foster open interchange and connections between shoppers, technology platforms, and retailers. ONDC was incorporated with the mission and vision of creating an inclusive ecosystem of e-commerce - by providing an alternative marketplace that competes against established private-sector players who tend to control who can sell on their platforms. ONDC recorded over 7.5 million transactions in February 2024, up 15% from the previous month.

e. **eSanjeevani and Ayushman Bharat health programs:** eSanjeevani is the National Telemedicine Service of India and attempts to bridge the digital health equity gap in order to achieve Universal Health Coverage (UHC). eSanjeevani facilitates quick and easy access to doctors and medical specialists from smartphones. One can access quality health services remotely via eSanjeevani or by visiting the nearest Ayushman Bharat Health & Wellness Centre.

f. **Mera Gaon Meri Dharohar (MGMD):** Translated to English, MGMD means, “My village, my culture.” This initiative provides every village in the country with a web page to showcase its culture, and arts and crafts. Eventually villages this program can integrate with ONDC platform to bring their arts and crafts directly to buyers.

3. India’s Digital Transformation: India's internet revolution has had a positive impact on various sectors, including e-commerce, education, healthcare, entertainment, and government services. The COVID-19 pandemic accelerated the adoption of digital platforms, with remote work, online education, and telemedicine becoming mainstream. E-commerce companies including Flipkart and Amazon have experienced significant growth, while digital payment platforms such as Paytm, PhonePe, and Google Pay have transformed the way Indians conduct financial transactions. India has over 100 startups each with a valuation greater than US $1 billion. These unicorn companies can be found here. According to Statista, in 2023 India’s ecommerce market was worth US$116 billion.

4. India’s telecommunication networks: As per the Telecommunication Regulatory Authority of India (TRAI) press release in April 2024, India’s teledensity is 85.64%. The Urban: Rural split in subscribers is 55.64% urban subscribers and 44.36% rural subscribers. The top five service providers constituted 98.35% market share of the total broadband subscribers at the end of February 24. These were Reliance Jio with 478.51 million subscribers, Bharti Airtel with 269.63

million, Vodafone Idea with 126.56 million, BSNL with 24.67 million, and finally Atria Convergence 2.24 million subscribers.

5. Data infrastructure:

a. **Undersea cables connecting India:** According to most recent TRAI records, there were 17 international subsea cables landing in 14 distinct cable landing stations in 5 cities across India (Seacom and MENA are considered separate cables), in Mumbai, Cochin, Chennai, Tuticorin, and Trivandrum, and the lit capacity and the activated capacity on these cables were 138.606Tbps and 111.111Tbps respectively, as the end of 2022. In addition to that, there are a sizable number of new international submarine cables connecting India that are scheduled for rollout, including IAX, IEX, 2Africa/EMIC-1, MIST, Blue-Raman, SEA-ME-WE6, TEAS, etc. More details can be found here.

b. **Data Centers in India:** As India's digital footprint expands the Government of India and the private sector have invested in data centers in India. This growing segment of India's information technology and Internet infrastructure is valued at US$8.65 billion in 2024. According to the global real-estate company CBRE, India is home to the highest data center capacity of 1030 MW in the Asia Pacific region.

c. **Root server instances in India:** The data infrastructure ecosystem is also home to root server instances in the country. At the time of writing, India has over 40 root server instances, most of which reside in data centers.

6. Social Media and Digital Communication: Social media platforms like Facebook, WhatsApp, Instagram, and X(formerly known as Twitter) have gained immense popularity in India. These platforms have enabled people to connect, share information, and voice their opinions. However, they have also become breeding grounds for misinformation, hate speech, and political polarization. The challenge for Indian policymakers is to strike a balance between promoting free expression and curbing the spread of harmful content. According to DataReportal, in 2023 India had more than 467 million social media users.

7. The Impact on Society and Culture: India's internet growth has had a profound impact on its society and culture. It has democratized access to information and provided new opportunities for entrepreneurship and creativity. However, it has also exacerbated social and economic inequalities. Rural areas and marginalized communities still face barriers to accessing digital resources, creating a digital divide that needs to be addressed. According to the People's Archive of Rural India (PARI), The richest 60 percent of Indians are four times more likely to use digital payment facilities than the poorest 40 percent, the report states citing the World Bank's Global Findex Database 2021.

8. Challenges and Regulatory Frameworks: With the rapid expansion of the internet, India faces a host of challenges related to privacy, cybersecurity, and data protection. To tackle these

challenges the Government has brought in new regulations including: The Digital Personal Data Protection Act 2023, The Telecommunications Act 2023, and the IT Rules, 2021. In the pipeline are the Digital Competition Bill and the Digital India Bill. Additional information on these new regulations is provided in the Appendix, New Regulatory Initiatives in India, below.

In conclusion, as India continues to embrace the digital age, bridging the digital divide, ensuring cybersecurity, and promoting digital literacy will be crucial for inclusive growth. Additionally, fostering innovation and entrepreneurship will be essential for India to maintain a fair, rule-based digital ecosystem.

Appendix: New Regulatory Initiatives in India

1. **The Digital Personal Data Protection Act 2023:** The Digital Personal Data Protection Act, 2023 (DPDP Act or DPDPA-2023) is legislation enacted by the Parliament of India. Its purpose is to regulate the processing of digital personal data, balancing individuals' right to protect their data with the lawful requirements for data processing. As of now, the specific rules for implementing the Act have not been officially notified."

2. **The Telecommunications Act 2023:** The Telecommunications Act 2023 superseded outdated laws including the Indian Telegraph Act, of 1885, the Wireless Telegraphy Act (1933), and the Telegraph Wires (Unlawful Possession) Act (1950). The Act introduced significant changes to modernize India's telecom sector. On 26 June 2024, the provisions of sections 1, 2, 10 to 30, 42 to 44, 46, 47, 50 to 58, 61 and 62 of The Telecommunications Act, 2023 came into force.

3. **The Information Technology Rules 2021:** The Ministry of Electronics and Information Technology (MEITY) introduced the Information Technology Rules 2021 related to the Information Technology Act (IT Act) 2000, to regulate digital media platforms operating in India. Digital media platforms include social media intermediaries, digital news publishers, and over-the-top (OTT) platforms. The rules require intermediaries to establish a grievance redressal mechanism, including appointing a grievance officer to address complaints from users. Social media intermediaries with over 5 million registered users in India are also required to appoint a Chief Compliance Officer.

Relevant regulations in the pipeline:

1. **The draft Digital Competition Bill 2024:** The Digital Competition Bill was introduced in April 2024, to ensure that online competition remains fair and that market dynamics are not distorted by a few dominant players, adversely impacting smaller companies and consumers.

2. **The draft Digital India Act:** The Digital India Act (DIA) was announced in March 2023 to replace the Information Technology Act (IT Act), 2000. Given the significant changes in the digital landscape, the Ministry of Electronics and Information Technology (MEITY)

said that the DIA shall be a new law for a new generation. It is built on the foundations of the Digital India Goals 2026 (MEITY, 2023), which envision India as a 'significant trusted player in the global value chains. Amongst its goals, the DIA will seek to 'ensure the Indian Internet is Open, Safe and Trusted and Accountable' while protecting citizens' rights and addressing risks from emerging technologies. DIA could also potentially impact the 'safe harbor' provided to all online intermediaries as per Section 79 of the present IT Act 2000. A draft of the DIA is expected to be made available for consultation in 2024.

3. **The Draft Broadcast Services Regulations Bill 2023:** As broadcast technology evolves, the government is planning to create new regulations to regulate these services. The Ministry of Information and Broadcasting published a press release sharing key focus areas of the Bill. The Bill provides for the consolidation and modernization of existing regulatory provisions and streamlining processes. The draft Bill can be viewed here.

India's telecommunication, Internet, and broadcasting regulations are being overhauled in the present decade with the idea of modernizing the regulatory framework and fostering equitable competition. Stakeholders need to ensure that this new set of regulations does not have unintended consequences of stifling innovation or making it burdensome for smaller entities.

References