

The Future of the Technology Sector in India

RESEARCH PAPER

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An overview of India's tech sector: The past, present, and future

India is deep into its journey to becoming a tech superpower globally. Even before the pandemic, India's technology sector was headed for tremendous progress, with a growing number of tech start-ups across different industries. However, the last two years have accelerated this pace of growth and propelled the tech sector into unprecedented levels of success. Many factors contribute to this current and projected growth—the rapid advancement of technology, the increasing accessibility of high-speed networks pan-India, and the increasing value and feasibility of doing profitable business with minimum to low startup costs in the software market. It is important to note, that the next few years will be critical in shaping the future of the technology sector and consequently, that of the nation.

Through the 80s and 90s, tech companies like TCS, Infosys, Wipro, Patni Systems, and Tally Solutions, pioneered a new wave of IT services, putting India on the global map. This wave and the resulting offshoring gave rise to the need for specialized technical training and education. The next few years saw the education system in India nurturing and honing young engineers and IT professionals, supporting the growing need for tech talent in the country. At the same time, these organizations also became the breeding ground for courageous young minds wanting to pursue their own entrepreneurial journey.

As the country established its tech industry, global firms recognized the value of India's tech talent and soon, set up their own R&D centres in the country, starting with Texas Instruments, Intel, Sun Microsystems, etc. This fuelled the shift in India's reputation as the IT services outsourcing hub to a powerful, fast-growing tech market. In the 90s, the Indian economy opened up and with it more capital flowed into the country. Ushering an era of increased consumerism powered by growing internet access and consumption, global eCommerce and digital companies like Amazon, and Uber started making their way into the Indian economy. With the new millennium came new home-grown digital-first companies like MakeMyTrip, Flipkart, Myntra, Snapdeal, Ola, and Paytm, starting a digital movement of their own and setting the tone for a new era of innovation. The rest, as we know, is history. Over the last two decades, India has seen a phenomenal evolution from being the IT services and BPO hub of the world to be a significant driver of global innovation for many deep-tech organizations and Silicon Valley start-ups.

Today, with an ever-growing appetite for technology, India is set to be a global leader in this sector. In just the last decade, India's tech landscape has witnessed

large-scale shifts, becoming a key growth driver for the nation. Through this research paper, we aim to cover the multiple facets of this unexpected but welcome growth and understand the potential of each sector. In the following sections, we dive into the insights gained from industry leaders and professionals about the contributing and inhibiting aspects unique to every industry. Our findings shed light on future possibilities, opportunities, and challenges.

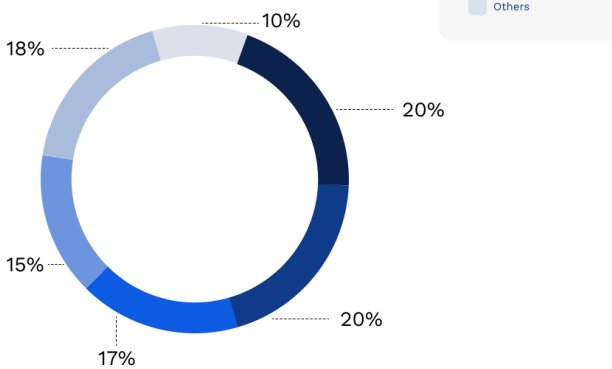
The pandemic effect?

There is no question about the role of the pandemic in boosting the technology sector's growth. In fact, it was primarily because of the lockdown that employers and people started thinking about ways to efficiently use technology and make remote work (for corporates) and remote learning (for education) possible. While physical/face-to-face interactions and experiences remain invaluable, technology has indeed transformed the way companies and individuals live their day-to-day lives. This change has not come without challenges, some of which continue to impact the sector's growth, like the unpredictable digital infrastructure, technical glitches, concerns around data privacy and security, and employee productivity, among others.

What's next: Growth, opportunities, and challenges

Our research shows that the outlook for India's tech sector is optimistic. There is a huge potential for exponential growth in several sectors. Among those that stand out, are fintech, edtech, cryptocurrency, digital healthcare, and digital security.

FIGURE 1

MAJOR SECTORS WITH EXPECTED HIGH GROWTH IN UPCOMING YEARS**What makes these sectors stand out?**

The pandemic has, in its own way, taught us the importance of robust healthcare infrastructure, digital/contactless payments, and a safe & secure tech ecosystem.

- The pandemic, almost instantly, triggered a boom in eCommerce. Of course, home delivery of essentials was necessary but what helped promote consumer spending online was better/easier access to the internet, increased savings among the better paid and upwardly mobile population because of working from home, and a continued rise in digital transactions across B2B and B2C businesses
- There has been an increase in digital healthcare by way of fitness apps, wearables, eClinics, and medical services aggregators. The seamless transfer of health records, managing past, and current patient data, IoT devices, preventive healthcare, etc. would all be enabled by digital healthcare
- A pronounced interest in crypto, especially among the younger generation, coupled with sustained investor interest gave way to a meteoric rise in crypto exchanges. Riding on the back of democratization, there has been a massive uptick in the investments and the rise of crypto entrepreneurs
- There has been a surge in emerging edtech startups. E-learning is on the rise and it is clear that the demand for this sector will only continue to grow aggressively
- The fintech industry has grown due to multiple reasons. Increased internet accessibility and

smartphone adoption across the country has boosted contactless/digital payments across different socio-economic groups. This plays a key role in promoting inclusivity. Digital person-to-person payments, however, are just the tip of the iceberg. The fintech sector is empowering people with digital investments, BNPL, lendtech, and other innovative financial services.

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Almost 10 million new demat accounts were opened last year compared to 4.7 million in the year before that.

- One of our respondents

In the coming years, with more and more consumers and businesses moving online, the footfalls toward traditional businesses will reduce drastically. Transactions would go digital for the most part. Decision-making will get data-driven. Services will become faster and more accurate. Digitization will help in monitoring data in a centralized way and each consumer will have access to the data at any given point. This will have a positive impact on identifying negligence or fraud.

By now, it is clear that growth in any sector will be primarily driven by customer behavior and mindsets, increased and widespread technology adoption, and meeting regulatory needs, which means it will differ from one region to the other. Considering this growth, it will be an essential step to future-proof data security laws and encourage the government to address existing inconsistencies. To be a part of this future, companies should gain the early mover advantage, increase organizational agility, and work with a continuous innovation mindset.

Diving deep

We took a deeper look at every emerging sector powering the future of India's tech industry.

Fintech

India's fintech sector has seen the following major innovations that have been instrumental in driving its growth:

1. Enhanced UI and UX interface of mobile banking

2. Widespread use of AI
3. Increased security and hyper-personalization with the implementation of in-app biometrics

Fintech has a big role to play in the new world to come. In the last few years, the interaction between Fintechs and NBFCs/FIs has accelerated, customer outreach expanded exponentially, partnerships for digitization, online credit (especially for the unorganized sector), credit underwriting, and digital loan collections also emerged.

During the pandemic, we saw a boom in retail investors entering the stock market for direct investment into equity. There will be some hits and misses but everyone fundamentally would need easier and faster access to robust & scalable trading platforms, banks, digital transactions, and personal finance driven by technology.

Also, fewer people now want to go to a bank branch due to health concerns and this is spread across different socio-economic classes as well. One of the major challenges would be to make the retail investors financially literate, today a large number of such investors don't have the technical know-how on what they are getting into when making investments. This lack of financial literacy among investors as well as consumers can prove to be a big hindrance if not addressed on time.

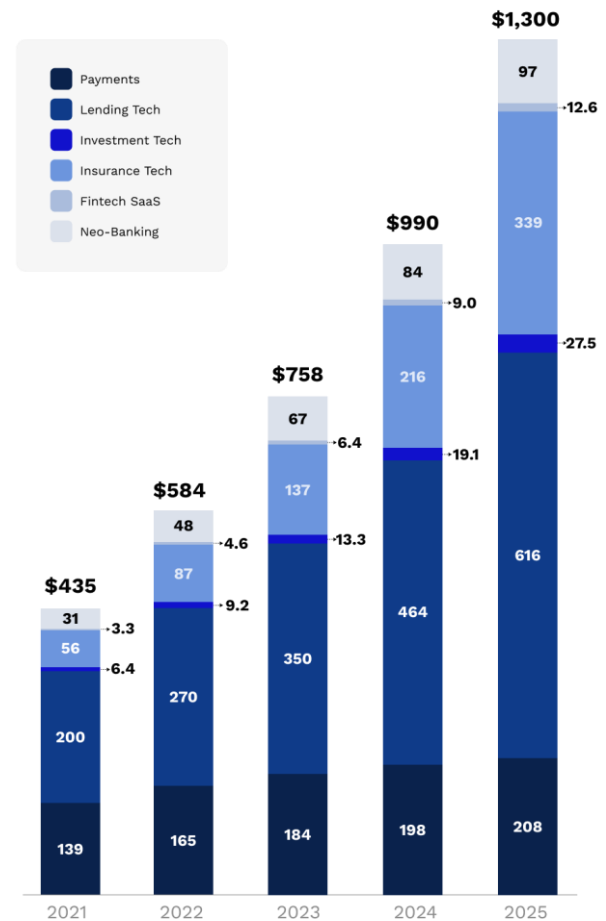
Overview of the fintech sector

Fintech is the digitization of financial services normally provided by banks, credit card companies, credit unions, investment banking, and other businesses within the finance industry.

Types

The various types of financial technology offerings are vast, from personal to corporate finance management. A few main types of Fintech services include money transfer and payments (some well-known global names are Venmo, Paypal, and Zelle), savings and investments (Qapital, Marcus), budgeting and financial planning (Mint, YNAB), insurance (Lemonade), lending/borrowing (Lending Tree, Lending Club), business accounting and financial (QuickBooks, NetSuite, SAP).

FIGURE 2
INDIA TO REACH A TRILLION DOLLAR
FINTECH MARKET BY 2025



Neobanking: Neobanks in India currently work as a layer2 fintech solution mounted on existing legacy banks. [Organizations like Niyo, Jupiter, RazorPayX, BharatPe acquiring PMC Bank](#) are redefining the rules and the foundation of the traditional banking. In addition, global organizations such as [Revolut have entered India and are looking to launch their digital banking set up in the country by end of 2022.](#)

Investment Tech: Fluctuating markets have given rise to platforms such as Upstox, Groww, and Zerodha gaining prominence during the pandemic. These platforms also provide access and knowledge to consumers regarding a wide range of instruments of investments. One key indicator is that there are now similar organizations cropping up across the South-East Asia region. A strong combination of continuously growing demand and proliferation of high-quality internet across the country makes the investment tech subsector a lucrative one.

Fintech SaaS: Digital transformation in financial services accelerated during the pandemic triggered by the need for social distancing. Fintech companies that were quick to leverage SaaS platforms saw a surge in demand for their products and services. Solutions such

as app-based accounting, payment aggregation and more. Some of the more prominent organizations in this space are Zeta, Traxcn, and more.

Insurtech: The Indian Insurtech ecosystem is also on the rise, with players pushing the boundaries of product innovation and providing additional value-added services. With 100+ InsurTech startups in India, this space is heating up with a lot of action. Some of the more prominent names in this sub-sector are Acko, CoverFox, PolicyBazaar, Digit Insurance, and OneAssist.

Digital Payments: With online banking becoming the new standard in India, UPI payments have seen a steady rise. The UPI ecosystem has grown from 21 banks in 2016 to include 216+ today. Today, countries such as Bangladesh are looking to adopt the UPI payment model as well. The more prominent organizations in this space in India are not just the familiar players such as PayTM, MobiKwik, Razorpay, PhonePe, and the likes but also more established ones using PoS technologies & integrating them with UPI such as Innoviti Payments, PineLabs, and more.

Lending Tech: Digital lending involves an online approach to loan applications and the disbursal process. With the widespread usage of smartphones, credit range flexibility, and convenience in availing of loans, this market is growing at a fast pace. According to MarketsandMarkets, [the global digital lending market is expected to grow from \\$10.7 billion in 2021 to \\$20.5 billion by 2026 at a CAGR of 13.8%](#). LendingKart, CapitalFloat, MoneyTap, Navi, OfBusiness, ZestMoney, etc. are some of the leading names in this space.

Increased Tech Adoption: Fintech companies are using AI and big data in personalization to reduce fraud, improve risk identification, automate trade, and secure payments. Fintech companies are embracing blockchain to improve security as newer technology becomes more accessible.

Challenges to Indian Fintech Industry

- **Data Security:** Whether it's mobile banking, payment applications, or the overall fintech landscape, data security continues to be a key barrier in the cyber world.
- **Compliance with Government Regulations:** To ensure the safety of the fintech ecosystem, the government has enacted strong regulatory and compliance rules that govern the services provided by fintech companies.
- **Keeping up with Modern Technologies:** Software-as-a-Service (SaaS) and Platform-as-a-Service

companies that were previously saddled with diverse legacy systems may now simplify and standardize their IT infrastructure.

- **Lack of Mobile and Tech Expertise:** Some financial organizations or banks in the fintech industry still lack adequate or convenient mobile banking capabilities thereby making the user experience poor for the consumer and pushing them away.
- **Blockchain Integration:** Banks and other conventional financial organizations have been hesitant to join the blockchain movement up until now. Startups, on the other hand, are more likely to try to disrupt the fintech industry with such technology.
- **User Retention and User Experience:** There is a growing need for strong user retention strategies. An engaging and more importantly, safe/reliable user experience is a vital part of retaining and acquiring users.

Major players in India

- **Razorpay:** A platform enabling businesses to accept, process, and disburse payments using its product suite. Razorpay provides easy access to a choice of payment methods including credit/debit cards, net banking, UPI, and wallets.
- **Paytm:** One of the more popular digital payments companies in India, Paytm offers its consumers multi-source and multi-destination payments solutions. Today, the company not only serves as a wallet and payments app but also allows users to shop directly on the platform.
- **PolicyBazaar:** India's largest insurance aggregator, PolicyBazaar began its journey as a website for price comparison and a knowledge source to learn about the insurance industry. It later grew to become an insurance policy marketplace.
- **InstaMojo:** Founded in 2012, Instamojo allows its customers to collect fees, create free online stores, ship products, get loans, and focus on scaling their businesses.
- **MoneyTap:** India's first app-based credit line, MoneyTap offers small-medium cash loans, fast mobile credit, competitive interest rates, and flexible EMIs to its customers.
- **Lendingkart:** The financing company offers short-term working capital loans and company loans to small and medium-sized businesses pan-India.

Digital Healthcare

Over the last 2 years, innovation and technology in the healthcare sector gained momentum fuelled by the pandemic-related restrictions. For the digital healthcare sector to grow, accessibility and ease of use remain critical. While the sector is full of opportunities, the goal will be to boost online video-based consultations, doorstep sample collections for diagnostics, and app-based purchase of medicines to more regions, and these services will only act like starters at best. Enabling this requires overcoming barriers related to infrastructure, consumer/patient behaviors, and developing technical skills among healthcare workers.

An overview of the digital healthcare sector

Digital healthcare is the intersection of technology with wellness and health. Backed by technology, it can improve the efficiency of healthcare delivery across different segments and even make medicine/healthcare more personalized and accurate. It makes use of information and communication technology to simplify medical care. It demands and fuels a culture transformation with preventive, curative, and rehabilitative healthcare solutions.

There are over 150 digital healthcare startups in India so far. The majority of digital healthcare startups focus on technology-driven service models. Companies that perform the function of pharmacists are fast outgrowing conventional pharmacists, if not making them completely obsolete. Patients who are physically unable to seek hospital-based care, such as terminally ill cancer patients or those who require post-acute rehabilitation services, can benefit from startups like 'Healthcare at Home.'

Growth Projection

[In terms of revenue, the digital healthcare market in India was valued at INR 252.92 Bn in FY 2021. It is expected to reach INR 882.79 Bn by FY 2027, expanding at a CAGR of 21.36% during the FY 2022 - FY 2027 period.](#)

Key drivers of growth

The digital healthcare market is segmented into telehealth, mHealth, electronic health records/electronic medical records (EHR/EMR), and others (remote diagnostics and healthcare analytics). It is predicted that the mHealth segment will dominate the market, with a revenue share of ~38.28% in FY 2027, followed by the telehealth segment.

- **Consumer devices, wearables:** Wearable devices that continuously monitor patients' critical

parameters will play a key role in empowering a stronger outcome-based healthcare system. Wearables include embedded medical devices (into patients' bodies) and other devices worn on a person's body. These devices provide healthcare workers real-time information on patient data which is the backbone of the digital healthcare system.

- **Corporate partnerships and acquisitions:** Corporate partners will continue to be interested in acquiring and creating alliances with digital health startups as they grow.
- **Virtual clinical trials and remote care:** Using technology to do what was once considered impossible—virtual clinical trials and remote care. Both rely heavily on seamless data transfer, and flawless and widespread infrastructure and aim to power patients and caregivers with effortless but effective healthcare.
- **Artificial Intelligence:** AI can manage patient admissions, scheduling, and billing. It can help healthcare workers analyze and decode complex data, and provide exceptionally potent information for efficient & precise diagnostics. As a result, AI will probably broaden and bring down healthcare costs and let doctors and staff focus on patient care.

Challenges to Digital Healthcare

- **Data Processing:** The processing and analysis of data is still a potent challenge in the digital healthcare space. It is difficult for medical professionals/companies to provide better and more customized care to patients without implementing sophisticated AI systems that can analyze, collect, and synchronize this data.
- **Cybersecurity:** Healthcare firms have the largest expenses connected with data breaches, which are 3X greater than other industries. Healthcare security breaches accounted for a loss of \$6 trillion by the end of 2020. [The most prevalent vulnerabilities in digital healthcare are insecure medical devices and equipment, a lack of documented cybersecurity and governance policies, ransomware, and malware, among others.](#)
- **Digital User Experience:** Creating flawless and user-friendly goods such as a linked heart monitor, mobile application, or any other digital product or service demand a solid understanding of the end-user. This includes the patient and the medical professional. Players in this sector will have to focus on investing in skill/knowledge-building to improve the patient experience.

Major players in India

- **PharmEasy:** This digital healthcare startup allows users to order medications from local pharmacies and collect samples from local labs for diagnostic testing at home. The platform also allows users to purchase health and wellness supplements.
- **Practo:** The one stop shop for telemedicine, practice management, and appointments, Practo connects experienced healthcare professionals with patients in a seamless and purely digital fashion.
- **Mfine:** Mfine was designed with consumer experience at its core. The web-based service offers a combination of online doctor consultations, appointment scheduling, medicine delivery, and more.
- **Medibuddy:** MediBuddy is a digital healthcare platform for inpatient hospitalization, outpatient services, and corporate wellness benefits.
- **1MG:** An online pharmacy marketplace, the website and app provides a e-pharmacy experience to its customers by offering a comprehensive inventory of medicines that can be viewed, compared, and then, purchased.
- **Cure.Fit:** The Cure.Fit platform combines fitness training with nutrition coaching. The company has been successfully offering fitness enthusiasts the option of training through a combination of online and offline mediums.

Cryptocurrency

Cryptocurrency, is any form of currency that exists digitally or virtually and uses cryptography to secure transactions. Cryptocurrencies don't have a central issuing or regulating authority, instead use a decentralized system to record transactions and issue new units. Blockchain has been the backbone of cryptocurrencies. According to a recent [report by Gartner](#), by 2024, at least 20% of large enterprises will be using digital currencies.

Overview of cryptocurrencies

With cryptocurrency, the transaction cost is low to nothing at all—unlike, for example, the fee for transferring money from a digital wallet to a bank account. You can make transactions at any time of the day or night, and there are no limits on purchases and withdrawals. And anyone is free to use cryptocurrency, as opposed to setting up a bank account, which

requires documentation and other paperwork, often alienating individuals.

International cryptocurrency transactions are faster than wire transfers too. Wire transfers take about half a day for the money to be moved from one place to another. With cryptocurrencies, [transactions take only a matter of minutes or even seconds.](#)

FIGURE 3

WHAT MAKES CRYPTOCURRENCIES SPECIAL?



Growth projection

The global market size of cryptocurrency was valued at \$1.49 billion in 2020 and is projected to reach \$4,94 billion by 2030, growing at a CAGR of 12.8% from 2021 to 2030.

With the rise in popularity of cryptocurrency exchanges, it is likely that they too will go public. This might help establish cryptocurrency as a strong, reliable market with big participants determining its scope. The cryptocurrency market in India has grown exponentially over recent years and is expected to reach up to \$241 million by 2030, in India.

Key Drivers

- **Transparency of distributed ledger technology:** Issues related to lack of transparency arise when transactions take place without the knowledge of stakeholders, especially in Asian countries where several instances of fraudulent or unwanted transactions, such as deduction of scheduled charges, are frequently observed. This may be caused by human error, machine error, or data manipulation during the transaction process, and may result in customers losing huge amounts of money. Moreover, in most cases, financial institutions fail to take ownership of any irregularities. This lack of transparency in the current monetary system leads to dissatisfaction among the public.
- **Subjective nature of cryptocurrency:** Apart from the price surges, popular cryptocurrencies like Bitcoin and Ethereum have shown tremendous value which has urged investors into this field. The

crypto tech, that is the blockchain-specific public ledger could actually prove to be a market disruptor when looking at the functioning of the traditional payment system.

- **Changing financial mindset:** Cryptocurrency is changing the system, though the concept is still in a nascent stage, crypto provides a more autonomous platform by eliminating middlemen who were in control of it. With more prominent names like Elon Musk venturing into the picture, people's outlook will be positively influenced.
- **Opportunity for tech development:** New players are coming into the market constantly with better transaction speeds and improved setup for software development. Increased competition in the sector can prove to be beneficial for those investing.

Challenges for Cryptocurrencies

- **Diversity in Cryptocurrency:** A major challenge is the fact that cryptocurrencies are not interchangeable and qualitatively diverse. A different set of currency differs across several aspects such as security, programmability, and governance characteristics. During risk management, one has to take into account several differences among the features of cryptocurrencies.
- **Difficulty in Valuation:** With cryptocurrencies, there is no unified valuation approach and no universally accepted metrics. This makes it difficult to determine its exposure using customary methodologies. Therefore, while determining the value of a cryptocurrency, one has to work with the widespread use of complex and at times inconsistent valuation techniques.
- **Regulatory and Legal Issues:** Since cryptocurrencies aren't regulated, they do not benefit from legal protection which poses legal risks and uncertainty that can affect risk management and investment.
- **Trading Costs and Illiquidity:** The cryptocurrency market is less liquid and more expensive than the traditional market owing to the controlled supply and release of new units based on a predetermined timetable. Thus the highly volatile cryptocurrency prices are liquidity-driven.

Major players in India

- **WazirX:** WazirX is one of India's largest cryptocurrency exchange. It enables investors and

users to buy, sell and trade digital currencies like Ethereum, Bitcoin, Litecoin, etc.

- **CoinDCX:** A leading cryptocurrency exchange built with user experience and security in mind. The startup aims to enable financial inclusion and boost accessibility across crypto investments.
- **CoinSwitch:** This Indian crypto exchange aggregator platform is also soon planning to expand into other traditional investment options like stocks and mutual funds and become a one-stop shop for all things investments.
- **ZebPay:** As one of India's oldest crypto exchange platforms, the company has been educating and simplifying crypto investments for its users since 2014.

Digital Security

Digital security will ensure a safe & secure environment for organizations and employees to work from home. Undoubtedly, this sector will continue to grow alongside digitization. Future-proofing any tech startup, across sectors, demands a strong digital security network that supports the technological boom while protecting and safeguarding individuals, businesses, and communities.

An overview of the digital security sector

The words digital security refer to the resources used to safeguard one's online identity, data, and other assets. These technologies include web services, antivirus software, smartphone SIM cards, biometrics, and encrypted personal gadgets.

What kind of information is considered a Digital Security Risk?

- Personal Identification
- Personal Payment
- Personal Health

Every year, certain threats grow rapidly as cybercriminals focus their efforts on a particularly effective or lucrative attack technique, such as ransomware or 'cryptojacking'. However, one of the most worrying trends in 2021 was the growth of cybercrime across the board.

In 2021, the total number of cyberattacks increased by 50% year over year. Certain areas were hit harder than others. Among these, education, research, and healthcare bore most of the damage. This points to the danger of a growing number of cyber criminals and also highlights the need for stronger systems of security.

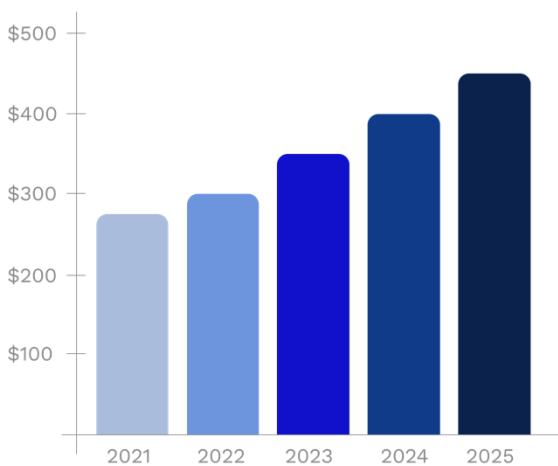
Such rapid growth in attacks bodes ill for 2022. As cyber threat actors refine their techniques and leverage machine learning and automation, [the number and impacts of attacks are only likely to grow.](#)

FIGURE 4

TRENDS IN CYBERSECURITY**Growth projection**

The market for digital security was valued at USD 156.24 billion in 2020, and it is expected to reach USD 352.25 billion by 2026, registering a CAGR of 14.5%.

FIGURE 5

GLOBAL DIGITAL SECURITY SPENDINGS
(in billions of dollars)**Key Drivers**

- **Adoption of M2M/IOT:** Increase in M2M/IOT connection leads to a simultaneous demand increase for strengthened digital security which has led to the emergence of new business models and reduced device costs.
- **Accelerated adoption due to Covid-19:** Increased awareness about the importance of digital security to continue seamless digital communication, especially since it has become a part of everyday life in the post-pandemic era.

- **Aerospace Domain M2M:** There has been an increase in the adoption of machine-to-machine technology in the aerospace industry and therefore the government's focus on digital security is heightened.

Challenges to Digital Security

- **Traditional Authentication Methods:** Ineffective traditional methods for authentication speak of a lack of preparedness for a secure digital world. This can prove to be a hindrance in the growth of the sector.
- **The Complexity of Regulation:** When it comes to digital security, the adversaries do not comprehend country borders or different jurisdictions. However, organizations have to comply with a complex system of regulations and rules. While the intention is to safeguard everyone's interests, these long-winded regulatory requirements often put businesses and their customers at risk.
- **Dependence on Other Parties:** The concentration of a few technology providers in the global market opens many entry points for cybercriminals throughout the digital supply chain. Third-party risks must be seen as a top priority and included when devising an effective digital security strategy.

Major players in India

- **Quick Heal:** One of India's oldest and leading cybersecurity providers, QuickHeal has put R&D into device and network security technologies, protecting everyone, from individual consumers to large businesses, from cyber threats.
- **AppSecure:** Founded in May 2016, the platform works as an aggregator that connects ethical hackers to companies. Companies are focused on discovering security loopholes and providing a common ground for hackers and companies to connect.
- **Securonix:** Offers software-as-a-service (SaaS) based multi-tenant security analytics, operations, and response platform for security threats to enterprises. The startup also provides complete visibility, advanced detection, response, and scalability to its customers.
- **Com Olho:** Cyber security and IP-led analytics startup Com Olho uses deep learning and clustering to analyse enterprises' data and identify fraudulent patterns with high probability of success.

Edtech Sector

Edtech encompasses the use of IT tools/technology to promote learning, across classrooms, in a more engaging, inclusive, and personalized manner.

The edtech sector has become a formidable force with the outbreak of Covid-19 with 247 million primary and secondary schools evolving from traditional education modes to incorporate tech into their modules. About 20-30% of them have already shifted to online modes. However, virtual learning is not for school-going children alone. The job market has become more competitive which means unique skills and knowledge are in demand. With access to online courses, job seekers are signing up for certifications on platforms like Udemy, Coursera, LinkedIn Learning, and the likes, to improve their chances of getting their desired jobs.

At the same time, companies are also increasingly focussed on providing employees with upskilling and learning opportunities through third-party edtech platforms.

An overview

The edtech sector has seen the following trend-setting innovations in the recent years:

- **Virtual Classrooms:** Virtual classrooms have made widespread learning possible, regardless of one's location. The medium offers increased accessibility, helping students choose their preferred educational institutions, and promotes more control for trainers/teachers while also making the process more interactive and focused.
- **Virtual and Augmented Reality:** When speaking of interactive learning experiences, VR and AR have been instrumental in redefining what learning looks like. These technologies enable instructors to capture the attention of their students with engaging and immersive tools. This is already shaping the way students, especially younger ones, understand a subject.
- **Cloud-Based Edtech Platform:** When education went remote in 2020, the popularity of cloud technology shot through the roof and it has continued to soar ever since. Software as a Service (SaaS) tools are expected to be in great demand in 2022 as well. Many students continue to work on projects from across the world. Even with schools reopening their doors to in-person learning, cloud-based software will find more takers in education than before. Moreover, Infrastructure as a Service (IaaS) has also caught on in K-12 schools; while most are adopting it to be future-ready, [some are also using it for disaster recovery.](#)

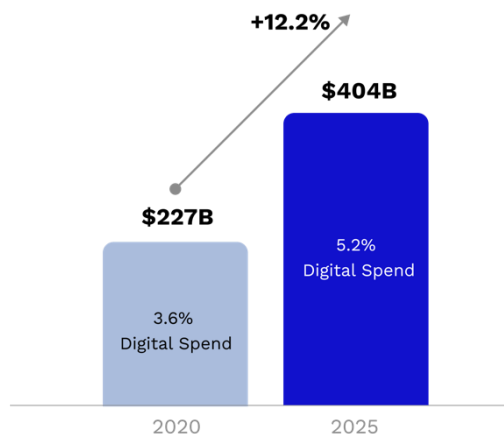
- **Gamification of learning:** Introducing games in learning is not exactly a new trend. For years, both parents and teachers have offered students incentives and rewards for good grades, better academic performance, or even learning new skills and habits. In the digital era, this incentivization through the use of games has been reinterpreted in a more modern, digitized way, Minecraft is a popular example of a game that can be used as an educational tool. This game has been used to create stage performances, write stories, and even teach students about DNA.

Growth projection

The edtech market was valued at \$74.64 billion in 2019 and is expected to almost double to \$404 billion by 2025 from \$227 billion in 2020. India has the world's second-largest eLearning market after the US.

FIGURE 6

GROWTH IN TOTAL GLOBAL EXPENDITURE ON EDUCATION TECHNOLOGY IN USD



Drivers

- **Low Cost of Online Education:** Apart from the one-time cost of equipment needed, online education is a much more affordable and accessible service compared to traditional education. Students from different income backgrounds can access good quality education.
- **Government Initiatives:** The government of India is promoting online education in the country through several initiatives such as SWAYAM and DIKSHA.
- **Growing Internet User Base:** India is predicted to have 840 million total Internet users (60% of the

population) by the end of 2022. As more and more people gain access to the internet, tech-based educational services will only grow in strength.

Challenges to edtech growth

- **Lack of Technology:** There has been massive improvements in technological infrastructure over the last few years. Data charges have also become more accessible. Having said that, as far as online education is concerned, the availability of networks is an important issue. Students cannot afford to waste time on buffering videos nor waste time replaying videos that are not clearly audible. These practical connectivity concerns can snowball into bigger challenges, especially in tier 2 and tier 3 towns. People residing in these towns are the next wave of customers and the rural market is largely untapped as far as online education is concerned.
- **Lack of Instructors' Input:** Edtech products need to be made so that instructors are not confused and continually attempting to interpret how they work. Companies should keep in mind that edtech needs to simplify and not complicate the teaching/learning process for both parties.
- **UX/UI:** While there is space for innovation and progress in the Edtech sector, the goal must be to reach a wider audience with a simplified experience. Adding a large number of features might be unique and innovative, but it may end up confusing students, teachers, and parents. It is important to create features that the end-user values much more and this can differ from one city to another or across courses.
- **User Engagement:** Ideas like gamification are used by professional edtech development teams to make apps that maximize user engagement and retention. But these need to be thoughtfully implemented. It is not necessary that every user would be able to relate to the various games that get adopted through these apps. It is important to remember that the future success of the EdTech sector will be based on its reach and relatability to users in Tier 2, Tier 3, and Tier 4 cities.

Major players in India

- **Byjus:** One of the most prominent edtech startups in India, Byjus is a learning app that provides coaching for competitive entrance exams as well as online courses of grades 6th to 12th with multi-test and assignment solutions, personal feedback, and in-depth analysis.
- **Unacademy:** Started as a YouTube channel, this edtech startup is now making e-learning possible

for over 3 million students. With a vision to provide free education, the company has ventured into diverse fields like banking, UPSC, JEE, and more, and partnered with some of the most experienced tutors in the country.

- **Vedantu:** An online tutoring platform offering live coaching to students across age groups. The unicorn provides specialized, high-quality courses, designed with inclusivity at their heart.
- **Toppr:** Founded in 2014, Toppr is an online exam preparation platform for K-12 students. The startup also focuses on entrance examinations like JEE, NEET, SAT, UPSC, etc, offering structured interactive video lessons.
- **Upgrad:** UpGrad is an online edtech startup that provides higher education programs. It offers an immersive learning experience using the latest technology to power well-designed, in-depth courses.
- **Cuemath:** A specialized program that focuses on teaching maths to children, delivered through a combination of online and offline mediums. Cuemath has more than 3,000 centres in India and each session in a centre has only 6 students at a time.
- **AptusLearn:** One of the fastest growing edtech startups, AptusLearn is a forward-thinking academia venture by Aptus Data Labs. It offers various specialized online courses in the Data Science domain.
- **Classplus:** This edtech startup helps educators and content creators launch online courses and grow their coaching business. After their recent funding, the company aims to expand their presence globally.

Parting thoughts

India's digitally skilled talent pool is growing rapidly. With the increasing emergence of tech startups in the country, one can expect the technology sector to drive the country's future growth. **However, given India's diverse population, industry leaders and disruptors must focus on building innovative solutions that promote inclusivity and equity while also addressing challenges related to data security, infrastructure, and regulations.**

About the Authors



Anil is a seasoned Human Resource professional with the experience of working a significant amount of his career in scaling startups ground up. He brings more than 19 years of deep hands-on and consultative experience across

Human Resources. Throughout his career playing multiple roles, he has been deeply involved with VC investors, founders and executive leaders in the area of people practices which have helped organizations grow seamlessly. His key contributions have been in:

- Talent acquisition across the hierarchy and functions.
- Creation of frameworks for performance management and talent engagement.
- Develop frameworks which enable in building diverse, high potential and performing teams.

In addition to his successful stints with large organizations like GE Capital (now GENPACT) and Avaya, Anil has had impactful stints with start-ups as well where he has scripted success stories for each one and helped them scale quickly and seamlessly. His stints have been with Tavant Technologies (Software Solutions), Mu Sigma Inc (Data Analytics – Sequoia & GAP funded) and SuperProfs (EdTech – Kalaari funded). In his last role, he played the role of CHRO at Innoviti Payments (Fintech - a Catamaran, SBI & Bessemer funded company).

Anil's deep experience spans functions, industries and geographies. His first principles-based approach to problem solving and thought leadership is deeply valued by clients and leaders alike.



Sunaina Yadav pursued her Masters' in Business Administration (MBA) at IIM Calcutta and is presently working with Arthur D Little. She is an English Hons graduate from Hansraj College, DU. During her college time,

she worked with the largest youth-run organisation, AIESEC. She was an intern at Aditya Birla Group where she worked on conceptualising reverse logistics for aluminium foil packaging to make it sustainable. Sunaina believes that her work should reflect her personal values and strives to practice that in her life. She sustains her passion for reading fiction and has a great interest in the Harry Potter series and Mahabharata.



Nandini Grover has pursued her MBA at IIM Calcutta and is presently working with Xander Private Equity as an Analyst. She is a Commerce Hons graduate from Shaheed Bhagat Singh College. Post her graduation, she has worked

with KPMG India and DV Mahendru & Associates in the specialized field of audit. During her MBA, she has interned at Citibank where she worked with the Markets & Securities function and specifically on 2 projects – competitive scan of eFx solutions and the opportunities that exist for the branches of Indian Banks overseas. She is passionate about enabling the younger generation to use studies in reaching their goals and has successfully tutored students for their board exams as well. She is keenly interested in dance and drama related work and has leveraged her interest by participating in various Nukkad natakhs which spread socially relevant messages.

About PeopleAsset

PeopleAsset is a boutique Executive Search & Talent Advisory Firm geared to deliver high quality results. We help our clients dramatically improve performance through focus on leadership & talent.

Visit us at www.peopleasset.in for more information or write to us at info@peopleasset.in.

Anil Thankachan is the Co-founder, Director at PeopleAsset.