FROST & SULLIVAN

IT Transformation Market Report

September 2024

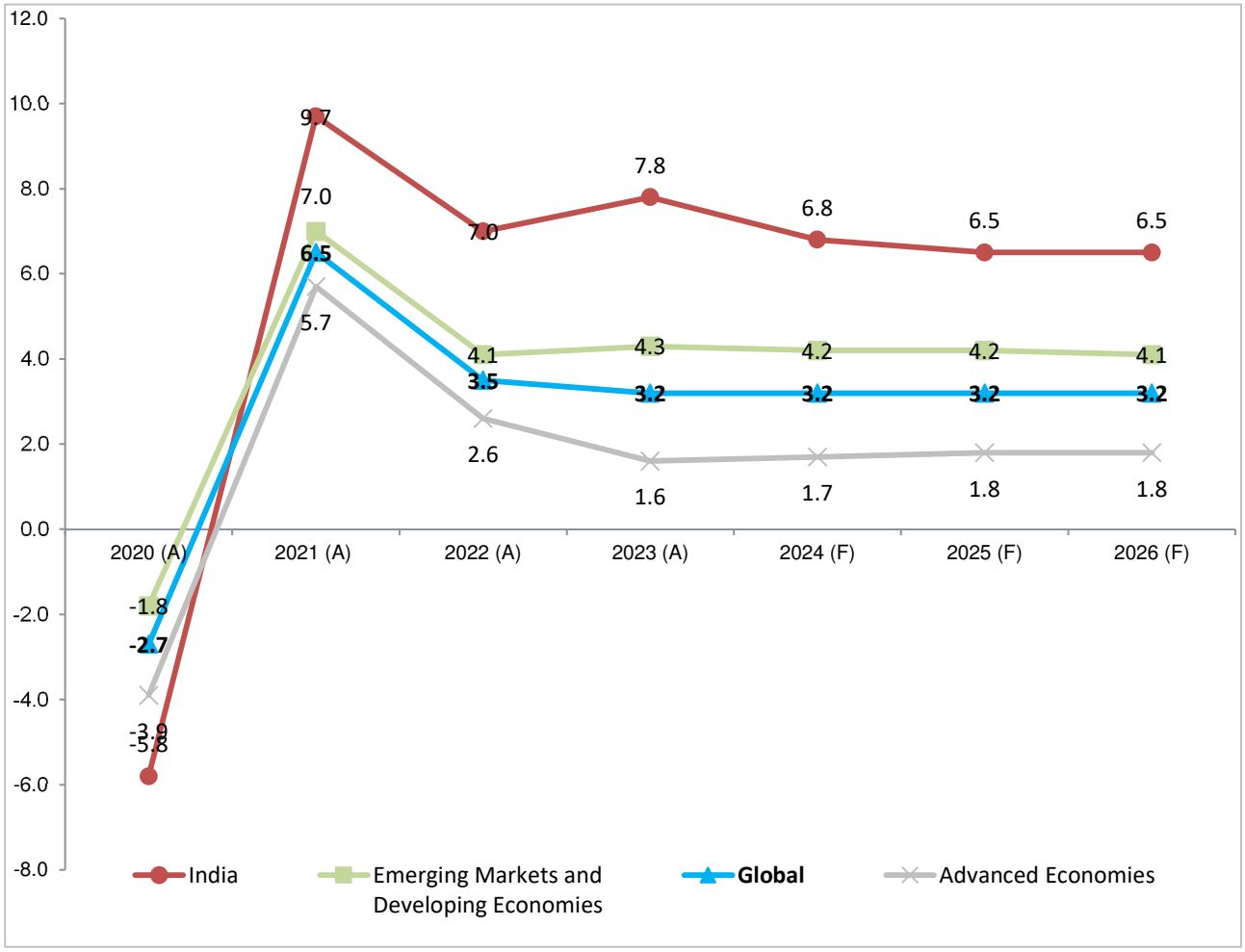
CONTENTS

1. Global and Indian Macroeconomic Review

1.1. Real GDP Growth

The global economic outlook for 2024 remains remarkably resilient, as the world continue to recover from the effects of the COVID-19 pandemic and growth holding steady as inflation returns to target. The International Monetary Fund (IMF) estimates that the global economy grew by 3.2% in 2023 and it is predicted to continue growing at 3.2% during 2024 and 2025.

Exhibit 1: Real GDP Growth Percentage (%), Global, CY 2020-2026



Note:
Advanced economies include regions such as United States, Germany, France, Italy, Spain, Japan, United Kingdom, and Canada
Emerging economies include regions such as China, India, Russia, Brazil, Mexico, Saudi Arabia, Nigeria, and South Africa
(A) indicates actual values, (F) indicates forecasted values
Source: IMF, World Economic Outlook Update, April 2024, Accessed 03/06/2024

Global Economy

Economic activity was remarkably strong throughout the global disinflation of 2022-2023. Despite warnings of stagflation and a global recession, economic activity increased gradually as global inflation declined from its high

in mid-2022. Global GDP growth is estimated at 3.2% in 2023 and is anticipated to maintain the current trajectory in 2024 and 2025.

The 2024 forecast has been revised up 0.1% point from the January 2024 World Economic Outlook (WEO) Update and 0.3% point from the October 2023 WEO. The historical low pace of expansion can be attributed to several factors, including long term factors such as COVID-19 pandemic, Russia's invasion of Ukraine, weak productivity growth, growing geoeconomic fragmentation and short-term factors such as still-high borrowing costs and the withdrawal of fiscal support.

Governments across the world have enacted comprehensive measures aimed at promoting economic growth. These measures include strengthening local company support, reducing interest rates, and boosting government spending. These measures could boost investment and consumption, resulting in higher economic growth.

Emerging Economies

According to International Monetary Fund (IMF), a modest increase in GDP in emerging markets and developing economies has been observed, from 4.1% in 2022 to 4.3% in 2023. Markets reacted positively to the prospect of central banks unwinding restrictive monetary policy. Financial conditions eased, equities valuation rose and capital flows to most of the emerging markets, excluding China. The continuous recession in China's real estate market has an impact on the country's economy. At the same time, several other large emerging market economies are growing, owing to the restructuring of global supply networks and escalating trade tensions between China and the United States.

India's economy has been among the fastest growing in the past few years. India's economy has made a significant recovery from the pandemic and it has become a major contributor of global growth. Following a surge in 2023, headline inflation has generally declined, though it is still volatile. Employment has returned to pre-pandemic levels and the financial industry showed resilience, being mostly unaffected by global recession in early 2023.

Advanced Economies

Growth in advanced economies is expected to accelerate moderately, rising from 1.6% in 2023 to 1.7% in 2024. Faster disinflation and resilient growth indicate positive supply dynamics, such as the reduction of earlier energy price shocks and the remarkable labor supply rebound fueled by strong immigrant flows in multiple advanced economies.

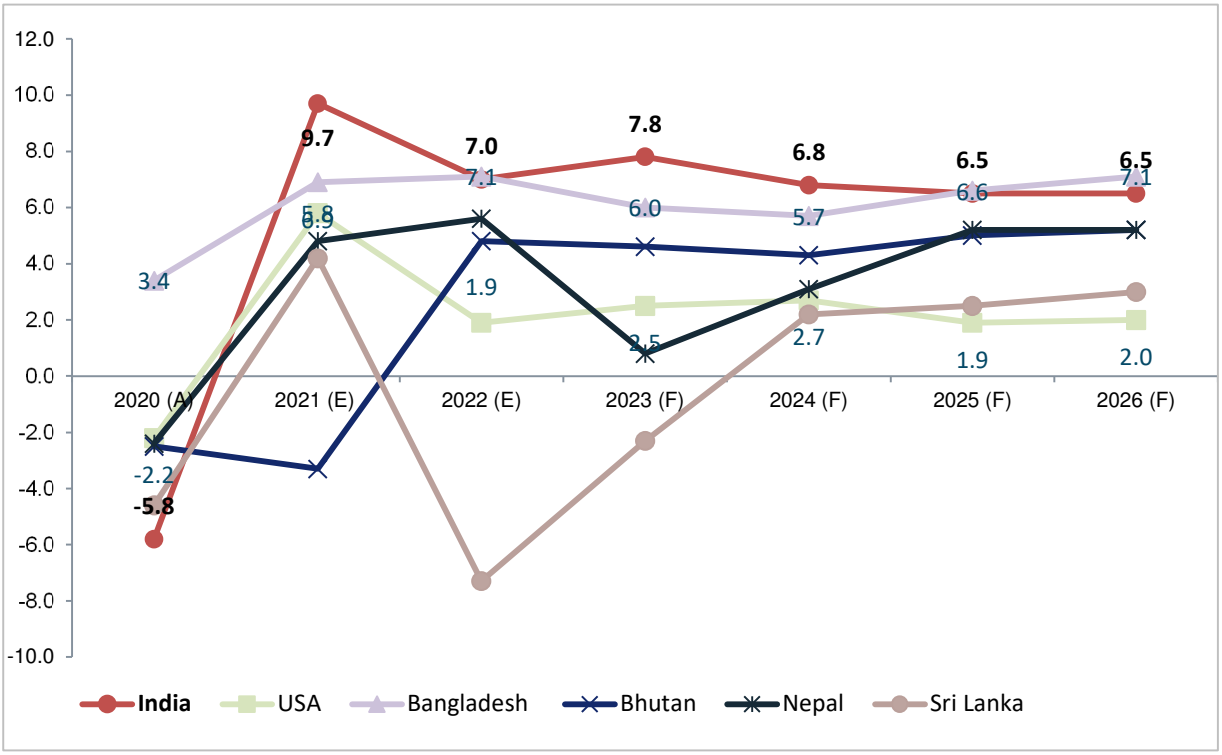
1.2. Real GDP for Key Regions:

India

India’s GDP growth grew from 7.0% in 2022 to 7.8% percent in 2023. Pent-up consumer demand has led to strong consumption, while historically high levels of public capital expenditure has supported strong investment. The pandemic-induced upsurge in global outsourcing demand pushed India’s service export growth to a decade high in 2023, boosting the country’s net exports. 2024 is anticipated to witness a strong growth in investment, owing to favorable macroeconomic fundamentals and supportive government initiatives. This is further supported by substantial corporate deleveraging and a decline in nonperforming loans in banks, which is anticipated to boost bank lending.

With the present of greater resources and human capital, India may experience an averagely faster economic growth than other SAARC countries. India's GDP growth rate is projected to remain high at 6.8% in 2024 and 6.5% in 2025, indicating a sustaining increase in domestic demand and a growing working-age population. Furthermore, the country's core digital public infrastructure has the potential to significantly improve the overall productivity through fostering innovation and competition, driving financial inclusion and strengthening public sector efficiency. The government's investment initiative will also boost its growth potential through building up capital.

Exhibit 2: Real GDP Growth Percentage (%), Key regions, 2020-2026



Note:
(A) indicates actual values, (F) indicates forecasted values
Source: IMF, World Economic Outlook Update, April 2024, Accessed 03/06/2024

United States

The United States economy has demonstrated resilience in the face of considerable fiscal and monetary policy tightening in 2022. It is anticipated that policy constraint has impacted the economy in 2023, with a minor rebound of growth later in 2024. Consumer demand has held up exceptionally well, supported by a fall in pent-up reserves, and more recently, by a strong increase in real disposable income. Towards the end of 2024, unemployment is predicted to progressively grow to approximately 4.5%. The forecast anticipates a weak return in labor market, affecting the productivity growth and slow activity will gradually reduce job vacancies.

Bangladesh

From a robust post-pandemic rebound of 7.1% in 2022, Bangladesh's GDP growth dropped to 6% in 2023. Rising living expenses have lowered real wages and decreased buying power, leading to constrained private demand.

The investment remained modest due to decreased in capital spending to protect foreign currency (FX) reserves. In August 2023, headline inflation hit a decade high of 9.9% year-over-year, caused by both ongoing cost-push shocks from the high and volatile food and fuel prices. Despite facing inflation and currency challenges, Bangladesh's economy is anticipated to grow rapidly in the coming years, primarily supported by the growing middle class and strong digital adoption. The GDP growth rate for 2024 is estimated at 5.7%. Steady export growth momentum is anticipated to be the primary economic driver, however, private demand is expected to be restrained as inflation continues and monetary policy tightens.

Nepal

The recovery of Nepal from the COVID-19 pandemic has been affected by global developments, mostly due to increased commodity costs. The economy was severely impacted by the pandemic, and it may take longer for some sectors, such as tourism to fully recover. Nonetheless, the pressure on the balance of payments and inflation has been compounded by the rise in food and energy prices worldwide, due to Russia-Ukraine conflict and the strong US currency. While inflation remains high, external sector pressures have stabilized, owing to government' policy response, including monetary policy tightening. In the near term, public infrastructure and development investments, hydropower projects, and the continued recovery in tourism are expected to bring growth close to estimates.

Sri Lanka

Sri Lanka's GDP growth has experienced significant fluctuation, particularly from 2020 to 2023. The country experienced economic contraction in 2020, primarily due to the global impact of COVID-19. This was followed by a significant rebound of 4.2% growth in 2021. However, Sri Lanka's economy plunged into a deep crisis in 2022, declined sharply to -7.3%, owing to the political instability, foreign exchange shortages and soaring inflation. The situation began to stabilize in year 2023, with a smaller contraction of -2.3%. Looking forward, the economy is projected to rebound to positive growth from 2024 to 2026, supported by ongoing economic reforms, international support including an IMF bailout and efforts to restore macroeconomic stability.

Bhutan

Bhutan's economy has shown resilience in recent years and it is experiencing a strong recovery since the COVID-19. The GDP growth rate is anticipated to record approximately 4.5% averagely, from 2022 to 2024, after 2 consecutive years of economic contraction due to COVID. The GDP growth rate is expected to further accelerate to record over 5.0% in 2025 and 2026, primarily driven by a resurgence in tourism and the development of hydropower projects. Despite these positive prospects, Bhutan faces challenges such as financial sector vulnerabilities, and the need for economic diversification. Addressing these issues will be crucial for sustaining long-term economic growth and stability.

1.3. Global Key Macro-Economic Indicators

Strong Government Investments in IT

Globally, government spending has been steadily rising, driven by the need for modernization and digital transformation across a wide range of public sector operations. The upsurge is primarily attributed to investments in software, automation and other digital transformation activities aimed at improving efficiency and service delivery. Governments are also increasingly focusing on replacing legacy systems with software-as-

a-service (SaaS) solutions, with the objective to better serve citizens and enhance operational efficiency. The focus on digital programs is apparent in many regions, with specific initiatives designed to meet local specific needs. For instance, the budget for Ministry of Electronics and Information Technology (MeitY) in India for 2024-25 rose by approximately 52% to Rs 21,936.9 crore, compared to the revised estimate for 2023-24, which was Rs 14,421.25 crore.

Growing Investments on IT from Enterprises Globally

A growing percentage of businesses globally are heavily investing in IT, indicating an intentional move towards IT transformation and technological innovation. Businesses are spending a greater amount on cybersecurity, cloud computing, artificial intelligence, data analytics and IT infrastructure. The surge in IT spending indicates how crucial technology is for the modern economy's resilience, innovation, and business growth. Indian enterprises are also raising their IT investment, drove by the demand for digital transformation across industries. The Information Technology-Business Process Management (IT-BPM) industry is extremely important in India's enterprise IT environment as it has contributed significantly to private-sector employment and established India as a top outsourcing destination for global IT businesses. Particularly, the banking and financial services sector has been very active in IT investment, accounting for most of the yearly contract value in the industry.

1.4. Global Macro Factors Affecting IT spends

The Information Technology (IT) market comprises a broad spectrum of products and services designed to offer technological solutions to various industries. Notwithstanding the difficulties posed by the recent pandemic, the IT industry has not only persevered but expanded. Globally, many businesses have migrated into the digital era as the consequence of the pandemic, leading to accelerated digital transformation and revolutionized labor practices.

The global economy continues to grow, positively impacting the IT spends. IT expenditure is being positively influenced by low unemployment, reduced inflation and improved sentiments. Businesses find lower cost pressure as inflation falls, which frees up capital for investments in IT services, software and infrastructure. Improved sentiments among businesses and consumers encourages greater willingness and readiness to invest in technology to stimulate innovation, enhance efficiency and maintain competitiveness in an increasingly digitalized economy, resulting in increased global IT investments.

Organizations across the world are investing significant amount of money and resources in projects such as cloud computing, artificial intelligence (AI), internet of thing (IoT), cybersecurity, data centers and digital infrastructure in order foster growth, boost agility, enhance customer experiences and stay competitive in the digital age. Outlined below are some of the other key macro factors affecting IT spends.

Government Initiatives Supporting the Growth of IT industry

Government initiatives and support policies are crucial to encourage sustainability, innovation and growth across various industries. Frequently, these initiatives encompass investment incentives and support programs designed to stimulate the involvement of private sector, boost economic growth and foster competitiveness. Support policies may include tax breaks, grants, subsidies, infrastructure development, regulatory support and investment for research and development (R&D). By implementing support policies, governments seek to attract

both domestic and foreign investments, support startups and small enterprises and improve sectoral performance.

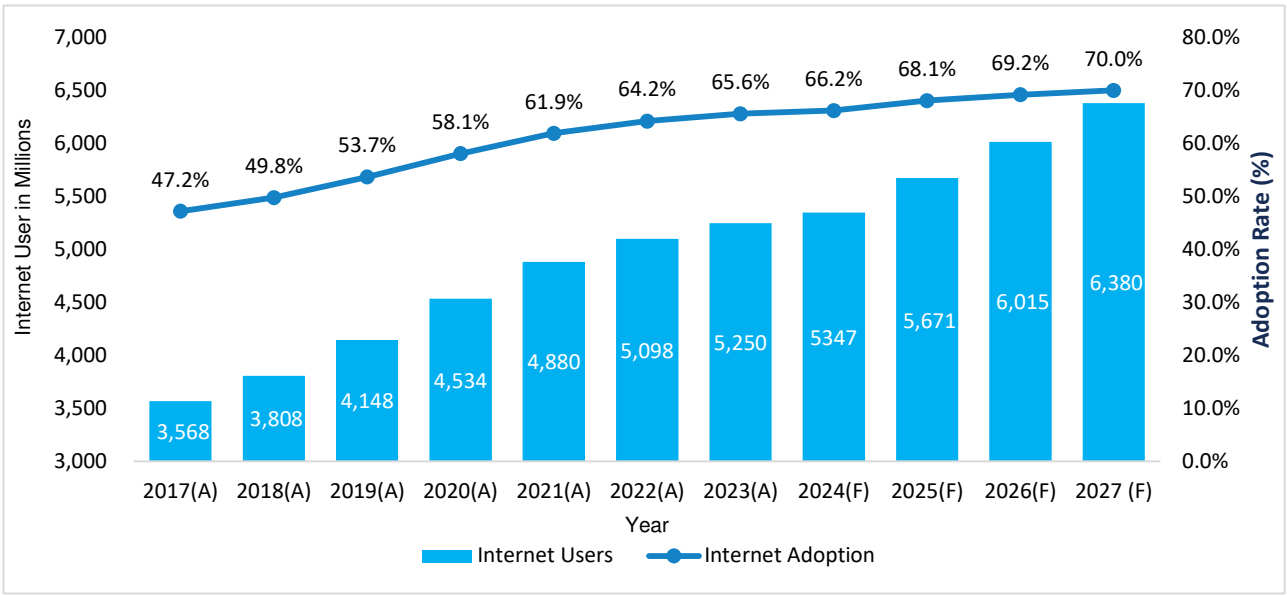
In the United States, programs such as the Digital Government Strategy has contributed to significant developments in digital technology, reinforcing the country's innovation leadership. Though this program has launched earlier in 2012, it continues to evolve with new priorities. For instance, there is an increased focus on Data-Driven Governance, Mobile-First and Cloud-First approaches. Furthermore, deregulation has facilitated the rapid rollout of 5G networks, which is necessary for digital transformation across various industries.

The Horizon Europe and Digital Europe programs demonstrate the European Union's dedication to technological advancement, with substantial investments in Artificial Intelligence, supercomputing, and cybersecurity. The Horizon Europe program dedicates a significant amount of its €95.5 billion budget to initiatives focused on digital innovation and transformation. Moreover, the Digital Europe Program is granted a €7.5 billion budget for 2021-2027. This program focuses on supercomputing, Artificial Intelligence, cybersecurity, and advanced digital skills.

Rising Internet Penetration

The growing number of individuals going online is certainly driving up worldwide IT spending. The demand for internet-enabled devices, such as laptops, tablets, and smartphones, increases along with the number of individuals and organizations connected. This drives the growth of the hardware sector and associated expenditure on IT. In terms of software applications, web browsers, productivity tools, communication platforms and entertainment services are in greater demand due to larger online population. As a result, it raises the expenditure on software licensing, subscriptions and development. Hence, investments in infrastructure development, such as the construction of fiber optic networks, towers and data centers are also necessary to increase internet access. These investments contribute considerably to the total Global IT spending.

Exhibit 3: Global Internet Users, 2017-2027, in Millions

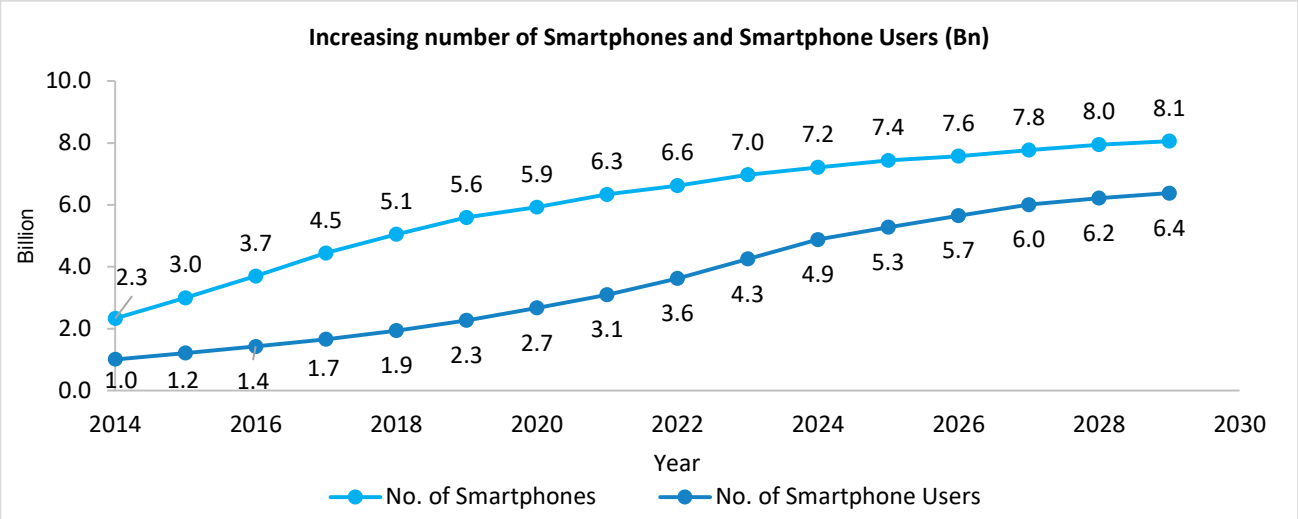


Note:
(A) indicates actual values, (F) indicates forecasted values
Source: Datareportal; Frost & Sullivan Analysis

Increasing Smartphone Penetration

Another important factor driving the growth in global IT investments is the growing use of smartphones in both urban and rural regions. The Global System for Mobile Communications Association (GSMA) estimates there will be 6.6 billion unique mobile subscribers globally, in 2023, with smartphones accounting approximately 83% of all connections. Hence, mobile data traffic is anticipated to increase significantly in the coming years, demonstrating the growing reliance on mobile internet. Expanding mobile data infrastructure and network capacity to handle the increasing traffic is also contributing to the rise in IT spending. The increasing demand for smartphones stimulates the expansion of the hardware industry, resulting in increased IT spending on production and distribution. Moreover, IT expenditure is further boosted by the growing number of smartphones being used, which fuels the development and maintenance of mobile applications and services.

Exhibit 4: Number of Smartphone & Smartphone Users, Global, 2014-2029 (Bn)



Note:
Actual values: 2019-2023; Forecasted values: 2024-2029
Source: Ericsson Mobility Report; Frost & Sullivan Analysis

Increasing Data Consumption by Enterprises

Data is growing at an exponential rate than ever before, with 90% of the world's data created in the last two years and the volume of data doubling every two years, according to information published by Rivery. This exponential increase in data consumption is driving enterprises to significantly boost their IT investments. As organizations generate and handle vast amounts of data, they are compelled to invest in advanced data management solutions, scalable storage infrastructure and sophisticated analytics tools to manage, store and derive insights from this data. These investments not only help enterprises manage the growing data efficiently but also enable them to leverage data to enhance strategic decision-making, driving innovation and competitive advantage in today's digital world. The adoption of remote and hybrid work environments has resulted in a greater dependence on cloud-based services and technologies, such as collaboration software, project management platforms as well and video conferencing applications. To facilitate remote workers and ensure data accessibility, businesses need to implement a strong cloud infrastructure. Additionally, it also requires

enhanced security measures to protect sensitive information from cyber threats, hence, further contributing to IT spending. These factors contribute significant amount of investment in Global IT spending.

1.5. Macro-economic Factors Impacting Growth in India

The Digital India campaign is an important program in India that aims to establish a knowledge economy and a digitally enabled society. This program demonstrates the transformative potential of digital technology to improve governance and service delivery. The key components of this project are developing digital infrastructure, providing government services online and fostering digital literacy. For instance, the Aadhaar system, an exclusive digital identity program that has improved efficiency and decreased corruption by improving access to various services and subsidies.

'Make in India' is another initiative by the Indian Government, aiming to transform India into a global design and manufacturing hub. Consequently, this program has a huge impact in the context of IT sector, fostering the growth of electronics and IT hardware manufacturing market in India, reducing dependency on import and creating more job opportunities. This program encourages the growth of India's IT sector through easing of regulatory processes, improving the infrastructure and granting incentives for domestic manufacturing.

Moreover, e-Governance is another notable initiative launched by the Indian Government, aiming to improve the public services delivery quality and enhance transparency and efficiency. DigiLocker, UMANG (Unified Mobile Application for New-age Governance) app and Government-Marketplace are some of the key focuses of this program. For instance, UMANG app is a platform that allows citizens to access over 2000 government services, supporting accessibility to government services and promoted digital transactions.

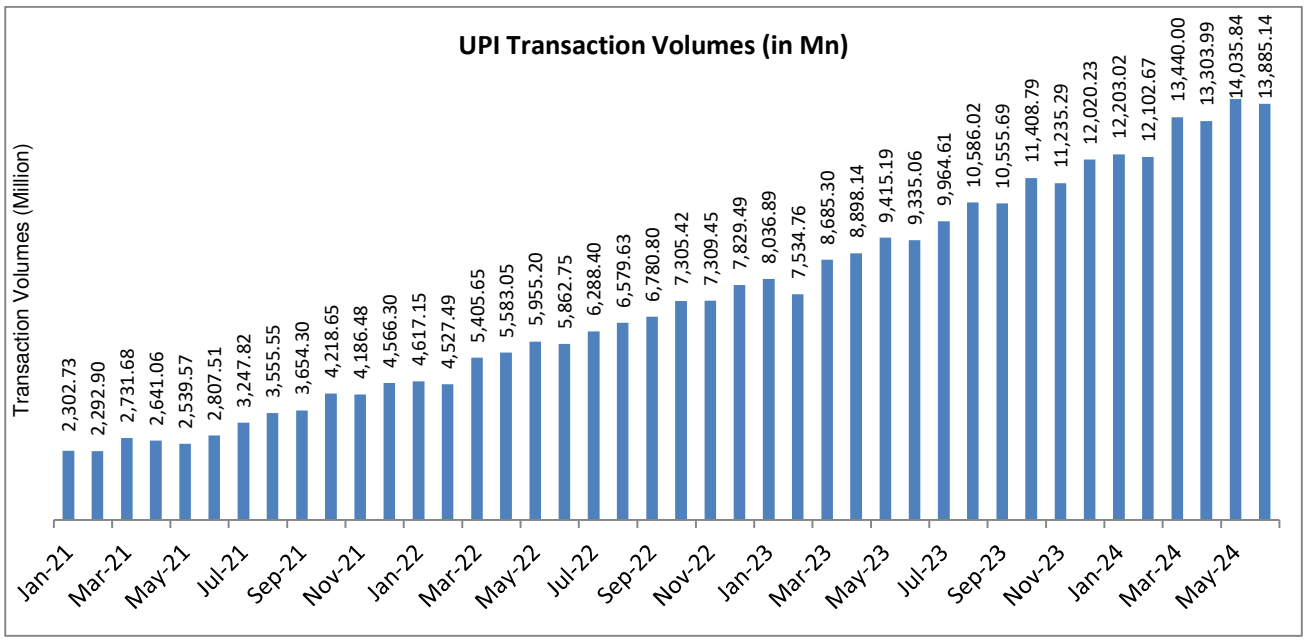
The government of India has given every Indian resident an Aadhaar, a 12-digit unique identity number. The initiative is overseen by the Unique Identification Authority of India (UIDAI), a statutory organization under the Ministry of Electronics and Information Technology. Aadhaar mainly functions as a form of identification and serves as the basis for KYC (know your customer) requirements used by banks, financial institutions, telecom carriers, income tax and GST authorities, and other businesses that maintain customer records.

Total Population of India	Number of Aadhaar Assigned	Saturation %
1,387,284,855	1,294,819,773	93.33%

Source : Uidai.gov.in, data as on 31st March 2023

The adoption of digital payment by Indian citizens has surged due to COVID-19, in order to reduce the risk of infection. Individuals have turned away from regular trips to ATMs and banks to the use of mobile wallets, UPI payments, NEFTs and IMPS. Currently, using digital ways of payment is becoming prevalent, from smartphone recharges to supermarket shopping and even high-value purchases, particularly in India's largest cities.

Exhibit 5: UPI Transaction Volumes (in Mn.), Jan 2021 – May 2024



Source: NPCI

UPI stands for Unified Payment Interface and it was established by the National Payments Corporation of India (NPCI) in collaboration with the Reserve Bank of India and the Indian Banks Association (IBA). UPI is significantly supporting the government's goal of achieving a cashless economy. Payments are performed via mobile phones that serve as virtual debit cards and users may transfer and receive money instantly without any hassle. The number of UPI transactions rose significantly, with a CAGR of 74% from January 2021 to December 2023.

2. IT Spends and Trends - Global

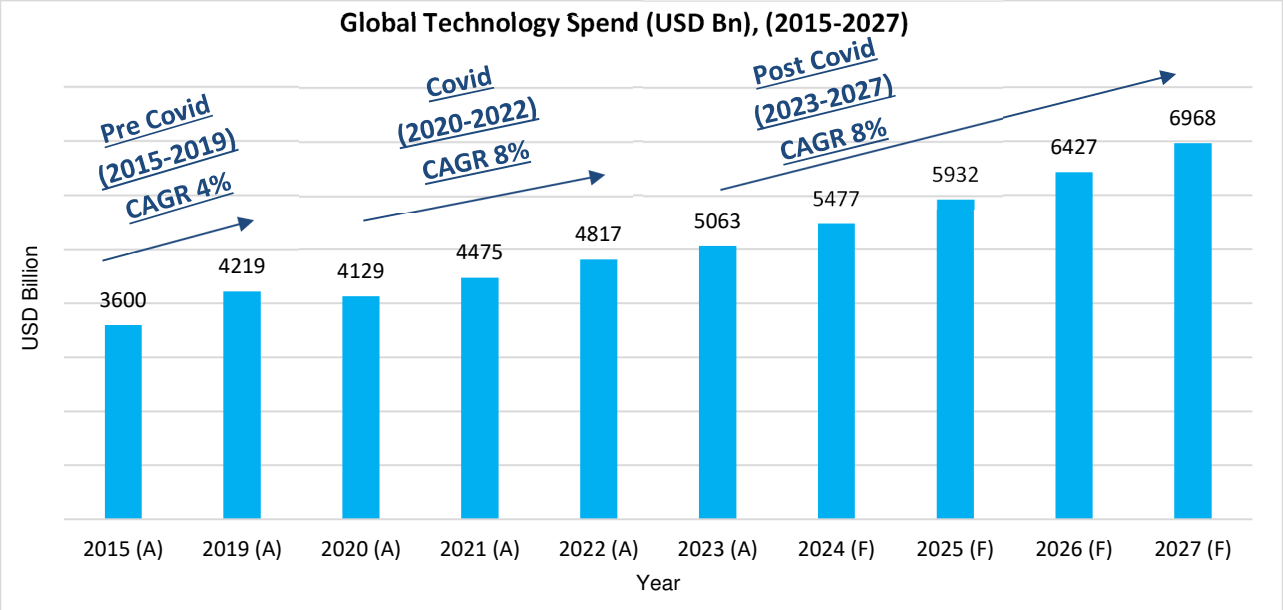
Global IT spends continues to grow, driven by factors such as advancements in technology, evolving customer preferences, competitive challenges, and the demand for efficiency and innovation. In order drive business growth and development, enhance agility, improve customer experiences and maintain competitiveness in the digital era, businesses worldwide are investing a significant amount of their budgets to IT related projects, including Cloud Computing, Artificial Intelligence, Cybersecurity, Data Centers, IoT and digital infrastructure.

Another mega-trend observed in recent years is the rising adoption of applications, as it allows seamless integration of advanced technologies, enhancing user experiences and fostering innovation across various industries. With the rise of cloud computing, AI and IoT, applications are becoming central to business strategies, allowing organizations to harness data, automate processes and improve customer engagement. This shift not only accelerates operational efficiency but also empowers businesses to adapt quickly to changing market demands, ultimately reshaping how services are delivered and consumed worldwide.

2.1 Overall IT Spend and Forecast – Global

The global IT industry is rapidly evolving, with businesses increasingly investing in in various sectors to stay ahead in today's fast-paced and technology-driven environment. Key areas such as Digital Transformation, Enterprise Resource Planning (ERP) software, Product Engineering Services, and Infrastructure Services are experiencing significant growth in global spend. Particularly, Digital Transformation initiatives are driving the growth of the IT Market significantly.

Exhibit 6: Global IT Spends, Key IT areas, 2019-2027, USD Billion

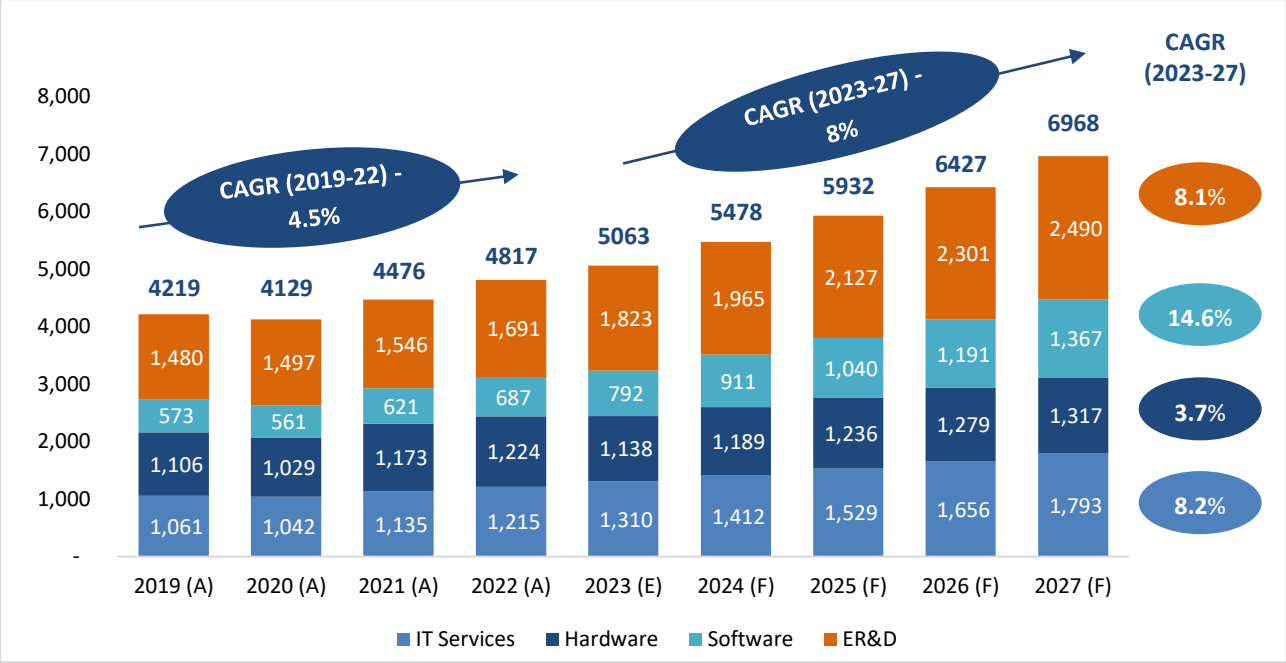


Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2020 to 2023, with market forecasts extending to 2027.
Source: Frost & Sullivan

Post COVID-19 era has had a significantly influence on the IT spends, focusing on remote or hybrid work environments and digital transformation projects, leading to higher demand for data centers and cybersecurity. According to Frost & Sullivan, it is estimated that IT spend will record over USD $6.9 trillion by 2027 from USD $5.1 trillion in 2023 at a CAGR of 8.3%. digital transformation projects across the industries will continue to accelerate, as businesses fucus on agility and innovation to adapt to changing market dynamics. Stronger cybersecurity awareness due to a rise in remote or hybrid work arrangements will lead to investments in robust security measures and threat detection technologies. Moreover, Artificial intelligence and automation are used to streamline processes and enhance efficiency in a remote work environment. Emerging technologies are also gaining traction, such as 5G and edge computing, enabling faster connectivity and real-time data processing. These growth drivers will lead to higher demand for data storage and processing, supporting the growth of data centers globally.

IT Services showed resilience and growth during and after the pandemic. Significant growth in IT services has been observed in recent years, primarily due to investments in cloud services, which is expected to be a priority in the coming years. Growth in this segment is anticipated to stay strong, with positive projections for the future as businesses seek to upgrade their IT infrastructure and digital platforms. There is a significant push for shifting away from legacy systems and toward flexible and efficient alternatives. Businesses are likely to invest more resources in technology to accelerate digital transformation initiatives, boost operational efficiency and maintain market competitiveness. With a forecast growth in deals across various industries, there will be a growing demand for technological solutions and services to support various aspects of business operations.

Exhibit 7: Global IT Market Size, 2019-2027, in USD Billion



Note:
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The market size data covers the period from 2020 to 2023, with market forecasts extending to 2027.
Source: Frost & Sullivan

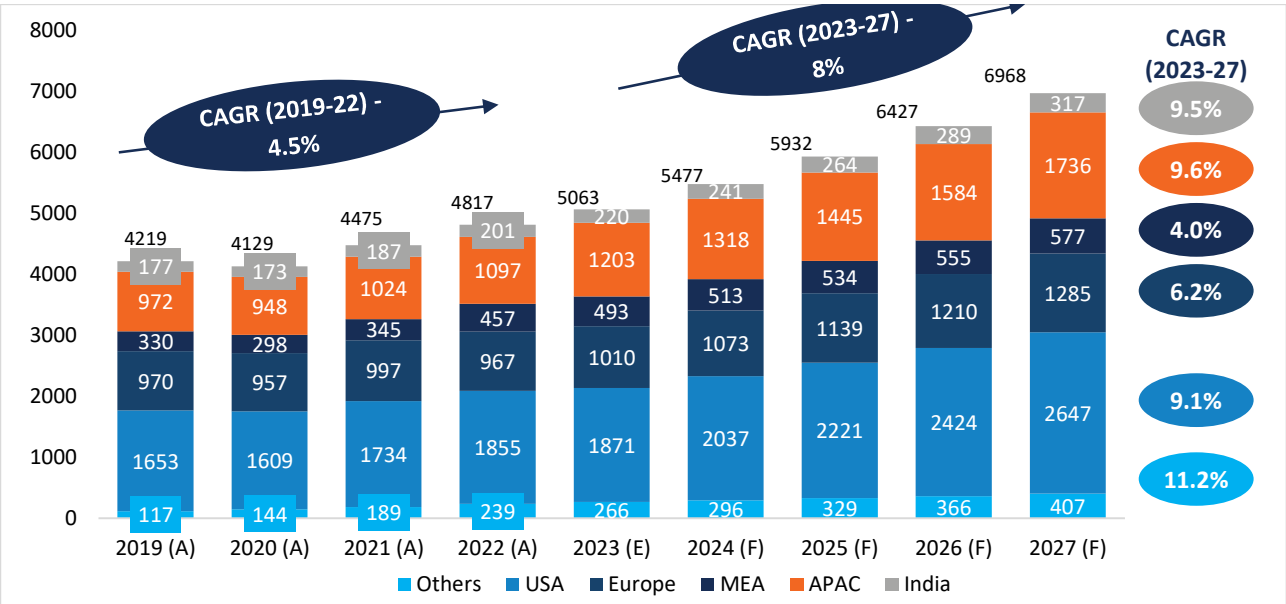
The global technology landscape is rapidly evolving, owing to the rapidly changing workplace dynamics, the need for digital transformation and an increasing demand for innovation. Key areas such as IT services, software and Engineering Research and Development (ER&D) are projected to experience ongoing growth, driven by businesses' commitment to modernization and technology-focused solutions.

IT services have shown resilience and growth during and after the pandemic, largely driven by investments in cloud services and it will remain as a primary focus for technology leaders moving forward. Hardware market remains stable, benefiting from the rise of remote work, telemedicine and online learning. However, short-term growth in this market is anticipated to be slow, as global crisis has reduced hardware spending while accelerating digital transformation initiatives. Whereas software industry has experienced substantial growth during and after the pandemic, as businesses prioritize spending on software to support their digital transformation efforts and this trend is anticipated to persist in the coming years. Lastly, investments in ER&D have been instrumental in driving technological innovations. Businesses aim to stay competitive and launch innovative products, hence, spending in ER&D is expected to rise steadily.

2.2 Overall IT Spend and Forecast – Regional

In terms of regional IT spends, US and APAC regions are estimated to continue to experience a strong growth, driven by a strategic shift towards cost efficiency and automation in response to a challenging economic climate. This emphasis, combined with a strong focus on cloud technologies and their security, is driving upward IT investments. Additionally, cybersecurity measures, particularly in the cloud, are receiving increased prioritization to address emerging threats and prepare for advancements like AI and generative AI.

Exhibit 8: IT Spends, Global, Regional, India, 2019-2027, USD Billion



Note:
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The market size data covers the period from 2020 to 2023, with market forecasts extending to 2027.
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

United States

With significant investments flowing into digital projects across multiple sectors, the United States is at the forefront of digital transformation. The epidemic prompted a surge in investments in IT in multiple industries, as businesses rapidly shifted to remote work environment, resulting in increased investment in cybersecurity measures, cloud computing and collaboration technologies. The healthcare sector in the United States has also gone through significant IT transformation initiatives, with telemedicine services seeing spectacular development.

APAC

In the Asia Pacific region, China is anticipated to have significant increase in technology investment. While Southeast Asia domestic technology expenditure in also predicted to grow. In addition, Japan is concentrating its investments on software and IT services. The long-term investment in Research and Development (R&D) are expected further support the IT spending in the region. Developing ASEAN countries are also showing stronger growth potential. Countries such as Vietnam, Indonesia, Malaysia, Thailand and Philippines are experiencing rapid digital transformation, primarily driven by increasing internet penetration, growing smartphone adoption and government initiatives to boost digital infrastructure. These countries are more focused on the development and investments on foundational IT, with a significant portion of their IT budgets allocated basic infrastructure development. However, there's a gradual shift towards increased spending on software and services as these countries aim to catch up with their more digitally advanced neighbors. The emphasis on digital inclusion and bridging the urban-rural digital divide is also shaping IT investment patterns in these developing ASEAN economies.

Europe

IT investment in Europe is anticipated to experience a strong growth, driven by a strategic push towards cost efficiency and automation in response to a difficult economic climate. Investments in IT projects are rising, owing to the increased focus on cloud computing and security. Notably, the industry has witnessed a strong growth in software and cloud-based services, with Infrastructure as a Service (IaaS) seeing significant growth. Furthermore, cybersecurity measures, particularly those associated with the cloud, are being prioritized to manage emerging cyber threats and prepare for the adoption of advanced technologies such as AI and generative AI.

GCC Countries

The GCC countries are seeing substantial development and investment in the IT industry. Governments are keen to attract international investment and establish technological hubs, particularly in emerging areas such as AI, biotechnology and green technology. Countries like UAE and Saudi Arabia are leading the way, spending substantially in digital infrastructure, smart cities and emerging technologies. This is further supported by well-developed diversification strategies and high institutional quality, leading to in increased investment in non-oil industries. This trend is boosted by favorable macroeconomic stability and ongoing reforms, which have positioned the GCC as a significant participant in the global IT growth.

India

India is poised to lead the IT investment in the region. The increasing expenditure on IT products and services is a tangible indicator of this phenomenon and it is transforming India's path towards becoming a digital powerhouse. Proactive government initiatives, such as the Digital India campaign, aim to bridge the technological gap between urban and rural areas by making government services online available. Increased government expenditure on digital initiatives and smart city projects is boosting IT adoption across public sectors. This has encouraged the improvement and growth of the domestic IT infrastructure, such as internet access, data centers and cloud computing.

The rising start-ups in India, particularly the rise of unicorns, is also contributing significant investments in cutting-edge technologies and digital infrastructure. Simultaneously, manufacturing and healthcare industries are undergoing rapid digital transformation, leading to heightened IT investments in areas such as IoT, AI, and data analytics. The IT-enabled services (ITeS) sector also continues to expand, requiring further investments in advanced IT systems and cloud technologies. These initiatives from various sectors are collectively driving India's IT spending.

2.3 Various Sectors Catalyzing the Growth of IT Industry

The need for continuous innovation emphasizes the various approaches that different industries have adopted to utilize technology to enhance resilience, efficiency, and growth. While the COVID-19 has accelerated the digital transformation of certain industries, some other industries are adapting to new trends and opportunities. The constantly evolving digital environment is anticipated to encourage continuous innovation and adaptation in technology investment across various industries.

Retail and BFSI industries have long recognized the crucial role of technology for their business operations. These industries employed analytics and Artificial Intelligence to effectively embrace digital services for business continuity throughout the pandemic. The adoption of AI, cloud computing and blockchain technologies has been particularly strong in these sectors. These sectors are expected to continue investing in technology's capabilities, particularly for operations related to customer service, data-driven decision-making.

Manufacturing industry, which generally considered as a late adopter of technology, has learned the importance of data to improve operational efficiencies. There is an increased focus on Industry 4.0 technologies, automation and data analytics solutions to enhance productivity and competitive edge. Particularly, automation and Internet of Things (IoT) investments are increasingly prevalent, allowing businesses to adapt to unforeseen issues such as global crises.

The challenges of maintaining critical healthcare infrastructure and delivering high-quality treatment have led to an exceptional growth in technology investment in the healthcare and life sciences industries. Significant digital transformation initiatives are implemented by the Healthcare industry, particularly in the wake of COVID-19. Additionally, Life Sciences continues to invest in advanced technology, which spurs innovation in medical research and healthcare delivery.

Moreover, telecom industry continues to play an important role in driving the growth of India’s IT industry. Telecom companies are increasingly investing in IT infrastructure and network solutions, by focusing on the

rollout of 5G networks and increasingly focusing on digital services. These initiatives are crucial, as it serves as a backbone for digital transformation initiatives among businesses in India.

2.4 Factors Driving IT Spends

Adoption of digital technologies is becoming increasingly important for businesses and driving IT spends globally, however, it's crucial to recognize what factors are driving this evolution. The following are some of the primary factors driving IT market globally.

Optimizing Revenue Generation

By embracing digital technologies, businesses may explore unexplored markets and new revenue streams. businesses can extend their reach beyond conventional boundaries, by adopting digital marketing, e-commerce, and online platforms. Real-time data collection and analysis become possible for businesses through digital transformation. Effective revenue generation is facilitated by data-driven decision-making, which not only increases competitiveness but supports in predicting consumer preferences and market trends at the same time.

Customers' requirements are ever evolving, as technology advances, the focus on efficiency is particularly evident. Interaction with customers become easier and faster, hence, customers require their requests to be fulfilled immediately. Customer experience is a critical element of business success; thus it is in a company's best interest to invest in the technology required for efficient customer engagement.

Market Competitiveness

In a fiercely competitive environment, businesses seek to distinguish themselves through digital innovation. Adopting digital technologies allows them to remain competitive by introducing cutting-edge products, services and business models. This innovation not only attracts customers but also encourages an organization-wide culture of continuous development and growth.

Business Resilience

The COVID-19 pandemic along with additional recent global crises have drawn attention to the vitality of business resilience. Remote work, disaster recovery and business continuity planning are all possible owing to the advancement of digital technologies, which ensures that operations remain functional even in challenging environments. It offers the flexibility required to deal with unforeseen issues.

Employee Productivity and Engagement

Modern employees are expecting digital systems/tools that enable remote work, collaboration and seamless communication. Digital technologies boosts productivity and engagement by offering the tools and flexibility required by the workforce. Engaged workforce are more driven and contribute to the organization's success.

2.5 IT Technology Segment Trends

Global IT technology trends are rapidly evolving in recent years, with enterprises increasingly adopting advanced applications across various segments, including some of the key segments such as cloud computing, AI and cybersecurity solutions. The surge in data consumption is also driving investments in data management and analytics tools. This widespread adoption of advanced applications by enterprises is significantly impacting the IT landscape, leading to increased IT spending and accelerated digital transformation initiatives, as businesses

leverage these technologies to gain competitive advantages. The global IT market continues to expand, reshaping industries and driving innovation across sectors.

Cloud Computing

The cloud computing market has experienced a surged in the past few years and it is estimated to continue to be a major driver of IT spending globally. Increasing adoption of hybrid and multi-cloud strategies across various industries is the main growth driver for this market segment, as businesses are leveraging cloud technologies for their scalability, flexibility and cost-effectiveness. The trend towards serverless computing and the adoption of Infrastructure-as-Code (IaC) techniques are further fueling this growth. Major cloud providers like AWS, Microsoft Azure, and Google Cloud are expanding their presence globally, particularly in emerging markets like India. The adoption of hybrid cloud is also growing rapidly as businesses are leveraging the benefits of both public and private cloud environments. It allows businesses to have more control over applications, enhance security and comply with regulatory requirements.

Cloud platforms support centralize data management, enable remote monitoring and control in connected buildings. Cloud-based data centers offer cost-effective storage and compute resources, while cloud-based networking solutions provide scalability and flexibility.

According to F&S estimates, cloud computing market is estimated at USD 618 billion in 2023 and it is projected experience a strong growth at a CAGR of 19.5% from 2023 to 2027, estimated to reach USD 1,261 Billion.

Artificial Intelligence (AI)

Artificial Intelligence has started gaining traction since a few years ago, become an increasingly significant element global IT spending. Globally, various sectors such as healthcare, finance, manufacturing and retail are heavily investing in AI. Moreover, the recent advancements in generative AI have sparked a new wave of investment and innovation among these industries. Businesses are increasingly leveraging AI for improved decision-making, process automation, customer service enhancement and product innovation. In particular, the integration of AI with cloud services is also increasingly popular and major cloud providers are offering AI and machine learning platforms.

According to F&S estimates, the global spend on AI and Machine Learning is estimated at USD 96 billion in 2023, growing at a CAGR of 46.6%, reaching USD 443 billion by 2027. In terms of GDP contribution, AI-related investment may hit as high as 2.5% to 4% of GDP in the US and 1.5% to 2.5% of GDP in other major AI leader countries.

Cybersecurity

Cybersecurity is more critical than ever in the modern digital era. As a result of the continuous digital transformation, technology is becoming more and more important in our daily lives, both personal and professional lives. Though there are numerous advantages and conveniences associated with the technological transformation, it has created new cyber threats and challenges that call for a robust and effective cybersecurity plan.

Cyber-attack is rising owing to the growing integration of digital technology with critical infrastructure such as transportation networks, energy grids, and healthcare facilities. As these systems become more interconnected

and reliant on digital platforms, they become more vulnerable to cyber threats which can disrupt operations, expose sensitive data and even threaten public safety. According to IBM's 2023 Cost of a Data Breach Report, the global average cost of a data breach in 2023 reached $4.45 million, up 15% from $3.86 million in 2020. Number of IoT cyber-attacks worldwide have doubled from 57 million in 2020 to 112 million in 2022. Industry experts predict that this issue will continue to worsen as these critical infrastructures are becoming more digitally dependent and interconnected.

Hence, businesses around the world are allocating more resources and investing heavily in cybersecurity solutions. Another significant driver of investment is the need to protect Intellectual Property, which is critical for sustainable business growth. Data or information intelligence is the key differentiator for today's business, as protecting critical data is vital for maintaining a competitive edge and ensuring long-term success. Robust cybersecurity measures will protect businesses against cyberattacks, as well as increase the value of IP, highlighting the importance of effective Information Lifecycle Management (ILCM) strategies in the digital landscape. According to Frost and Sullivan, this segment is anticipated to maintain a healthy growth in the coming years.

As a result, Governments and businesses along with cybersecurity solution and service providers worldwide are investing significantly in innovative technologies and cybersecurity strategies mitigate the risks associated with these high-stakes scenarios.

Application Life Management & Cloud

The growing demand need for DevOps and agile methodologies is driving the Application Life Management (ALM) market. As software development becomes increasingly complicated, the demand for ALM tools is growing given the features these tools offer version control, testing and requirements management, which helps businesses in managing complexity and ensuring seamless development and delivery. DevOps is redefining technology by bridging the gap between software development and IT operations. It reduces the time for software development and prioritizes cooperation, continuous integration and quick deployment. It helps companies to respond quickly to the evolving customer requirements, implement new features smoothly and stay ahead of the competition.

The market is being positively impacted by the growing demand for application security and vulnerability management, as ALM solutions that combine security testing and secure coding techniques assist businesses in identifying and mitigating security risks at an early stage of development.

Information Lifecycle Management

In a world increasingly dominated by digital content, data storage is critical for maintaining, organizing, and protecting diverse types of data. This covers all types of media, including databases, application files, videos, text and images documents. The development of big data analytics requires comprehensive and scalable storage solutions. As businesses recognize the value of data-driven insights, the demand for greater and more efficient storage capabilities grows. The data storage industry is growing, owing to the continuous advancements in storage technology, including the development of faster and more reliable storage devices. The demand for cloud-based storage solutions is increasing in line with the rising adoption rate of cloud computing. This trend is fueled by cloud storage's scalability, accessibility, and cost-effectiveness.

Data Center Infrastructure

Data processing and storage have undergone a major revolution, due to the growth of cloud computing. Cloud service providers have generated significant demands for data center infrastructure to handle the growing number of virtual machines, storage capacity and networking resources they offer to their customers. Hence, data center operators have responded to the growing demand by expanding and upgrading their facilities, which has in turn driven the market growth. On the other hand, the IoT and big data have resulted in an explosion of connected devices and data generation. Big data analytics requires a large amount of processing capacity to extract useful insights, IoT devices continuously collecting and transmitting data.

Operational Technology (OT) and Internet of Things (IoT)

Operational Technology (OT) and Internet of Things (IoT) involve the use of hardware and software to monitor and control physical devices, processes, and events in enterprise environments. In today's data driven world, IoT plays a pivotal role across industrial and consumer sectors. The adoption of IoT has surged, highlighting the importance of connecting devices and collecting valuable data. IoT applications will experience a huge development across various industries with the convergence with AI and 5G connectivity. It is estimated that this segment will continue to grow at a CAGR of 11.12% from 2023-2027, recording a market size of USD $1,583 Billion by 2027.

Advanced Analytics

Advanced analytics is driving the digital trends as it allows businesses to gain insights from massive amounts of data generated daily. Businesses are transforming their decision-making processes by leveraging data-driven strategies and utilizing approaches such as machine learning, predictive modelling and statistical analysis.

It helps businesses to identify patterns and anomalies in vast datasets, allowing businesses to take a proactive approach in threat detection and response. Advanced analytics also helps businesses to optimize network performance, predict traffic patterns and automate tasks. Additionally, the adoption of advanced analytics in data centers allows businesses to improve resource allocation, optimize workloads and enhance scalability, hence, driving innovation and cost savings.

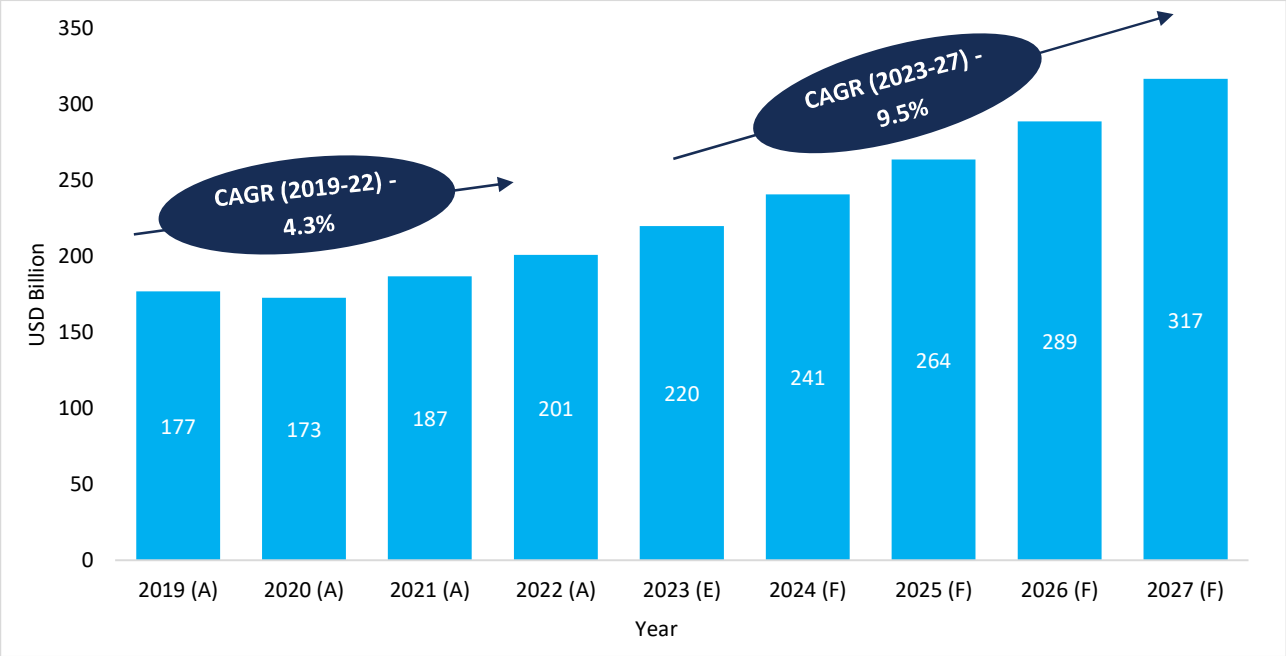
IT Services

IT services sector, another significant component of IT spends, consists of a wide range of services such as consulting, implementation, managed services and support. Digital transformation is driving demand for IT services across all industries. Particularly, cloud migration and modernization services are receiving attention, as organizations move towards cloud-based infrastructures. Cybersecurity services are also gaining popularity due to the growing threat landscape. The increasing adoption of AI and automation is leading to new service offerings such as AI-as-a-Service and Automation-as-a-Service. The trend towards IT outsourcing services continues to rise, particularly among small and medium-sized businesses looking to access advanced technologies without significant upfront investments.

3. IT Spends and Trends – India

Indian government aims to stimulate economic growth by enhancing technological capabilities and create a conducive digital environment. The Government has implemented tax breaks, research grants and subsidies, covering multiple domains such as national ICT infrastructure, cybersecurity projects, digital payment to foster the growth of the digital economy. Some of the tech giants such as Amazon and Google have established R&D centers in India to take advantage of the large pool of IT talents. India is also recognized as the 3rd largest IT start-up ecosystem in the world, together with approximately 1.5 million IT engineers graduate each year, it makes India one of the fastest growing IT ecosystems worldwide.

Exhibit 9: IT Spends, India, 2019-2027, USD Billion



Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2020 to 2023, with market forecasts extending to 2027.
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

IT spending in India is anticipated to grow at a comparatively stronger CAGR than previous years, growing at a CAGR of 9.5% from 2023 to 2027, recording over US$ 317 billion by 2027. This is primarily supported by the Government initiatives and the presence of large tech giants, leading to rising investments in this sector. The Government initiatives may attract more foreign investments, encourage local entrepreneurship and foster innovation in various IT segments. As a result, a greater demand for IT services and products is anticipated, leading to both domestic and international markets growth. This positive feedback loop will strengthen India's status as a global IT powerhouse, supporting economic growth.

3.1 Government Initiatives and Support Policy for the Sector

- 'Make in India' campaign is launched by the Indian government, aims to establish the country as a global leader in design and manufacturing hub. This initiative has significantly boosted the IT sector,

particularly in electronics and IT hardware production, reducing import reliance and generating employment opportunities.

- E-Governance, another key government program that focuses on enhancing the delivery of public services while promoting transparency and operational efficiency. This digital transformation of government services aims to streamline processes and improve citizen interaction with various government departments.
- Aadhaar, a unique 12-digit identification number issued to all Indian residents, has become a cornerstone of digital identity verification. This system serves as a universal ID, facilitating Know Your Customer (KYC) processes for various entities including banks, telecom providers, tax authorities, and businesses, streamlining identity verification across multiple sectors.
- India's data center boom is fueled by the Digital India initiative, data localization laws and supportive government policies. The budget for digital infrastructure has increased significantly, reflecting a commitment to advancing technologies like AI, IoT, and big data.
- Indian government has strengthened its cybersecurity framework through initiatives like enhancing CERT-In, expanding the Cyber Surakshit Bharat program, and establishing the National Critical Information Infrastructure Protection Centre (NCIIPC).
- Cyber Swachhta Kendra, managed by CERT-In, collaborates with internet service providers and cybersecurity firms to combat cyber threats. It provides users with tools and information for malware detection and botnet mitigation.
- In 2022, MeitY introduced the National Data Centre & Cloud Policy to elevate the data center sector's status to infrastructure. This policy aims to establish multiple data center economic zones (DCEZs) across India, fostering an ecosystem that supports hyperscale data centers and cloud service providers.
- MeitY has laid a foundation for AI advancement with the National Strategy for Artificial Intelligence. Initiatives by NASSCOM and DRDO focus on fostering innovation and collaboration between industry and academia.

3.2 Key Market Drivers Propelling the Growth of IT industry

Numerous factors are driving the growth of IT industry in India, outlined below are some of the key market drivers contributing to the IT industry growth in India

- Increasing IT Spending from both Government and enterprises: Indian IT sector is witnessing a surge in spending from both Government and private sectors, indicating significant growth in the coming years. This surge is primarily driven a rising demand for IT and business services, as businesses companies across various sectors, particularly manufacturing, BFSI and healthcare seek to enhance their technological capabilities to remain competitive and ensure sustainable business growth. The focus on digital transformation and modernization is also pushing businesses to invest more in IT infrastructure and services.
- India serves as a popular IT offshoring destination for various countries and serving businesses worldwide. Indian IT companies have established a strong presence in IT offshoring services globally, with numerous delivery centers within the country, particularly due to the cost-effectiveness and skilled IT workforce. This global reach allows Indian IT firms to serve international clients efficiently and maintain a competitive edge in the global market.

- India also benefits from a large pool of tech talent, which is a significant asset in today's digital age. Coupling with global tech giants such as Microsoft, Google, AWS significant investments in India, foreign investments have been pouring into the IT sector, reflecting global confidence in India's IT capabilities. These investments will help to drive innovation and expansion of industry domestically and even globally.
- As discussed in Chapter 3.1, Indian government has been proactive in supporting the IT sector through various initiatives and government policies. Significant budget allocations and effort have been made to promote IT segments like cybersecurity, AI and blockchain technology. Additionally, India Government strive to a conducive environment for tech companies to thrive and innovate.
- Indian enterprises are increasingly recognizing the importance of investing in emerging technologies such as such as cloud computing, cybersecurity, AI, and 5G to ensure sustainable business growth and competitiveness. Particularly technologies for enhancing customer experiences, optimizing IT infrastructure and integrating AI into decision making processes are gaining traction.

3.3 Challenges Hindering the Growth of IT Industry

India's technology industry remains as a key employment sector. Despite significant progress of Indian IT industry in recent years, several challenges such are hindering the growth of this market.

- **Employee Attrition Rates:** Indian technology companies continue to struggle with high attrition rates, particularly among professional with strong experience and expertise in digital technologies. To retain talent, companies are offering competitive salaries and bonuses. The shift towards digitalization and new technologies has also led to layoffs of employees lacking necessary skills, while the rise of e-commerce industry and tech startups has provided alternative employment opportunities.
- **Lack of Right Talent/Skilled resources:** There is a significant shortage of IT professionals worldwide, including India, particularly for professionals with experience and expertise in technologies such as AI, machine learning, blockchain, IoT, cybersecurity and data analytics. Hence, businesses are competing to hire individuals with expertise in these areas, highlighting the urgent need for specialized talent in the industry.
- **Economic Slowdown:** Indian technology sector is heavily influenced by global economic conditions and the recent downturn has reduced job opportunities. This economic uncertainty exacerbates the challenges faced by the sector, impacting growth and employment prospects.
- **Complexity of IT Industry Landscape**: Businesses must navigate numerous options from various OEMs in each IT segment, ensuring that the solutions are chosen appropriately and compatible with existing IT infrastructure. It leads to complicated decision-making and integration efforts, consuming additional IT resources and skills.

3.4 Importance of Cybersecurity

Cybercrime Impact

Cyber-attacks have evolved significantly in the past few years. Previously, cyber security attacks such as malware attacks, worms, trojan horse and other viruses could be easily detected and blocked by security systems in place. However, cybercriminals are now exploiting the advancement of technology, employing cutting-edge technology such as ransomware, crypto-jacking and artificial intelligence to target critical infrastructures, government facilities, and large businesses.

Cybercrime has evolved to be a global threat, causing damage to finances and reputations of individuals, businesses and governments all around the world. The World Economic Forum reported that scammers worldwide stole over $1 trillion from the victims in 2023.

Cybercrime is on the rise in India, one of the digital economies with the highest growth rate worldwide. According to Surfshark's Global Data Breach Statistics, India was recently ranked 5th out of all the breached nations in 2023, with an enormous 5.3 million compromised accounts. Whereas in 2022, India was 7th on the list. The Minister of State for Electronics and Information Technology revealed the shocking statistic of 13.91 lakh cyber security incidents affected India in 2022, during a parliamentary session in February.

Increasing Cybercrime Related Instances and Importance of Security

Though digital transformation has contributed to making it accessible for us to interact and collaborate in efficiently, it also created an enormous amount of connected systems and devices that is vulnerable to cyber-attacks. Ransomware attacks, scams, and data breaches are examples of cybersecurity threats that have grown in sophistication, frequency and severity, owing to the acceleration of digital transformation, posing significant risks to both individuals and businesses.

Digital transformation has enabled us to connect and collaborate in unprecedented ways, but it has also created a vast network of interconnected devices and systems that can be vulnerable to cyber-attacks. Cybersecurity threats such as data breaches, ransomware attacks, and phishing scams have become more sophisticated, frequent, and severe, causing significant harm to individuals and organizations.

Cyber-attacks can impose significant consequences. It may result in financial losses, damage to an individual's reputation, loss of intellectual property and legal consequences. Criminals can disrupt operations, lead to downtime and destroy customer and stakeholder trust and confidence.

Outlined below are some of the critical elements in today’s digital era:

Protection of Sensitive Data: Data is the new currency in the modern digital age. Massive volumes of data, including financial, intellectual property and personal information are generated and collected by individuals as well as businesses. Cybercriminals are constantly looking for ways to steal or misuse such valuable data. To prevent identity theft, data breaches and unauthorized access, it is essential that robust cybersecurity measures are implemented to protect sensitive data.

Compliance with Regulations: To ensure sure that businesses and individuals protect sensitive data and minimize cyber threats, Governments and regulating bodies are enforcing cybersecurity regulations more often than before. Compliance with these regulations is important to gain and maintain trust and confidence of stakeholders and customers, as well as avoid legal issues.

Business Continuity: Business continuity is essential in the event of a cybersecurity breach. Businesses need to ensure their business operations function smoothly by implementing a robust cybersecurity strategy, preventing, identifying and responding to cyber incidents.

Mitigation of Cyber Threats: Cybercriminals are increasingly skilled in their tactics and cyber risks are constantly evolving. Hence, a strong cybersecurity strategy is essential to help businesses in mitigating these risks, by identifying threats, taking preventative measures and responding swiftly to cyber incidents.

In short, cybersecurity is crucial in this digital transformation era. Protecting sensitive data, minimizing online risks, complying to regulations and ensuring business continuity are all critical. Businesses need to be proactive to ensure that they implement a strong cybersecurity strategy to protect their assets, maintain the confidence of customers and stakeholders, and stay ahead of potential cyber-attacks in the constantly changing digital arena.

Increasing Need for Cloud Security

Cloud-native security solutions have become increasingly important as businesses continue transitioning to the cloud. Securing the cloud workloads and having a complete visibility on the overall infrastructure has risen, amidst the challenges seen by Enterprises and Governments.

Unified Security Management Platform, a converged platform of point security products, has become increasingly popular as it can monitor security across various cloud environments. These systems use orchestration and automation to automate security procedures and minimize the risk of human errors. It is anticipated that the demand will continue to rise in the coming years. Additionally, Secure Access Services Edge (SASE), a comprehensive cloud-based network security model that has been gaining traction in recent years. It is an innovative approach that integrates various networking and security functions, such as Firewall as-a-service (FaaS), Secure Web Gateway (SWB)m Cloud Access Security Broker (CASB) and Zero Trust Network Access (ZTNA) into a single and unified service. Though its core focus is network security, SASE's cloud native architecture emphasizes secure access to cloud applications and consists of endpoint security aspects. SASE is a forward-thinking approach and it is becoming an essential part of modern security strategies.

Moreover, cloud security solutions that can automatically impose industry standards and regulatory requirements are gaining attention by businesses to address compliance issues. By ensuring compliance to global regulations like GDPR, HIPAA, PCI DSS, various other industry specific regulations, as well as the local regulations such as sector-specific regulations by RBI and IRDAI guidelines for BFSI industry in India, these solutions assist businesses in maintaining a robust security posture. In short, automated cloud security solutions are particularly important for countries with complex regulatory landscape.

4. Market Size & Overview of IT Transformation in India and Focus Geographies

4.1 Trends in IT Transformation

The SAARC region presents a diverse and rapidly evolving market for information technology (IT) products and services. The IT industry in SAARC countries, such as India and Sri Lanka are steadily expanding, owing to the rising internet penetration, government initiatives and the widespread adoption of digital technology among businesses.

India, being the region's largest economy, plays a significant role in reshaping the IT industry. With a population of over 1.3 billion and growing middle class, making India a significant market for IT products in the region. Businesses in India are recognizing the importance of technology to improve productivity, stimulate growth and foster customer satisfaction. Consequently, businesses have been investing in a variety of IT solutions and services, leading to an increase in IT spending in the region. The need for digital transformation is one of the main drivers for IT investment in India, leading to an increased focused on digital transformation projects, with investments in cloud computing, big data analytics, data center, Artificial Intelligence and IoT.

Moreover, COVID-19 pandemic has boosted the adoption of remote work and collaboration technologies, raised the demand for IT solutions that offer seamless communication, enhanced productivity and security in a distributed work environment. It is indicated that the pandemic has caused a spike in demand in India for cybersecurity solutions, virtual desktop infrastructure and cloud infrastructure solutions.

Businesses in India are investing significantly on enterprise applications. The growing adoption of Supply Chain Management (SCM), Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) solutions is projected to drive the growth of the enterprise application market in India in the next few years.

To cater the increased data and processing requirements, businesses are also increasingly spending in networking hardware, servers, storage systems and other infrastructure improvements. Hybrid cloud computing services are becoming increasingly prevalent as businesses seek scalable and affordable solutions for their IT environments. It is anticipated that the growing usage of cloud-based solutions across various industries will lead to tremendous growth of clod computing, storage and data center markets in India.

Robust security measures, storage and networking solutions are becoming critical as businesses in the India are embracing digital transformation and generate enormous volumes of data. The rise of phishing attempts, malware attacks and data breaches in India are making businesses in the region to invest in advanced cybersecurity solutions. Businesses in India are investing significantly in firewalls, antivirus software, intrusion detection and prevention systems and identity and access management solutions.

Moreover, as the exponential growth of data generated by businesses, investments in scalable and efficient storage solutions have also increased simultaneously. The increasing adoption of technologies such as compression and tiered storage are expected to drive the growth of the enterprise storage market in India.

Additionally, networking infrastructure is also an important area of IT investment in the region as businesses require high-speed and reliable connections to support their operations, enable remote work and allow seamless communication with customers and partners. The increasing popularity of technologies such as network virtualization, software-defined networking (SDN) and 5G networks are driving the growth of networking solutions in India.

Businesses are making substantial investments in Application Lifecycle Management (ALM) and associated services in India, to improve their software development and maintenance processes. With the increasingly importance of DevOps and agile approaches, advanced ALM solutions are required. Additionally, as businesses are increasingly focus on cybersecurity, DevSecOps approaches are being integrated to ensure that security is embedded in the application development processes. The demand for advanced ALM solutions is rising, owing to India's booming IT services sector, which serves customers across the world.

4.2 Trends in Focused IT Segments

Driven by government programs, technology companies and startups, the IT transformation climate in India and other SAARC countries is highlighted by the rapid adoption of cutting-edge technologies such as cloud computing, Artificial intelligence (AI), Machine Learning (ML) and Internet of Things (IoT). India is focusing on enhancing digital infrastructure, boosting digital literacy, and fostering innovation, whereas other SAARC regions are developing digital infrastructure, digitizing government services and enhancing digital financial services to increase financial inclusion. The SAARC region is positioned for rapid growth, with India leading growth, other SAARC countries achieving different levels of progress. With the growing emphasis on digital service delivery across sectors, the rapid digitization of customer-facing and internal processes - including application deployment and maintenance - and the consequent demand for multi/hybrid-cloud infrastructure and cybersecurity solutions and associated services market is poised for significant growth in the near future.

Adoption of Hybrid Cloud

A hybrid cloud architecture integrates two or more cloud service from multiple cloud OEMs. India is rapidly adopting hybrid cloud solutions, owing to data sovereignty, cost-effectiveness and scalability requirements. It is becoming increasingly prevalent among businesses and the government, partially contributed by the new services like Google Distributed Cloud, which are air-gapped edge solutions that offer flexibility and data sovereignty to meet changing compliance demands. The public sector is embracing cloud computing, due to government programs such as GI Cloud. To cater the rising demand, major cloud providers such as AWS, Microsoft Azure, and Google Cloud have established up various availability zones in India.

The adoption of cloud usage across all hyper-scalers is growing exponentially. Businesses seek more scalable and powerful computing resources for deploying generative AI services. Businesses are spending more in advanced storage systems to manage the growing amount of data, leading to the expansion of the Indian storage systems industry, including hyper-scalers. The growth of hyper-converged infrastructure in hybrid clouds is also being driven by the requirement for high power computing platforms. With the support of hybrid cloud capabilities, hyperconverged infrastructure offers businesses an open, flexible approach that enables pay-as-you-go information management and computing.

In other SAARC countries, such as Bangladesh, the government launched the Smart Bangladesh Vision 2041, a sovereign government cloud that provides Bangladesh the ability to manage its data and cloud infrastructure locally, supporting its government authorities in meeting digital sovereignty requirements.

Data Center Infrastructure

Owing to the growing demand for cloud services, requirements for data localization and the growth of digital businesses, India is seeing large investments in data center infrastructure. Large-scale data center is being

constructed across the country by some of the players in this industry, such as Adani Group and Hiranandani Group. Moreover, the National Data Center Policy is one of the initiatives launched by the government that aims to build the digital infrastructure and encourage the growth of data center industry. This sector is projected to grow significantly, particularly driven by the increased expenditure and investments in data center infrastructure in India, in addition to growing real estate demand and significant financial commitments. In the upcoming years, it is anticipated that there will be a significant rise in data center capacity due to this surge, which is driven by the growing usage of cloud computing and artificial intelligence as well as favorable government laws.

Other SAARC nations, such as Bangladesh and Sri Lanka are also making investments in data center infrastructure, however on a smaller scale.

Trends in Information Lifecycle Management Infrastructure

India is seeing a rise in the adoption of cutting-edge Information Lifecycle Management solutions such as software-defined storage, hyper-converged infrastructure and cloud-based storage services. These technologies are deployed by businesses to protect their data, facilitate data-driven decision making and manage an exponential growth of the amount of data. The National Artificial Intelligence Mission along with other government programs encourage the use of data-intensive technologies, which has raised the demand for reliable infrastructure for data management and storage.

Bangladesh, another SAARC country, launched the "National Data Center" initiative, aims to build a centralized data storage facility for government authorities. However, the overall state of development of information lifecycle management infrastructure in other SAARC regions is still lower compared to India, due to constraints such as insufficient funding, shortage of skilled professionals and unclear regulations.

Trends in Application Lifecycle Management (ALM)

With a significant focus on DevOps and DevSecOps approaches, Application Lifecycle Management (ALM) and associated services are growing rapidly. Globally, businesses are gradually adopting integrated ALM solutions that offer automated testing, continuous delivery and continuous integration.

Additionally, the booming IT services sector and increasing adoption of agile approaches are driving the ALM market in SAARC region, particularly driven by the growing adoption of ALM in Indian market, owing to the large IT talents. Startups and major businesses are increasingly adopting these solutions and a surge in the integration of AI and machine learning in ALM processes is observed. Every Indian enterprise runs over 250 applications on average to meet the demands of both internal and external stakeholders. Due to most of the apps' monolithic design, which restricts them from leveraging the scalability benefits of hybrid clouds. Hence, applications need to be redesigned in cloud native manner. This presents a growing potential for application lifecycle management (including DevSecOps) services.

For each of the key segments discussed in this sub-chapter, Frost & Sullivan has conducted market sizing and forecast analysis study. Outlined below shows the structure of the key segments and sub-segments included in the “4.4 Historical Growth & Forecast by Segments” section.

1) **Cybersecurity Market**
    a) Cybersecurity Solutions
        i) Cloud security

ii) Data privacy and security
iii) Network security
iv) Application security
v) Endpoint Security
vi) IAM

b) Governance Risk Compliance (GRC) Solutions

2) Information Lifecycle Management

a) Storage Systems
b) Data protection & Monitoring tools
c) Others (includes Business Continuity)

3) Data Center (DC) Infrastructure & Management

a) IaaS
i) Private Cloud
ii) Hybrid Cloud
b) PaaS
i) Private Cloud
ii) Hybrid Cloud
c) Capacity Growth

4) Application Lifecycle Management (ALM) and services

a) Application Lifecycle Management & Services
i) DevOps
ii) DevSecOps
b) Application Performance Management (APM)

5) Professional & Managed Services

a) Cyber Security Services
i) Managed Security Services
ii) Professional Security Services
(1) Governance Risk Compliance (GRC) Services
b) IT Infrastructure Services
i) Infrastructure Managed Services (IMS)
ii) IT Service Management (ITSM)

4.3 Key Applications of Focused IT Segments

Cybersecurity

Cybersecurity measure is the practice of protecting systems, networks and computer programs against cyber threats, unauthorized access and other cyber risks. In order to protect data integrity, privacy and ensure business continuity in the digital era, cybersecurity measure involves a broad variety of technologies, operations and practices. It is essential for businesses to maintain operational resilience, protect sensitive data and adhere to regulatory requirements.

In recent years, businesses are investing heavily in IT, focusing on hosting business applications and ensuring comprehensive cybersecurity. This investment focusing on the protection of applications and data as well as

securing the entire underlying infrastructure, including networks, endpoints, servers and storage components, creating a holistic approach to digital asset protection and operational efficiency. Some of the key solutions are firewalls, antivirus software, identity and access management solutions, data encryption, risk management frameworks, security monitoring, and incident response services.

Information Lifecycle Management

Information lifecycle management involves the methodology and technology used to store, organize, protect and access digital data. Securing data availability, reliability, and scalability while optimizing storage consumption and expenses. Effective information lifecycle management has become increasingly important for businesses that seek to manage their growing data, ensure data integrity, support business operations and decision-making processes.

Information lifecycle management includes a range of storage systems, such as object storage, network-attached storage (NAS), storage area networks (SANs) and cloud storage services. In order to fully secure data from loss or unauthorized access, data protection and monitoring tools such as data encryption, backup and recovery programs, data replication and data monitoring tools are also critical. By leveraging the backup and recovery solutions, it helps businesses to securely protect and manage massive volumes of data while maintaining business continuity.

Businesses are increasingly focusing on Integrated Lifecycle Management (ILCM) and Hyperconverged Infrastructure (HCI). ILCM in enterprise information lifecycle management encompasses a comprehensive oversight of data, including classification, protection, compliance, archiving among others. Whereas Hyperconverged Infrastructure (HCI) enhances this process by integrating compute, storage and networking into a unified system, offering simplified management, scalability, cost-efficiency and improved performance.

Data Center Infrastructure

Data center infrastructure comprises both physical and virtual components used to store, power, cool, and connect servers, storage systems and networking equipment. It allows businesses to effectively meet their computing and storage demand by offering a safe, reliable and scalable environment for hosting critical applications, data and services.

Some of the core applications are Infrastructure as a Service (IaaS) and Platform as a Service (Paas). Infrastructure as a service offers virtualized computing resources via internet and it helps businesses to save up-front costs of constructing and maintaining their own data centers, being one of the most important services in this segment. Moreover, Platform as a Service (PaaS) provides a full development environment without requiring management of the underlying infrastructure, making it ideal for the development, testing and deployment of applications.

With the significant adoption of cloud and AI solutions, the data center landscape is evolving rapidly to meet diverse business requirements. Nowadays, businesses are increasingly leveraging third-party data centers and this is particularly prevalent for small and medium enterprises as this approach helps them to avoid substantial investments. While large enterprises leverage third-party Data Centers and hyper-scalers to create hybrid models that offer flexibility and additional capabilities without significant capital expenditure, aligning with business needs. Business with stringent security requirements or regulatory compliance needs are also investing

in private data center, a dedicated facilities owned by the organization, to have full control over IT infrastructure and security.

Application Life Management & Cloud

Application lifecycle Management (ALM) is an integrated approach to managing software applications throughout their entire life cycle, from initial planning, design, development to deployment and maintenance. It consists of a set of integrated tools and procedures that enable the stakeholders to work together efficiently, monitor development progress, manage requirements, perform test and control quality throughout the entire software development lifecycle.

ALM's primary applications involve requirements management, source code management, test management, release management and project management. Businesses can ensure high-quality software is delivered by employing Application Lifecycle Management (ALM) as it offers a centralized platform to manage every aspect of the application lifecycle.

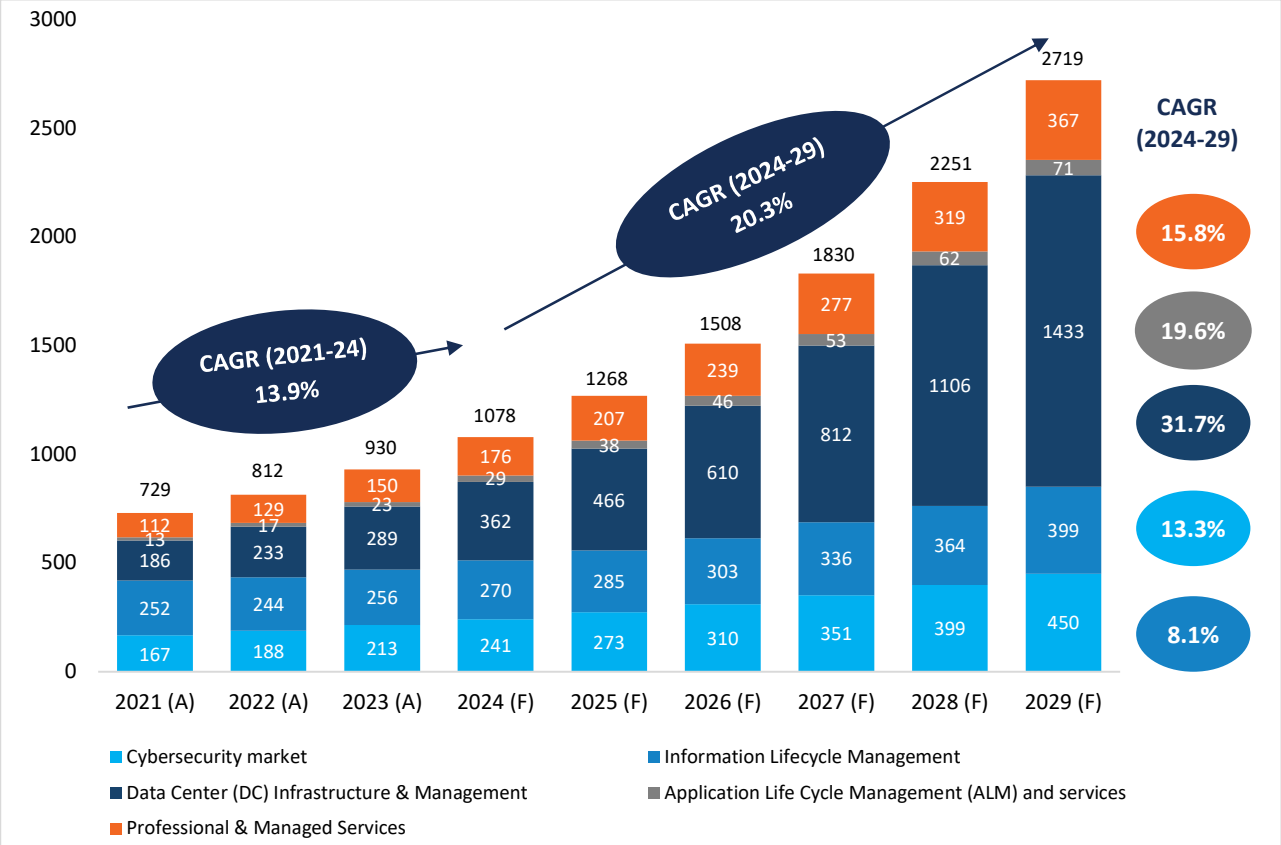
Modern enterprises manage averagely more than 250 applications and each application continuously undergoing cycles of feature enhancements, testing, bug fixes and production deployments. This constant churn shows the complexity of maintaining and evolving such a variety of applications, demonstrating the importance of frameworks such as ALM. ALM provides structured processes and features to solve the complexities, ensuring seamless integration, maintain quality and efficiency of deployment in the fast-paced and constantly evolving digital world.

4.4 Historical Growth & Forecast by Segments

The Total Addressable Market (TAM) for cybersecurity, information lifecycle management, data center infrastructure, application lifecycle management and professional and managed services is experiencing a robust growth globally and in India.

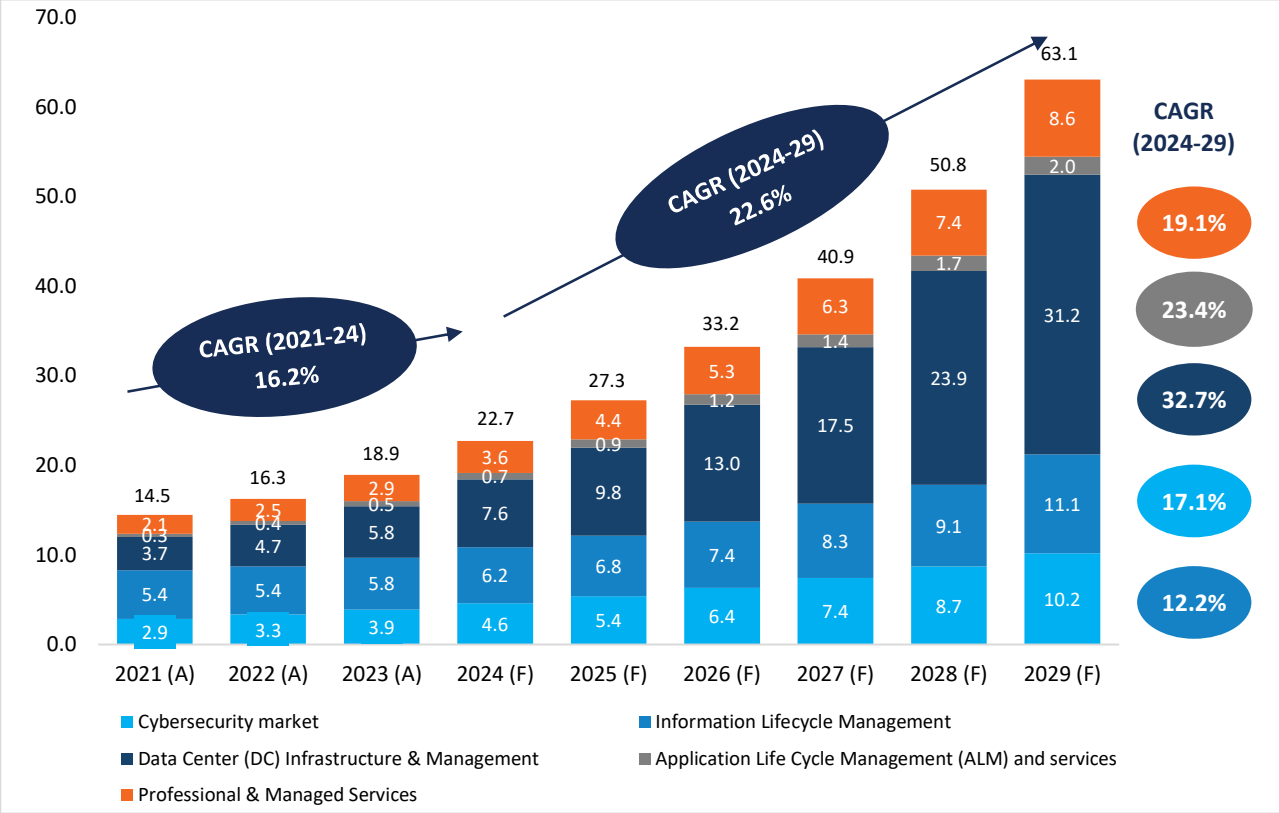
According to Frost & Sullivan research and analysis, globally, the total TAM for of these markets is anticipated to grow from approximately USD 1,078 billion in 2024 to USD 2,719 billion by 2029, with a CAGR of 20.3% during this period. In India, the total TAM of these markets is also on the rise, growing at a faster rate, with a CAGR of 22.6% from 2024 to 2029. Total TAM is anticipated to grow from USD 22.7 billion in 2024 to USD 63.1 billion by 2029. This is primarily driven by strong government initiatives and businesses' commitment to enhance digitalization and cybersecurity measures.

Exhibit 10: IT Transformation, Total Addressable Market, Global, 2021-2029, USD Billion



Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2020 to 2023, with market forecasts extending to 2027.
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

Exhibit 11: IT Transformation, Total Addressable Market, India, 2021-2029, USD Billion

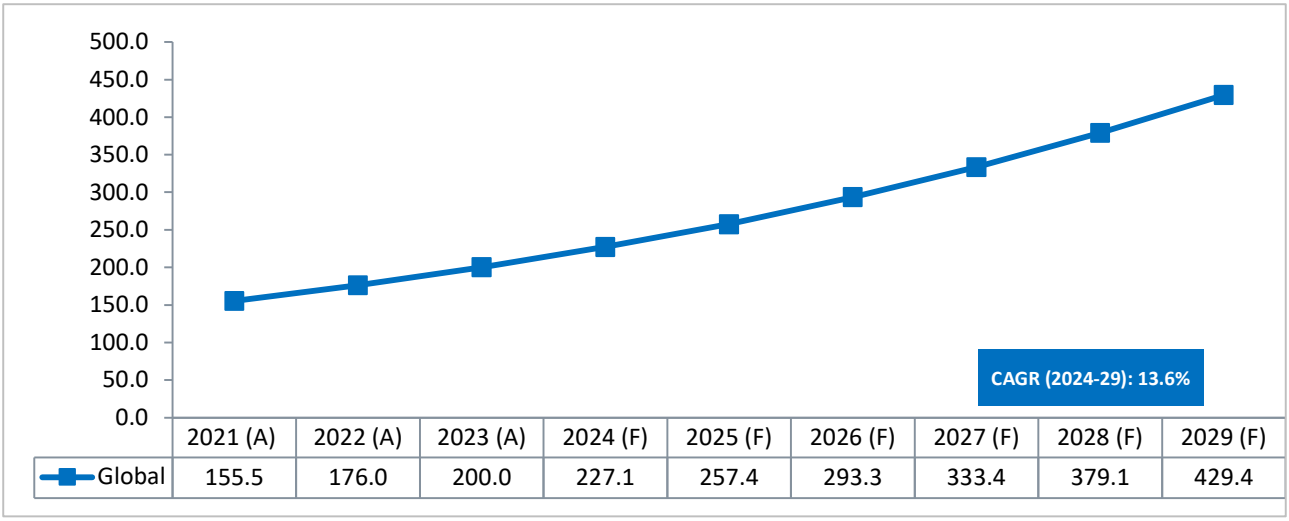


Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2020 to 2023, with market forecasts extending to 2027.
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

1) Cybersecurity Solutions

a) Cyber Security Products - Global, Regional, India

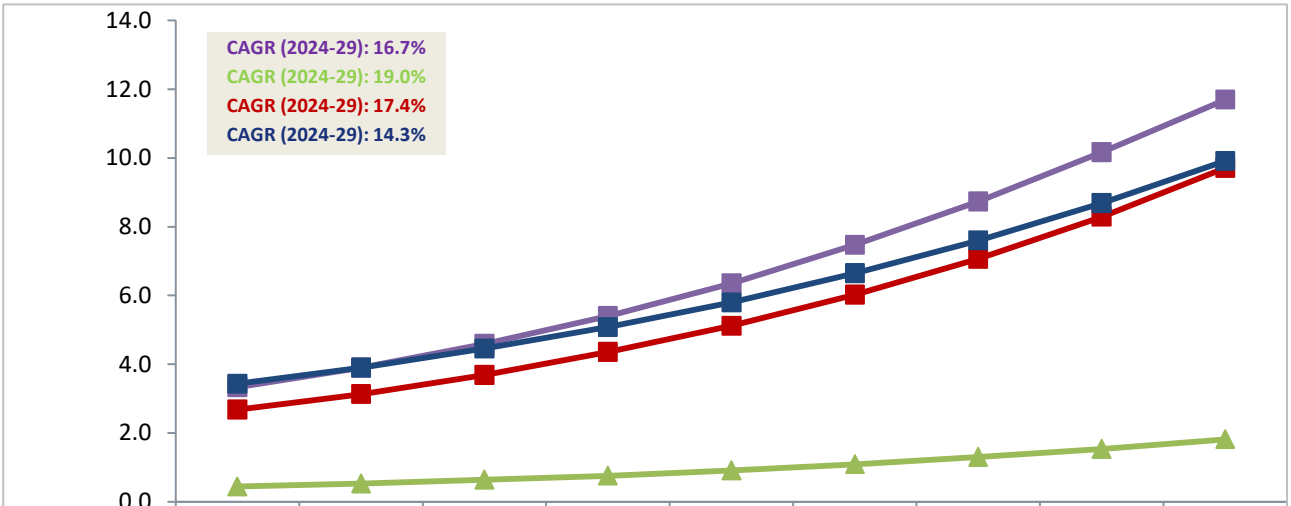
Exhibit 12: Cybersecurity Market, Global, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
Global	155.5	176.0	200.0	227.1	257.4	293.3	333.4	379.1	429.4

Note:
(A) indicates actual values, (F) indicates forecasted values
Excludes GRC Solutions
Source: Frost & Sullivan

Exhibit 13: Cybersecurity Market, Regional, India, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
ASEAN	3.3	3.9	4.6	5.4	6.3	7.5	8.7	10.2	11.7
SAARC	0.4	0.5	0.6	0.8	0.9	1.1	1.3	1.5	1.8
India	2.7	3.1	3.7	4.4	5.1	6.0	7.1	8.3	9.7
GCC	3.4	3.9	4.5	5.1	5.8	6.6	7.6	8.7	9.9

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
India market is excluded from SAARC markets in this graph
Source: Frost & Sullivan

Frost & Sullivan estimates that the global cybersecurity market has witnessed robust growth in recent years, with the market estimated to be valued at US$ 245.7 Billion in 2023. The growth of the market is expected to continue at a strong pace, with an estimated 14.5% of YoY growth from the previous year. This growth is driven by the increasing frequency and sophistication of cyber threats, coupled with the growing awareness of the importance of cybersecurity among organizations of all sizes. Looking ahead, the market is also anticipated to continue growing in 2024, with YoY growth estimated at 14.5%, the market is forecasted to be valued over US$ 281.2 Billion. Looking at a longer term, growth will remain strong, at a CAGR of 14.9% over the forecast period from 2024 to 2029 reaching US$ 563.2 Billion by 2029.

India

In terms of Indian market, Frost & Sullivan estimates that the cybersecurity market in India recorded US$ 4.8 Billion in 2023 and it is anticipated to experience a robust growth, with a CAGR of 18.9% from 2024-2029, recording over US$ 13.5 Billion by 2029.

Various industries in India are heavily investing in Digital Transformation and it has increased the demand for robust cybersecurity solutions significantly. This is because the increased adoption of cloud computing, IoT and mobile application has expanded the attack surface, making businesses more vulnerable to cyber threats and presenting great opportunities for hackers to perform cyber-attack. Hence, leading to growing demand for advanced cybersecurity solutions.

Moreover, Indian government's proactive initiatives have been a major growth driver for this market. The implementation of National Cybersecurity Policy (NCSP) and Cyber Swachhta Kendra have boosted the growth of this market. Besides, stringent regulations such as Personal Data Protection have raised the cybersecurity awareness and encouraged businesses to invest in cybersecurity measures.

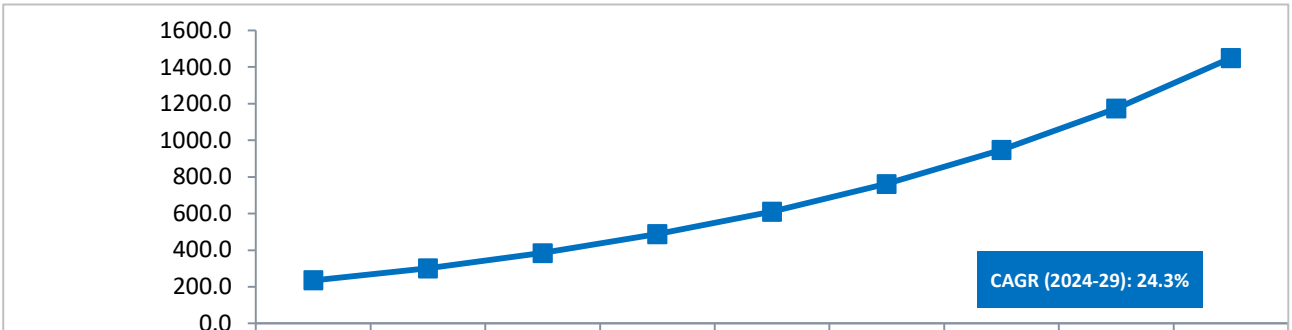
Outlined below are the subsegments of Cybersecurity market defined by Frost & Sullivan.

i) Cloud Security

Frost and Sullivan defined cloud security as a set of policies, controls, procedures and technologies leveraged by businesses to protect cloud-based IT assets such as data, user, application, workload, traffic (network and web), systems and infrastructure. Cloud Security market comprises cloud email security, SWG, CASB, Cloud WAF and DDoS, Cloud Endpoint Security, DNS Security, CWP and other cloud security products such as cloud security analytics, cloud firewall, policy management, operations, monitoring and response. Cisco, Zscaler, Palo Alto Networks and Trend Micro are some of the key OEMs in this segment.

As one of the key segments in cybersecurity, cloud security is experiencing a strong growth since the past few years. Frost & Sullivan estimates that cloud security market in India recorded US$ 384.6 Million in 2023.

Exhibit 14: Cloud Security Market, India, CY 2021-2029, in USD Million



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
Cloud Security	235.3	301.0	384.6	488.1	610.6	762.0	948.0	1174.5	1450.6

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

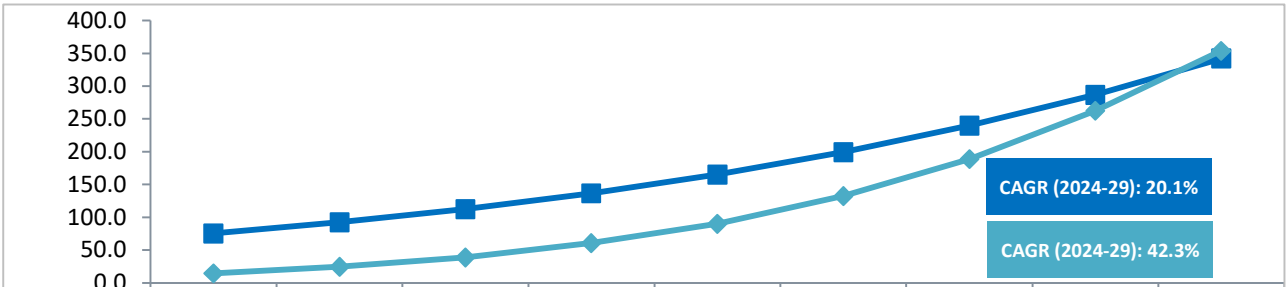
This is primarily driven by the Government's initiatives for digital transformation such as "Digital India" campaign. This has accelerated the adoption of cloud computing across industries in India, such as BFSI, Public Sector, Technology and so on. The growing awareness of the need for robust cybersecurity measures contributed to the robust growth of this market in the past few years, as cloud security helps businesses to resolves issues associated with cloud computing environments, by focusing on protecting cloud infrastructure, applications and data as well as ensuring regulatory compliance.

The increasing scalability and cost-effectiveness of cloud computing has further led to an increasing number of Indian businesses adopting cloud computing, further driving the cloud security market growth. Moreover, the demand for cloud security is anticipated to grow as a result of Indian government's initiatives for cloud adoption and the growing use of public and hybrid cloud models. Check Point, Forcepoint, Sentinel One are some of the major OEMs contributing to the market growth. It is anticipated that Cloud security market in India will experience a tremendous growth, with a CAGR of 24.3% from 2024 to 2029, recording over US$ 1,450.6 Million by 2029.

ii) Data Privacy and Security

Frost and Sullivan classified Data privacy and security segment mainly consists of Data Loss Prevention (DLP) and Data Privacy Software (DPS). DLP is a cyber-security strategy to prevent the unauthorized leakage of confidential information from enterprise databases. It involves software-based approaches to monitor and control to and fro data transmission in an enterprise, protecting from insider threats and comply with the data protection and access components of privacy policies. Data Privacy Software refers to software solutions across various applications that includes compliance management, reporting & analytics, risk management and others. It helps businesses in managing and operating customer's personal data. Data Privacy Software solution classifies the content of the customer as per the country's compliance rules and laws.

Exhibit 15: Data Privacy and Security Market, India, CY 2021-2029, in USD Million



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
DLP	75.4	92.3	112.5	136.6	165.3	199.4	239.5	286.6	342.0
DPS	14.6	24.4	39.0	60.5	90.2	132.4	188.7	262.5	353.8

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

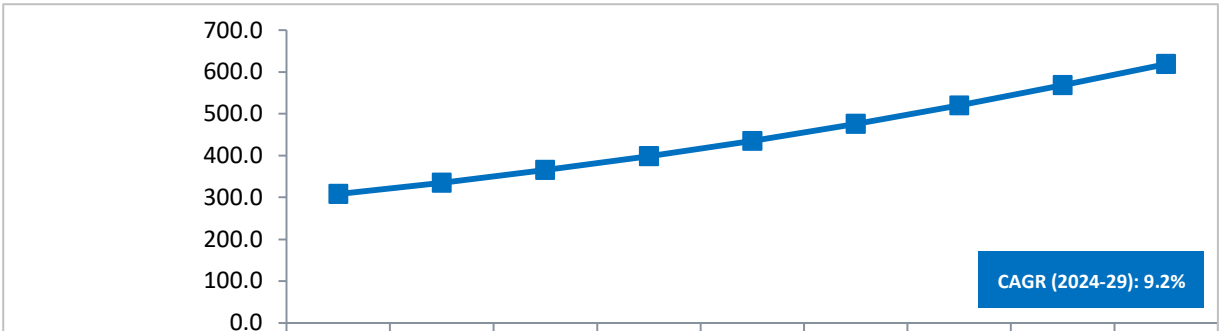
According to Frost and Sullivan analysis, Data Loss Prevention market in India recorded US$ 112.5 Million in 2023. This is primarily driven by the rising frequency and sophistication of cyber-attacks in India, consequently, raised the awareness of the importance of Data Loss Prevention, leading to enhanced willingness to invest in these solutions among businesses in India. Indian Parliament passed the Digital Personal Data Protection (DPDP) Act in 2023. Increasing awareness of data privacy issues are expected to boost the India's DLP market segment. Forcepoint, Broadcom (Symantec), Trellix and Fortra are some of the key players driving the growth of this market segment. It is anticipated that DLP market will continue to experience a robust growth, with a CAGR of 20.1% from 2024 to 2029, recording over US $342.0 Million by 2029.

Data Privacy Software market is estimated to be valued over US $39.0 Million in 2023 and it is anticipated to experience a tremendous growth in the coming years, with a CAGR of 42.3% from 2024 to 2029, recording over US $353.8 Million by 2029. According to Frost and Sullivan analysis, the robust growth of this market will be primarily driven by strong government initiatives and regulation. Moreover, government initiatives such as Data Security Council of India (DSCI) to establish a National Center of Excellence for cybersecurity innovation highlights the importance of data privacy, propelling business in India to invest in DPS solutions. Some of the key players operating in India's DPS market are OneTrust, IBM, Protiviti and RSA.

iii) Network Security

Network security protects computer networks from malware attacks and unauthorized access by deploying tools such firewalls and intrusion detection and prevention systems. Frost and Sullivan defined network security solution consists mainly Firewall, Intrusion Detection System (IDS), Intrusion Prevention System (IPS) and Secure Sockets Layer Virtual Private Network (SSL VPN).

Exhibit 16: Network Security Market, India, CY 2021-2029, in USD Million



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
Network Security	308.2	335.3	365.8	398.7	435.4	475.9	519.7	568.0	619.2

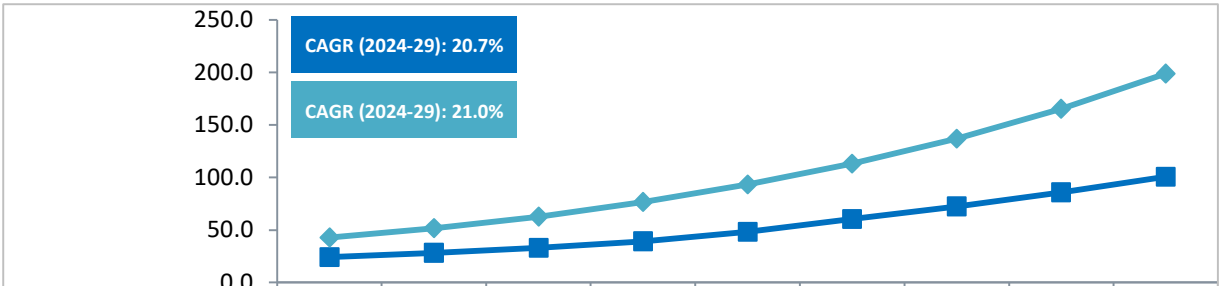
Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

According to Frost and Sullivan analysis, Network Security market in India has recorded US $365.8 Million in 2023. The market is anticipated to experience a steady growth rate, owing to the rapid digital transformation across various industries in India. This is significantly driving the growth of the market as businesses expand their digital footprint, the IT environment will be expanded and become more complex, leading to higher demand for network security. Indian Government initiatives are further supporting the market growth, as cybersecurity is one of the top priorities for national policy and stringent regulations are propelling business of all sizes to invest in network security solutions. Frost and Sullivan anticipates that the network security market in India will continue to grow, with a CAGR of 9.2% from 2024 to 2029, recording US $619.2 Million by 2029. Cisco, Fortinet, Palo Alto Network and Check Point are some of the key players globally and in India's network security market.

iv) Application Security

Application security is essential for protecting software and applications against cyber threats and vulnerabilities, by utilizing technologies such as runtime protection, secure coding and application testing. Application Security comprises Web Application Firewall (WAF), DDoS Mitigation and API Protection. Web Application Firewall (WAF) and Anti Distributed Denial of Service (DDoS) is an excellent pair of security products that work together when it comes to web security. Most of the key players in the segment provide both WAF and Anti-DDoS solutions. While several WAF solutions come with integrated Anti DDoS capabilities, there are also standalone or dedicated DDoS mitigation products.

Exhibit 17: Application Security Market, India, CY 2021-2029, in USD Million



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
WAF	24.1	28.3	32.9	39.3	48.2	60.2	72.4	85.9	100.7
DDoS Mitigation	42.8	51.7	62.8	76.6	93.3	113.2	137.0	165.2	198.8

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

As business in India are increasingly reliant on web-based application for their business operation, it has widened the cyber-attack landscape and businesses are more vulnerable to sophisticated cyber threats. Consequently, businesses recognized the importance of securing their applications, leading to a surge in demand for WAF solutions. Frost and Sullivan estimates that the demand for WAF solutions will continue to rise, with a CAGR of 20.7% from 2024 to 2029, recording over US $100.7 Million by 2029.

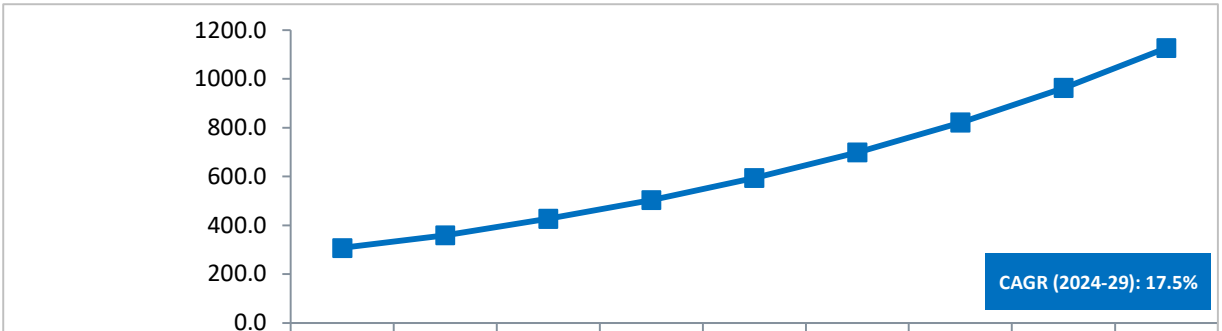
Moreover, growing adoption of cloud-based services and applications in India, increasing frequency and scale of DDoS attacks are driving the demand for DDoS protection solutions in India. Businesses are more vulnerable to cyber-attacks, owing to the widened digital landscape. As a result, businesses are increasingly investing in DDoS solutions to ensure their online marketplace and business continuity. It is anticipated that DDoS Mitigation market will continue to grow at a CAGR of 21.0% during the forecast period, recording over US $198.8 Million by 2029.

In short, rapid adoption of web applications among businesses in India led to growing frequency and scale of cyber-attacks targeting web applications, further leading to rising demand for WAF and DDoS mitigation solutions. This trend is anticipated to continue within the forecast period and some of the key players operating in this market segments in India are Radware, Akamai Technologies, Imperva, Cloudflare and F5 Networks.

v) Endpoint Security

Endpoint security employs antivirus software, endpoint detection and response (EDR) solutions and other security measures, with the aims of protecting computers, laptops, mobile devices and servers against cyber-attacks. It is a software system that protects users against phishing, malicious links and malware. Frost and Sullivan classified Endpoint Security Solution consists of Endpoint Protection Platform (EPP) and Endpoint Detection and Response (EDR) solutions.

Exhibit 18: Endpoint Security Market, India, CY 2021-2029, in USD Million



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
Endpoint Security	307.2	359.4	426.4	503.8	593.9	699.0	821.4	962.6	1126.3

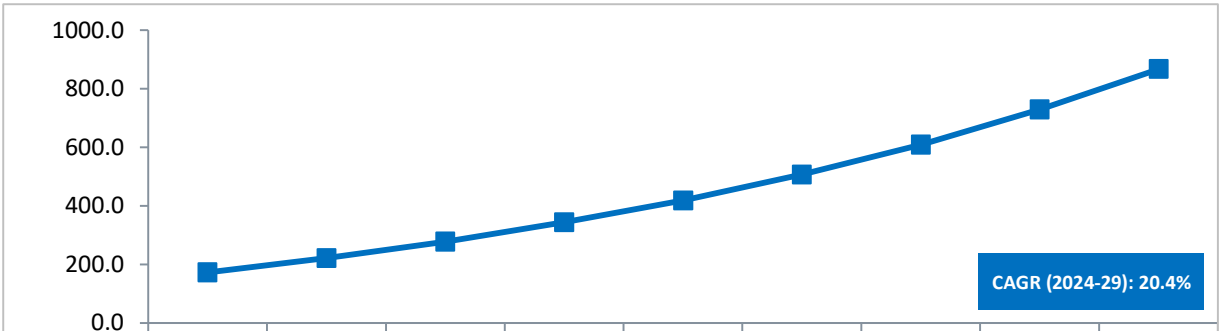
Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

According to Frost and Sullivan analysis, Endpoint Security market in India has recorded US $426.4 Million in 2023. The demand for endpoint security solutions continues to be stimulated by the growing number of remote employees in India and the increasing adoption of bring-your-own-device (BYOD) policies among businesses. Businesses are increasingly investing on cutting-edge endpoint protection systems to protect their distributed IT infrastructures. The increasing adoption of mobile and IoT devices by businesses in India are also fueling the market growth. The cyber-attack surface is further expanded by these devices, propelling businesses to invest in Endpoint Security solutions to protect their networks and data across a wide range of devices. It is projected that endpoint security market will be growing rapidly at a CAGR of 17.5%, recording US $1,126.3 Million by 2029. Skyhigh Networks, SentinelOne, Microsoft, Broadcom (Symantec), Kaspersky, Crowdstrike and Sophos are some of the key players operating in Indian market, providing solutions for businesses of all sizes.

vi) Identity Access Management

IAM systems identify, authenticate and authorize users, enabling approved personnel to access hardware, software, or other resources as the organization deems necessary to perform assigned tasks. IAM has evolved from a good-to-have tool into a crucial decision. In order to make sure that only authorized users allow to access to critical information, identity and access management (IAM) solutions are essential for managing and governing user identities and access rights within an organization. Frost and Sullivan identified that IAM solution comprises Identity Management, Access Management, Identity as-a-service (IDaaS), Single-sign on (SSO), Multi-factor authentication (MFA), Life Cycle Management, Governance, Privileged Access Management (PAM) solutions.

Exhibit 19: Identity Access Management Market, India, CY 2021-2029, in USD Million



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
IAM	172.5	221.3	278.0	343.3	418.8	506.7	609.1	728.5	866.9

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

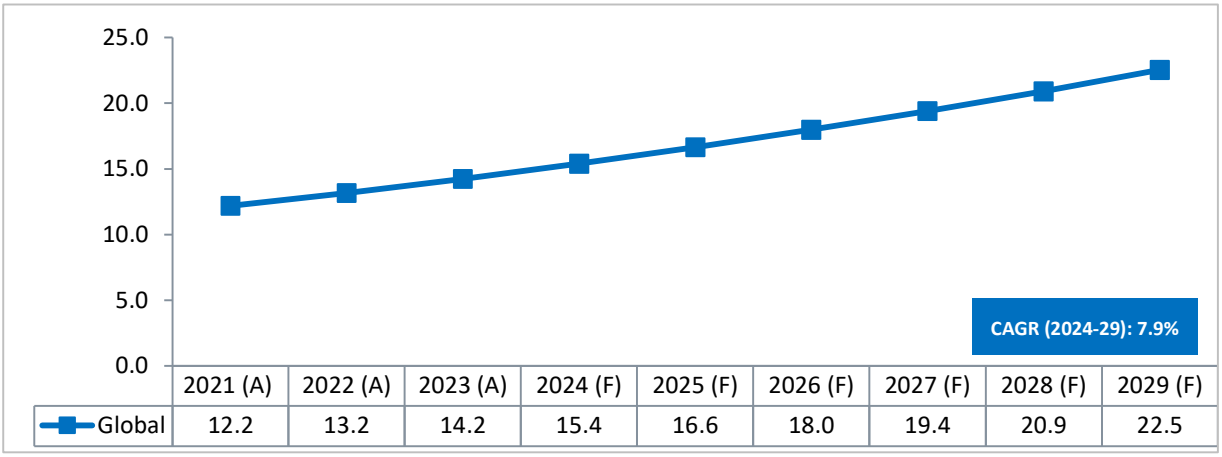
According to Forst and Sullivan analysis, Identity Access Management software market has experienced a surge in demand, recorded US $278.0 Million in 2023. The demand for secure access management and the growing use of digital technologies are driving substantial growth in the Indian Identity and Access Management market segment. Moreover, the adoption of IAM solutions is further driven by the need for secure remote access and regulatory compliance requirements, owing to the introduction of data protection laws, highlighting the importance of personal data, particularly for businesses that store and manage customers' personal information. As a result, BFSI, health care and government are increasingly investing in IAM solutions. Frost and Sullivan estimates that these drivers will continue to stimulate the growth of IAM market in India, growing at a CAGR of 20.4% from 2024 to 2029, recording over US $866.9 Million by 2029. IBM, Microsoft, Oracle and CyberArk are the international key players fueling the development and growth of Indian IAM market.

b) Governance, Risk and Compliance Management (GRC) Solutions

Risk management solutions enable businesses to manage its governance, risk and compliance processes effectively. Governance solutions include board management, policy management and compliance management, whereas risk management solutions include enterprise risk management, operational risk management, and IT risk management. Moreover, compliance solutions include regulatory compliance, internal compliance and audit management.

Frost & Sullivan estimates that the global risk management has experienced a strong growth in recent years, with the market estimated to be valued at US$ 14.2 Billion in 2023. The growth is of this market is mainly driven by the increasing complexity and frequency of cyber risks faced by organizations, stringent regulatory compliance requirements and the impact of globalization on business operations. Looking at a longer term, the risk management market will remain steady and strong growth, at a CAGR of 7.9% over the forecast period from 2024 to 2029 reaching US$ 22.5 Billion by 2029.

Exhibit 20: GRC Solutions Market, Global, CY 2021-2029, in USD Billion

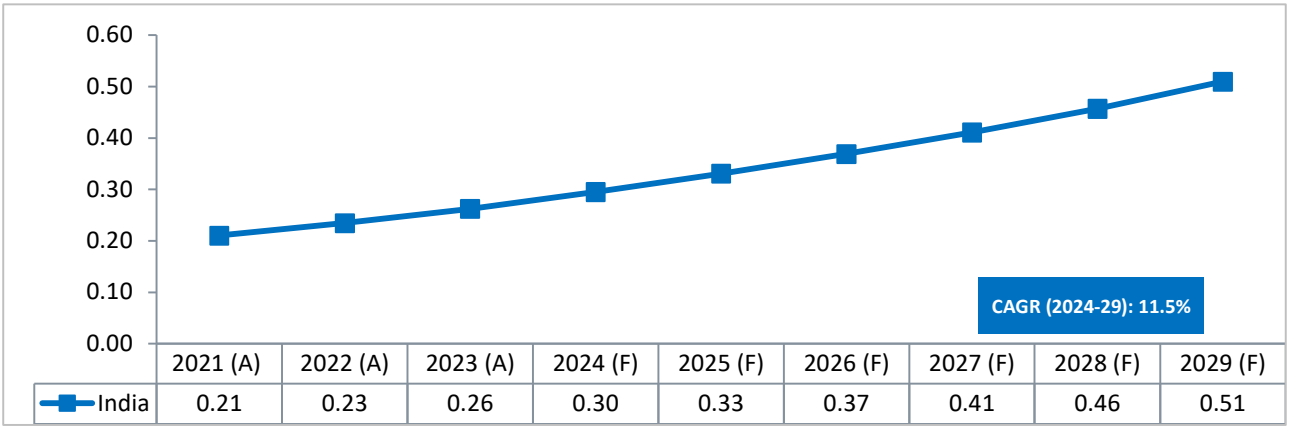


	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
Global	12.2	13.2	14.2	15.4	16.6	18.0	19.4	20.9	22.5

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

Frost & Sullivan estimates that the risk management market in India recorded US$ 0.26 Billion in 2023 and it is estimated to experience a stronger growth, with a CAGR of 11.5% from 2024 to 2029, recording over US$ 0.51 Billion by 2029. The growth of this market is mainly driven by the increasing digitalization, government initiatives and a rising awareness of the importance of risk management in the India business landscape.The country's evolving regulatory landscape as well as the growing recognition of the need for comprehensive risk management strategies across various industries are fueling the growth of this market. As Indian businesses are increasingly expanding globally and facing more sophisticated risks, Frost & Sullivan estimates that the demand for robust risk management solutions will continue to rise, further driving market growth during the forecast period. IBM, ServiceNow and Ivanti are the international key players supporting the growth of Global and Indian GRC solutions market.

Exhibit 21: GRC Solutions Market, India, CY 2021-2029, in USD Billion

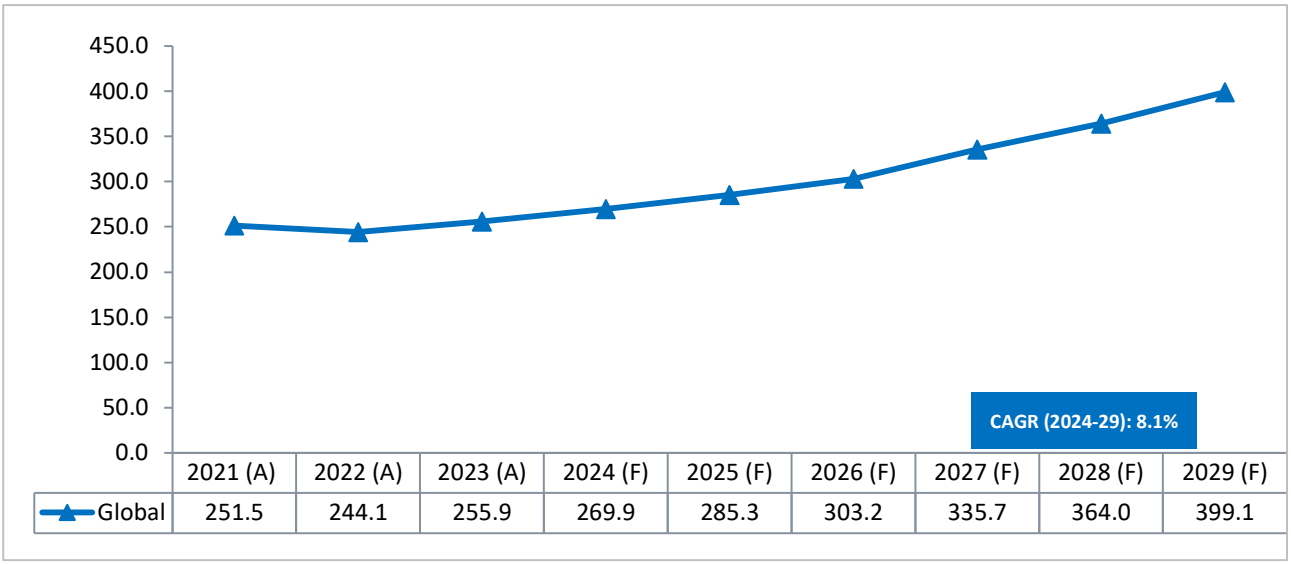


	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
India	0.21	0.23	0.26	0.30	0.33	0.37	0.41	0.46	0.51

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

2. Information Lifecycle Management – Global, Regional, India

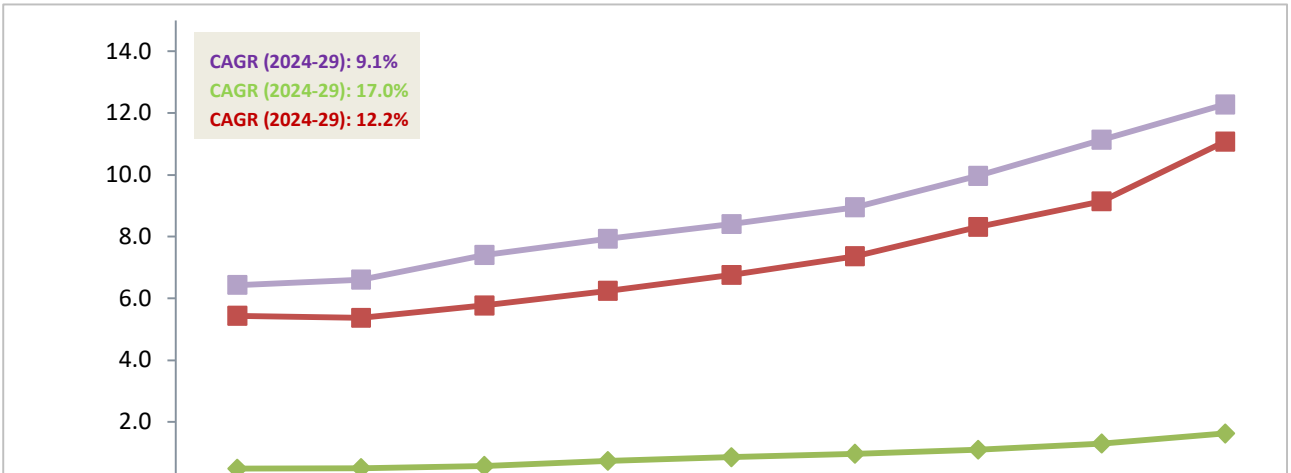
Exhibit 22: Information Lifecycle Management, Global, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
Global	251.5	244.1	255.9	269.9	285.3	303.2	335.7	364.0	399.1

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

Exhibit 23: Information Lifecycle Management, ASEAN, SAARC, India, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
ASEAN	6.4	6.6	7.4	7.9	8.4	9.0	10.0	11.1	12.3
India	5.4	5.4	5.8	6.2	6.8	7.4	8.3	9.1	11.1
SAARC	0.5	0.5	0.6	0.7	0.9	1.0	1.1	1.3	1.6

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
India market is excluded from SAARC markets in this graph
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

Frost & Sullivan estimates that the Global Information Lifecycle Management market has witnessed robust growth in recent years, with the global market estimated to be valued at US$ 255.9 Billion in 2023. It is anticipated that the market will continue to experience a steady growth, with an estimated 8.1% of CARG from 2024 to 2029. This growth is driven by the business requirements to securely protect and manage massive volumes of data while maintaining business continuity.

India

Frost & Sullivan estimates that the information lifecycle management market in India is significantly larger than the rest of SAARC region. The Indian information lifecycle management market recorded US$ 5.8 Billion in 2023 and it is projected to experience a robust growth, with a CAGR of 12.2% from 2024 to 2029, reaching US$ 11.1 Billion market value by 2029.

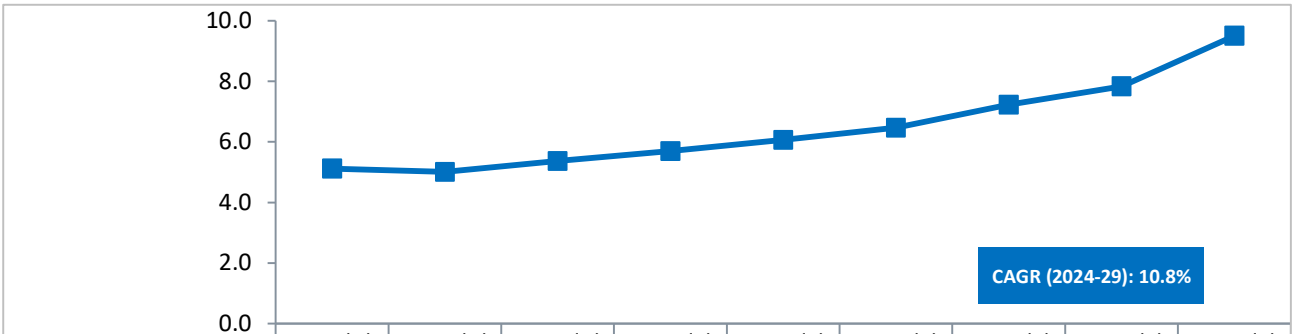
Indian Government's initiatives such as Digital India coupled with stringent Data protection and data residency laws are some of the main drivers of information lifecycle management market growth. It has encouraged rapid digital transformation across several industry verticals and raised the demand for efficient information lifecycle management solutions. The rising demand for cloud computing and IoT devices has led to a surge in the amount of data generated by businesses, further supporting the growth of this market.

Moreover, the importance of data-driven decision-making approaches has further generated a significant amount of investment in information lifecycle management solutions. The rising adoption of cloud storage among SMEs has contributed significantly to the market.

A) Storage Systems

Frost and Sullivan considered storage, servers and the associated network infrastructure as part of the addressable market. This refers to data storage systems that encompass hardware and software solutions designed for enterprise level data storage, management & access. This category includes Network Attached Storage (NAS), Storage Area Network (SAN), Direct Attached Storage (DAS) & associated network infrastructure. It includes storage systems spending for both on-prem & cloud, public & private data center investments.

Exhibit 24: Storage Systems Market, India, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
Storage systems	5.1	5.0	5.4	5.7	6.1	6.5	7.2	7.8	9.5

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029

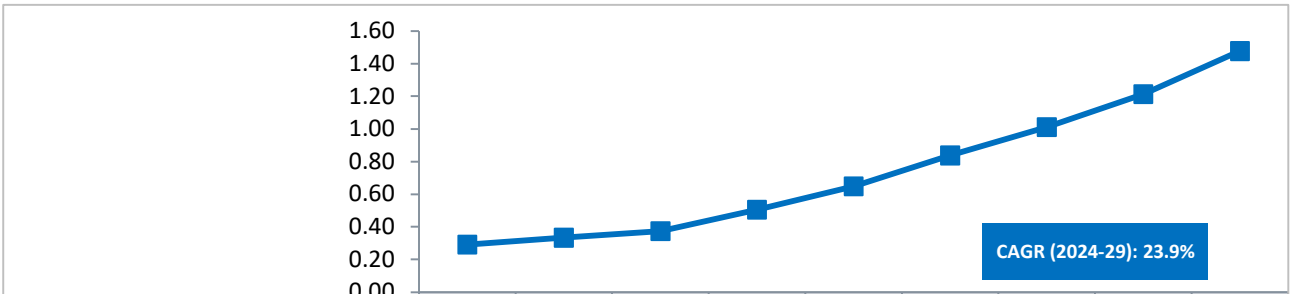
Numbers rounded off to 1 decimal place
India market is excluded from SAARC markets in this graph
Source: Frost & Sullivan

Frost & Sullivan estimates that storage systems segment in India recorded US$ 5.4 Billion in 2023. The demand for scalable storage solutions is rising, owing to the emergence of big data and the growing adoption of digital technologies in India. The growing presence of hyper-scalers in this segment are also contributing to the growth of this market. Moreover, local policies such as the National Digital Communications Policy and the Personal Data Protection Bill. These initiatives are encouraging businesses to invest in data storage systems. To handle the constantly growing data volume, businesses are increasing investing in innovative storage systems, contributing to the growth of the Indian storage systems market. It is anticipated that Storage systems market will experience a strong growth, with a CAGR of 10.8% from 2024 to 2029, recording over US$ 9.5 Billion by 2029. Dell, HP, NetApp, Hitachi Vantara, Kingston Tech, Cloudera and Pure Storage are some of the major players operating in this space, offering various solutions catering different businesses requirements.

B) Data Protection & Monitoring tools

Frost and Sullivan defined the data protection and monitoring tools market encompasses a wide range of solutions and services designed to ensure the security, integrity, availability, and regulatory compliance of data. Frost and Sullivan has considered Data Archiving, Replication, Encryption, Continuous Data & Compliance Monitoring solutions & services. Other unified solutions that combine functionalities such as backup, recovery, monitoring & encryption into a single integrated solution is also considered to be addressable for the market sizing.

Exhibit 25: Data Protection & Monitoring tools Market, India, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
Data protection & Monitoring	0.29	0.33	0.37	0.51	0.65	0.84	1.01	1.21	1.48

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

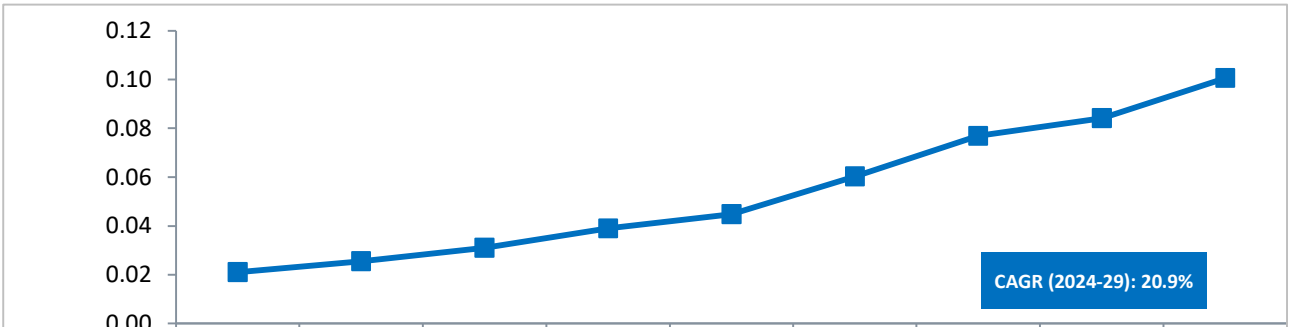
Data Protection and Monitoring Tools segment is experiencing a strong growth. Frost & Sullivan estimates that this market segment in India recorded US$ 0.37 Billion in 2023. Data protection and monitoring solutions are critical in protecting data from loss, corruption, and unauthorized access. In India, the rising frequency of data breaches and the implementation of stringent data protection regulations are primarily driving the growth of this market. The significant increase in data beaches has resulted in strong demand for data protection and monitoring tools. Additionally, as outlined in the Personal Data Protection Bill, an original copy of personal data

needs to be stored within the country. Hence, businesses are increasingly investing on these solutions to protect confidential and sensitive information, ensure compliance and maintain business continuity. It is anticipated that Cloud security market will experience a strong growth, with a CAGR of 23.9% from 2024 to 2029, recording over US$ 1.48 Billion by 2029. Some of the key players in Indian market are Dell, HP, Rubrik, Arcserve, Cohesity, Veeam and Symantec, driving the development and growth of this market segment.

C) Others

Frost and Sullivan classified all other tools, solutions and services which are not classified under data storage, protection and monitoring in the "others" segment. The primary component of this market is the Data Backup and Recovery solutions, Business Continuity and Disaster Recovery services. This segment is experiencing a strong growth. Frost & Sullivan estimates that storage systems segment in India recorded US$ 0.03 Billion in 2023.

Exhibit 26: Others, India, CY 2021-2029, in USD Billion



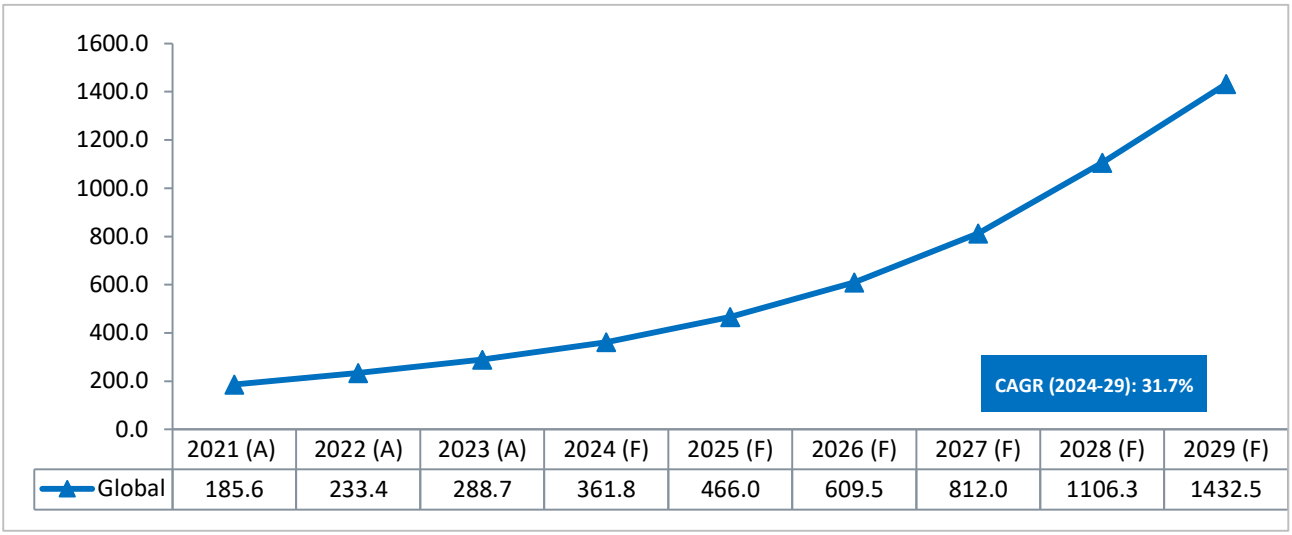
	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
Others	0.02	0.03	0.03	0.04	0.04	0.06	0.08	0.08	0.10

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

Information lifecycle management require recovery and backup strategies in order to enable businesses to recover their data in the event of disasters, system breakdowns or data loss. Such approaches minimize data loss and ensure business continuity, by leveraging backup software, backup appliances and cloud-based backup services. The data recovery and backup market in India is anticipated to expand as a result of the growing use of digital technologies, growing importance of data in business processes and the requirement for data availability. It is anticipated that this market will also experience a strong growth, with a CAGR of 20.9% from 2024 to 2029, recording over US$ 0.1 Billion by 2029. Sanovi, Axcient, Bluelock Llc (acquired by Intervision), Sungard Availability Services (acquired by 11:11), Commvault Systems, Veeam Software are the major players in the Indian market.

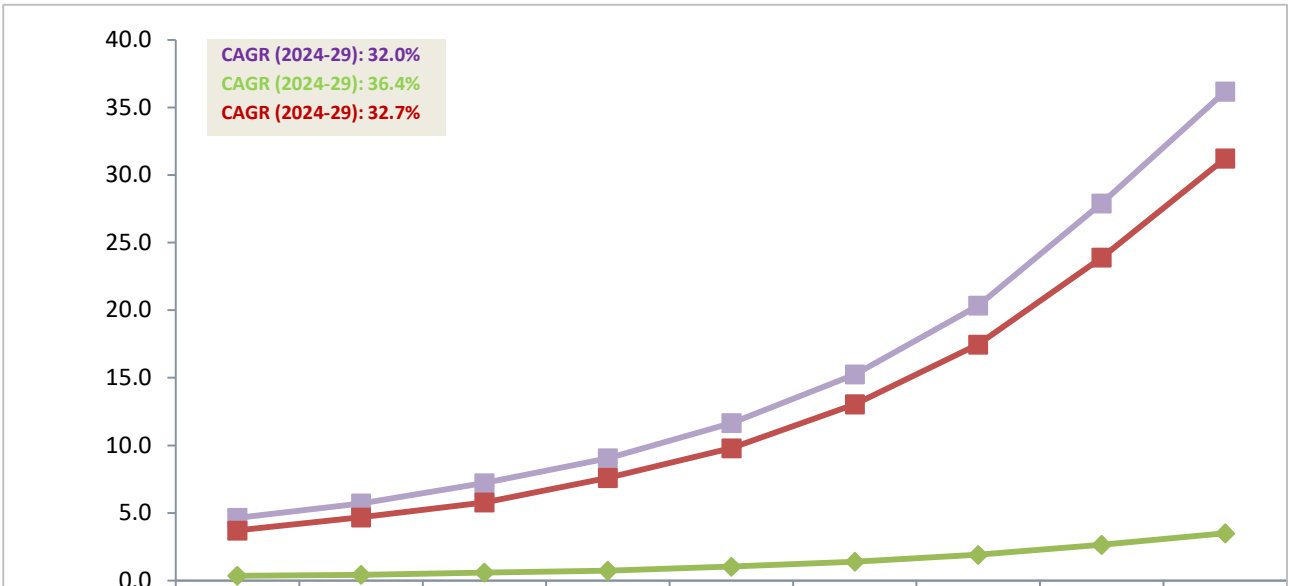
3) Data Center Infrastructure & Management – Global, Regional, India

Exhibit 27: Data Center Infrastructure & Management, Global, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
Global	185.6	233.4	288.7	361.8	466.0	609.5	812.0	1106.3	1432.5

Exhibit 28: Data Center Infrastructure & Management, ASEAN, SAARC, India, CY2021-29, USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
ASEAN	4.6	5.7	7.2	9.0	11.7	15.3	20.4	27.9	36.2
India	3.7	4.7	5.8	7.6	9.8	13.0	17.5	23.9	31.2
SAARC	0.4	0.4	0.6	0.7	1.0	1.4	1.9	2.6	3.5

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
India market is excluded from SAARC markets in this graph
Source: Frost & Sullivan

Frost & Sullivan estimates that the Data Center Infrastructure & Management market experienced a robust growth in recent years, with the global market estimated to be valued at US$ 288.7 Billion in 2023. It is

anticipated that the market will continue to experience a robust growth, with an estimated 31.7% of CAGR from 2024 to 2029, recording over US $1432,5 Billion by 2029.

India

Frost & Sullivan estimates that the data center infrastructure and management market in India is approximately more than 10 times larger than the total amount of the rest of SAARC region in 2023. Indian data center infrastructure and management market recorded US$ 5.8 Billion in 2023 and it is forecasted to experience a tremendous growth, with a CAGR of 32.7% from 2024 to 2029, reaching US$ 31.2 Billion market value by 2029.

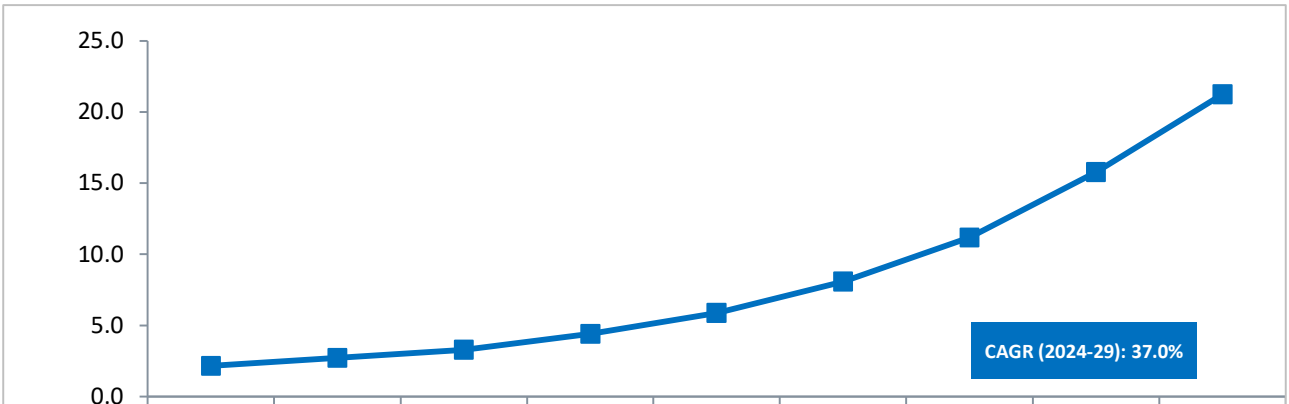
As one of the largest startup ecosystems globally, India has unprecedented demand for advanced, comprehensive and scalable data infrastructure. The startups are specializing in various sectors, ranging from Fintech to e-commerce, demanding cutting-edge data center infrastructure to support their rapid growth and data-driven operations. India is strategically served as a data center hub for various regions, attracting a significant amount of investment from global technology giants and data center operators. This has led to the expansion of capacity as well as enhanced best practices in data center management.

Moreover, Indian Government is increasing focusing on Data center market in recent years, a National Data Center Policy will be implemented soon, outlining guidelines and incentives for this market segment. The incentive scheme is anticipated to draw attention from local and international data center operators, propelling the growth of Data center market in India.

A) India IaaS Market

Infrastructure as a Service (IaaS) market encompasses cloud computing services that provide virtualized computing resources and development platforms delivered over the internet. Infrastructure as a Service offering provides compute in the form of virtual machines (VMs), containers, serverless computing and associated networking & security infrastructure of virtual networks, load balancers and DNS management. Businesses can reduce the initial investments of constructing and maintaining their own data centers through Infrastructure as a Service (IaaS), which offers virtualized computing resources, such as servers, storage, and networking over the internet.

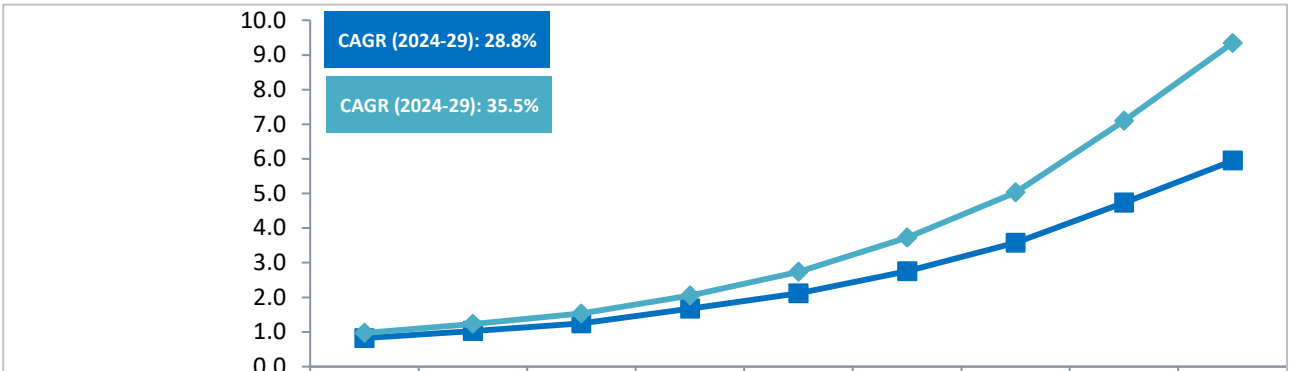
Exhibit 29: IaaS Market, India, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
IaaS	2.2	2.7	3.3	4.4	5.9	8.1	11.2	15.8	21.2

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

Exhibit 30: Hybrid & Private Cloud - IaaS Market, India, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
Private Cloud (IaaS)	0.8	1.0	1.3	1.7	2.1	2.7	3.6	4.7	5.9
Hybrid Cloud (IaaS)	1.0	1.2	1.5	2.0	2.7	3.7	5.0	7.1	9.3

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

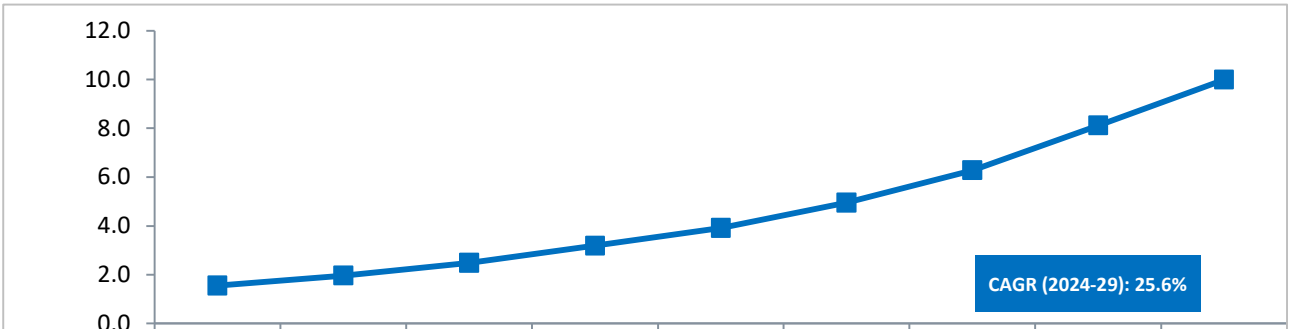
Frost & Sullivan estimates that the Indian IaaS market recorded US$ 3.3 Billion in 2023. The rising popularity of the Infrastructure-as-a-Service (IaaS) industry in India has been stimulated by the government's initiative for cloud adoption as well as the growing need for scalable and affordable IT infrastructure. This is primarily driven by the acceleration of digital transformation across various industries in India, particularly the tremendous growth of BFSI, e-commers and IT-enabled services sectors. It is anticipated that the IaaS market in India will continue to experience a strong growth during the forecast period, with a CAGR of 37.0% from 2024 to 2029, recording over US$ 21.2 Billion by 2029. AWS, Azure, GCP, CtrlS and Rackspace are the key players operating in this space, fostering the growth and development of this segment.

In the IaaS market, hybrid and public clouds segments are anticipated to experience exponential growth, driven by enterprises seeking flexible and scalable infrastructure solutions that combine on-premises resources with public cloud capabilities. According to Frost and Sullivan analysis, the overall private cloud IaaS market is expected to reach $5.9 billion by 2029, growing at a CAGR of 22.9% from 2024 to 2029. Whereas the hybrid cloud IaaS market is projected to reach $9.3 billion by 2029, with a CAGR of 35.5%.

B) India PaaS Market

Platform as a Service (PaaS) provides cloud platforms for developing, running and managing applications. The key components provided as part of the PaaS offering include development tools such as IDEs, SDKs, DBMS systems, middleware, container services and orchestration platforms.

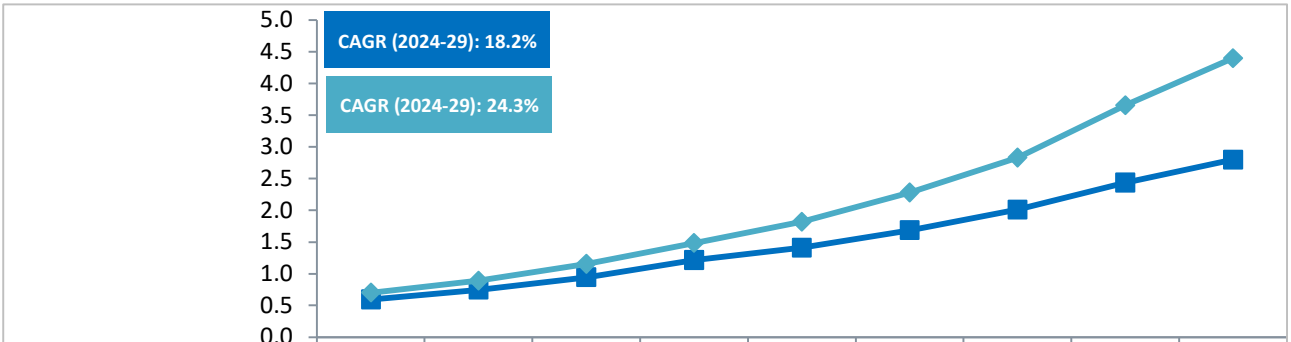
Exhibit 31: PaaS Market, India, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
PaaS	1.6	2.0	2.5	3.2	3.9	5.0	6.3	8.1	10.0

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

Exhibit 32: Hybrid & Private Cloud - PaaS Market, India, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
Private Cloud (PaaS)	0.6	0.7	0.9	1.2	1.4	1.7	2.0	2.4	2.8
Hybrid Cloud (PaaS)	0.7	0.9	1.2	1.5	1.8	2.3	2.8	3.7	4.4

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

Frost & Sullivan estimates that the Indian PaaS market recorded US$ 2.5 Billion in 2023. The PaaS market in India continues to grow, owing to the growing need for agile application development and increasing adoption of cloud computing. There is an increased adoption of cloud native solutions as businesses in India are focusing on developing and deploying application efficiently and PaaS offers the tools and platforms to accelerate the time-to-market. PaaS solutions are increasingly popular across various industry verticals, as it fulfills their business requirements and it is anticipated that Paas market will experience a robust growth, with a CAGR of 25.6% from 2024 to 2029, recording over US$ 10 Billion by 2029. Some of the key players specializing in PaaS solutions are AWS, Azure, GCP, IBM, Atlassian and Oracle.

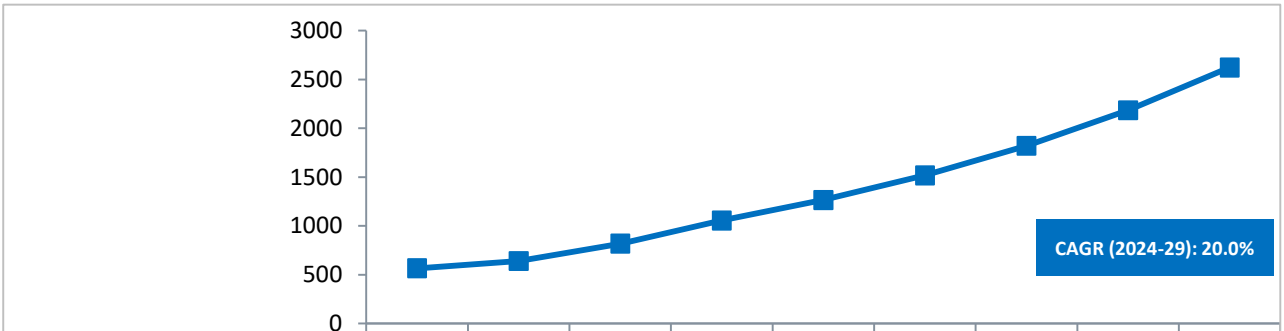
In the PaaS market, hybrid and private platform segments in India is also on an upward trajectory. This is primarily driven by the need to streamline application development, testing and deployment processes.

Leveraging hybrid PaaS solutions allows enterprises to benefit from the flexibility and innovation of public cloud platforms while retaining control over sensitive data and critical applications. According to Frost and Sullivan analysis, the overall private cloud PaaS market is anticipated to record over $2.8 billion by 2029, growing at a CAGR of 18.2% from 2024 to 2029. Whereas the hybrid cloud PaaS market is estimated to record over $4.4 billion by 2029, with a CAGR of 24.3%.

C) Infrastructure Capacity Growth

The demand for efficient and scalable IT infrastructure, cloud computing, and digital transformation are driving the rise in data center infrastructure investment in India. To meet their rising business requirements and demand, organizations are investing in updating and expanding data centers infrastructure. Capacity growth involves the construction of new data centers or the expansion of existing data centers, to meet the rising demand for computing and storage resources. The demand for data center capacity in India is growing, owing to the rapid advancement of digital technologies, increasing broadband penetration and the growing e-commerce and banking industries. Hence, Data Centers providers are increasingly investing in expanding their data centers to accommodate rising the customer demand. It is anticipated that Data Center Infrastructure Capacity in India will grow significantly during the forecast period, from 819 MW in 2023 to 2623 MW by 2029.

Exhibit 33: Overall Data Center Infra Capacity Growth (MW), India, CY 2021-2029

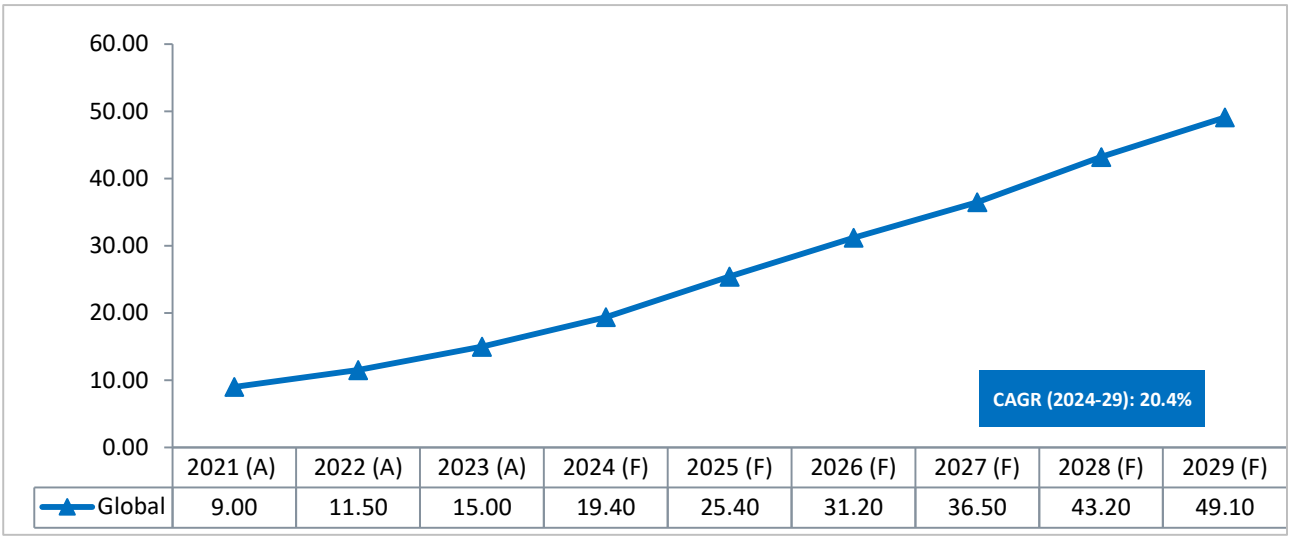


	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
Overall DC Infra Capacity	565	640	819	1054	1265	1518	1821	2186	2623

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

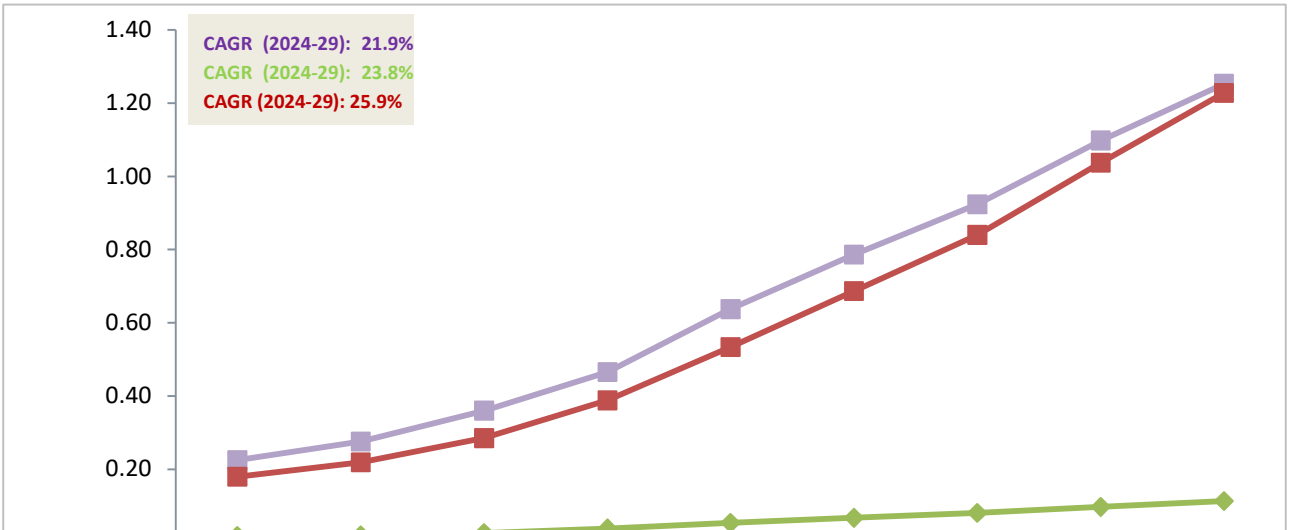
4) Application Lifecycle and Performance Management– Global, Regional, India

Exhibit 34: Application Lifecycle Management and Services, Global, CY 2022-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
Global	9.00	11.50	15.00	19.40	25.40	31.20	36.50	43.20	49.10

Exhibit 35: Application Lifecycle and Management and Services, ASEAN, SAARC, India, CY 2022-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
ASEAN	0.23	0.28	0.36	0.47	0.64	0.79	0.92	1.10	1.25
India	0.18	0.22	0.29	0.39	0.53	0.69	0.84	1.04	1.23
SAARC	0.02	0.02	0.03	0.04	0.05	0.07	0.08	0.10	0.11

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
India market is excluded from SAARC markets in this graph
Source: Frost & Sullivan

Application Lifecycle Management (ALM) and Services market is considered to include DevOps & DevSecOps. Frost & Sullivan estimates that the Global Application Lifecycle Management and Services market recorded US$ 15.0 Billion in 2023. It is anticipated that the market will continue to experience a strong growth, with an estimated 20.4% of CAGR from 2024 to 2029, recording US $49.1 Billion by 2029. On average large enterprises use more than 250 applications. Many applications(apps) are monolithic and do not support hybrid cloud. These apps are required to go through redevelopment in a native cloud environment, creating a huge opportunity for ALM. Initially the apps were undergoing the DevOps journey, but since security is a vital aspect, rigid security testing of these apps has been critical. The apps now undergo a DevSecOps journey to ensure the apps are developed with secure frameworks.

India

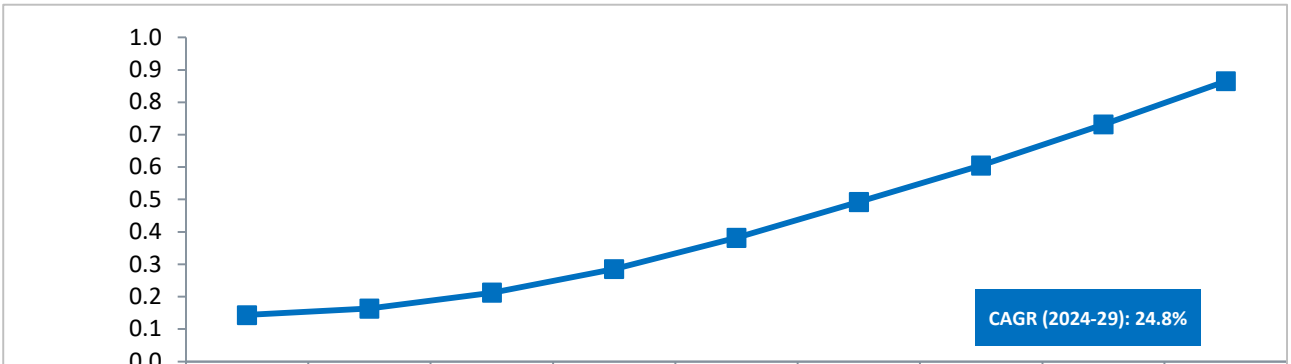
The Indian market recorded US$ 0.29 Billion in 2023 and it is forecasted to experience a tremendous growth, with a CAGR of 25.9% from 2024 to 2029, reaching US$ 1.23 Billion market value by 2029. Advanced ALM solutions are vital for India's booming IT sector that has made significant contribution to the country's GDP, serving both domestic and international businesses, acting as one of the economic growth drivers.

A) Application Lifecycle Management & Services (DevOps + DevSecOps)

i) DevOps

Frost and Sullivan defined that DevOps includes CI/CD tools, Infrastructure as Code (IaC) solutions, Containerization & Orchestration platforms, Monitoring & Logging tools. Indian DevOps market is estimated to record over US$ 0.2 Billion in 2023 and it is forecasted to experience a tremendous growth, with a CAGR of 24.8% from 2024 to 2029, reaching US$ 0.9 Billion market value by 2029.

Exhibit 36: DevOps, India, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
DevOps	0.1	0.2	0.2	0.3	0.4	0.5	0.6	0.7	0.9

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

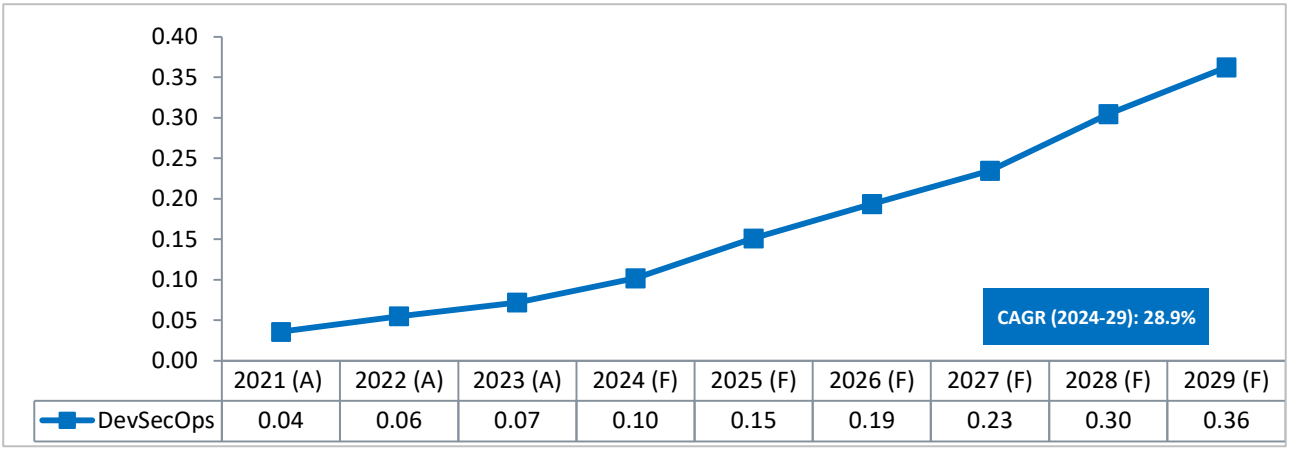
The significant growth of DevOps market is mainly contributed by the acceleration of digital transformation in India, with rapid adoption of cloud-native applications and applications modernization. The demand for efficient application development aligns with DevOps principle, enabling organization to streamline their development

and operation processes. As Indian government and businesses are aiming to become more agile and remain competitive in order to boost digital economy, the adoption of DevOps is expected to continue to increase, driving the growth of this market segment. IBM, Microsoft, Atlassian and Red Hat are the crucial players driving the development and growth of Indian DevOps market

ii) DevSecOps

DevSecOps includes Security testing & scanning, Infrastructure as Code (IaC) security, configuration & compliance management tools among others. Indian DevSecOps market is estimated to record over US$ 0.07 Billion in 2023 and it is projected to experience a tremendous growth, with a CAGR stronger than DevOps, at approximately 28.9% from 2024 to 2029, reaching US$ 0.36 Billion by 2029.

Exhibit 37: DevSecOps, India, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
DevSecOps	0.04	0.06	0.07	0.10	0.15	0.19	0.23	0.30	0.36

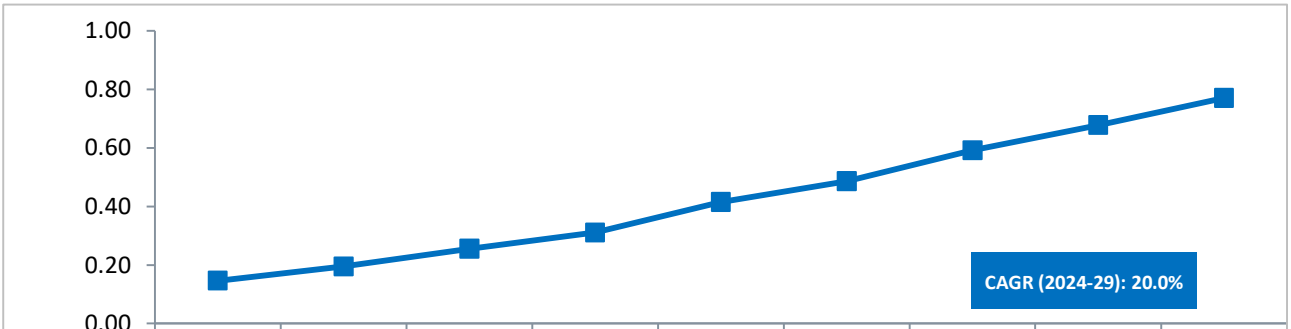
Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

The growing adoption DevSecOps approach is mainly contributed by the growing awareness and increasing focus on cybersecurity measures by businesses in India. As cloud security is becoming crucial and integrated in almost every aspect of cloud strategies, alongside with the demand for rapid application development and deployment, demand for DevSecOps is also anticipated to increase. DevSecOps is increasingly recognized by Indian technology companies, further supporting the growth of this market during the forecast period. IBM, Atlassian, Synopsys, JFrog and Red Hat are the top players fueling the growth of Indian DevSecOps market.

B) Application Performance Management (APM)

Frost and Sullivan defined that Application Performance Management is a suite of tools & processes used to monitor and manage the performance, availability and user experience of software applications. APM tools can typically accomplish performance monitoring, end user experience monitoring, diagnostics, analytics, alerting & reporting for real time performance issues. The APM market in India is valued over US$ 0.26 Billion in 2023.

Exhibit 38: APM, India, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
APM	0.15	0.19	0.26	0.31	0.41	0.49	0.59	0.68	0.77

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

The significant growth of APM market is mainly driven by the country's flourishing start-up ecosystem and contributed by the acceleration of digital transformation across various industry, particularly e-commerce, fintech, healthcare and so on. Therefore, these businesses are increasingly adopting APM tools to ensure optimal performance, enhance user experience and support the smooth rollout of new features and updates in their applications. Frost & Sullivan estimates that the APM market in India will experience a tremendous growth, with a CAGR of 20.0% from 2024 to 2029, reaching US$ 0.77 Billion market value by 2029. IBM, Microsoft, Dynatrace and New Relic are the major players in the Indian APM market.

5) Professional and Managed Services

Professional and managed services refer to the outsourced solutions provided by a diverse range of providers, including regional and national System Integrators (SIs), Value-Added Distributors (VADs) and even Original Equipment Manufacturers (OEMs). These providers help businesses to manage their technology infrastructure and security needs, with services typically include IT infrastructure managed services and Cyber Security managed services. Though OEMs provide managed services directly to a limited number of customers, particularly high-profile customers, specialist such as VADs offer more commercially viable professional services to SIs, filling gaps in expertise or resource availability. Partnership between SIs and VADs allows SIs to deliver comprehensive solutions to their clients without maintaining extensive in-house resources for every technology services.

Service provides leverage cutting-edge solutions, industry expertise and skilled IT professionals to offer efficient and secure IT managed services, allowing businesses to leverage expert knowledge and resources. Hence, it requires significant investments in solutions and tools, IT professionals and 24/7 infrastructure, which many SIs find challenging to sustain in this area. As a result, SIs often leverage Managed Security Service Delivery (MSSD) players to meet their customers' needs and typically avoid partnering with other MSPs. This approach is to prevent potential direct partnerships between MSPs and end customers, causing SIs to be potentially replaced. MSPs and SIs are leveraging their unique strengths, partnerships and business models to for both professional and managed services, aiming to provide comprehensive IT and security solutions to customers.

The professional and managed services market in India is witnessing robust growth, fueled by the surging demand for cloud-based solutions and digital transformation initiatives. Other than India, the GCC region is also experiencing significant growth, particularly in cybersecurity and IT infrastructure services. It is anticipated that the market will grow at a CAGR of 20.7% from 2024 to 2029, recording over US$ 3.08 Billion by 2029.

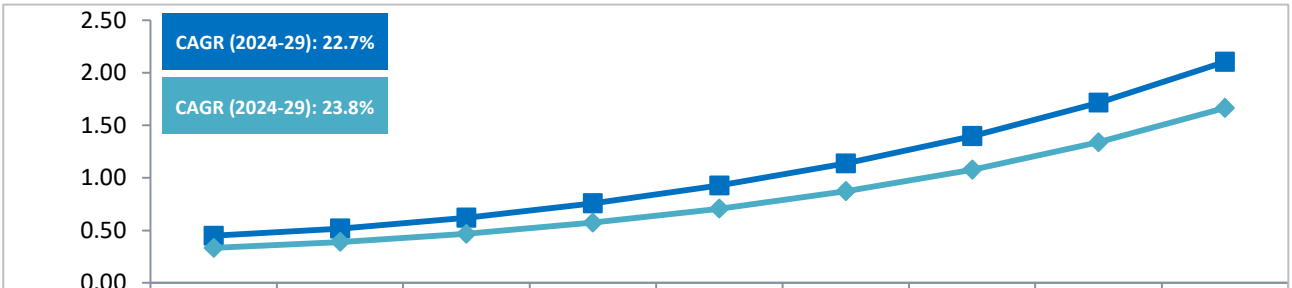
A) Cybersecurity Services

Professional and managed cybersecurity services offer a thorough framework that protect businesses from digital risks and ensure compliance with laws.

Managed Security Services (MSS) include management of firewall, endpoint, intrusion detection, SIEM, Cloud, Web and many such security products and solutions. Besides, it also includes Threat intelligence services for continuous monitoring threats, threat containment and providing threat response through Security Operations Centers (SOCs), thereby effectively managing risks and alignment with security policies.

Professional Security Services (PSS) include advisory services, implementation support and technical services. GRC services are also included in Professional Security Services.

Exhibit 39: MSS & PSS, India, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
MSS	0.45	0.52	0.62	0.76	0.93	1.14	1.40	1.72	2.10
PSS	0.33	0.39	0.47	0.57	0.71	0.87	1.08	1.34	1.66

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

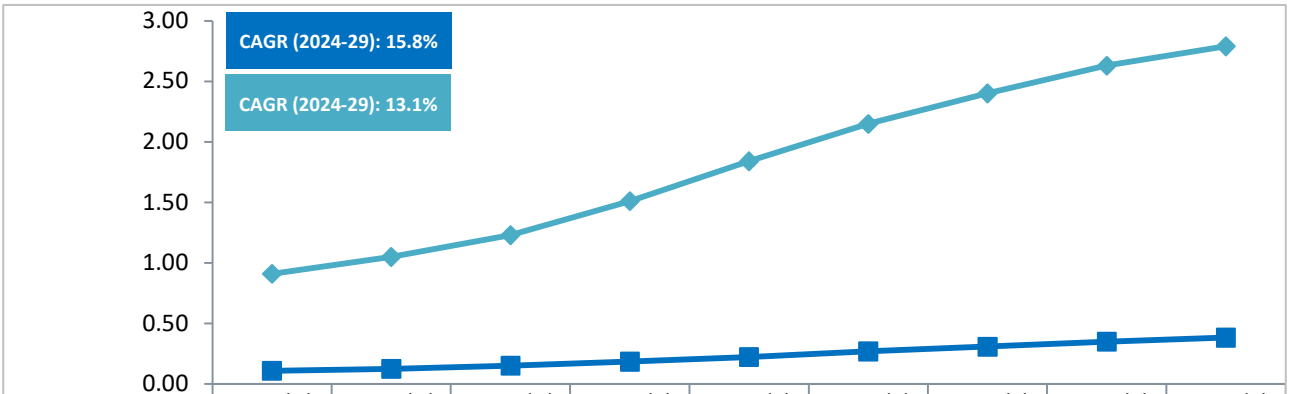
Frost & Sullivan estimates that the MSS market in India has recorded US$ 0.62 Billion in 2023, owing to the increasing frequency and sophistication of cyber-attacks, enterprises needs to seek continuous monitoring and threat detection capabilities. The MSS players predominantly include system integrators, pure play managed security services companies and telecom service providers. As an emerging trend, the value added distributors have expanded their offerings to offer SOC services. The growing adoption of cloud computing has increased the attack surface, demanding specific security knowledge which Managed Security Services companies can offer. It is anticipated that this market will continue to grow more rapidly, as businesses are further compelled to embrace professional security management by strict regulatory compliance requirements. Frost & Sullivan estimates that this segment will grow at a CAGR of 22.7% from 2024 to 2029, recording over US$ 2.1 Billion by 2029.

Frost & Sullivan estimates that the PSS market in India is also experiencing a robust growth, recorded approximately US$ 0.47 Billion in 2023. This is because businesses are becoming more aware of the need of proactive security measures and strategic planning in protecting their digital assets. Consequently, the demand for specialist services such vulnerability management, penetration testing, and security assessments has grown significantly. Moreover, the growing complexity of IT systems, particularly the integration of cloud services and IoT devices, demands professional guidance when designing effective security architecture. It is estimated that the market this segment will continue to grow at a CAGR of 23.8% from 2024 to 2029, recording over US$ 1.66 Billion by 2029.

B) IT Infrastructure

IT Infrastructure Managed Services are critical to facilitate seamless IT operation and maintenance of an organization's IT infrastructure. IT Infrastructure Managed Services consist of IT Service Management (ITSM), which covers Enterprise Service Management (ESM) to streamline and improve IT service delivery and support across businesses. Additionally, Infrastructure Management Services (IMS) are also part of this category, covering Network Operations Center (NOC) services that ensure the continuous and efficient operation of an organization's IT infrastructure. Network Operations Center (NOC) services assist customers with 24-hour monitoring, management and optimization of network performance, maintaining uninterrupted connectivity and minimizing downtime in the event of system failure. Hence, it is crucial for maintaining the stability, performance, and reliability of an organization's technology systems. The professional and managed IT infrastructure services market in India is growing rapidly, organizations are increasingly turning to managed service providers to handle complex IT environments and security challenges.

Exhibit 40: IT Infrastructure Managed Services (ITSM & IMS), India, CY 2021-2029, in USD Billion



	2021 (A)	2022 (A)	2023 (A)	2024 (F)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)
ITSM-ESM	0.11	0.13	0.15	0.19	0.23	0.27	0.31	0.35	0.39
IMS	0.91	1.05	1.23	1.51	1.84	2.15	2.40	2.63	2.79

Note:
(A) indicates actual values, (F) indicates forecasted values
The market size data covers the period from 2021 to 2023, with market forecasts extending to 2029
Numbers rounded off to 1 decimal place
Source: Frost & Sullivan

The ITSM market in India experienced a robust growth in the past few years, driven by the increasing digital transformation activities and growing adoption of advanced technologies across various industries. It leverages software tools to essentially design, plan, manage, automate integrated IT services. The IT teams use this

platform to manage end to end delivery of IT services. Frost & Sullivan estimates that the ITSM segment to be valued at US$ 0.15 Billion in 2023. This segment is anticipated to grow at a faster pace in the coming years, owing to Indian's position as a growing IT hub, increasing need for effective organizational change management and the rising adoption of cloud based ITSM solutions. It is estimated that the market this segment will continue to grow at a CAGR of 15.8% from 2024 to 2029, recording over US$ 0.39 Billion by 2029.

Frost & Sullivan estimates that the Infrastructure Management Services (IMS) market in India is also experiencing a robust growth, recorded approximately US$1.23 Billion in 2024. This is particularly due to the rapid growth of digital technology adoption across various industries, leading to increased demand for robust network and monitoring services. The growth of the IMS is closely linked to the rapid expansion of IT infrastructure that includes desktop, servers, networking, storage, data, security products. The increasing complexity of network with the integration of cloud services, mobile devices and IoT devices further fuels the demand. Frost & Sullivan estimates that the IMS segment will experience a strong growth during the forecast period, with a CAGR of 13.1% from 2024 to 2029, recording over US$ 2.79 Billion by 2029.

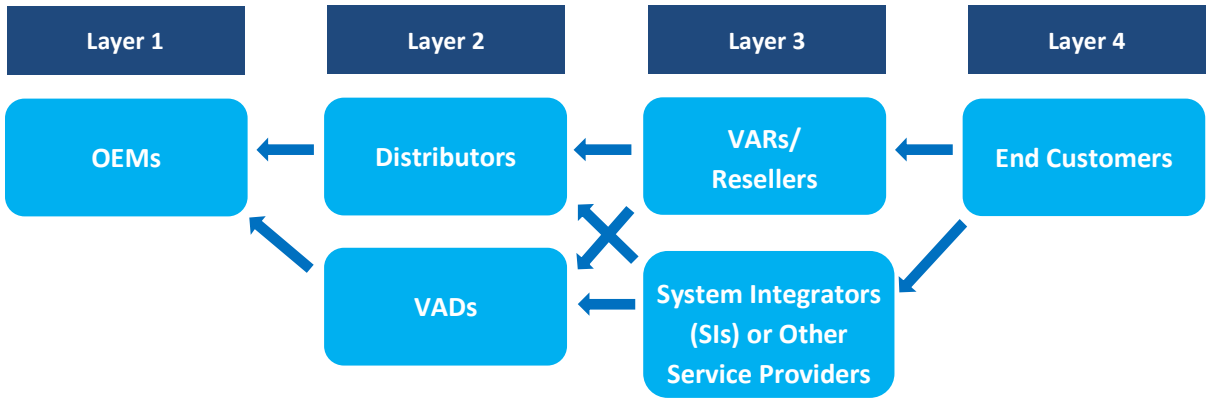
5. Brief of the IT Ecosystem

5.1 Overview of IT Products and Services Market Distribution Ecosystem

The evolution of IT and applications, from mainframes in the 1960s to today's cloud-based solutions, underscores the industry's shift toward scalability and flexibility. Initially dependent on specific hardware, applications required frequent updates to leverage technological advancements. With the rise of cloud computing, digital transformation now focuses on enhancing performance, scalability, and security across business applications. Enterprises manage numerous applications that need constant updates and deployment, making digital transformation essential for streamlining these processes. By harnessing data analytics, businesses can drive growth and maintain competitive advantage. As organizations increasingly adopt cloud environments, digital transformation becomes critical for effectively managing internal and external processes in a rapidly evolving digital landscape.

The industry ecosystem for digital technologies is a complicated network, connecting numerous industry players, each of which offers specialized knowledge and skills to support the development and growth of IT product and services market.

Exhibit 41: IT Products and Services Market Distribution Ecosystem



Note:
This Chart Illustrates a General IT Product and Services Market Distribution Ecosystem.
Ecosystem may be slightly different depending on the products/services and regions.
**1 Others include Managed Services Providers, Consulting Firms and Telcos.*
Blue arrow head indicates "buy/source from". (⟶)
Source: Frost & Sullivan

Exhibit 42: Overview of Key Stakeholders within the IT Product and Services Distribution Ecosystem

Level 1: OEMs	The industry's leaders in the IT sector are the original IT hardware products and solutions companies, often referred as OEMs. These companies commit significant investments in R&D to provide the most advanced hardware, software and cloud platforms that serve as the backbone for successful digital transformation. A broad spectrum of technologies such as cloud computing, artificial intelligence, big data analytics, blockchain, and the Internet of Things (IoT), are supported by the products of

	these large IT and Technology companies specializing in hardware and software. It can be mainly categorized into IT hardware/Product OEM and IT Software OEM. **IT Hardware/Product:** Some of the major players are Dell, Cisco, Lenovo, and HP, offering a wide range of hardware products, such as servers, networking equipment, laptops/computers, security products and storage systems. These players provide solutions cater to both businesses and consumer needs, offering scalable solutions for the end users. **IT Software:** Major providers such as Microsoft, IBM, SAP, and Oracle build industry-specific solutions, addressing the requirements of various sectors including manufacturing, healthcare, retail, and finance. They continuously strive to develop new technology and expand their product offerings by establishing a robust partnership ecosystem. This segment values partnership ecosystems, collaborating with Value-Added Distributors (VADs), Distributors who are a main channel to the System Integrators, telecom service providers and Value-Added Resellers (VARs).
Level 2: Distributors/VADs	Distributors and VADs play a crucial role as an intermediary between OEMs and VARs/Resellers or Service Providers in the IT product and services distribution ecosystem. The traditional mode offers pure play distribution, while the next gen distributors offer beyond the traditional distribution services such as technical support, product customization and integration, enhancing the overall value proposition of OEM products. **Distributor:** Distributors are more specialized and advanced form of distribution within the ecosystem. With product distribution at the core, they have extensive knowledge and experience of specific technologies or industries. System Integrators (SI's) and VARs often procure large volumes of products from distributors who are able to offer a better deal value and also have a shorter time to deliver it at PAN India level. These companies typically offer inventory and logistics for a wide range of products from multiple OEMs, providing a one-stop-shop for customer to access various IT solutions. Moreover, they often have stronger and robust partnership ecosystem with major manufacturers and SIs at national and regional level. This broad reach and scale make them an essential partner. **VADs:** Value-Added Distributors serve as channels between OEMs and Resellers/Value added resellers and SIs, facilitating efficient distribution of digital transformation products and services. By providing their partners value-added services such as technical support, training, and consultation, VADs play a crucial role in the entire digital transformation ecosystem. VADs utilize their extensive knowledge and experience of specific technologies or industries to offer pre-sale support, implementation support and integration advice. Additionally, VADs also manage inventory, logistics and the whole supply chain operations for OEM products, ensuring Resellers and System Integrators receive timely delivery. They offer skilled resources to support IT service management and delivery.

	Distributors/VADs that have the capability to service multiple product lines are categorized as broadliners.
Level 3: Resellers/SIs	VARs/ Resellers play an essential role in providing technology solutions for all businesses. It consists of a diverse range of companies that provide various types of services, from distributing hardware and software products to managing daily IT and security operations. Outlined below are some of the major stakeholders within this segment. **Resellers/VARs:** Resellers/VARs serve as the bridge between distributor and end-users. Resellers purchase products or solutions from distributors and resell them to end-users. To ensure that the solutions are operating smoothly and to build long-term relationships with end-users, resellers also provide their customers with basic maintenance, training and support services. Resellers may better understand and manage specific challenges encountered by end-users, by acquiring knowledge in specific industries or geography regions. **System Integrators (SIs):** SIs often front the end customers and specialize in integrating multiple technologies into comprehensive solutions. Their ability to deliver comprehensive implementation and deployment services for sophisticated digital transformation projects derives from their extensive knowledge and experience of specific industries, technology or business processes. They build computing systems by combining hardware, software, networking, storage and other products. They provide design, advisory, implementation, testing, support and lifecycle management and services, making them a reliable service partner. By leveraging their skilled resources, customer relationships, they have a major market capture and recall amongst end users. They enable digital ecosystems, and potentially expand into adjacent services like cloud computing, IoT and data analytics, to be a one stop shop for the end customer. The large SI have been offering services for decades. They are often called as Global SIs, National SIs, Regional SIs or Local SIs depending on their geographical presence and scale of operations. **Other Service Providers:** Telecommunications Companies (Telcos), Consulting Firms and Pure-play managed security players are some other these other service providers that offer outsourced management, maintenance services, and NOC SOC services that are critical in to maintain and secure IT environments. Telcom Service Providers leverage their network infrastructure to offer IT services such as managed network or infrastructure services. Consulting Firms provide strategic IT advisory services and implementation services. Some of the pure-play Managed Security Services Players (MSSPs) focus exclusively on cybersecurity services. MSSPs usually offer a variety of services, such as application management, cloud management, data center operations and IT infrastructure support and monitoring services. This a includes Public Cloud or Hybrid Cloud Service Providers that offer a cloud computing platform, infrastructure, application, storage or other services.
Level 4: End Customers	End customers are the end consumers of IT product and/or services, driving demand of IT solutions and services, providing feedback, hence, contributing to the development

	and evolution of products and services through their purchasing decisions, usage and business requirements for customization and support.

Source: Frost & Sullivan

5.2 Distributed Nature of the Stakeholders in the Entire Ecosystem

In the IT solutions and services distribution ecosystem, most OEMs that include IT product companies and IT solution providers prefer selling through Distributors/VADs. In most cases, VARs/Resellers and SIs and other service providers work with distributors/VADs and further supply it to end customers. With the support from VADs and system integrators, OEMs can focus on enhancing product competencies, targeting large and more lucrative market and enhancing their market presence in high-value segments.

Unlike Distributors who mainly offer distribution of OEMs IT products, VADs play a pivotal role by providing specialized services that enhance the value of OEMs products. VADs typically hold strong experience and deep expertise in specific technology segments or market segments, delivering pre-sales support, technical training services. VADs are essential in the IT distribution ecosystem as they source products from OEMs and sell them to resellers and SIs, enhancing and adding value to the distribution business. VADs manage logistics and inventory of the products, playing an important role to support the end-user digital transformation journey. OEMs can penetrate a new market or expand their market reach efficiently and effectively by partnering with well-established VADs in the region, leveraging their existing partnerships and distribution networks within the region. Some of the VADs differentiate themselves by offering managed and professional services over and above the other services.

SIs procure OEM products from the distributors or VADs according to the overall business requirements. They are the preferred partners for end customers. End customers for smaller order/non-complex deals evaluate resellers or VARs instead of SIs. SIs honor large deals through the Distributors when they have the largest inventory procurement requirement. While managing complex IT environments, the preference is given to a VAD instead of a Distributor, thereby delivering comprehensive solutions for end-customers. Services often include the integration of products and solutions to customer's existing IT infrastructure, customization, implementation and even maintenance services.

Resellers typically specialize only in a few technology domains, and expand their geographic reach and market penetration, contributing to local sales and support services. Resellers hold strong local business networks in the markets they are operating, it helps OEMs and VADs to enter new markets rapidly and effectively with their on the ground presence and existing customer base. Hence, market and coverage can be broadened by leveraging the networks of resellers.

Various Other Service Providers are also crucial to the entire ecosystem as they come with their own vale proposition. The Managed or Cloud Service Providers typically offer services for customers who may not have sufficient resources or capabilities to manage their IT environments. There are SIs, pure play MSSPs, Telcom Service Providers (TSPs) that are preferred accordingly to the domain expertise or the as a Service model. There is a surge in Managed and Hybrid Cloud Services market as businesses recognized the advantages of infrastructure services. OEMs tap into the rising demand for Managed and Hybrid Cloud Services, and to create recurring revenue streams, they leverage the partnership with Managed and Hybrid Cloud Service Providers.

5.3 Challenges Faced by Enterprises in Managing and Selecting Vendors

Businesses may face multiple challenges when selecting and managing vendors, and those challenges can potentially impact their operations and strategic goals significantly. Outlined below are some of the major challenges faced by businesses.

Identifying the Right Vendor

The technology landscape encompasses various fields such as cybersecurity, data management, infrastructure, application development and hybrid cloud solutions. Various OEMs have strong presence in this ecosystem, offering robust and comprehensive solutions to meet the constantly evolving technology landscape. In this complex environment, businesses face the challenge of identifying the most appropriate solutions from leading OEMs as well as ensuring these solutions are compatible with each other and can be seamlessly integrated into their existing IT environments.

Hence, choosing the right vendor is a complicated task that requires a well-organized and comprehensive strategy. Businesses are approached with several vendors and each vendor claims to have unique values and capabilities. For instance, there are multiple vendors in the cybersecurity segment that provide solutions ranging from simple firewalls to comprehensive AI-powered threat detection systems. Given the numerous options available, it can be challenging for businesses to determine which vendor best fits their specific business requirements and long-term objectives.

Accurately defining businesses requirements is the first step for businesses to choose the right vendor. To ensure that the business requirements of all stakeholders are considered, including technological requirements, financial constraints and future scalability, cross-department collaboration is crucial. Businesses also need to evaluate potential vendors' cultural fit and long-term viability. This involves the evaluation of how well a vendor's values fit the business as well as taking the vendor's financial health and development roadmap into account. Other crucial elements include the ability of the vendor's solutions to seamlessly integrate with current systems and the quality of vendor’s support and ongoing maintenance services.

Choosing the Right Solution

Most technology domains, including cybersecurity, information lifecycle management, data center infrastructure, application lifecycle management, hybrid cloud solutions and other domains that are critical for digital transformation, often have multiple products and solutions to choose from. At any given instance, enterprises use multiple OEMs to support their IT and Security infrastructure and applications. To choose the right IT solutions that are interoperable across multiple OEMs, is critical for an enterprise’s IT environment. This multi-OEM interoperability and service support becomes a crucial decision point for enterprises. With a large ecosystem of technology providers and integrators, the technology partner selection process becomes long and cumbersome.

Cost Management

Choosing the most economical solution does not represent the only way to control costs in vendor selection and ongoing partnerships, as businesses need to take several other factors into consideration. It includes a thorough method for identifying and optimizing the total cost of ownership (TCO) of products or services offered by vendors. Carry out a thorough cost-benefit analysis is a crucial component of cost management. This requires considering long-term expenditures including maintenance, upgrades, training and potential integration costs in addition to the initial investments. For instance, a solution and service provider may offer an affordable initial

investment cost, however, it requires considerable amounts of modification or has significant recurring license costs, hence, the total cost of ownership (TCO) may become considerably greater than expected.

Enterprise customers are also increasingly looking to retain flexibility to shift from a total contract value model to annual contract value models for their technology purchases, in order to attain operational, technology and cash flow flexibility.

Ensuring Vendor Compliance

A key aspect of risk management, vendor compliance can have a significant impact on the business operations, the credibility of the company and legal standing of a business. Several essential elements are involved in ensuring vendor compliance. Firstly, it's critical to define clear compliance requirements. This involves creating comprehensive vendor agreements that specify all relevant legal, regulatory requirements and operational requirements that vendors must fulfill, including regulations for data protection, environmental regulations or even industry-specific regulations or ethical business practices. Maintaining up vendor compliance requires regular audits and evaluations. It differs according to the vendor's criticality and the type of products or services delivered. For instance, a vendor handling confidential and sensitive customer information may require more regular and comprehensive assessment.

6. OEM Analysis

Majority of the top global OEMs across various segments, such as cybersecurity, information lifecycle management, data center infrastructure and management and application lifecycle management have established a strong presence in the Indian market. Multiple factors are influencing the investment of these OEMs in India, particularly owing to the India's booming digital economy and a large pool of IT professionals.

Outlined below are some of the top OEMs in each of the technology segment.

6.1 Key OEMs Operating in Indian Market

6.1.1 Cybersecurity

Exhibit 43: Key Cybersecurity OEMs Operating in Indian Market

Key OEMs	Network Security	Endpoint Security	Cloud Security	Identity & Access Management	Application Security	Data Privacy & Security
Checkpoint	✓	✓	✓	✓	✓	✓
Forcepoint	✓	✓	✓		✓	✓
Sentinel One		✓	✓	✓		
Netskope			✓	✓	✓	
CyberArk		✓	✓	✓		
Akamai Technologies	✓		✓	✓	✓	
Imperva			✓		✓	✓
Opentext	✓	✓	✓	✓	✓	✓
Tenable	✓	✓	✓	✓	✓	✓
Google	✓	✓	✓	✓	✓	✓
Cisco	✓	✓	✓	✓	✓	✓
Fortinet	✓	✓	✓	✓	✓	✓
Palo Alto	✓	✓	✓	✓	✓	✓
Microsoft	✓	✓	✓	✓	✓	✓
Crowdstrike	✓		✓	✓		
Sophos	✓	✓	✓	✓	✓	✓
Zscaler	✓	✓	✓	✓	✓	

IBM	✓	✓	✓	✓	✓	✓
Radware			✓		✓	
Broadcom (Symantec)		✓	✓			✓
Trellex		✓	✓			
Protiviti						✓
Onetrust						✓

Source: Frost & Sullivan

Overview of the Top Cybersecurity OEMs

Cisco	Cisco was founded in 1984 and has since become synonymous with the internet and networking infrastructure. The company's product portfolio includes routers, switches, end-to-end cybersecurity solutions, collaboration tools and Internet of Things (IoT) devices. They have been actively developing their presence in India, with a strategy that coincides with the country's rapid digital transformation and growing cybersecurity demand. Cisco established partnerships with local distributors and VAD's, allowing them to draw on local experience and broad networks.
Fortinet	Founded in 2000, Fortinet is a well-known cybersecurity company, focusing on offering comprehensive, integrated and automated cybersecurity solutions. Fortinet provides comprehensive security solutions that encompasses network security, cloud security, endpoint protection and access control. Fortinet serves a variety of industries, including financial services, healthcare, retail and government. The growing adoption digital technology and the consequent need for strong cybersecurity measures are their main business growth drivers. Fortinet is one of the key players in the Indian cybersecurity market, owing to the strong partnership ecosystem with regional distributors.
Palo Alto Networks	Since its founding in 2005, Palo Alto Networks is one of the key leaders in cybersecurity sector and they are heavily investing in next-generation security technologies. Palo Alto Networks provides a wide range of products, including next-generation firewalls, cloud-based solutions and enhanced endpoint security. The company has also been adopting advanced technologies such as artificial intelligence and machine learning, to improve their ability to identify and respond to cyber threats. Palo Alto Networks holds a prominent position in the Indian cybersecurity segment, owing to its comprehensive and robust cybersecurity solutions and partnership ecosystem.

Check Point Software Technologies	Check Point Software Technologies is a global software and hardware solutions provider for IT security. The company provides a variety of security solutions, such as cloud security, network security and endpoint protection, serving government agencies and all the businesses, covering both small and large enterprises. Check Point's solutions support Indian organizations to address the rapidly changing cybersecurity landscape, assisting their customers in protecting sensitive data, security compliance and mitigating cyber-attacks.

Source: Frost & Sullivan

6.1.2 Information Lifecycle Management

Exhibit 44: Key Information Lifecycle Management OEMs Operating in Indian Market

Key OEMs	Storage System	Data Protection & Monitoring Tools	Others (such as, business continuity)
Hitachi Vantara	✓	✓	
Arcserve		✓	✓
Cohesity		✓	✓
Rubrik	✓	✓	✓
NetApp	✓		✓
Dell	✓	✓	
HP	✓	✓	
Cloudera	✓	✓	
Pure Storage	✓	✓	
Veeam		✓	✓
Symantec		✓	
LockPath			✓
Commvault Systems			✓

Note: Other notable OEMs such as Google and Lenovo also have strong presence in Indian Market.
Source: Frost & Sullivan

Overview of the Top Information Lifecycle Management OEMs

Dell Technologies	Dell Technologies is a prominent global provider of advanced technology solutions, products and services, with extensive product line covering desktops, laptops, network switches, storage devices and software. Dell Technologies is well recognized for their data management and storage products, which are essential for all businesses. Within the information lifecycle management segment, Dell Technologies offers a

	comprehensive range of products and services, supporting customers to securely and efficiently manage their data.
NetApp	NetApp is one of the leading information lifecycle management providers, known for its innovative solutions and strong market presence most of the regions. NetApp focuses on delivering enterprise-class performance solutions across diverse storage environments, particularly in hybrid and multi-cloud strategies, enabling businesses to manage and extract insights from their data effectively. NetApp offers high-performance storage systems and scalable object storage solutions, focusing on reducing complexity and enhancing data portability, hence, it is one of the top choices for businesses seeking robust data management.
Hitachi Vantara	Hitachi Vantara is a global player of analytics and data management solutions, focuses on supporting businesses in their digital transformation journey. The company provides analytics solutions, data integration, data storage and data security. Additionally, Hitachi Vantara provides cloud-based storage options, enabling companies to benefit from the scalability and flexibility of the cloud along with hybrid cloud offerings.

Source: Frost & Sullivan

6.1.3 Data Center Infrastructure

Exhibit 45: Key Data Center Infrastructure OEMs Operating in Indian Market

Key OEMs	IaaS	PaaS	Private Cloud	Hybrid Cloud
AWS	✓	✓	✓	✓
Azure	✓	✓	✓	✓
GCP	✓	✓	✓	✓
IBM	✓	✓	✓	✓
HPE			✓	✓
Oracle	✓	✓	✓	✓
Dell			✓	✓
Nutanix			✓	✓
Red Hat			✓	✓
Arista			✓	✓
Vantageo	✓	✓	✓	✓
SUSE	✓		✓	✓

Lenovo	✓	✓	✓	✓
Hitachi	✓		✓	✓
Splunk		✓		
Cloudflare		✓		
Alcatel			✓	✓
A10			✓	✓
Cloudera		✓		
Confluent		✓		
Arcserve	✓	✓	✓	✓
Stratus			✓	✓
Veeam	✓	✓	✓	✓

Source: Frost & Sullivan

Overview of the Top Players Data Center Infrastructure OEMs

Amazon Web Services (AWS)	Amazon Web Services (AWS), one of the top platforms for cloud computing globally, offers an extensive range of services for data center infrastructure and management. AWS offers a broad range of database, networking, storage and computing services, supporting businesses to create and run scalable, adaptable and affordable cloud data center solutions. Their worldwide network of data centers and edge locations enables organizations to build and manage infrastructure closer to end customers, resulting in improved performance and lower latency.
Microsoft Azure	Microsoft Azure is another prominent player in the cloud computing market, offering a comprehensive range of services for data center infrastructure and management. Azure provides platform services for databases, analytics and artificial intelligence in addition to core infrastructure services like virtual machines, storage, and networking. Additionally, Azure also focuses on hybrid cloud solutions, allowing businesses to combine Azure cloud services with their on-premises data centers easily.
Google Cloud Platform (GCP)	Google Cloud Platform (GCP) provides a variety of services for data center infrastructure and management in the cloud. Some of the key elements of GCP's data center management are intelligent operations and automation, delivering services such as infrastructure and application monitoring, logging and diagnostics through Google Cloud Operations Suite. GCP's has an established global network and edge locations, allowing them to deploy their infrastructure closer to their customers, leading to enhanced performance and lower latency

Source: Frost & Sullivan

6.1.4 Application Lifecycle Management & Services

Exhibit 46: Key ALM OEMs Operating in Indian Market

Key OEMs	DevOps + DecSecOps	Application Performance Management (APM)
IBM	✓	✓
Microsoft	✓	✓
GCP	✓	✓
Atlassian	✓	
Redhat	✓	
Synopsys	✓	
Veracode	✓	
Lacework	✓	
Dynatrace		✓
Cisco AppDynamics		✓
Broadcom		✓
Microfocus	✓	
Arista	✓	✓
Netscout	✓	✓
Splunk	✓	✓
Gridgain	✓	✓
Check Point	✓	✓
Solace	✓	✓
Cloudflare	✓	
Akamai	✓	
A10	✓	
Cloudera	✓	
Confluent	✓	
Appnomic		✓
Github	✓	

Note: Other notable OEMs such as Solace, Keysight, Fortanix, Fortra, Mandiant, Recorded Future, Utimaco, Sumo Logic, Stratus, Google Secops, Digital.ai, Securonix, Innspark, Gurucul Solutions, Lenovo, etc. also have strong presence in Indian Market.
Source: Frost & Sullivan

6.2 Key Growth Drivers Supporting OEMs Growth

Outlined below are some of the factors that are reshaping the IT solutions and services distribution landscape in India and the SAARC region.

Technology Adoption and Innovation

The IT services and solutions market is a rapidly growing globally. Multiple industries are experiencing a surge in demand, owing to the accelerated digital transformation, as businesses are heavily engaging in automation, data analytics and cloud computing technologies to strengthen their operational efficiency and competitiveness. Businesses are shifting their operations to the cloud, which is further supporting the growth of cloud-based services and increasing demand for hybrid cloud infrastructure and cloud security solutions. The growing number of connected devices across several industries is also driving the fast expansion of the Internet of Things (IoT), posing new security issues and opening possibilities for specialized solutions. IT solutions and services are becoming more and more integrated with AI and ML, these advancements in technology are not only influencing the IT landscape, but also creating new opportunities for OEMs to deliver innovative solutions that support digital initiatives.

Security and Compliance

Growing cyber-attacks and evolving regulatory landscape have contributed to significant growth in the cybersecurity sector in India and the SAARC region. Data privacy is becoming increasingly important, boosting the demand for robust data security and encryption solutions, particularly among industries that collect and manage confidential and sensitive customer data. The adoption of remote and hybrid work arrangements has encouraged the investments for the development of innovative security solutions, increased the demand for identity and access management, secure remote access solutions and endpoint protection. Organizations are urged to invest in cutting-edge IT solutions to comply with changing regulations and compliance requirements, as well as to protect themselves against cyber-attacks. In short, the increased focus on security and compliance is driving not just investments in cybersecurity products and services, but also the development of comprehensive, integrated security solutions that can address the sophisticated threat landscape while ensuring regulatory compliance.

Market Dynamics

Market dynamics have evolved significantly in the IT segment in recent years. Given the stringent regulations and critical infrastructure needs, several industries such as Banking, Financial Services and Insurance (BFSI) and IT/ITeS and governments are spending heavily on IT infrastructure, solutions and services. With the new age features integration becoming critical for rapid transformation of enterprises, and with the product or solution refresh cycles maturing, there is increasing need to embed newer solutions. This presents significant opportunities for OEMs to establish partnership with ecosystem players to deliver their products or solutions. The growing popularity of cybersecurity insurance because of growing severity and frequency of cyber-attacks has also boosted the demand for sophisticated risk assessment tools and security solutions. These market

dynamics have led to a broad and growing of opportunities for OEMs that can effectively address the specific demand of various industries.

6.3 Key Strategies for OEMs

Strategic Partnerships and Ecosystem Development

OEMs are establishing strategic partnerships and ecosystem within the IT industry, as they can't compete in isolation in the connected digital world today. Establishing strategic partnerships with VADs allow OEMs to provide more comprehensive and integrated solutions and services, as VADs are working closely with software developers, service integrators and other technology vendors, supporting the expansion of OEMs' businesses.

Through these partnerships, OEMs can expand into other undiscovered domains, enhance their product offerings and cater to various demands from their customers. OEMs are continuously focusing on enhancing their existing offerings and introducing innovative and robust solutions through both organic development and acquisitions to capture a larger share of customer budgets. As a result, these initiatives require a conceptual sales approach, generating interest of customers. Through the collaboration of OEMs and VADs, these initiatives can be enhanced through comprehensive training on technology and sales, as well as collaborative market development efforts with SI teams targeting their customer base.

Technological Innovation and Market Adoption

One of the main factors driving OEMs business growth is technological innovation. It includes advanced technologies offering, such as edge computing, cloud computing, cybersecurity, artificial intelligence, machine learning and data management as well as the continual improvement and integration of these technologies. To develop solutions that can meet the constantly evolving customer requirements, OEMs are making significant investments in R&D, integrating artificial intelligence and machine learning into their products to provide more automated and AI enabled IT systems. OEMs are staying ahead of the competition in technological advancement, enhancing their competitive edge.

Additionally, OEMs must adapt to the constantly evolving market at the same time, to increase their market presence and remain competitive. OEMs focus on working with partners to offer personalized solutions and to address specific challenges faced by industries such as healthcare, finance and manufacturing. To meet industry-specific challenges or regulatory requirements, OEMs follow stringent regulatory guidelines and certify their products. Another significant aspect is product diversification, in which OEMs expand their product or service offerings to complement their current portfolio to generate new income streams.

Customer-centric Approach

OEMs place growing importance on improving customer experience at every stage of the product lifecycle, from initial engagement to after-sales support, through collaboration with their extensive partnerships. The demand for industry-specific or customer specific solutions is growing rapidly, and OEMs are heavily focused on developing customized solutions that can address specific business requirements.

As more offerings transition from software to a SaaS model, managing Customer Satisfaction Score (CSAT) scores become crucial to ensure annual contract renewals. As a result, ability to provide customized solution becomes one of the key differentiators in IT solutions and services industry. Hence, ability to provide professional services

for seamless and effective implementation and integration, along with managed services offerings to monitor, manage and proactively address issues, are essential to retaining and growing customer business.

6.4 Partnership Between OEM and Distributor or VAD for Market Expansion

OEMs are establishing partnerships with VADs to enhance their market presence and raise their market share, reach new customers and offer customized products that are suitable for the region. These collaborations are critical for navigating the complicated and diversified Indian market, overcoming cultural and legal barriers and expand rapidly. Outlined below are some of the examples on partnership between OEMs and VADs.

Cisco and Redington India Partnership	Cisco, a global leader in networking and cybersecurity solutions, has formed a strategic partnership with Redington India to broaden its market reach. Through this partnership, it potentially helps Cisco to enter markets that were previously unexplored by leveraging Redington distribution network. Redington's extensive knowledge and experience of the local market helps Cisco to meet unique regional demands and preferences. This collaboration is crucial as it greatly broadens Cisco's distribution network, enabling faster and more thorough market coverage.
Dell Technologies and Ingram Micro Partnership	Dell Technologies has expanded its distribution partnership with Ingram Micro, involving full Dell EMC product line in India. Through this strategic partnership, Dell is better positioned to meet the growing demand for advanced storage solutions and reliable data center infrastructure. This partnership also helps Dell to reach more customers across various industries in India, owing to Ingram Micro's established distribution network in the region. As businesses in India are increasingly investing in digital transformation initiatives, making this partnership a valuable approach to increase their market share.
Google Cloud and iValue InfoSolutions Partnership	Google Cloud has established a strategic partnership with iValue InfoSolutions, a value-added distributor for Google Clouds solutions in India. There is an increasing demand for robust cloud security measures in India and this partnership is expected to accelerate the delivery of cloud security solutions. iValue plays a crucial role in helping Google Cloud partners to leverage their technical know-how and local market understanding, ensuring seamless implementation of cloud services. The partnership with iValue will boost the value proposition of Google Cloud's products, as iValue offers end users additional services, including technical support, training and consulting services. The growing adoption of cloud services and increased focus on cloud security further enhanced the value of this strategic partnership.
Hitachi Vantara and iValue InfoSolutions Partnership	iValue InfoSolutions has maintained a strategic partnership with Hitachi Vantara, with iValue serving as one of the top VADs for Hitachi Vantara in India. iValue leverages its technical expertise and local market knowledge to support Hitachi Vantara and this partnership appears to be crucial for Hitachi Vantara to expand their market reach and deliver data-driven solutions to customers in the Indian market, leveraging iValue's distribution expertise and market presence. iValue was awarded with the prestigious national award of Value-Added Distributor of the Year by Hitachi Vantara.

7. Channel Partner Ecosystem Analysis

7.1 Analysis of Each Key Stakeholder within the Channel Partner Ecosystem

OEMs can distribute their products directly or indirectly to the end customers.

It is noticed that only 5-7% of the product distribution is direct, which means directly from OEMs to end customers. Direct deals may happen in government deals or selective strategic enterprise clients. In some cases, smaller OEMs who do not have an organized channel structure may sell directly to end customers.

93-95% of product distribution is indirect, which means from OEMs to Distributors or VADs; who further via SIs, VARs or other service providers sell products to end customers.

OEMs

OEMs are the backbone of the entire IT solutions and services distribution business, dedicated to design and develop the core software/hardware solutions that form the basis of IT infrastructure. OEMs are strongly focused on developing innovative and sustainable technologies that address the evolving customers' needs, driving the growth of the entire IT ecosystem. Hence, OEMs prioritize research and development to improve their core products over direct customer engagement or extensive technical support.

OEMs may have limited knowledge on competitor products and their compatibility. To bridge this gap and expand market reach, OEMs partner with distributors and value-added distributors (VADs). VADs play a crucial role in the complex IT ecosystem by connecting OEMs with appropriate resellers, focusing on driving business development, ensuring product compatibility, enabling seamless adoption of new technology solutions and facilitating additional sales. This partnership model allows OEMs to focus on product development while VADs handle market expansion and customer support. Hence, establishing a strong partnership with VADs becomes their top priority. Majority of the IT products and solutions OEMs generate their revenue via products sales and licensing sales through their channel partners. However, OEMs sometimes engage with customers through direct sales or service contracts, particularly for large businesses or government sectors.

In short, OEMs play an important role in the entire IT solutions and services ecosystem, as they develop and provide building blocks for the end-users, contributing to technology advancement and driving the growth of the entire market. Their commitment and continuous investments in R&D drives the entire industry forward, providing new capabilities and solutions to address the market demand from businesses across various sectors.

Distributors or VADs

When it is about delivering off the shelf products or products that are popular and that do not require much technical support, Distributors have been a preferred choice. But for niche products that require solutioning, integration or other support services, VADs play a key role. VADs key business models involve maintaining relationships with multiple OEMs and further with SIs, VARs/resellers or other service providers. Managing inventory and offering value-added services are important in today's digitally transforming landscape, hence a partner that can offer comprehensive solutions and services is preferred.

While predominantly Distributors held more OEM market share than VADs, there is an increasing trend where VADs are outplacing Distributors in large transformation deals. Beyond merely offering a variety of products, establishing multiple OEM partners for VADs becomes one of the key growth strategies. It allows VADs to remain

being vendor-neutral, enabling them to offer their customers unbiased consultation. By adopting multi-OEM strategy, VAD's credibility can also be enhanced, as they are able to provide solutions that are truly addressing customers' requirements or issues, rather than being restricted by the products of a single vendor. Technology is constantly evolving; hence, it requires ongoing support, including pre-sales, post-sales and maintenance services to end customers, as well as support for addressing periodic asset refresh requirements. As a result, businesses are increasingly relying on VADs as strategic technology advisors to navigate this complexity and maintain a competitive edge. These roles enhance the value of VADs in the entire IT ecosystem, supporting their business growth and revenue generation. Additionally, few VADs that also offer 24X7 SOC and NOC services have a close view of the IT and Security infrastructure, and they can scale up services for end-customers as needed.

SIs, VARs/Resellers or Other Service Providers

Between SIs, VARs/resellers and other service providers, SI's hold a significantly higher end customer market. SIs are an important player in the entire IT solutions and services ecosystem, as they are targeting a more complex integration requirements that resellers may not be able to handle. They often target large enterprises, play a key role in helping them with complex IT environment, implement and optimize their systems. SIs are driving the technology innovation by leveraging several technologies to address customers' requirements or issues and often working closely with Distributors and VADs to develop customer-centric or industry specific solutions.

The largest portion of IT budgets are often allocated to application licensing, customization, and maintenance costs. Global SIs, National SIs and Regional SIs focus on multi domains that caters to end to end IT infrastructure and services. Local SIs may have lesser capabilities but can support remote services with their limited presence and focus. SIs focus on system integration services and rely on partners technical education, remote implementation support and other niche services. Partner collaboration enables SIs to quickly adopt new technologies and offer comprehensive solutions to their customers.

Global System Integrators: Large scale organisations with a global presence, offering comprehensive system integration services across multiple regions and industries.

National System Integrators: Operating at pan-India level, with strong domain expertise and providing integration services tailored to the national market's needs and regulations.

Regional System Integrators: Have a wider market reach but at a comparatively smaller scale than Global SIs, often specializing in niche markets or industries and focusing on integration services within a particular region or locality.

Local System Integrators: Restricted to a particular state or area within a state. Smaller operations, but support and implementation services available even at remote locations.

Resellers are equally important to the entire IT solutions and services ecosystem, as they are typically at the front-line, working closely with the end-users. Resellers are required to maintain relationships with suppliers (VADs) and customers, understanding customers' needs and working together with suppliers to address customers' requirements or issues. Resellers generate revenue through product markups and by offering basic consultation, implementation and support services. Resellers are often focused on certain geography,

technology or market segments. It allows them to support the entire ecosystem particularly the SMBs. Resellers also play a vital role in educating customers about new technologies and provide feedback to the suppliers, enhancing the customer experience.

8. Overview of iValue Infosolutions

8.1 Overview of iValue Infosolutions

Established in 2008, iValue Infosolutions is one of the fastest growing technology services and solutions integrator in India. It has quickly evolved from being a VAD to a strong technology enabler, offering comprehensive solutions while crystallizing its value proposition. While the company operates majorly in India, it has expanded its global reach and services in 7 international locations: Singapore, Bangladesh, Srilanka, Nepal, Cambodia, UAE, Kenya and Bhutan. It also started catering to the GCC region with it Managed Security Services and aims to expand further in that region.

iValue offers a comprehensive technology portfolio that includes cybersecurity solutions, information lifecycle management, data centre infrastructure and management, application lifecycle management and even professional and managed services. With a commendable partnership across multiple OEMs, iValue also partners with a wide range of SI's, including Global SIs, Regional SIs, National SIs and Local SIs, which helps them to deliver robust and tailored IT solutions to meet diverse business needs. It is positioned today as Value-Added Distributor strengthening its portfolio and offerings as a technology enabler.

With more than 15 years of strong experience and expertise in the technology space, iValue Infosolutions has built an impressive portfolio, established partnerships with around 749 active partners (including SIs and OEMs as of March 2024). Their services are tailored and optimized for businesses of various sizes and sectors, leveraging its robust partnerships ecosystem with OEMs and system integrators at global, regional and local levels. iValue is strategically positioned as a crucial player in the technology solutions ecosystem in India, with one of the largest network of OEM's and SI's. iValue's network of OEM partners has expanded from 84 (as of March 31,2022) to 93 (as of March 31, 2023) and further increased to 101 (as of March 31,2024). Meanwhile, iValue's network of System Integrators, with transactions conducted during the relevant fiscal years, grew from 528 in fiscal year 2022 to 567 in fiscal year 2023 and reached 648 in fiscal year 2024. iValue serve as a crucial player, by empowering OEMs to connect with their target customers through strong collaboration with System Integrators.

Leveraging its comprehensive range of solutions, its relationships with OEMs and its market experience of frequent technology adoption across verticals, as of March 31, 2024, iValue has also curated over 30 ready to deploy, pre-integrated and tested multi-OEM stacks, which take into account customer requirements, regulatory requirements and inter-operability of the constituent products. These include application, data and security focussed stacks pertaining to ALM, cloud security, application security, and governance, risk and compliance, as well as vertical-focussed stacks for BFSI/ fintech solutions, manufacturing/ industrial security, e-commerce and 'make in India' compliant stacks.

iValue also employs a focused accounts practice, targeted at 100 key end-customer accounts across BFSI, IT/ ITeS, manufacturing and government customer categories, selected based on its internal assessment, which is managed by its sales team. For these select accounts, it builds a deeper engagement with the end-customer to understand their current and upcoming requirements.

iValue Infosolutions has offices across eight locations in India, including its Registered and Corporate Office in Bangalore, India. They have strengthened their ability to provide responsive and on-the-ground support to its

diverse client base. These experience and business network support iValue to develop deep insights into sector-specific challenges and tailor its solutions and services, fulfilling its mission to optimize, protect and transform the digital assets of organizations with leading-edge and proven offerings, in collaboration with its trusted partners.

iValue was incorporated as a VAD from day one and has set benchmarks with constant evolution of value adds benefitting each of its stakeholders – OEM, Partner and Enterprise customer. Over the last 15+ years through its stride to develop the portfolio, the company has ultimately established itself as a strong technology enabler, allowing it to address complex IT demands holistically through a broad range of offerings and strong partner ecosystem. As a technology enabler, iValue plays a crucial role in the VAD ecosystem, while also enhancing the capabilities around pre-sales, post sales, Go To Market teams covering both entprise customers and partners, managed service offerings with 24*7 SoC/NoC along with audit and assessment services. . iValue's strong senior leadership team consists of highly skilled professionals contributing their extensive experience and expertise to their business operations. Over 50% of iValue's employees hold technical qualifications collectively possessing 583 OEM certifications, as of March 31, 2024. This has allowed iValue to not only complement its existing offerings, but also to cater to a larger part of the services market.

iValue CoE which is leveraged by partners to showcase multi-OEM solution stacks working in an integrated way to specific enterprise customer needs simulating their environment expediting sales cycles for OEM and partners along with risk free technology investment for customers.

Additionally, iValue launched iAcademy, an in-house training and recruitment program in Fiscal 2023 to address the challenges of intense competition and the rising cost of skilled professionals in the industry. This initiative focuses on sourcing and training graduates and postgraduates from select universities, with a curriculum designed to align with business objectives and operational requirements. Consequently, iValue has successfully onboarded over 50 recruits into various critical roles, including pre-sales, post-sales, managed services and software development, particularly in areas such as analytics.

iValue Infosolutions has demonstrated robust growth in the past few years, serving more than 3600 corporates from FY22 to FY24 across diverse industry verticals, recorded strong year-on-year revenue growth of 38.04%, 39.67% and 16.56% in FY22, FY23 and FY24 respectively. It is anticipated that iValue Infosolutions's business will maintain its strong momentum in the next few years across it service lines as well as due to its strategic focus and investments in Professional and Managed Services market.

8.2 Lines of Business

iValue Infosolutions operates across several key business areas, providing comprehensive solutions and services to their customers, each tailored to meet the evolving needs of modern business.

- **Cybersecurity**
  iValue's cybersecurity offerings encompass multiple domains, including cloud security, network security, OT security, endpoint security, application security and IAM solutions. Their strategic approach leverages partnerships with leading OEMs and a robust ecosystem of system integrators and technology partners to deliver cutting-edge security products and services. They have established a healthy partnership ecosystem with some of the top OEMs, such as Checkpoint, Splunk, Sentinel One, Forcepoint

and more. These strategic positioning helps their customers to protect their business while maintaining business continuity in the rapidly evolving digital world.

- **Information Lifecycle Management** iValue's information lifecycle management solutions ensure the efficient handling and protection of data across various IT environments. Some of the services include storage systems, data protection, monitoring & management and data backup and recovery, all aimed at optimizing data accessibility and security. By partnering with the key players in the industry such as Hitachi Vantara, Cohesity, etc., iValue Infosolutions offers scalable and reliable information lifecycle management solutions that cater to the demand of enterprises, ensuring data integrity and availability.
- **Data Center Infrastructure**
  iValue delivers comprehensive Data Center Infrastructure solutions and services, including edge data center, hyper-converged infrastructure, software-defined data center, sustainable data center and storage system & recovery/backup. iValue Infosolutions' expertise in this area ensures that their customers' data centers operate efficiently, with strong performance, availability and scalability. They help their customers to build robust and resilient data center infrastructures by leveraging their extensive experience in this market and strong partnerships with some of the industry key players such as Arista, NetScout, Riverbed and so on.
- **Application Lifecycle Management**
  iValue is also strategically focusing on future growth areas such as Application Lifecycle Management (ALM) and cloud services. This segment includes, DevOps, DevSecOps, Application performance, Cloud security & Management, AI/ML, AIOps and so on. These services are designed to address the performance, availability, scalability, and security needs of enterprises, helping them navigate the complexities of digital transformation and leverage the benefits of cloud computing.
- **Hybrid Cloud**

  Enterprise and Digital native adoption of cloud went up during Covid. Most Enterprises realized the need for Hybrid cloud model to take advantage of public cloud infrastructure for their seasonal loads in a pay as you go model. Post covid when growth moderated, Enterprises wanted to optimize the spends on cloud by retaining applications on cloud but moving back database back to private cloud. Thus Hybrid-cloud has become the most popular model for every enterprise and corporate customer to avail the best of both public and private cloud benefits based on the dynamic needs of business. iValue growth areas include hybrid cloud solutions and services to meet this critical need with recent signups with GCP, Google Chronicle, Nutanix, Lenova server and storage solutions and EDB. Hybrid multi-cloud is expected to contribute significantly to iValue 3/5 year growth due to large market size and faster growth rates with a very high scope to add value, both in solutions and also in services – professional and managed.

- **Professional and Managed Services**
  iValue also focuses on providing comprehensive professional and managed services Particularly, in February 2023, iValue Infosolutions strategically acquired ASPL Info Services to strengthen their business portfolio, providing value-added services ranging from managed infrastructure services, managed security services, to enterprise service management, multi-cloud services, and even 24x7 Security Operations Center (SOC) and Network Operations Center (NoC) services. This strategic acquisition

strengthens iValue's capabilities in delivering comprehensive managed IT and security services, supporting their business growth and maintain its competitiveness.

8.3 Sales and Marketing Strategy

iValue Infosolutions employs a unique Go-To-Market (GTM) strategy designed to ensure robust and scalable growth for each offering throughout its lifecycle stages. The company utilizes a "Product life cycle" framework to determine the appropriate GTM approach and a "Customer life cycle adoption" framework to target the right customers at the optimal time through the right partners. This dual approach allows iValue to balance depth and breadth in its market coverage, ensuring scalable growth while maintaining strong relationships with both key accounts and channel partners. These strategic approaches are further enhanced by a profiled customer base segmented by size, vertical, and geography, enabling focused and systematic business development.

- Key Accounts centric GTM approach targets niche and compelling offerings, providing a scalable business model through market development, positioning and channel development strategies. Business development efforts are concentrated on the top 100 accounts, utilizing Customer Life Cycle Adoption framework to generate traction. iValue has a dedicated team focused on project engagements, ensuring tailored and effective solutions for significant clients.
- Partner centric GTM approach is designed for solutions that require scale, offering OEMs a sustainable growth model through the development of a focused channel network across the top 12 cities in India. This strategy aligns the right offerings with the appropriate partners, based on the partners' current offerings and customer base, through a methodology of enrolment, empowerment and engagement.
- iValue Infosolutions has entered strategic collaborations with diverse system integrators at global, regional and national levels. The company's success is largely contributed by its cogent channel strategy and commitment to enhancing partner capabilities through valuable additions. This approach enables iValue to leverage its partners' strengths for cross-selling and up-selling opportunities, allowing the company to offer comprehensive and tailored solutions. By fostering a robust partnership ecosystem, iValue not only broadens its market reach but also strengthens its ability to deliver high quality solutions and services.
- iValue InfoSolutions has established a robust SI partner network, collaborating with global, regional and national system integrators (SIs), with 33 global partners, 42 national partners, and 573 regional partners. This robust and expanding partnership network, with impressive partner retention rate of approximately 67% averagely has yielded significant benefits for the company. Through these extensive partnerships, iValue has achieved strong repeat business, successfully sold multiple OEM solutions via SIs and served thousands of customers across various industries. This strategic approach has enabled iValue to leverage the expertise and reach of its partners, resulting in comprehensive solution delivery and enhanced customer satisfaction while expanding its market presence globally.
- Typically, enterprise customers may explore or buy solutions from multiple OEMs for a given business and compliance need. A system integrator seeking to service such enterprise customers would have to arrange for separate demos for such OEMs, which adds to the sales cycle timeline. Further, any OEM seeking to showcase its products on its own platform, would typically not be able to demonstrate any interoperability with solutions from other OEMs. iValue launched the iValue CoE in Fiscal 2024. iValue CoE is a hybrid-cloud based platform that allows enterprise customers to seamlessly explore, evaluate,

and finalize solutions across different OEMs. It also allows System Integrators to host demonstrations, provide proof of concept, and training to potential and existing enterprise customers, including with respect to multi-OEM solutions. The key benefit is faster sales cycles for partner and OEM and risk free technology investments for customers.

9. Competitive Benchmarking

The technology solutions and associated services market sector is characterized by intense competition based on several critical factors including price, product and service availability, speed and accuracy of delivery, the effectiveness of sales and marketing programs, credit terms and availability, the ability to tailor specific solutions to SIs requirements, and the quality and breadth of product offerings. Access to comprehensive technical and product information is also crucial for maintaining a competitive edge. Experience and expertise of serving enterprise customer across vertical for last 15+ years with successful partnerships with GSI / NSI for multiple projects has been a key advantage for iValue for its differentiated model helping growth over 2-3 times market growth since inception in 2008.

9.1 iValue Peer Group

9.1.1. Exclusive Networks

- **About:** Headquartered in France, Exclusive Networks is a global cybersecurity specialist for digital infrastructure. It's distinctive approach to distribution gives partners more opportunity and more customer relevance. Exclusive Networks has a "local sales, global scale" business model, that combines focus and value of local independents with the scale and service delivery of a single a worldwide distributor. Beyond product distribution, the company also has a services approach that ranges from managed security to specialist technical accreditation and training. Exclusive Networks aims to deliver value throughout the customer lifecycle with a focus on outcomes that is globally orchestrated, and locally delivered, with omnichannel consumption options.
- **Founded:** 2003
- **Locations:** Paris, France (HQ), with offices in 43 countries ability to serve over 170 countries
- **Stock Exchange Listing:** Yes (Paris Stock Exchange – Euronext)
- **Technology Portfolio (non-exhaustive list):** Application Delivery Controller (ADC), backup and recovery, CASB, data encryption & protection, data center networking, DDI, DevSecOps, DFS storage, EDR, EPP, HCI, NGFW, IAM, IoT/OT, NAC, NDR, network packet brokers, object storage, PAM, SIEM, SASE, SOAR, secure email gateway, UEBA, SD WAN, WAF, wired and wireless LAN access
- **Service Offerings (non-exhaustive list):**
  - Managed Security Services Distributor
  - Leasing services
  - Global Services Operation (GSO)
  - Technical accreditation and training
  - Consulting and professional services
  - Expert global support service, etc.
- **Partners:**
  - SIs
  - MSSPs/ MSPs
  - VARs

9.1.2. Westcon-Comstor

- **About :** Westcon-Comstor is a global technology provider and specialist distributor that connects the requirement of technology resellers, system integrators, and service providers with IT vendors. The company combines industry insights, and technical expertise to be the catalyst for both the partner and vendor success. While Westcon works closely with technology vendors, Comstor focuses on Cisco. Westcon specializes in data center, infrastructure, collaboration and security, and help partners to take advantage of innovations in analytics, AI, cloud, cybersecurity, IoT, SD WAN, and more. Comstor remains as the Cisco-exclusive distributor and has Cisco-trained and certified experts.
- **Founded:** 1985
- **Locations:** New York, USA (HQ) and operating in more than 70 countries
- **Stock Exchange Listing:** Yes (Johannesburg Stock Exchange)
- **Technology Portfolio (non-exhaustive list):** Cybersecurity (Zero Trust Access, IoT/OT Security, Next Generation SOC, Secure Cloud and DevOps), Collaboration (UCaaS), Data Center (zero trust provisioning, automation, analytics), and Infrastructure (SD WAN).
- **Service Offerings (non-exhaustive list):**
    - Education
        - Instructor-led in-person and virtual training
        - Bespoke training
        - Digital learning
    - Supply Chain Services
        - Warehouse integration and configuration
        - Hardware lifecycle management
        - Warehouse outsourcing and strategic partnering options
    - Professional Services
        - Solution enablement and design
        - Installations, migrations, and updates
        - Health checks, assessments, and validations
        - Field services
    - Support Services
        - Level 1 and 2 vendor support for every service level
        - Technical assistance
        - Proactive monitoring, administration, and managed support of IT infrastructure
        - Onsite assistance for hardware replacement
- **Partners:**
    - SIs
    - MSSPs/ MSPs
    - VARs

9.1.3. Arrow ECS

- **About :** Arrow ECS (Enterprise Computing Solutions) is a part of Arrow Electronics. Arrow ECS is a technology enablement company that brings innovative IT solutions to market to solve complex business challenges. The company delivers value added distribution, business consulting and channel

enablement services to leading technology manufacturers and channel partners that serve commercial and government markets. Arrow's digital distribution platform, ArrowSphere, enables channel partners to seamlessly acquire, provision, manage and scale IT solutions through applications built to enhance business.

- **Founded:** 1935
- **Locations:** Colorado, USA (HQ) and operating across all continents
- **Stock Exchange Listing:** Yes (New York Stock Exchange)
- **Technology Portfolio (non-exhaustive list):** Cloud, cybersecurity, modern data center, data intelligence, industrial IT, and DevOps
- **Service Offerings (non-exhaustive list):**
  - Technical sales engineering
  - Marketing
  - Market intelligence
  - Financing and leasing
  - Order management and renewal
  - International logistics
- **Partners:**
  - SIs
  - MSSPs/ MSPs
  - VARs

9.1.4. Infinigate Group

- **About :** The Infinigate Group, headquartered in Rotkreuz, Switzerland, is a value-add distributor specializing in cutting-edge cybersecurity solutions. Infinigate has expanded its presence across Europe and has incorporated the entire EMEA region, solidifying its position as a market leader in the DACH region (Europe's largest cybersecurity market). With it's technical expertise and a strong network of partners across Europe, Infinigate is dedicated to safeguarding on-premise and cloud-based IT infrastructure for SMB and enterprise markets. The company's commitment to providing top-notch support through technical, marketing, and professional services ensures that partners, MSSPs, and vendors receive tailored solutions that meet their specific needs. With market leadership in key European regions and a robust support framework including training, marketing, and technical assistance, Infinigate is helping businesses protect their critical assets in an ever-evolving digital landscape.
- **Founded:** 1996
- **Locations:** Rotkreuz, Zug, Switzerland (HQ) and operating in 30 countries and has partners in more than 50 countries
- **Stock Exchange Listing:** No
- **Technology Portfolio (non-exhaustive list):** Cybersecurity, AI driven networks, Intelligent Wi-Fi, Secure Cloud, security, Identity & Access management
- **Service Offerings (non-exhaustive list):**
  - Partner Services

        - Upskilling in specific vendor technologies
        - Financial support
        - Assistance with marketing strategies
    - Smart Data Services
        - Advanced analytics
        - Robust Digital data
        - Acquiring right customers
    - Support and Maintenance Services
        - Highly responsive technical support
        - Vendor certified support services
        - Flexible Response time
        - Multi-vendor infrastructure
    - Professional Configuration and Installation services
        - Remote Hands service
        - Two purpose-built configuration centres
    - Global Logistics Services
        - Swift deployment of customer equipment
        - Distinct Infinigate warehouses in the EU and UK
        - No risk of potential delays or interruptions.
- **Partners:**
    - SIs
    - MSSPs/ MSPs
    - VARs

9.1.5. Nextgen Group

- **About :** Acquired by Exclusive Networks in 2024, the Nextgen Group is a pioneering distributor focused on redefining distribution practices through innovation and leadership to align with evolving channel trends. It partners with both established and emerging global software vendors in areas spanning digital enterprise, cloud computing, data management, and cybersecurity, supported by cutting-edge infrastructure solutions. Nextgen uniquely offers a curated and complementary portfolio of enterprise software and value-added cloud solutions. This collaborative business model streamlines interactions between technology partners, facilitating seamless transactions from scaling startups to well-known industry leaders, and ensures a diverse range of innovative product solutions and services. It provides a selection of services like marketing, lead generation, buyer analytics, software consulting, and financing solutions tailored to elevate opportunities for partners and drive positive business outcomes. By combining a comprehensive range of sales enablement, marketing, advisory, and billing services, Nextgen Group simplifies the process of managing, delivering, and expanding businesses in the APAC region.
- **Founded:** 2011
- **Locations: Headquarters:** Melbourne, Australia
- **Stock Exchange Listing:** No (acquired by Exclusive Networks in 2024)

- **Technology Portfolio (non-exhaustive list):** IT, cybersecurity, specialized distribution, digital enterprise, enterprise IT solutions, data center solutions, Oracle database, flash storage, software licensing, digital marketing services, and lead generation.
- **Service Offerings (non-exhaustive list):**
    - Distribution Services
        - Digital Enterprise
        - Data Management
        - Cloud and Cyber Security
    - Sales Services
        - End to End prospecting
        - Ideal customer profile discovery
        - Sales execution and reporting
    - Software Services
        - Optima's expert software
        - Cloud advisory consultants
        - Reduce the unforeseen expenses and potential risks
    - Financial services
        - Simple and consistent payment timelines
        - Offer end-customers adaptable and cutting-edge payment options
- **Partners:**
    - SIs
    - MSSPs/ MSPs
    - VARs

9.1.6. Netpoleon Solutions

- **About :** Netpoleon Group, based in Singapore, serves as a Value-Added Distributor (VAD) of network security products, with its offices spread across the APAC region. Since it's establishment in 2000, the company has continuously evolved to meet the demanding needs of the dynamic IT landscape, and has built its presence in the Southeast Asian network and cybersecurity industry. It focuses on demanding sectors such as financial services, telecommunications, and the public sector, addressing critical security and protection needs. In 2017, Netpoleon took a significant step forward in its growth when it partnered with Macnica Networks Corporation. Macnica, a prominent distributor of Network Security solutions in Japan and worldwide, collaborated with Netpoleon through an equity partnership. This move helped propel Netpoleon onto the global stage, opening doors for engagements with international players in the industry. The company has now expanded into six ASEAN countries and has mutually beneficial relationships with channel partners by offering end-to-end services including solutioning, hardware and software installation, and configuration, among other professional services.
- **Founded:** 2000
- **Locations:** Singapore (HQ) and has office across APAC region in Australia, Cambodia, India, Indonesia, Malaysia, Myanmar, New Zealand, Philippines, Thailand and Vietnam
- **Stock Exchange Listing:** No (However, Macnica is listed in the Tokyo Stock Exchange)

- **Technology Portfolio (non-exhaustive list):** Data center solutions, Oracle database, flash storage, software licensing, vulnerability prioritization technology, phishing prevention, network operations center, firewall policy management, security information and event management, security orchestrations and automation response, DevSecOps, Identity and governance management, SD-WAN, WAN Optimization, DDI, and NG-SOC
- **Service Offerings (non-exhaustive list):**
  - Cyber Security Consulting
  - Professional Services
  - Customer Service
  - Technical Support
  - Digital marketing services and lead generation
- **Partners:**
  - SIs
  - MSSPs/ MSPs
  - Resellers/VARs

9.1.7. M.Tech

- **About :** M.Tech, part of the Multi-Chem Group, is a cybersecurity and network performance solutions provider headquartered in Singapore. It has a strong global network spanning 15 countries and 28 offices, including Asia, Oceania, and Europe. M.Tech excels in delivering comprehensive IT solutions to meet diverse organizational needs. By collaborating with leading vendors, it offers a wide array of products and solutions ranging from cloud access security and advanced threat prevention to data-centric security and network system optimization. M.Tech also serves as the authorized training center for Check Point, providing certification programs such as the Check Point Certified Security Administrator and Check Point Certified Security Expert. As part of the Multi-Chem Group, which specializes in drilling and routing services, as well as distributing specialty chemicals and materials to PCB manufacturers, M.Tech leverages this broader ecosystem to enrich its service offerings. Moreover, the Multi-Chem Group's subsidiary, M.SaaS, a cloud business application provider, further diversifies the group's capabilities, establishing a comprehensive suite of services.
- **Founded:** 2002
- **Locations:** Singapore (HQ) and has a network of 27 offices in 15 countries which includes Australia, China (including Hong Kong & Taiwan), India, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Sri Lanka, Thailand and Vietnam.
- **Stock Exchange Listing:** No (However Multi-Chem Group is listed in the Singapore Exchange)
- **Technology Portfolio (non-exhaustive list):** Cybersecurity, network performance, enterprise data centre, cloud, and mobility
- **Service Offerings (non-exhaustive list):**
  - Technical Services
    - Technical competency
    - Certified support
    - Advance hardware replacement

        - Technical and pre-sales training
    - Professional Services
        - IT consultancy – solution design, scoping implementation, technical refresh for end-of-support equipment
        - On-site deployment, implementation & migration
        - Software/firmware upgrade
        - Ad-hoc services for emergency needs and requirements
- **Partners:**
    - SIs
    - MSSPs/ MSPs
    - Resellers/VARs

9.2 iValue Peer Group Comparison

9.2.1 iValue Peer Group Comparison with Leading Global VAD and Technology Enabler

	iValue[1]			Exclusive Networks[2]		
	FY 2024	FY 2023	FY 2022	CY 2023	CY 2022	CY 2021
	Financial Comparison[#]					
Gross Sales Billed to the Customers (INR Millions)	21,104.80	18,106.65	12,963.48	4,71,534.11	3,99,866.32	2,75,613.77
Revenue From Operations (INR Millions)	7,802.30	7,968.25	5,010.64	1,42,880.79	1,29,462.02	2,09,089.21
Total Income (INR Millions)	7,951.80	8,057.87	5,092.36	1,42,880.79	1,29,462.02	2,09,089.21
Gross Profit (INR Millions)	2,194.48	1,801.94	1,262.11	42,891.73	36,295.29	26,946.66
Gross Margin % (on Gross Sales Billed to the Customers)	10.40%	9.95%	9.74%	9.10%	9.08%	9.78%

	iValue[1]			Exclusive Networks[2]		
	FY 2024	FY 2023	FY 2022	CY 2023	CY 2022	CY 2021
Gross Margin % (On Revenue from Operations)	28.13%	22.61%	25.19%	30.02%	28.04%	12.89%
EBITDA (INR Millions)	1,110.61	888.21	629.38	11,639.42	8,654.35	5,641.96
EBITDA Margin % (on Gross Sales Billed to the Customers)	5.26%	4.91%	4.85%	2.47%	2.16%	2.05%
EBITDA Margin % (on Revenue from Operations)	14.23%	11.15%	12.56%	8.15%	6.68%	2.70%
EBIT	1,041.62	847.18	604.36	10,447.99	7,506.32	4,631.46
Restated Profit Before Tax (INR Millions)	945.68	803.09	528.92	5,132.34	4,592.10	1,010.50
Restated Profit After Tax (INR Millions)	705.70	599.17	372.33	4,124.21	3,444.08	(1,094.71)
PAT Margin % (On Gross Total Income)	3.32%	3.29%	2.85%	0.87%	0.86%	-0.40%
Profit After Tax Margin % (on Net Total Income)	8.87%	7.44%	7.31%	2.89%	2.66%	-0.52%

	iValue[1]			Exclusive Networks[2]		
	FY 2024	FY 2023	FY 2022	CY 2023	CY 2022	CY 2021
Return on Capital Employed %	28.98%	37.39%	N.A	7.23%	5.49%	5.97%
Adjusted Return on Capital Employed %	39.21%	46.79%	N.A	9.04%	6.28%	4.05%
Return on Equity %	21.13%	29.15%	N.A	4.50%	3.82%	-1.73%
Trade receivables (INR Millions)	6,732.11	7,016.57	4,272.47	1,19,510.30	98,431.03	81,842.56
Days Sales Outstanding	116	141	120	93	87	100
Net Working Capital	1,945.43	1,408.12	1,274.62	14,847.14	17,926.87	21,304.70
Net Working Capital Days	34	28	36	11	16	28
Debt Service Coverage Ratio	5.75x	7.62x	5.81x	2.62x	2.86x	0.06x
Cash Position (INR Millions)	1,346.73	911.17	958.72	33,818.48	23,667.00	10,947.08
Cash Flow From/ (Used in) Operations (INR Millions)	656.51	(226.88)	332.01	20,162.78	16,425.60	3,536.75
	Operational Comparison[#]					
No. of OEMs signed up	8	9	11	-	-	-
No. of System	648	567	528	-	-	-

	iValue[1]			Exclusive Networks[2]		
	FY 2024	FY 2023	FY 2022	CY 2023	CY 2022	CY 2021
Integrators Billed						
No. of Customers Served	2,014	1,804	1,619	-	-	-
Total Number of Employees	457	400	172	2,658	2,553	2,375

Note:

Exclusive Networks report financial data/revenue in €, converted into INR with the following exchange rate:

CY 2023: € 1 = INR. 91.65, CY 2022: € 1 = INR. 88.31, CY 2021: € 1 = INR. 84.21

Definition of the Financial and Operational Comparison parameters provided in the Glossary

Source:

1 iValue InfoSolutions

2 Based on publicly available financials reported by Exclusive Networks

9.2.2 Peer Group Comparison of Other Global VADs and Technology Enablers

	Westcon-Comstor[1]	Arrow ECS[2]	Netpoleon Solutions[3]	M.Tech[4]
	Operational Benchmarking			
Headquarters	USA	USA	Singapore	Singapore
Founded	1985	1935	2000	2002
Regions of Operation	Operates in more than 70 countries	Operates across most major countries	Offices primarily across APAC in Singapore, Australia, India, Indonesia, Malaysia, Myanmar, New Zealand, Philippines, Thailand, and Vietnam	Network of 27 offices in 15 countries which includes Australia, China (including Hong Kong & Taiwan), India, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Sri Lanka, Thailand and Vietnam
Technology Offerings	- Cybersecurity - Unified Communication - Data Center - Infrastructure (SD WAN)	- Cybersecurity - Data Center - Cloud - Data Intelligence - Industrial IT	- Cybersecurity - Infrastructure (SD WAN, WAN Optimization)	- Cybersecurity - Data Center - Cloud - Mobility - Network Performance

Service Offerings	- Training - Support services - Professional services	- Financing and leasing services - Technical sales engineering - Marketing services	- Cybersecurity consulting - Support services - Professional services - Marketing services	- Training - Support services - Professional services - Technical services
Key Clients	SIs MSSPs/MSPs Resellers/VARs	SIs MSSPs/MSPs Resellers/VARs	SIs MSSPs/MSPs Resellers/VARs	SIs MSSPs/MSPs Resellers/VARs
	Financial Benchmarking			
Revenue (INR. Mn.)	2,94,062.31	27,33,586.34*	5,90,020.44 **	40,481.63***
EBITDA (INR. Mn.)	9,575.98	1,38,234.89*	41,165.35**	2,435.77***
EBITDA Margin	3.3%	5.1%*	7.0%**	6.0%***
PAT (INR. Mn.)	NA	74,599.94*	27,569.94**	1667.60***
PAT Margin	NA	2.7%*	4.7%**	4.1%***
RoE %	NA	10.3% (TTM)*	NA	22.3% (TTM)***
ROCE %	NA	25.4%	26.6%**	25.9%***
Debt/Equity	NA	66.0% (MRQ ending Jun 2024)*	NA	1.5% (MRQ ending Jun 2024)***

Note:

TTM: Trailing Twelve Months, MRQ: Most Recent Quarter

[1] FY 2024 (March 2023 to Feb 2024), USD 1 = INR. 79.80 during the period, [2] FY 2023 (Jan 2023 to Dec 2023), USD 1 = INR. 82.57 during the period, [3] FY 2024 (April 2023 to March 2024), JPY (¥) 1 = INR. 0.57 during the period, [4] FY 2023 (Jan 2023 to Dec 2023), SG$ 1 = INR. 61.48 during the period, * Financial numbers represented are of Arrow Electronics (Arrow ECS is a part of Arrow Electronics), ** Financial numbers represented are of Macnica (Netpolean Solutions are a part of Macnica since 2017), *** Financial numbers represented are of Multi Chem Group (M.Tech is a part of Multi Chem Group)

Glossary

Terminology Descriptions

Terminology	Description
ALM	Application lifecycle management
DevOps	DevOps includes continuous integration/ continuous delivery tools, infrastructure as code solutions, containerization and orchestration platforms, monitoring and logging tools, used in ALM
DevSecOps	DevSecOps includes security testing and scanning, infrastructure as code, security, configuration and compliance management tools, among others, used in ALM
Global System Integrators/ Global SIs	Large scale organisations with a global presence, offering comprehensive system integration services across multiple regions and industries.
iValue CoE	iValue Centre of Excellence
IoT	Internet of Things
Local System Integrators/ Local SIs	Restricted to a particular state or area within a state. Smaller operations, but support and implementation services available even at remote locations.
National System Integrators/ National SIs	Operating at pan-India level, with strong domain expertise and providing integration services tailored to the national market's needs and regulations.
NOC	Network operations centre

OEM	Original IT hardware products and solutions companies in the IT sector
OT	Operational technology
Regional System Integrators/ Regional SIs	Have a wider market reach but at a comparatively smaller scale than Global SIs, often specializing in niche markets or industries and focusing on integration services within a particular region or locality.
SOC	Security operations centre
System Integrators/ SIs	System Integrators operating in the IT products and services distribution ecosystem, who front the end customers and specialize in integrating multiple technologies into comprehensive solutions
VADs	Value added distributors, serving as channels between OEMs and SIs

Definition of Financial Comparison Parameters and Operational Comparison Parameters for iValue and Exclusive Networks

Terminology	Description
Financial Comparison Parameters	
Gross Sales Billed to the Customers	Gross Sales Billed to the Customers includes the total value of services billed to customers

Revenue From Operations	Revenue from Operations include the net revenue billed to system integrators or customers for providing comprehensive IT solutions to end customers either through system integrators or directly
Total Income	It is the aggregate total of Revenue from Operations and Other Income earned during the year
Gross Profit	Gross Profit is the Revenue from Operations of the Company as reduced by the purchases of stock in trade and changes in inventories of stock in trade.
Gross Margin % (as against Gross Sales billed to the customers)	Gross Margin refers to the Gross Profit as a % of Gross sales billed to the customers during a financial year
Gross Margin (as against Revenue from operations)	Gross Margin refers to the Gross Profit as a % of Revenue from Operations during a financial year
EBITDA	EBITDA is calculated as restated profit for year plus finance cost and Depreciation and amortisation costs and tax expenses as reduced by interest income from bank deposits and interest on income tax refunds
EBITDA Margin (as against Gross Sales billed to the customers)	EBITDA as a % of Gross sales billed to the customers during a financial year
EBITDA Margin (as against Revenue from operations)	EBITDA as a % of Revenue from Operations during a financial year

Restated PAT	Restated PAT stands for Restated Profit After Tax and it represents the overall net profitability of the company
PAT Margin (as against Gross Total Income)	PAT Margin represents the restated PAT as a % of Gross Total Income during a financial year Gross Total Income is the aggregate total of gross sales billed to customers and other income earned during a financial year
PAT Margin (as against Total Income)	PAT Margin represents the restated PAT as a % of the Total income earned during a financial year The total income is the aggregate total of revenue from operations and other income earned during a financial year
Return on Capital Employed	Return on Capital Employed is calculated by dividing EBIT by the Average Capital Employed of the company during the year. EBIT stands for Earnings Before Interest and Tax Expense Capital Employed is calculated as the sum of Tangible Net Worth plus Total Debt as reduced by Deferred Tax Assets and Other Intangible Assets
Adjusted Return on Capital Employed	Adjusted Return on Capital Employed is calculated by dividing EBIT by the Average of Adjusted Capital Employed of the company during the year. EBIT stands for Earnings before Interest and Tax Expense Adjusted Capital employed is calculated as the sum of Tangible Net Worth plus Total Net Debt, as reduced by Deferred Tax Assets Total Net Debt is the Total Debt as reduced by Cash and Cash Equivalents
Return on Equity	Return on Equity is a measure of profitability (expressed in percentage) and is calculated as restated profit attributable to owners as a percentage of average of equity attributable to owners of iValue Infosolutions Limited
Net Working Capital	The Net Working Capital is calculated as sum of Inventories and Trade receivables as reduced by Trade Payables.
Net Working Capital Days	The Net Working Capital Days measures the number of days taken by the Company to convert its working capital into cash. It is also known as the cash conversion cycle. It is calculated by dividing Net Working Capital by gross sales billed to customers multiplied by 365.

Debt Service Coverage Ratio	Debt Service Coverage Ratio measures our ability to meet the principal and interest payment obligations from available earnings and is calculated as earnings for the debt service divided by debt service cost, wherein, earnings for debt service is computed as sum of restated profit for the year plus non-cash expenses comprising of depreciation and amortization expenses, finance costs, employee benefit expenses towards employee stock appreciation rights, bad debts written off, loss allowances made/ (reversed) for ECL on Trade Receivable and fair value change in buy back obligation and debt service cost is computed as sum of finance costs, repayment of long term rupee term loan from banks and repayment of principal element of lease liabilities.
Cash Position	Cash position computed as sum of Cash and cash equivalents and Bank balances other than cash and cash equivalents and current investments at the end of each of the fiscal
Cash Flow From/ (Used in) Operations	Cash Flow From/ (Used in) Operations refers to the Net Cash flow from/ (used in) its Company's operating activities
Trade Receivables	Trade receivables refers to the total outstanding amount receivable from customers as at the end of a particular period / year
Days Sales Outstanding	The Days Sales Outstanding is an element of the cash conversion cycle and measures the number of days taken by the company to collect payment for a sale or dues from customers. It is calculated as Trade receivables from contracts with customers – billed divided by Gross sales billed to the Customers multiplied by 365
Operational Comparison Parameters	
New OEMs signed up	Number of new OEMs with whom the Company has entered into an agreement to distribute their services or sell their products
System Integrators billed during the period	Number of System Integrators through which the company has provided service to enterprise customers during the year or a particular period

Number of enterprise customers served	This refers to the total number of enterprise customers serviced by the Company either directly or indirectly during the year
Number of Employees	Number of employees refers to the actual head count of permanent employees on the rolls of the organization on a certain date or period.