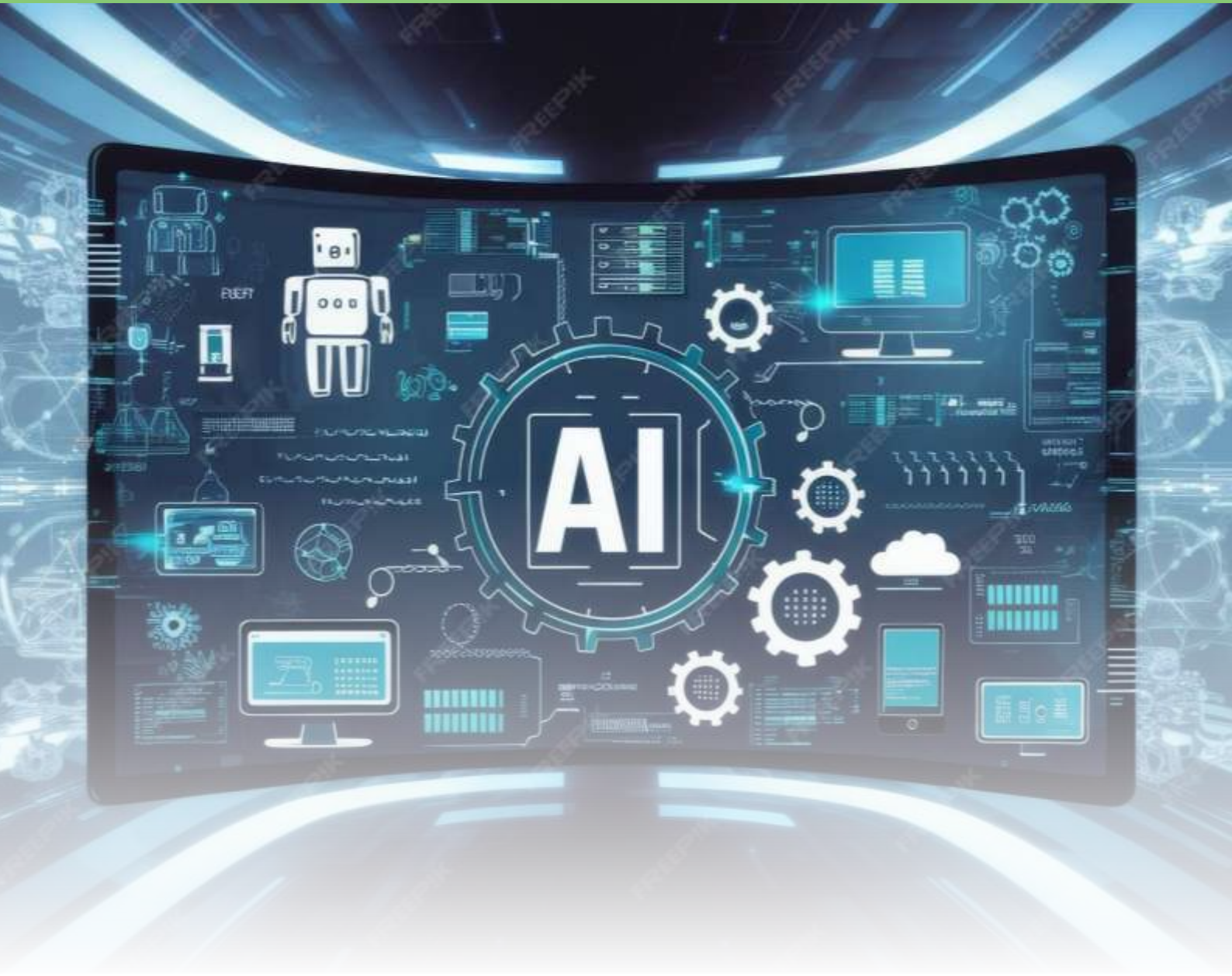

Global Technology Spend & IT Services Market Outlook:

Focus on Agentic AI, Automation, Data and Analytics, and Computer Vision Solutions for Enterprise Automation

March 2026

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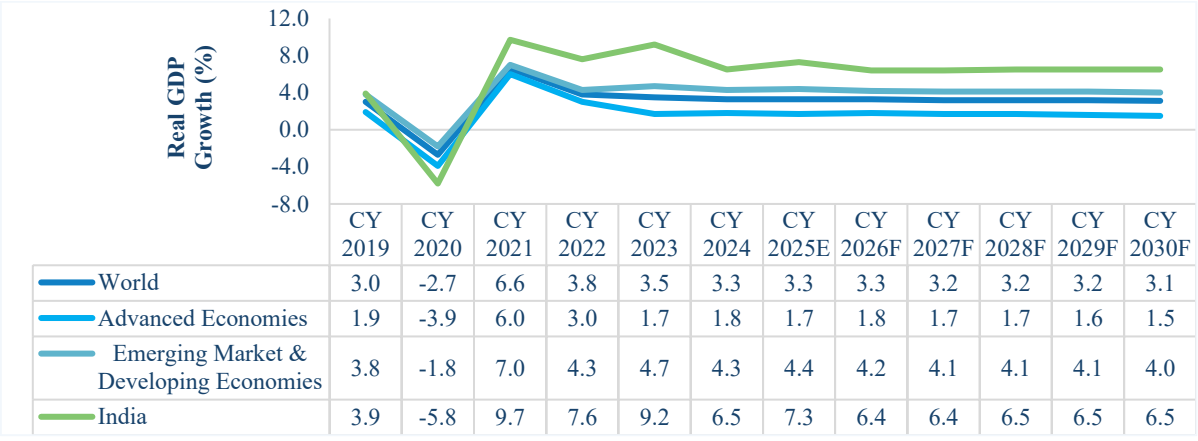
1. Global Macro-Economic Overview

1.1 Global Macroeconomic Outlook

1.1.1 Global Gross Domestic Product (GDP) Growth Outlook

After a strong recovery of 6.6% in CY2021, global GDP growth weakened in CY2022 due to the Russia-Ukraine war. Inflationary pressures stemming from supply-chain disruptions led to monetary tightening by central banks worldwide. This weighed on economic activity, leading growth rate to fall further from 3.8% in CY2022 to 3.5% in CY2023. Easing inflation and gradual monetary easing helped moderate the pace of decline in global growth in CY2024. However, elevated trade tensions and a volatile trade and policy environment emerged as headwinds in CY2025. However, technology and AI investments, fiscal and monetary support, and capital expenditure (CAPEX) across infrastructure, green energy, and cybersecurity offset global trade shifts. Growth therefore stabilized at 3.3% in CY2025. Elevated US tariffs, U.S. – Israel – Iran war and overall trade volatilities will moderate global growth, but with countries signing regional and bilateral trade agreements and adjusting to global trade volatility, global growth is forecasted to stabilize and grow at an average of 3.2% per year between CY2026-CY2030.

Exhibit 1: Real GDP Growth (%), Global, CY2019-CY2030F



	CY 2019	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024	CY 2025E	CY 2026F	CY 2027F	CY 2028F	CY 2029F	CY 2030F
World	3.0	-2.7	6.6	3.8	3.5	3.3	3.3	3.3	3.2	3.2	3.2	3.1
Advanced Economies	1.9	-3.9	6.0	3.0	1.7	1.8	1.7	1.8	1.7	1.7	1.6	1.5
Emerging Market & Developing Economies	3.8	-1.8	7.0	4.3	4.7	4.3	4.4	4.2	4.1	4.1	4.1	4.0
India	3.9	-5.8	9.7	7.6	9.2	6.5	7.3	6.4	6.4	6.5	6.5	6.5

Note: *E: estimate, F: forecast; CY: Calendar Year; Data is represented in calendar years. For e.g. CY2019 is the 12-month period between 1 January 2019 and 31 December 2019; India's data is represented in fiscal years. For e.g. FY2020 is the 12-month period between 1 April 2019 and 31 March 2020 and corresponds to CY2019; List of Advanced economies and Emerging and Developing economies can be accessed here.*

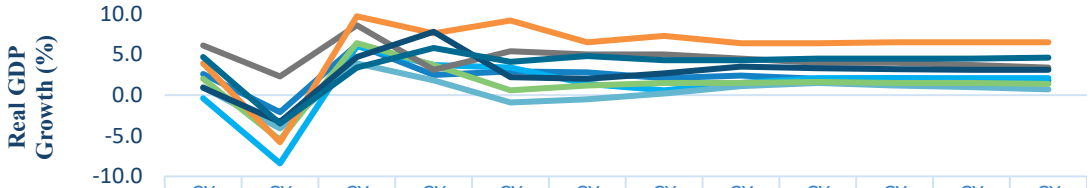
Source: International Monetary Fund (IMF); Frost & Sullivan

Emerging markets are expected to continue to outperform advanced economies over CY2025-CY2030. The former will benefit from greater rebound in consumer demand, economies of scale in manufacturing, competitive labour costs, and easing monetary policies. However, trade tensions and geopolitical risks will require nations to diversify supply chains and pursue sustainable development strategies to build long-term resilience. Advanced economies, on the other hand, will experience slower growth due to high debt levels and rapidly ageing population. Moreover, geopolitical risks and climate challenges will persist as well. Stable inflation and low interest rates will provide some assistance to consumption and investment, but maintaining growth will require targeted structural reforms, innovation, and long-term policy vision.

India, at present, is the fastest growing major economy in the world. India's growth outlook is underpinned by sustained public CAPEX (budgeted at USD 122.5 billion for FY2026), resilient domestic demand, and ongoing structural reforms. Moreover, unlike advanced economies, constrained by high debt and ageing demographics, India benefits from manageable public debt levels (81.6% of GDP in FY2025 compared to 109.1% of GDP in CY2024 for advanced economies), an expanding consumer base and competitive labour costs. While global trade volatility in early 2026 poses near-term tariff risks, India's investment-led growth model and policy continuity position it to outperform both advanced economies and the broader emerging market average.

1.1.2 Growth Outlook for Major Economies

Exhibit 2: Real GDP Growth (%), Major Economies, CY2019-CY2030F



	CY 2019	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024	CY 2025E	CY 2026F	CY 2027F	CY 2028F	CY 2029F	CY 2030F
US	2.6	-2.1	6.2	2.5	2.9	2.8	2.1	2.4	2.0	2.1	1.9	1.8
Mexico	-0.4	-8.4	6.0	3.7	3.4	1.4	0.6	1.5	2.1	2.1	2.1	2.1
Germany	1.0	-4.1	3.9	1.8	-0.9	-0.5	0.2	1.1	1.5	1.2	1.0	0.7
EU	2.0	-5.5	6.4	3.7	0.6	1.2	1.5	1.5	1.6	1.5	1.5	1.4
China	6.1	2.3	8.6	3.1	5.4	5.0	5.0	4.5	4.0	4.0	3.7	3.4
India	3.9	-5.8	9.7	7.6	9.2	6.5	7.3	6.4	6.4	6.5	6.5	6.5
Middle East	0.9	-3.3	4.7	7.8	2.2	2.0	2.7	3.5	3.3	3.2	3.1	3.1
Southeast Asia	4.7	-3.5	3.4	5.8	4.1	4.8	4.3	4.3	4.5	4.5	4.5	4.6

Note: *E: estimate, F: forecast; CY: Calendar Year; Data is represented in calendar years. For e.g. CY2019 is the 12-month period between 1 January 2019 and 31 December 2019; India's data is represented in fiscal years. For e.g. FY2020 is the 12-month period between 1 April 2019 and 31 March 2020 and corresponds to CY2019;*

Source: IMF; Frost & Sullivan

The US experienced a slowdown in CY2025 as elevated tariffs continue to increase import costs and weigh on consumer spending. In January 2026, the US announced an additional tariff rate of 25% on countries trading with Iran, reinforcing uncertainty around the global trade and tariff environment. The ongoing U.S. Israel Iran war is bound to impact growth this year. While rate cuts by the US Federal Reserve (Fed) may partially ease these pressures, uncertainties around trade policies remain a key risk. At the same time renewed trade tensions between the US and Europe, set against a backdrop of broader geopolitical uncertainty, are adding to transatlantic policy uncertainty and weighing on investment sentiment in advanced economies. In the European Union (EU), growth will remain muted amid weak manufacturing, sluggish consumption, and high energy costs, further pressured by trade frictions and policy ambiguity. In China, following growth of 5.0% in CY2025, GDP expansion is estimated to moderate to 4.5% in CY2026. The deceleration is driven by continued strain in the property sector, demographic headwinds, and ongoing trade tensions with the US. India's growth momentum, highlighted by strong CAPEX, a large consumer base, cost-competitive labour force, and ongoing structural reforms, will make it third largest economy by the end of the decade. Southeast Asia will record consistent growth from CY2025 to CY2030, averaging 4.5% per year. This will be driven by strong domestic consumption and foreign and domestic infrastructure investments.

The ongoing conflict between Iran, the United States, and Israel is expected to have significant macroeconomic implications for the global economy. The Middle East is a critical hub for global energy supply, and disruptions in key transit routes such as the Strait of Hormuz which carries roughly one-fifth of global oil trade can severely constrain oil and gas flows, pushing crude prices above $100 per barrel or higher. Rising energy prices typically translate into higher global inflation and increased transportation and production costs, while also reducing consumer purchasing power and slowing economic activity. Economists estimate that sustained increases in energy prices could reduce global GDP growth by 0.1–0.3 percentage points while increasing inflationary pressures across major economies. In addition, maritime disruptions and heightened geopolitical uncertainty may elevate global supply chain risks, freight costs, and trade volatility, particularly for countries heavily dependent on energy imports.

1.2 Impact of Emerging Technologies on the World Economy

Emerging technologies are significantly reshaping the world economy by driving productivity, transforming industries, creating new markets, and influencing labor dynamics. The IMF highlights that

emerging technologies are becoming a central driver of global economic transformation, influencing productivity, trade, labor markets, and investment patterns. Advances in AI, automation, and digital platforms are significantly improving efficiency across industries, reducing costs, and creating new markets. Generative AI and advanced analytics are reshaping services and knowledge work, while blockchain, fintech innovations, and digital payments are accelerating the shift toward cashless economies and improving financial inclusion.

In manufacturing and trade, automation, robotics, and 3D printing are transforming global value chains by reducing dependence on low-cost labor markets and promoting regionalized production. Meanwhile, green technologies, including renewable energy, electric vehicles, and energy storage solutions, are driving sustainable investment and reshaping energy markets in response to climate imperatives.

Labor markets are undergoing profound changes as automation displaces routine tasks while creating demand for high-skill digital roles, particularly in emerging economies integrating into the global digital economy. This is fuelling a need for widespread reskilling initiatives to prevent widening inequality between digitally advanced economies and those lagging behind.

Furthermore, technological leadership has become a geopolitical determinant, with competition in AI, semiconductors, and green tech influencing trade flows and investment priorities, particularly between the U.S. and China. While emerging technologies are projected to add over $15 trillion to global GDP by 2030, the benefits remain unevenly distributed, emphasizing the importance of digital infrastructure investment, policy support, and international cooperation to ensure inclusive growth in this rapidly evolving landscape.

Some of the key areas where emerging technologies impact the world are:

Boosting Productivity and Efficiency: AI and Automation streamline manufacturing, logistics, and services, reducing costs and increasing efficiency across sectors. Generative AI is transforming knowledge work (finance, healthcare, legal services), boosting output while reducing routine tasks.

Driving Innovation and New Markets: Technologies like blockchain, quantum computing, and IoT are creating new industries (e.g., Web3, autonomous logistics) and revenue streams. Digital platforms have enabled global e-commerce, fintech, and decentralized finance, broadening access to financial and business services.

Labor Market Transformation: AI-driven automation is displacing routine jobs but creating demand for high-skill roles in tech development, cybersecurity, and data science. There is an increased focus on reskilling and upskilling, especially in emerging economies integrating into the digital economy.

Impact on Trade and Global Value Chains: Advanced manufacturing (3D printing, robotics) reduces reliance on low-cost labor markets, reshaping global supply chains. Digital trade and cross-border data flows are now key components of international trade, making technology a driver of globalization.

Financial Sector and Digital Payments: Fintech, CBDCs (Central Bank Digital Currencies), and blockchain-based systems are redefining payment infrastructure and improving financial inclusion. This shift accelerates the transition toward cashless economies, impacting monetary policy and regulatory frameworks.

Geopolitical and Economic Competition: Technological leadership has become a strategic driver of geopolitical power, with U.S.-China competition in AI, semiconductors, and green tech influencing global trade and investment patterns.

Sustainability and Green Technology: Renewable energy technologies, EVs, and energy storage are reshaping energy markets, reducing fossil fuel dependence, and driving climate-related investment. Climate tech is projected to be a multi-trillion-dollar sector by 2030, aligning sustainability goals with economic growth.

Note: Advanced economies include regions such as United States, Germany, France, Italy, Spain, Japan, United Kingdom
Emerging economies include regions such as China, India, ASEAN-5, Russia, Brazil, Mexico, Saudi Arabia, Nigeria, South Africa

Source: IMF, World Economic Outlook (WEO), April 2024

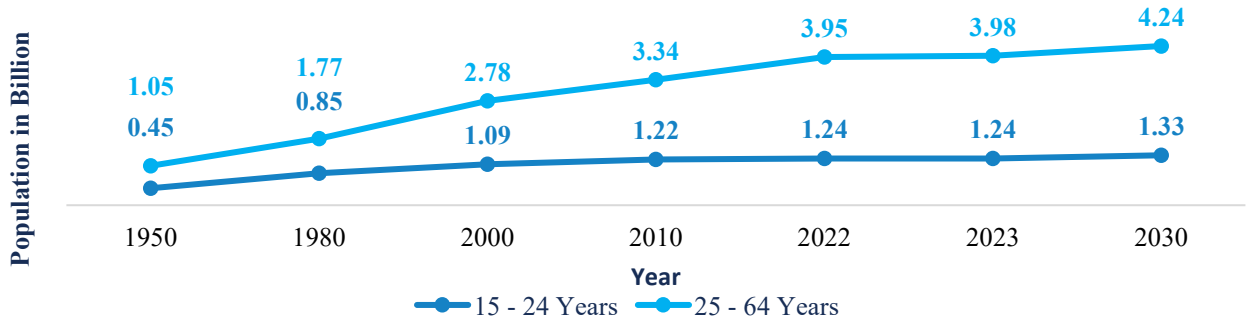
1.3 Key Macroeconomic Growth Drivers for Global Economy with specific focus on select regions of USA, Europe and India

Rising Young Population:

According to United Nations, there are approximately 1.24 billion people globally aged 15-24 years old (CY2023), representing roughly 15% of the total population. An estimated 40% of the global population falls under the age of 25, highlighting the significant size of the younger generation. Due to income limits, the growing population of young people has a tendency towards financial restraint.

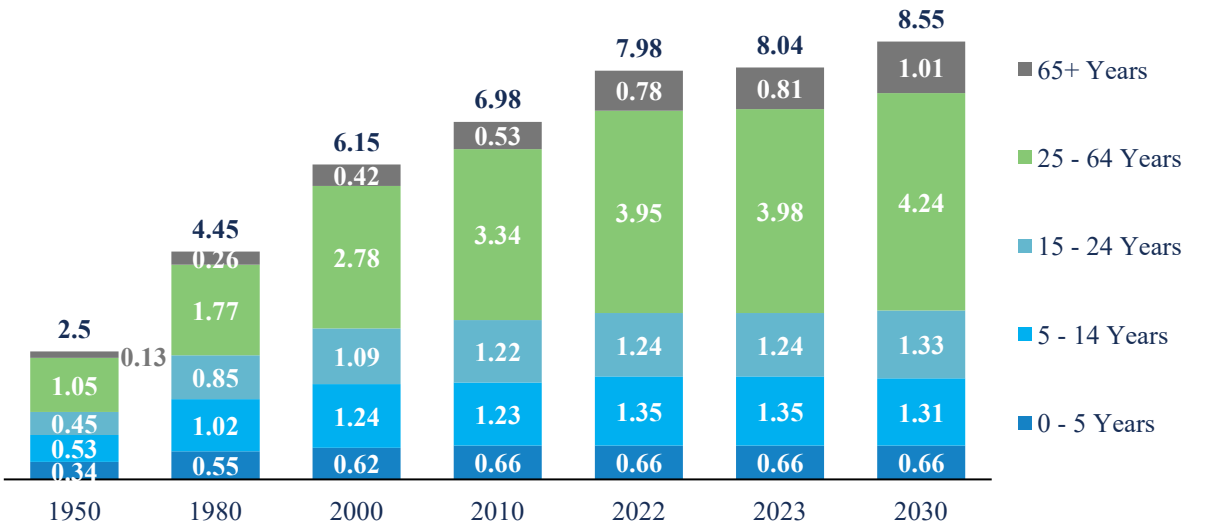
However, estimates show that by 2030, both its sizable population and per capita spending are expected to experience significant rise. With 1.2 billion members worldwide, the youth demographic is the largest generation in history and offers prospects for both labour supply and consumer demand.

Exhibit 3: Global Young Population, CY 1950-2030, In Billion



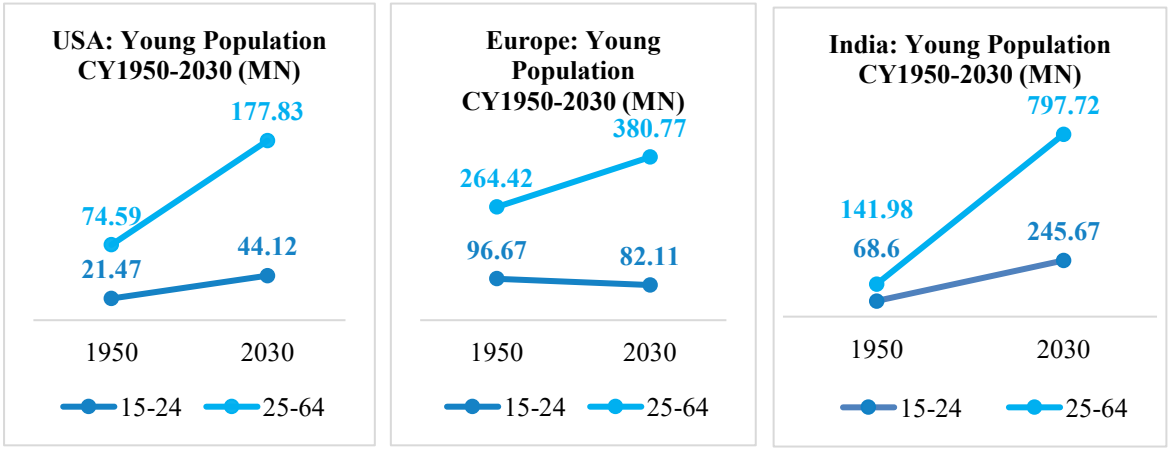
Source: Frost & Sullivan Analysis

Exhibit 4: Global Population Age Structure, CY 1950-2030, In Billion



Source: https://ourworldindata.org/

Exhibit 5: Rising Young Population, CY 1950-2030 (MN), USA, Europe & India

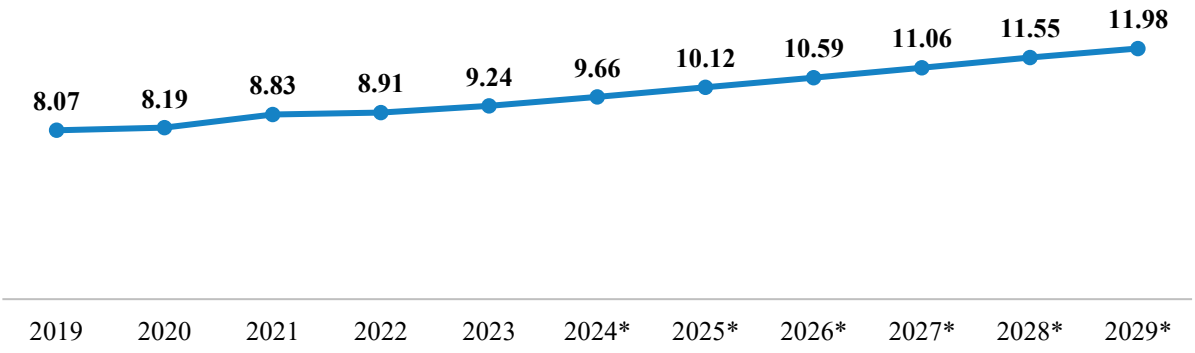


Source: https://ourworldindata.org/

In the USA, the population in the age group 25-64 years is expected to increase over the period of 1950-2030, and reach 178 MN, whereas India is expected to record even a sharper jump increasing its population in the same age group to 798 million in 2030 from 142 million in 1950.

1.4 Growing Global Disposable Income:

Exhibit 6: Worldwide annual disposable income - per capita. (In thousands USD)



** Forecasted*

Source: Statista Market Insights, World Bank, OECD, Eurostat, World Bank PovcalNet, WID - World Inequality Database

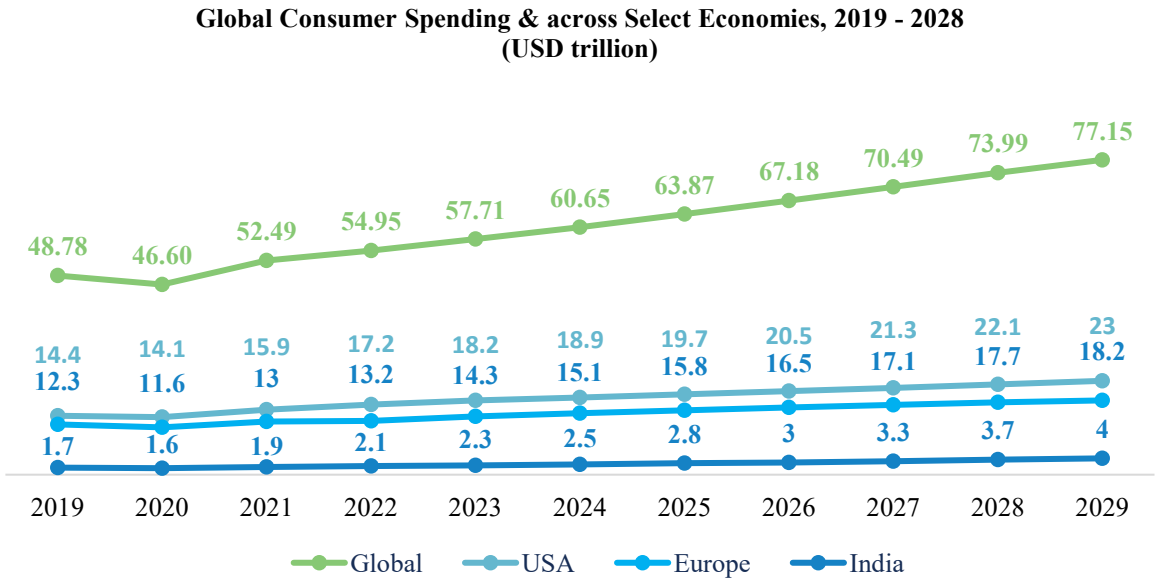
The information illustrates a steady rise in global annual disposable income between 2019 and 2029, climbing from USD 8,100 to 12,000. Disposable income significantly influences the extent to which individuals and households allocate funds for different buckets of expenses. Increase in global per capita income growth has significantly increased consumer demand, especially in emerging economies.

Increase in Discretionary Spending: As disposable incomes grow, consumers have more resources available to allocate towards discretionary purchases, such as consumer durables, electronics, automobiles, leisure activities, and dining out. This leads to a rise in overall consumption levels and stimulates demand across various sectors of the economy.

1.5 Growing Global Consumer Spend

Worldwide Consumer Spending has witnessed an increasing trend from USD 58 trillion in 2023 to reach USD 70 trillion in 2027 and USD 74 trillion in 2028.

Exhibit 7: Global Consumer Spending & across select economies, CY 2019-29, USD Trillion



Source: Statista Market Insights, World Bank, IMF, UN, Eurostat

Consumer spending is a significant driver of economic growth. As consumer confidence rises and household incomes increase, individuals are more likely to spend on goods and services, stimulating demand and driving economic activity across various sectors.

1.6 USA Macroeconomic Overview

In 2025, the United States maintains its position as the world's largest economy, with GDP surpassing US$28 trillion, driven by resilient consumer demand, steady business investment, and strategic policy support. Its economic strength is anchored in high productivity, advanced technological innovation, and a dynamic labor market, which continue to reinforce its global competitiveness. However, underlying challenges such as income inequality, fiscal imbalances, and political polarization remain influential factors shaping the nation's macroeconomic trajectory. Despite these headwinds, the U.S. economy's adaptability, coupled with its strong innovation ecosystem and robust institutional framework, positions it to sustain growth and retain its central role in driving the global economy.

1.6.1 USA – Macroeconomic Variables - GDP Growth and Forecast

Exhibit 8: Real GDP Growth (%), USA, CY2019-CY2030F

	CY 2019	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024	CY 2025E	CY 2026F	CY 2027F	CY 2028F	CY 2029F	CY 2030F
US	2.6	-2.1	6.2	2.5	2.9	2.8	2.1	2.4	2.0	2.1	1.9	1.8

Note: *E: estimate, F: forecast; CY: Calendar Year; Data is represented in calendar years. For e.g. CY2019 is the 12-month period between 1 January 2019 and 31 December 2019; Source: IMF; Frost & Sullivan*

1.6.2 Accelerated Economic Growth & Key Drivers for the Nation's Economy

According to the IMF's January 2026 World Economic Outlook update, the United States economy expanded by about 2.1% in real GDP terms in 2025, and growth is projected to increase modestly to around 2.4% in 2026, reflecting continued economic resilience despite global uncertainties.

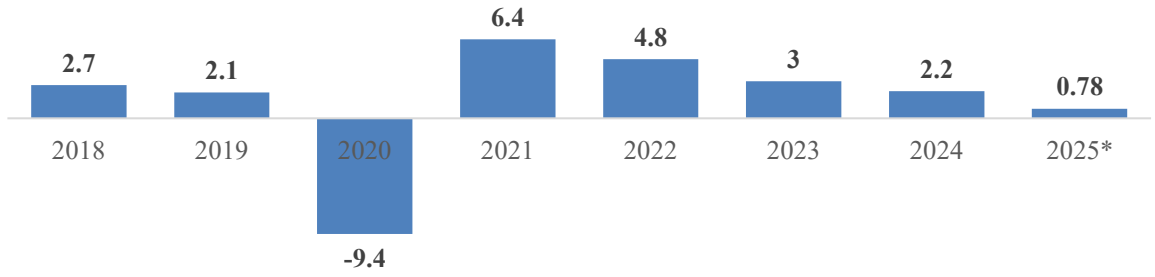
The outlook for 2026 suggests a moderate but stable expansion, supported by strong productivity growth, relatively robust consumer spending, and easing financial conditions as policy interest rates gradually decline. At the same time, the U.S. labor market is expected to remain close to full employment, with unemployment around the 4% range. However, the IMF notes that growth may face headwinds from slowing employment gains, persistent fiscal deficits, and ongoing trade and geopolitical uncertainties. Inflation is projected to gradually decline toward the Federal Reserve's target over the coming years, supporting a balanced growth trajectory. Overall, the U.S. economy in 2026 is expected to maintain steady growth momentum, driven by domestic demand and technological investment, while navigating global economic and policy risks.

1.6.3 US Economy: Key Drivers

Jobs Growth in the USA

As per the industry experts, 2.2 million jobs were added to the economy in 2024, albeit lower than the 3.0 million jobs added in 2023. The Bureau of Labor Statistics (BLS) reported that the U.S. economy added 256,000 jobs in December 2024 and 212,000 jobs in November 2024. Up until June, 2025, the US economy added approximately ~780k jobs (nonfarm payrolls), signaling a slower but solid labor market in the first half of 2025.

Exhibit 9: Total Approximate Jobs (Nonfarm payrolls) added in USA, Historical, 2018-2025*



Note: Jobs added represents change in employment during the 12 months of the calendar year ; Data for 2025 is until June, 2025

Source: Bureau of Labor Statistics, National Restaurant Association Projections, Secondary sources

The outlook for U.S. nonfarm payroll jobs in 2025 points to job growth continuing, but at a much slower pace than in recent post-pandemic years. Projections from major forecasters, such as the Federal Reserve Bank of Philadelphia, estimate the U.S. will average about 145,000 new nonfarm payroll jobs per month in 2025, totaling approximately 1.7 million jobs for the year if this pace continues.

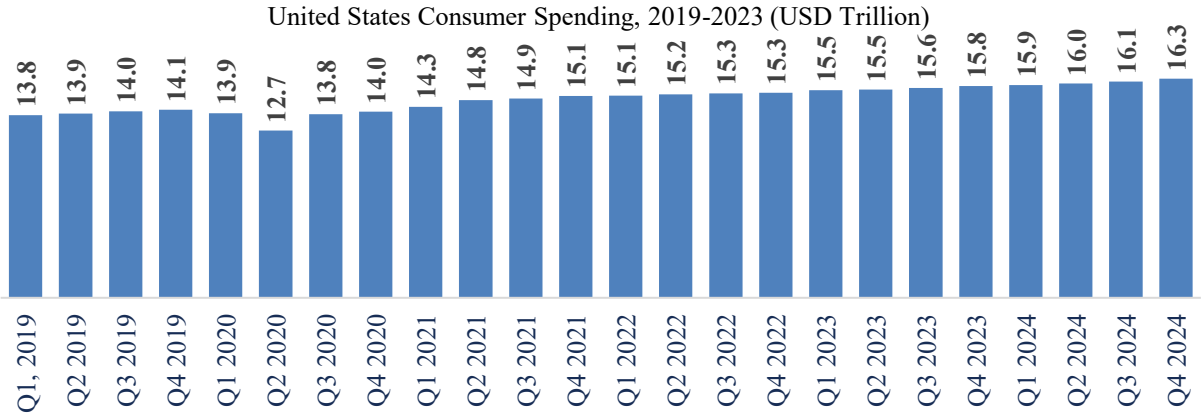
The job market is described as "resilient," but there are signs of cooling. Private sector job creation has softened, especially in trade-dependent and manufacturing sectors, while health care and social assistance continue to drive gains. Government job growth has offset some private sector weakness, but federal jobs have declined since the start of the year.

1.6.4 Rising Consumer Spend

According to data from the U.S. Bureau of Economic Analysis, consumer spending in the United States rose to USD 16.3 Tr in the fourth quarter of 2024, up from USD 16.1 Tr in the third quarter of the same year and USD 15.8 Bn in Q4 2023. Further, as the chart below shows, the QoQ consumer spend in the USA has been on the rise ever since Q2, 2020 and has surpassed the pre-pandemic levels.

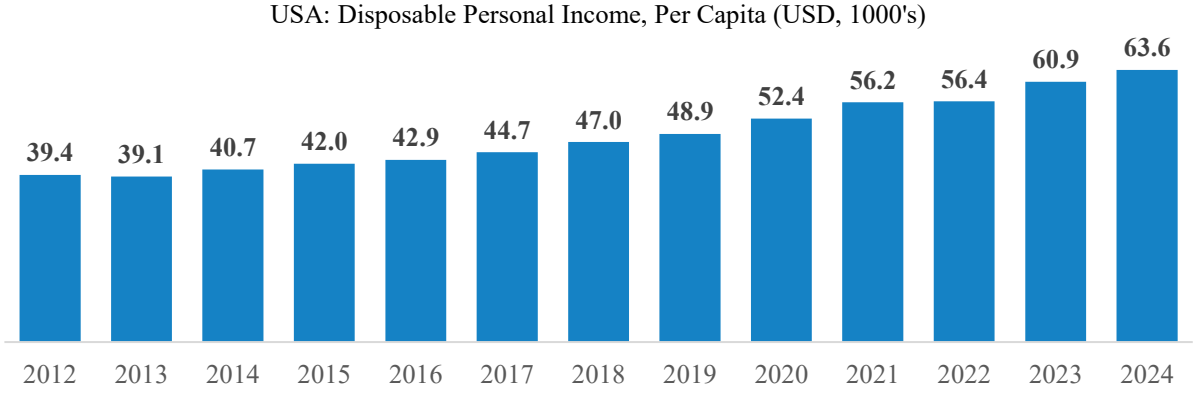
Consumer spending, constituting nearly two-thirds of economic activity, fuels output, job creation, and economic expansion. When individuals possess the financial means and confidence to make purchases, their spending drives economic growth by stimulating demand for goods and services. This increased demand encourages businesses to produce more, leading to job creation and further economic development.

Exhibit 10: USA Consumer Spend, CY2019-2024



Source: USA Bureau of Economic Analysis, tradingeconomics.com

Exhibit 11: USA Per Capita Disposable Personal Income - CY 2012-2024



Source: U.S. Bureau of Economic Analysis, tradingeconomics.com

In 2025, modest growth in U.S. real disposable income driven by steady wages and easing inflation—is sustaining consumer spending, which powers nearly 70% of GDP. However, elevated borrowing costs, high housing and service prices, and tighter credit conditions limit big-ticket purchases and wage gains. While Fed rate hikes have cooled inflation to 2.1%, they've also tempered income growth, creating a delicate balance between inflation control and household purchasing power. Despite these headwinds, rising disposable income continues to support consumption, business revenues, and investment, keeping the U.S. economy's momentum intact.

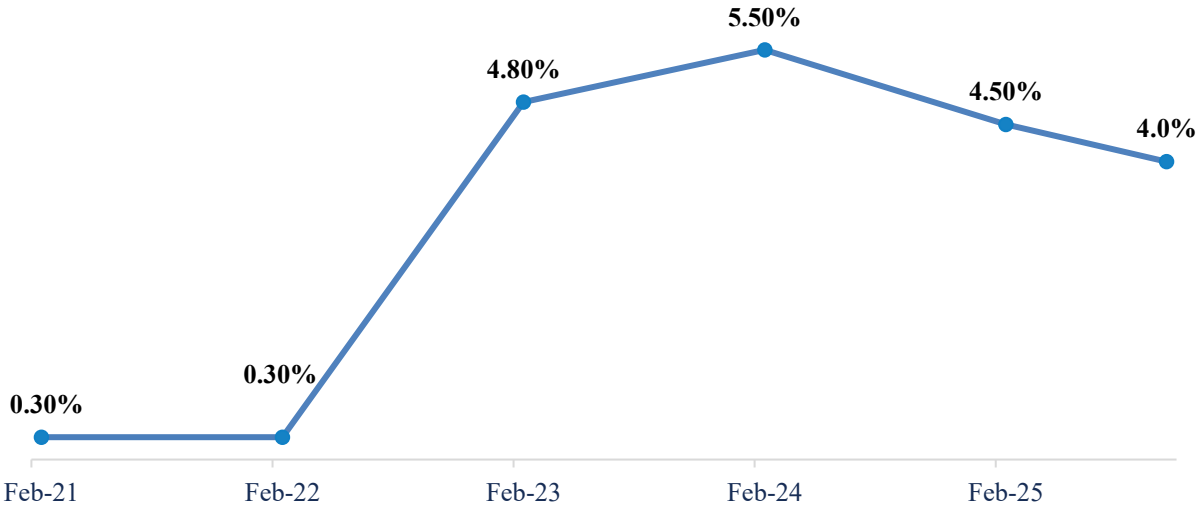
1.7 Monetary Policy by the Federal Reserve

The Federal Reserve remains the key macro driver via its control of interest rates, balance-sheet policy, and guidance. On 29 Oct 2025, the FOMC cut the federal funds target range by 25 bps to 3.75%–4.00% and announced that quantitative tightening will end on 1 Dec 2025: Treasury roll-offs will cease with full reinvestment, while MBS paydowns will continue to be redirected into Treasuries, effectively halting the shrinkage of the Fed's balance sheet. The statement emphasized a data-dependent path for any further adjustments. Recent inflation prints remain above target but cooler than 2022–23 peaks: headline PCE rose 2.7% y/y in August and core PCE 2.9% y/y, with Fed officials estimating September core around 2.8%; monthly gains have moderated. Against this backdrop, the Fed's September 2025

Summary of Economic Projections points to real GDP growth of 1.6% (Q4/Q4) in 2025, with PCE inflation projected to drift toward 2.6% in 2025 and nearer 2% over the medium run.

Policy transmission has tightened financial conditions through higher real rates even as the nominal policy rate has begun to edge lower, tempering credit growth, housing activity, and capex while avoiding a broad contraction in demand. With the labour market cooling but resilient and inflation gradually easing, the Fed is now attempting a soft-landing glidepath: easing the policy rate from restrictive levels while ending balance-sheet runoff to stabilize money-market liquidity and bank reserves. Forward guidance remains cautious as Powell noted cuts are not pre-committed but the October move and QT conclusion signal a shift toward less-restrictive settings consistent with the SEP's path to 2% inflation over time.

Exhibit 12: USA Fed Funds Interest Rates %, CY 2021-2025



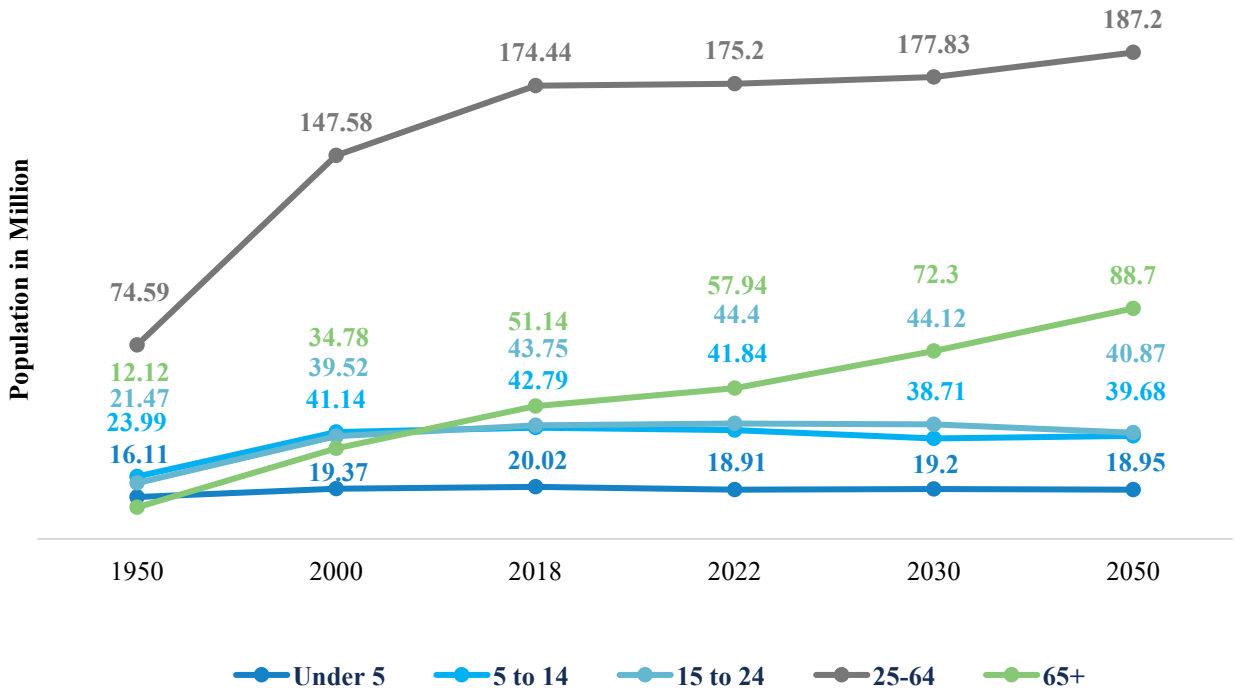
Source: Tradingeconomics; The actual rate of interest in October 2025 stood at 4.0%

1.8 Key demographic trends driving growth in USA

Key demographic trends are exerting a substantial impact on IT spending worldwide, influencing where and how resources are allocated within the technology sector. One significant trend is the aging population in many developed countries, leading to increased demand for healthcare technologies and services. Consequently, there's a notable uptick in IT spending on healthcare IT systems, electronic medical records, telemedicine platforms, and remote patient monitoring solutions to cater to the needs of elderly populations and improve healthcare accessibility and quality. An aging workforce, high retirement rates, and structurally tight labor markets is also pushing U.S. firms to automate routine, rules-based work. Agentic AI scales scarce expertise across finance, healthcare admin, and customer operations, while multilingual and accessibility features serve a more diverse, dispersed population. Rising compliance needs and small-business digitization further accelerate spend on autonomous workflows. Manufacturing reshoring, Sun Belt plant growth, and persistent labor gaps drive investment in vision systems that raise throughput with fewer workers. Computer vision (CV) improves safety for an older shop-floor cohort, reduces training burdens for new hires, and supports e-commerce-era warehousing. Quality inspection, PPE detection, and predictive maintenance cut defects and injuries while meeting stricter safety expectations. Furthermore, the rising prominence of millennials and Generation Z in the workforce is driving IT spending towards technologies that cater to their preferences and work habits. This includes investments in cloud computing, mobile applications, collaboration tools, and flexible work solutions to support remote work arrangements and enhance productivity and engagement among younger generations. A multi-generational, mobile-first consumer base expects frictionless, personalized experiences fueling demand for data/analytics modernization, API-led integration, and digital commerce replatforming. Migration to cloud and M&A consolidation require robust integration services, while rapid release cycles and omnichannel traffic growth heighten spend on QA and DevOps. Healthcare, public sector, and retail lead as they adapt to population aging and

greater cultural/linguistic diversity. Additionally, as emerging economies experience rapid urbanization and a burgeoning middle class, there's a growing appetite for digital technologies and infrastructure to address urban challenges, boost economic growth, and improve living standards. Consequently, IT spending is shifting towards smart city initiatives, digital connectivity projects, and e-government services in these regions to meet the evolving needs and expectations of their expanding populations.

Exhibit 13: USA Population By Age Group - CY 1950-2050



Source: ourworldindata.org

The U.S. population in 2022 was older and had fewer children under age 5 than in 2018 or 2000. The population in the age groups of 5-14 and 15-24 has largely remained stable in the 2000-2022 period, whereas the population aged 65+ has more than doubled in the same period.

1.9 Technology Spend

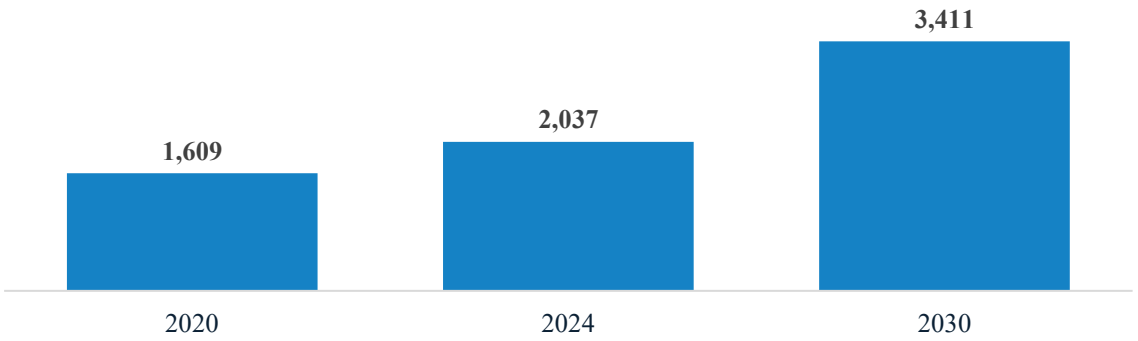
Technology spend in the USA was USD 2,037 Billon, in 2024 which is anticipated to reach USD 3,411 Billion in 2030 from USD 2,221 in 2025, growing at a CAGR of 9.0% in the period of 2025 - 30.

Technology spending in the USA remains robust and is driven by various factors, including digital transformation initiatives, increasing adoption of cloud computing, cybersecurity investments, and advancements in emerging technologies like artificial intelligence (AI). Businesses across industries are investing heavily in upgrading their IT infrastructure, implementing new software solutions, and enhancing cybersecurity measures to remain competitive in the digital age. Additionally, the COVID-19 pandemic has accelerated the pace of technology adoption as organizations transitioned to remote work and digital business models.

Enterprise technology spending in the U.S. is also accelerating as companies converge investments across AI-led automation, computer vision, and digital consulting. Organizations are scaling agentic AI to automate enterprise workflows, enhance productivity, and mitigate chronic labour shortages. Simultaneously, computer vision platforms are expanding from pilot to production in factories, logistics centers, and warehouses to ensure safety, precision, and operational continuity with leaner workforces. Complementing these, enterprises are allocating larger budgets to technology consulting, including data modernization, integration, digital commerce, QA, and DevOps to connect fragmented systems, accelerate product releases, and unlock actionable insights. Collectively, these priorities are shifting U.S. IT spending from maintenance to modernization, making AI-centric engineering, automation, and consulting the primary engines of enterprise tech investment growth.

Further, global investments in data center and cloud infrastructure remain strong in 2025, driven by the accelerating adoption of AI, edge computing, and digital transformation initiatives. The U.S. continues to be a dominant hub, attracting a substantial share of these investments due to its advanced infrastructure, skilled workforce, and technology-driven market. Major hyperscale players such as Google, Meta, Amazon, Microsoft, and Oracle have significantly ramped up their capital expenditures to expand cloud and AI capabilities. In 2025, these companies are projected to collectively invest over USD 200 billion, reflecting a continued annual growth trend of around 25–30% over the past five years, fueled by surging demand for high-performance data center services and AI-driven workloads.

Exhibit 14: USA: Total Technology Spend, 2020-30 (USD Bn)



Source: Frost & Sullivan analysis

Technology spending in the USA is expected to continue growing at a CAGR of 9.0% during 2025-2030 as organizations prioritize innovation and digitalization to drive efficiency, productivity, and growth.

1.10 Emerging Technologies as a Catalyst

Emerging technologies particularly edge computing, AI, agentic AI, computer vision and blockchain etc. are becoming integral to U.S. business strategies and technology spending, driving both operational efficiency and new revenue models. Edge computing is accelerating real-time data processing in sectors like manufacturing, logistics, healthcare, and autonomous mobility, reducing latency and enabling AI-powered decision-making at the source. Blockchain is gaining traction beyond cryptocurrencies, underpinning secure supply chain traceability, digital identity, and decentralized finance applications.

Agentic AI will automate multi-step workflows (planning, procurement, compliance), compress service backlogs in healthcare and government, and augment knowledge work with code, analytics, and copilot tools, raising output per worker and margins. Computer vision will modernize advanced manufacturing (zero-defect inspection, predictive maintenance), logistics (automated sortation, dock safety), and retail (shrink reduction, cashier-less checkout), unlocking capex cycles and reshoring opportunities. For enterprises, these capabilities enable real-time personalization, fraud prevention, dynamic pricing, and smarter underwriting, expanding revenue while lowering risk and cost-to-serve. Small and mid-sized businesses benefit disproportionately as turnkey AI lowers the fixed cost of expertise, boosting formation, exports, and local employment. At the macro level, broader AI diffusion lifts total factor productivity, supports higher wages, and deepens the tax base while strengthening strategic sectors (semiconductors, defense, energy, biotech). Realizing this upside demands responsible AI governance, data infrastructure, cybersecurity, and rapid workforce reskilling converting technological promise into durable U.S. economic gains.

U.S. enterprises are increasing IT budgets to integrate advanced enterprise automation capabilities, including robotic process automation, agentic AI, and computer vision–based AI platforms, often in combination with cloud, data and analytics, and cybersecurity upgrades. These investments are automating complex workflows across finance, HR, customer experience, and digital commerce, reducing manual effort, improving accuracy, and enabling always-on, omnichannel operations. Agentic AI systems increasingly act across integrated applications such as CRM, ERP, and e-commerce

platforms to trigger actions, orchestrate processes end to end, and continuously optimize performance based on real-time data.

This shift is also expanding demand for technology consulting and managed services spanning data and analytics, system integration, digital commerce solutions, quality assurance, and DevOps so that enterprises can modernize legacy estates and industrialize automation at scale. As these solutions mature, they are driving measurable productivity gains, cost optimization, and faster time-to-market, while supporting the growth of adjacent sectors such as cloud data centers, semiconductors, and advanced telecom infrastructure. Collectively, these capabilities are fostering innovation, boosting competitiveness, and creating high-skill jobs, reinforcing U.S. leadership in the global digital economy. As adoption scales, their combined impact is expected to contribute materially to GDP growth, particularly through more efficient service delivery and the export of enterprise-grade automation and AI solutions.

1.11 Major Government policies impacting the local tech sector

Here are the major U.S. government policies that are materially boosting the local technology sector, what they do and why they matter:

- **CHIPS & Science Act (2022):** US$ ~39B for U.S. semiconductor manufacturing grants plus US$ ~11B for R&D; also authorizes a step-up in NSF funding to advance foundational science and talent.
- **CHIPS awards (2024–2025):** Multi-billion-dollar grants to Intel, TSMC, Micron, Samsung, TI and others are now finalized, catalysing massive private capex and local ecosystems around advanced chips and packaging.
- **Infrastructure Investment & Jobs Act — BEAD broadband:** US$ 42.45B to extend high-speed internet nationwide, expanding the addressable market for cloud, SaaS, IoT, AI services, and remote work/education.
- **Inflation Reduction Act - manufacturing tax credits:** Section 45X production credit and 48C investment credit lower the cost of building/producing clean-tech components (batteries, solar, inverters, critical minerals), lifting U.S. advanced-manufacturing demand for power electronics, automation, and AI.
- **National AI policy & standards: NIST AI Risk Management Framework (AI RMF 1.0)** gives companies a clear, voluntary playbook to operationalize "trustworthy AI," reducing adoption friction and aligning industry and regulators.
- **SBIR/STTR (startup R&D) — reauthorization efforts in 2025:** Bipartisan House/Senate bills would extend and strengthen non-dilutive R&D funding that seeds deep-tech startups and transitions innovations to the private sector.

Tariff shock in April 2025 and subsequent trade deals

On 2 April 2025, President Trump announced the "Liberation Day" tariffs, declaring a national emergency over the U.S. trade deficit. The package introduced a 10% baseline tariff on almost all imports from 5 April, alongside much higher country-specific "reciprocal" rates on major trading partners that began taking effect from 9 April. China, the EU, Japan, India and others saw sharp increases, layered on top of existing measures; for India, the U.S. signalled a 26% reciprocal tariff in this first wave. A separate order also closed the de-minimis loophole for low-value imports from China, raising costs on small electronics and consumer tech.

The shock triggered a market sell-off and a rapid diplomatic scramble. Washington temporarily paused most country-specific hikes for 90 days, keeping only the 10% baseline in place (and much higher combined rates on China, Hong Kong and Macau, where aggregate duties reach roughly 145%). Through mid-2025 the U.S. used these tariffs as leverage to extract concessions, announcing or updating deals with the EU, South Korea, Japan and several ASEAN and Latin American partners, often trading partial tariff relief for investment commitments and sectoral purchases. For India, negotiations failed to secure significant relief: on 30 July 2025 Washington confirmed a 25% tariff on Indian goods, framed as a penalty linked partly to Russian energy and defence purchases, with India's overall applied rate on many products later rising toward 50% when layered components are included.

By late 2025, the tariff regime remains fluid. Legal challenges in U.S. courts have questioned the use of emergency powers, but appeals have allowed most measures to stay in force. At the same time, the White House has started paring back tariffs for politically sensitive sectors, especially food and some agricultural imports, citing "progress in reciprocal trade negotiations." Overall, multilateral institutions such as the IMF, World Bank and WTO now attribute a meaningful downgrade in global growth and higher inflation in 2025–2026 to the tariff shock and the uncertainty it has injected into trade policy.

Ripple effects on the global IT industry, the U.S. tech market and India

Although the Liberation Day tariffs legally apply to goods rather than services, their impact on the global IT industry is material but indirect:

- Higher hardware and infrastructure costs: Tariffs on technology hardware, networking equipment and some categories of electronics and semiconductors raise capex for data centers, cloud providers and enterprises, even though certain chips and devices received early exemptions from the new reciprocal duties. Industry groups and think tanks warn that semiconductor tariffs in particular could slow AI data-center build-outs and raise the cost of training large models.
- IT spending growth impact: Global IT spending growth will likely suffer owing to tariffs, macro uncertainty and supply-chain realignment as key drags despite strong structural demand for cloud and AI. The spending growth could see a downward revision of about 20-25%.

In the U.S. IT market, higher input costs and price pressure are squeezing margins in hardware-heavy segments (devices, on-prem infrastructure, semiconductor-intensive equipment), while demand for cloud, cybersecurity and AI remains robust but more cost-conscious. Tariffs are prompting renegotiation of vendor contracts, delayed refresh cycles, and a stronger emphasis on ROI for automation and AI projects. While there's no single number for "IT", but for tech products and IT hardware, average US retail price could increase in the range of 9% to 40%, depending on product category and supply chain exposure, while also reducing consumer's purchasing power. Overall, the tariff plan would lift inflation and marginally reduce GDP growth (which eventually flows into IT budget growth).

For India, the effects are more nuanced:

- On the goods side, higher U.S. tariffs hit Indian exports in textiles, gems and jewellery, engineering goods and auto components, while pharma, electronics and semiconductors remain largely exempt. That creates localized stress in manufacturing-linked IT (e.g., ERPs and supply-chain systems for these sectors) but does not directly tax software services.
- On the IT services and outsourcing side, the risk is largely second order and demand driven. A 25% tariff shock on Indian goods could push U.S. corporates to cut discretionary tech spend to offset higher operating costs, with Indian vendors who derive 50–60% of revenue from the U.S., feeling the impact through slower deal cycles, smaller deal sizes and pricing pressure.
- The broader policy climate is also becoming more hostile to offshoring. The proposed HIRE Act, which would impose a 25% tax on "outsourcing payments" to foreign providers and remove U.S. tax deductibility for those costs, explicitly targets cross-border IT and GCC/GIC models, even though it is not yet law. Taken together with tariff-induced protectionism, this raises the medium-term risk profile for India's export-oriented tech sector, especially for commoditized application development and maintenance.

That said, the impact is not uniformly negative. Tariff-driven supply-chain diversification away from China and broader trade uncertainty are encouraging U.S. and global firms to expand captive centers and nearshore operations in India and other trusted markets, supporting continued investment in Indian cloud, cybersecurity, data and analytics and AI capability centers. In the near term, however, the dominant effect of the April 2025 tariffs is to raise hardware and operating costs, slow IT budget growth, and inject volatility into tech-outsourcing demand, with Indian IT disproportionately exposed because of its heavy U.S. client base.

2. GLOBAL TECHNOLOGY MARKET

The global technology market is in a secular upcycle, powered by AI-infused software, hybrid/multi-cloud infrastructure, and data-centric services that compress time-to-value. Enterprise spend is re-allocating from legacy stacks to platforms that enable governed data, automation, and secure connectivity at the edge. Agentic AI is moving from pilots to closed-loop workflows, catalysing new demand for GPUs/accelerators, high-bandwidth networks, vector databases, and model governance. In parallel, computer vision-based AI platforms are gaining traction across manufacturing, logistics, and smart infrastructure driving industrial automation, workplace safety, and operational precision through real-time visual intelligence and edge analytics. Semiconductor and digital infrastructure investments are rising amid geopolitics and supply-chain de-risking. Technology consulting spend is also expanding, spanning data and analytics modernization, integration services, digital commerce enablement, quality assurance, and DevOps engineering thus helping enterprises unify fragmented systems, accelerate time-to-market, and operationalize digital transformation at scale. Growth concentrates in AI enablement, cloud modernization, data platforms, and managed/consumption-based services, with Europe policy-led, the US AI-infrastructure led, and APAC scale-led.

2.1 Disruptive Trends for Technology Market

- **Artificial Intelligence (AI) & Generative AI:** AI is a dominant force transforming the tech landscape. It's attracting unprecedented investment and serves as a "foundational amplifier" for other innovations by accelerating progress across domains. The global Artificial Intelligence and Machine Learning ("AI & ML") market is expected is grow from US$ 272 billion in 2025 to US$ 1,595 billion by 2030 growing at a CAGR of 30% in the 2025-2030 period. The rise of generative AI (e.g. large language models) exemplifies this trend, unlocking new applications from automated content creation to advanced data analysis. In parallel, enterprise adoption of agentic AI is reshaping process automation thus enabling autonomous workflows in finance, operations, and customer service that learn, adapt, and execute decisions with minimal human intervention. This evolution marks the next phase of digital productivity, where intelligent systems optimize speed, accuracy, and scale across entire organizations. The global Agentic AI market is expected to grow from US$ 5.3 billion in 2024 and US$ 7.7 billion in 2025 to US$ 49.3 billion by 2030 growing at a CAGR of 45% in the 2025-2030 period.
- **Cloud Computing & XaaS:** The shift to cloud-based services and "everything-as-a-service" models continues to disrupt traditional IT. Global spending on public cloud is projected to surge. Scalable cloud infrastructure lowers barriers to entry and enables rapid deployment of digital services, making it a key driver of growth in software and IT services. The global cloud computing market is expected to grow from US$ 711 billion in 2024 and US$ 821 billion in 2025 to US$ 1,688 billion by 2030 growing at a CAGR of 16% in the 2025-2030 period.
- **Edge Computing: The AI Boom Demands Local Processing.** The exponential growth of production-grade AI—particularly multi-modal and generative models is driving unprecedented data volumes. Instead of bottlenecking operations by streaming all high-fidelity data to the cloud, organizations must process it locally ("at the edge") to achieve the ultra-low latency required for real-time AI inference and closed-loop action. The sustained, rising investment in edge computing technologies, confirms its critical role as the foundational infrastructure for enabling instantaneous decision-making in autonomous applications and intelligent systems. The global edge computing market is expected to grow from US$ 256 billion in 2025 to US$ 491 billion by 2030 (growing at a CAGR of 14% in the 2025-2030 period).
- **Automation and Robotics:** Businesses are accelerating automation from AI-powered software bots (RPA) to advanced physical robots to boost productivity and offset labor challenges. Macroeconomic factors like rising labor costs and worker shortages, coupled with AI-driven innovations, have greatly expanded robotic capabilities. This trend is pushing autonomous systems from pilot stages to practical deployment in manufacturing, logistics, and even customer service (e.g. chatbots and robo-advisors). Complementing this, computer vision-based AI platforms are revolutionizing industrial automation by enabling real-time visual intelligence for defect detection, worker safety, and predictive maintenance thus enhancing operational

efficiency, quality, and compliance across sectors such as manufacturing, logistics, and infrastructure. The global Robotic Process Automation (RPA) market is expected to grow from US$ 8 billion in 2025 to US$ 30 billion by 2030 (growing at a CAGR of 30% in the 2025-2030 period). The global computer vision market is also witnessing tremendous growth as it is expected to grow at a CAGR of 22% in the 2025-2030 period.

- **Next-Gen Computing (Semiconductors & Quantum):** The quest for greater computing power is driving innovation in specialized hardware and frontier tech. AI's growth has spurred a wave of application-specific semiconductors (such as AI accelerators), evidenced by a spike in related patents and new chip startups. At the same time, research into quantum computing is accelerating; tech giants' breakthroughs have renewed interest in its disruptive potential, though more advances are needed for practical impact. Both advanced chip designs and quantum technologies could radically reshape the IT foundation in the coming years.
- **Digital Consulting and Engineering Services:** A surge in technology consulting spanning data and analytics, integration services, digital commerce, quality assurance, and DevOps is enabling enterprises to modernize legacy systems, unify data flows, and deploy scalable digital platforms. These services are critical in translating emerging technologies like AI and computer vision into measurable business outcomes, accelerating digital transformation and ensuring enterprise agility across global markets.

2.2 Digital Services: Various Growth Drivers in the Industry

- **Surging Digital Transformation Investment:** Organizations worldwide are pouring resources into digital initiatives. Global spending on digital transformation is forecast to jump from about $2.5 trillion in 2024 to $5.5 trillion by 2030, underlining the strategic importance of digital services for growth. This massive investment reflects the consensus that digitization is now a core business priority across industries. Reinforcing this, enterprises are allocating larger shares to AI-led process automation and computer-vision programs that deliver measurable ROI in months, not years.
- **Operational Efficiency and Speed to Market:** A need for faster, leaner operations is a primary motivator for digital adoption. The top drivers of digital projects include boosting operational efficiency, accelerating time-to-market, and improving customer experience. Companies are digitizing workflows, automating processes, and using data analytics to make quicker decisions and adapt to market changes more rapidly. Here, agentic AI automates decisions end-to-end, while computer vision uplifts quality, safety, and throughput across plants and warehouses.
- **Competitive Pressure and Regulation:** Market forces are pushing businesses to go digital or risk falling behind. More than half of digital transformation efforts are driven by new growth opportunities, while a significant chunk stem from increased competitive pressures. Industry disruptors and digital-native competitors are raising the bar for incumbents. Meanwhile, evolving regulations (data protection, open banking, etc.) have also been noted as a driver compelling companies to upgrade their digital capabilities to remain compliant and agile. Technology consulting spanning data/analytics modernization, integration, digital commerce, QA, and DevOps is the execution layer that operationalizes these mandates at enterprise scale.
- **Customer Experience Expectations:** Today's consumers demand seamless, personalized digital experiences, prompting omnichannel transformation. AI-driven automation and integrated data platforms (delivered through consulting and DevOps) enable faster releases, consistent experiences, and reliable service quality across channels.
- **Technology Enablers (Cloud, 5G, AI):** The maturation of key technologies lowers the cost and complexity of innovation. Enterprises increasingly pair cloud with agentic AI and edge computer vision for real-time decisions, supported by consulting-led architectures that ensure governance, interoperability, and resilience.

2.3 Focus on Growing Importance of Artificial Intelligence (AI) in Shaping the IT Market

- **Massive AI Investment and Growth:** Artificial intelligence has become one of the fastest-growing segments of IT spending, underscoring its role as a key engine of tech industry growth.

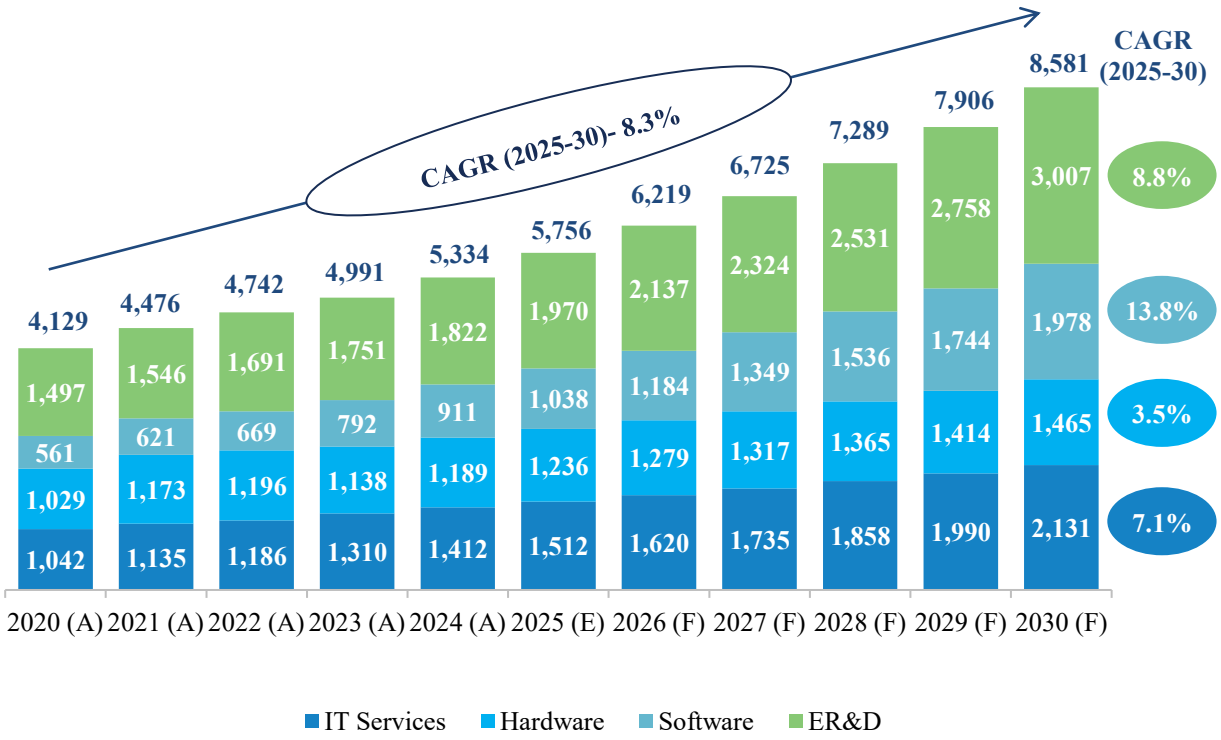
This influx of capital reflects how crucial AI is considered for future innovation and competitiveness.

- **Widespread Adoption in Enterprises:** AI is increasingly becoming mainstream in business rather than staying experimental. Enterprises are either actively deploying AI or plan to expand their AI investments soon. Use cases span from predictive analytics and process automation to AI-enhanced customer service. Early adopters are now scaling up AI projects enterprise-wide after initial successes in efficiency and insight generation. Process automation, autonomous customer operations, and finance/supply-chain decisioning are leading agentic AI use cases, while computer vision scales in inspection, safety, and asset monitoring.
- **Embedding AI in Products and Services:** AI capabilities are being built into nearly every new software product, reshaping IT solutions. By 2025, most new enterprise applications will include some form of AI or machine learning. In other words, AI is becoming a default feature that drives smarter functionality in everything from business platforms to consumer apps. Vision models and copilots are now standard capabilities in platforms, backed by consulting for data readiness, MLOps, QA, and DevSecOps.
- **Strategic Priority for Leadership:** Business leaders increasingly view AI as critical to competitiveness. Majority of leaders worldwide now cite AI as the next major focus of business transformation. CIOs and CTOs are centering IT strategy on AI to enhance decision-making, personalize services, and create new revenue streams. Many organizations have also established AI governance frameworks to ensure they capture value from AI while managing its risks.
- **Boosting Productivity and Innovation:** AI's impact is evident in how it enables new levels of automation and innovation in IT. Intelligent systems can take over routine tasks and augment human decision-making with data-driven insights. Computer Vision (CV) reduces defects and incidents on the floor; agentic AI cuts cycle times in back-office and CX; consulting ensures measurable KPIs and continuous delivery. AI tools have significantly increased the automation of tasks and accelerated data analysis in many companies, freeing up IT teams to focus on higher-value initiatives.
- **Workforce and Skills Transformation:** The rise of AI is reshaping talent needs. Enterprises pair automation and Computer Vision (CV) with upskilling, while consulting partners establish centers of excellence, QA practices, and DevOps pipelines to industrialize AI.

2.4 Global Technology Market Size

The Global Technology landscape continues to evolve in response to shifting workplace dynamics, digital transformation imperatives, and innovation demands. IT services, software, and Engineering Research and Development ("**ER&D**") segments are expected to see sustained growth, driven by a commitment to modernization and technology-driven solutions. The global technology market is expected to grow to a size of USD 8,581 billion by 2030 at a compound annual growth rate ("**CAGR**") of 8.3% (2025 to 2030).

Exhibit 15: Global IT Market Size (2020 to 2030), in USD billion



Source: Frost & Sullivan, Secondary Sources

IT services demonstrated resilience during and after the pandemic, a trend that continues as enterprises prioritize modernization and automation. This momentum also stems from AI-enabled process automation and consulting services that modernize legacy IT, connect disparate data sources, and enable intelligent digital platforms. In recent years, IT services have seen significant increases, driven by investments in cloud services, which will remain a primary focus for technology leaders in the coming years. The momentum in this segment is projected to continue, with robust forecasts for the future. As businesses seek to modernize their IT infrastructure and digital platforms, there's a strong impetus to move away from legacy systems towards agile and efficient solutions.

As companies resume their paused projects, they are likely to allocate more resources towards technology investments to accelerate digital transformation initiatives, enhance operational efficiency, and remain competitive in the market. Moreover, with a higher number of deals expected across sectors, there will be greater demand for technology solutions and services to support various aspects of business operations, such as data analytics, and customer experience enhancement. Further, enterprises are embedding agentic AI to automate decision-intensive workflows across finance, operations, and CX, while computer vision platforms drive safety and quality in manufacturing and logistics. These shifts reinforce the need for specialized technology consulting to align data, integration, and DevOps strategies with business outcomes. This heightened activity is projected to drive robust growth in technology spend as organizations prioritize leveraging technology to drive innovation, growth, and resilience.

By 2030, IT services is anticipated to reach USD 2,131 billion in spending, reflecting a sustained commitment to digital transformation, growing at a CAGR of 7.1% (2025 to 2030).

Hardware investment held steady as remote work, telemedicine, and remote learning gained prominence. However, the hardware market's growth is expected to remain sluggish in the foreseeable future. The focus in this segment is shifting towards enterprise devices that need upgrades or investments to support hybrid work settings. The hardware market is likely to experience subdued growth as large-scale investments in certain areas may not be as necessary. This segment's performance

underscores the changing landscape of workplace technology needs. The segment is expected to grow at a CAGR of 3.5% (2025 to 2030).

Software witnessed significant growth during and after the pandemic, driven by enterprises prioritizing infrastructure software expenses to support their digital transformation efforts. This trend is expected to persist as organizations continue their digital journeys. Investments in software are projected to remain robust, with enterprises aiming to enhance their digital capabilities and streamline operations. By 2030, software spending is estimated to reach USD 1,978 billion, reflecting ongoing investments in software solutions to drive efficiency and innovation, growing at a CAGR of 13.8% (2025 to 2030).

ER&D, a critical driver of innovation, is poised for sustained growth. In recent years, ER&D investments have been instrumental in technological advancements across industries. As businesses strive to stay competitive and bring innovative products and services to market, ER&D spending is anticipated to rise steadily. The growing demand for breakthrough technologies, product innovation, and digital transformation will fuel the expansion of ER&D investments. By 2030, ER&D spending is projected to reach USD 3,007 billion, highlighting its pivotal role in shaping the future of technology.

Besides, emerging and digital services like enterprise automation, RPA, agentic AI, computer vision, edge computing and tech consulting all pull through spend across IT layers and are driving global technology spending, as organizations invest to meet growing demands for speed, connectivity, and trust. These technologies unlock innovation, improve competitiveness, and support the development of next-generation services. Their integration is compelling businesses and governments worldwide to allocate greater budgets towards infrastructure, cybersecurity, and digital transformation initiatives.

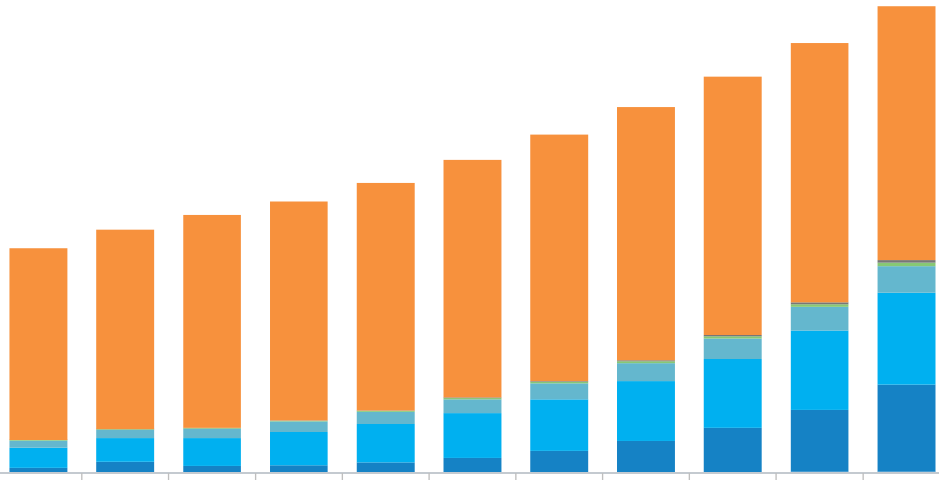
Enterprise automation, RPA, agentic AI, and computer-vision platforms drive IT hardware spend by increasing demand for compute, storage, and network capacity. Large bot farms, AI agents, and CV workloads generate continuous processing and logging needs, pushing enterprises toward more powerful servers, GPU/accelerated infrastructure, edge devices, cameras, and higher-bandwidth networks. Data & analytics programs require scalable data-center and cloud/edge hardware to handle growing data volumes.

These same forces expand software spend. Organizations invest in RPA suites, workflow/orchestration engines, AI/ML and computer-vision platforms, MLOps tools, and data/analytics stacks. Digital commerce platforms, integration software (iPaaS, API management), testing and QA automation tools, observability, and DevOps pipelines are added or upgraded to support automated, 24x7, omnichannel operations. Security, governance, and monitoring software also grows to control AI agents and bots.

Finally, IT services spending rises as enterprises rely on consulting and managed services to design and implement automation roadmaps. Data and analytics consulting, integration and migration projects, custom development around digital commerce, and ongoing DevOps/QA services are needed to connect new platforms with legacy systems. Continuous optimization, model retraining, and operations support for automation and AI further boost demand for outsourcing and managed services.

2.5 Global Technology Spend Across Key Technologies

Exhibit 16: Global IT Spend Across Key Technologies (2020 to 2030), in USD billion



	2020 (A)	2021 (A)	2022 (A)	2023 (A)	2024 (E)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)	2030 (F)
Others	3522.4	3667.8	3913.8	4024.9	4183.6	4369.0	4531.8	4654.1	4751.9	4768.7	4666.3
Agentic AI	1.2	1.7	2.5	3.7	5.3	7.7	11.2	16.2	23.4	34.0	49.3
Computer Vision	9.0	11.0	12.0	14.4	18.1	22.5	28.1	34.4	41.6	50.4	60.9
Edge Computing	130.0	149.8	172.0	196.0	224.0	256.0	292.0	333.0	378.0	431.0	491.5
Cloud Computing	371.0	440.0	514.0	609.0	711.0	821.2	948.5	1095.5	1265.3	1461.4	1688.0
AI & ML	93.0	202.0	125.0	138.0	186.0	271.6	396.5	578.9	811.6	1137.8	1595.2
RPA	2.4	2.6	2.7	5.0	6.0	8.0	11.0	13.0	17.2	22.7	29.9

Source: Frost & Sullivan, Secondary Sources

The overall market across these technology segments grows from US$ 4,129 billion in 2020 to US$ 5,756 billion in 2025 and US$ 8,581 billion in 2030, implying a healthy ~8.3% CAGR between 2025 and 2030. Growth is being driven by enterprise-wide automation programs, the rapid industrialization of AI (including agentic AI and computer-vision platforms), and strong demand for technology consulting around data, integration, digital commerce, QA and DevOps.

Robotic Process Automation ("**RPA**") continues to thrive due to its cost-efficiency and automation capabilities, making it a favored choice for organizations seeking to optimize operations. Enterprises are scaling from pilot bots to hundreds of automations across finance, HR, supply chain and customer operations. This is fueled by consulting-led process re-engineering, tighter integration with core systems, and DevOps/QA practices that make bot farms enterprise-grade. The cost benefits, along with resilience-building during disruptions like COVID-19, have propelled RPA's growth further. The global RPA market is expected to grow from US$ 8 billion in 2025 to US$ 30 billion by 2030 growing at a CAGR of 30% in the 2025-2030 period.

Artificial Intelligence and Machine Learning ("**AI & ML**") adoption is accelerating as enterprises embed AI into analytics, decisioning, digital commerce, CX and back-office automation. Agentic AI—AI that can plan, call APIs, trigger RPA bots and act autonomously across applications—is a key multiplier, as are data-engineering and MLOps services that industrialize AI at scale. AI & ML technologies play a pivotal role in performance enhancement across industries. Their ability to facilitate data-driven decision-making, automation, and predictive analytics has led to their substantial growth. Businesses are making significant strides in boosting efficiency, process optimization, and security through AI & ML. The global AI & ML market is expected to grow from US$ 272 billion in 2025 to US$ 1,595 billion by 2030 growing at a strong CAGR of 30% in the 2025-2030 period.

Agentic AI systems is the newest and fastest-growing segment, and these don't just answer but they decide, plan, and act across tools and data with minimal supervision. At scale, this shifts productivity frontiers: autonomous workflows compress cycle times, raise service levels, and unlock new business models, adding meaningful lift to global GDP via labour augmentation and faster innovation. For enterprises, agentic AI delivers closed-loop automation in sales, customer service, finance, supply chain, IT/SecOps, and R&D. Benefits include 24×7 execution, lower cost-to-serve, higher straight-through processing, and better compliance through consistent policy application. Enterprises are beginning to deploy these as digital workers for customer service, finance, IT and operations. Their success depends heavily on robust data foundations, integration services, observability, and strong DevOps/MLops to govern and continuously improve agent behavior. The global agentic AI market is expected to grow from US$ 7.7 billion in 2025 to US$ 49.3 billion by 2030 growing at a CAGR of 45% in the 2025-2030 period.

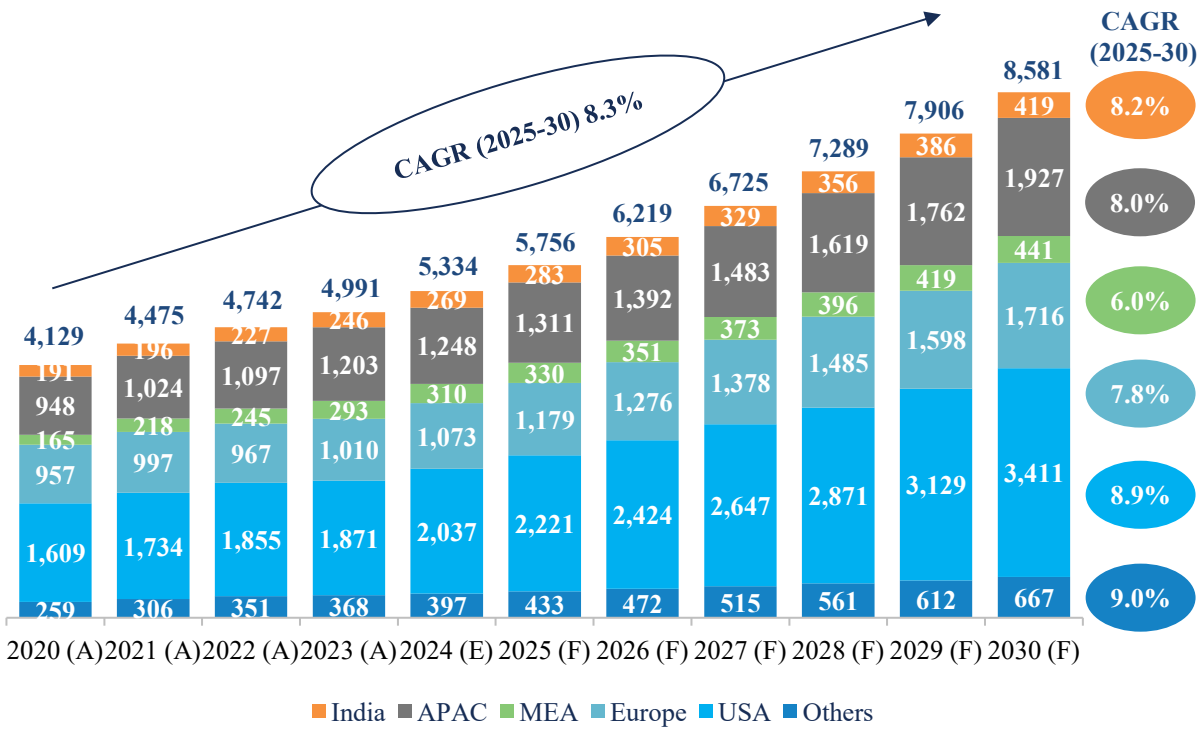
Cloud Computing maintains its upward trajectory as organizations adopt a 'cloud-first' strategy, leading to increased spending on public cloud services. Cloud is the foundational platform for enterprise automation, AI, digital commerce and modern integration. Growth is propelled by large-scale migration of legacy workloads, cloud-native application development, data platforms, and the need for scalable infrastructure to run AI, computer-vision and agentic-AI workloads. The scalability and flexibility of cloud infrastructure continue to attract businesses. The adoption of cloud-native technologies and DevOps practices is further accelerating the migration of applications and workloads to the cloud. As cloud providers innovate with advanced offerings such as serverless computing and AI-driven services, the market is poised for a healthy growth to reach a market size of USD 1,688 billion by 2030, growing at a CAGR of 16% (2025 to 2030).

Computer Vision is emerging as a transformative technology with broad applications. It allows machines to interpret and understand visual information from the world, enabling automation in areas like image recognition, object tracking, and autonomous vehicles. Adoption is spreading from early pilots to mainstream operations across manufacturing, logistics, retail, security and healthcare. Enterprises are deploying vision platforms for defect detection, identity and KYC, shelf analytics, process monitoring and customer-journey insights. This growth is enabled by falling camera and compute costs, improved model accuracy, and consulting services that integrate vision platforms with existing systems, workflows and QA frameworks. The global computer vision market is expected to grow from US$ 22.5 billion in 2025 to US$ 61 billion by 2030 growing at a CAGR of 22% in the 2025-2030 period. The growth continues to be driven by the increasing demand for automation and enhanced visual perception in a wide range of industries.

Edge computing climbs from US$ 130 billion in 2020 to US$ 256 billion in 2025 and US$ 491 billion in 2030, growing at a CAGR of 13.9% during 2025-2030. As automation moves closer to the point of interaction - factories, stores, branches, vehicles and devices—enterprises invest in edge nodes to support low-latency analytics, AI inference and local decisioning. Computer-vision use cases (e.g., quality inspection, checkout-free retail, safety monitoring) and IoT-driven automation are critical demand drivers, supported by integration and DevOps services that manage distributed deployments.

2.6 Global Technology Spend Across Regions

Exhibit 17: Global IT Spending by Regions (2020 to 2030), in USD billion



Source: Frost& Sullivan, Secondary Sources

Europe's IT sector is expected to witness significant growth, largely attributed to a strategic shift in focus towards cost control, efficiencies, and automation in response to the challenging economic landscape. This shift, coupled with a strong emphasis on cloud technologies and cloud cybersecurity, is driving IT spending upwards. The sector is also witnessing increased investments in software and IT services, with a notable trend towards cloud options, including infrastructure as a service ("**IaaS**"), expected to grow substantially. Concurrently, there's a heightened priority on enhancing cybersecurity measures, especially in the cloud, to safeguard against emerging threats and to prepare for advancements in AI and generative AI. This focus on security is expected to see a marked increase in spending, at a CAGR of 7.8% (2025 to 2030). Europe's spending is also fueled by Industry 4.0, smart city initiatives, and blockchain-enabled regulatory compliance in finance, healthcare, and trade. Agentic AI and computer-vision solutions are increasingly being adopted within EU Industry 4.0 initiatives to boost manufacturing safety and energy optimization. Edge and IoT investments focus on energy efficiency, renewable integration, and connected mobility, aligning with EU digital and green transition goals.

Meanwhile, in Africa and the Middle East, there are promising developments. As per a Google-IFC report Africa's internet economy is on the rise and could reach a substantial 180 billion USD by 2025, constituting more than 5% of the continent's GDP. Additionally, Saudi Arabia has ambitious plans to invest 25 billion USD in the tech sector, signaling a strong commitment to technological advancement in the Middle East, at a CAGR of 6% (2025 to 2030). The Middle East is channeling investment into smart city megaprojects, oilfield IoT monitoring, and blockchain-enabled government services, while Africa adopts IoT for agriculture, fintech inclusion, and mobile health. As the region focuses on smart-city and public-sector digitalization initiatives, technologies like Agentic AI becomes critical as it supports process automation in e-government and banking, while vision platforms enhance security and urban infrastructure management.

Turning to the Asia Pacific, the region remains the growth engine of global tech spend. AI-powered logistics, industrial vision automation, and consulting-driven data modernization are key themes in China, Japan, and ASEAN. These investments align with regional manufacturing leadership and smart-

infrastructure initiatives. China is expected to experience robust tech spending growth, with at least 8% annual increases projected from 2025 to 2030. Japan is focusing on software and IT services investments, and South-east Asia's domestic tech spending is set to grow by over 9% CAGR. Moreover, long-term investments in research and development ("**R&D**") are expected to further boost tech spending in the Asia Pacific. In this region, technology spending is accelerating in semiconductor manufacturing, AI-powered logistics, and smart infrastructure. Edge computing supports real-time decision-making in industrial hubs, IoT drives connected ecosystems, and blockchain underpins cross-border trade platforms across markets like Singapore, Japan, and Australia.

The increasing adoption of cloud computing, driven by advancements in cloud solutions and data management, is poised to fuel market growth. Cloud services offer numerous advantages, empowering companies to boost their profitability, thereby serving as a key driver for IT spending in the United States market. Similarly, technologies like edge, IoT, and blockchain are driving significant investment in smart manufacturing, autonomous mobility, fintech, and supply chain transparency. In the U.S., AI-infrastructure investments and data-center expansion dominate. Agentic AI for enterprise automation and consulting for AI implementation drive service growth, while computer vision supports industrial safety and logistics efficiency across manufacturing hubs.

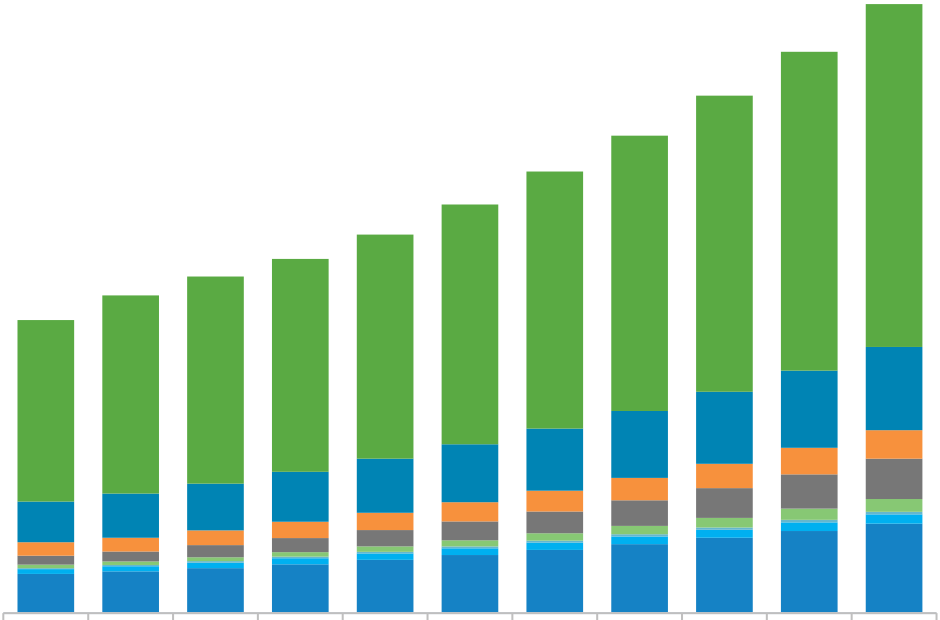
Simultaneously, the escalation in the deployment of database management systems ("DBMS") is a direct response to the exponential growth in available data for analysis. The surging demand for data services is expected to contribute significantly to the expansion of United States IT spending market. Technology spend in the region is anticipated to grow at a CAGR of 8.9% from 2025 to 2030, primarily driven by increased R&D investments.

2.7 Global Technology Spend Across Select Industry Verticals

The need to constantly innovate underscores the diverse approaches that industries are taking to leverage technology for growth, efficiency, and resilience. While some sectors were accelerated into digital transformation by the pandemic, others are adapting to emerging trends and opportunities. The outlook for technology spending across these sectors is one of innovation and adaptation, driven by the ever-evolving digital landscape.

Global IT spending across industry verticals rises from US$ 4.1 trillion in 2020 to about US$5.7 trillion in 2025 and US$8.6 trillion in 2030, implying an overall 2025–2030 CAGR of 8.3%. Growth is driven by large-scale enterprise automation programs, rapid adoption of AI (including agentic and computer-vision-based platforms), and sustained investment in technology consulting for data & analytics, integration, digital commerce, QA, and DevOps.

Exhibit 18: Global IT Spending Across Industry Verticals (2020 to 2030), in USD billion



	2020 (A)	2021 (A)	2022 (A)	2023 (A)	2024 (E)	2025 (F)	2026 (F)	2027 (F)	2028 (F)	2029 (F)	2030 (F)
Other	2555	2792	2919	3000	3160	3379	3620	3880	4172	4490	4833
BFSI	577	619	656	705	758	815	876	942	1012	1088	1170
Retail	186	197	210	228	247	268	291	316	343	372	403
Healthcare	129	139	169	197	229	266	309	360	418	486	566
Life Sciences	48	50	58	66	77	89	102	118	137	158	182
Oil and Gas	16	17	22	23	25	26	28	29	31	33	35
Chemicals	67	72	77	82	88	95	101	107	115	122	130
Manufacturing	551	589	632	689	751	818	892	974	1061	1158	1262

Source: Frost& Sullivan, Secondary Sources

BFSI spending grows from US$ 577 billion (2020) to US$815 billion (2025) and is expected to further grow to US$ 1.17 trillion in 2030 growing at a CAGR of 7.5% in the 2025-2030 period. Drivers include RPA and agentic AI in operations, underwriting and collections; AI/ML and computer vision in fraud, KYC and risk; and heavy reliance on integration, QA and DevSecOps to modernize core platforms.

Similarly, retail is expanding from US$ 186 billion in 2020 to US$ 268 billion in 2025 and then further grow to US$ 403 billion by 2030 growing at a CAGR of 10.3% in the 2025-2030 period. This growth is also fueled by digital-commerce platforms, omnichannel automation, recommendation engines, computer-vision analytics in stores, and data-rich loyalty programs.

Retail and BFSI have long recognized technology as central to their operations, and the pandemic further accelerated this dependence. To ensure business continuity, both sectors rapidly expanded digital services and leaned heavily on analytics and AI. Today, **agentic AI** is reshaping customer operations, risk management, and personalization, while consulting and integration services connect data, CRM, and commerce platforms to deliver frictionless digital journeys. At the edge, real-time computing enables accurate inventory tracking, personalized in-store experiences, and near frictionless checkout.

Although BFSI is not a primary Product Safety & Regulatory Affairs (PSRA) originator, banks and insurers are increasingly consuming PSRA data for ESG screening, underwriting, and supply-chain finance. Standardized, machine-readable outputs from digital workers make it easier for these institutions to feed PSRA information into risk and analytics platforms, modestly boosting IT spend

around data integration and advanced analytics. Overall, both Retail and BFSI are well-positioned to continue harnessing technology for deeper customer engagement, data-driven decision-making, and greater operational efficiency.

In Manufacturing, IT spending has risen from US$551 billion in 2020 to US$818 billion in 2025 and is projected to reach US$1.26 trillion by 2030, implying a 9.1% CAGR between 2025 and 2030. Traditionally a late adopter of technology, the sector now recognizes the value of data and is undergoing an AI-first reinvention. Enterprise automation across engineering, supply chain, quality and after-sales, combined with predictive analytics and tighter OT/IT integration, are becoming core themes. Computer-vision systems automate inspection, quality control and worker safety, while agentic AI optimizes supply chains, production planning and predictive maintenance. Consulting and DevOps capabilities are, in turn, enabling industrial data platforms that connect factories into real-time digital ecosystems, and investments in IoT and automation are helping manufacturers boost productivity and respond more effectively to shocks such as global crises.

At the same time, manufacturers must prove material compliance while managing internal plant chemicals. PSRA digital workers can chase supplier declarations, maintain compliance at the bill-of-materials level, generate declarations and IMDS uploads, and manage SDS for plant operations. This drives additional spend on integration between PSRA platforms, PLM, MES and supply-chain systems, as well as on data and analytics for ESG and product-carbon reporting further supporting strong, broad-based IT growth in the Manufacturing sector.

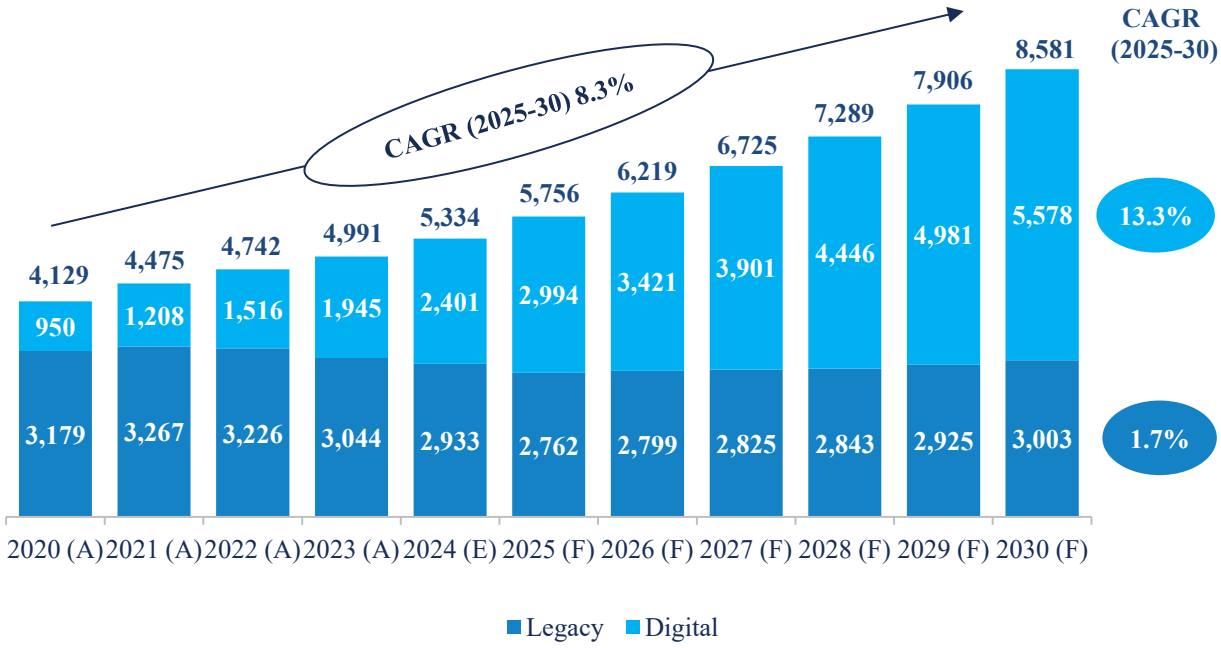
Global IT spend in the chemicals industry is rising from a historically low base as producers digitize plants, supply chains and commercial operations to protect margins and meet safety and sustainability targets. A growing share of budgets is flowing into artificial intelligence and agentic AI to automate complex, rules-heavy processes such as demand planning, order-to-cash, and the Product Safety & Regulatory Affairs (PSRA) lifecycle that governs end-to-end compliance. The chemicals sector is the epicenter of PSRA complexity. Digital workers can automate SDS authoring and updates, classification, label content, dossier preparation, regulatory intelligence and MoC workflows across thousands of SKUs and markets. This, in turn, drives increased IT spend on PSRA platforms, regulatory content repositories, cloud infrastructure, data lakes, integrations with ERP/PLM/LIMS, and managed services to maintain global rule sets. As chemical players digitize PSRA, they also scale broader enterprise automation, analytics and DevOps practices, creating a multiplier effect on overall IT budgets in the vertical. In parallel, computer-vision–based AI platforms are being deployed in plants and warehouses to detect defects, monitor PPE compliance, prevent leaks and spills, and optimize loading, packaging and logistics—directly improving safety and productivity. Agentic AI solutions enable continuous monitoring, streamlined audits and timely customer notifications, strengthening safety, end-to-end traceability and regulatory compliance worldwide. To make these investments work at scale, chemicals companies are increasingly relying on technology consulting for data and analytics, integration of plant and enterprise systems, digital commerce portals and robust quality assurance and DevOps—ensuring reliable, compliant and continuously improving digital operations. In chemicals industry, IT spending has risen from US$ 67 billion in 2020 to US$ 95 billion in 2025 and is projected to reach US$ 130 billion by 2030, implying a 6.5% CAGR between 2025 and 2030.

Healthcare and Life Sciences have seen unprecedented growth in technology spending, driven by the need to manage critical infrastructure and deliver high-quality care. Healthcare shows the fastest growth, with IT spending expected to rise from US$266 billion in 2025 to US$566 billion by 2030, reflecting a 16.3% CAGR in the 2025-2030 period. Providers are investing heavily in electronic health records, AI and agentic assistants, computer-vision diagnostics, and integration/analytics platforms, all supported by consulting, QA, and regulated-cloud services. The sector is embracing AI-driven transformation: agentic AI is automating Regulatory Affairs and Pharmacovigilance (PV), as well as administrative and diagnostic workflows, while computer vision supports medical imaging, patient safety, and remote care. These capabilities strengthen product safety and compliance through regulatory submissions, labelling control, and continuous post-market monitoring of adverse events, ensuring patient safety, traceability, and adherence to FDA, EMA, ISO and other global standards. Consulting-led integration further ensures data interoperability and regulatory compliance across diverse systems.

Life Sciences is following a similar trajectory, continuously investing in cutting-edge technology to drive innovation in research and healthcare delivery. In pharma and biotech (GMP, FDA/EMA submissions, labelling, PV) and medical devices (MDR, UDI, post-market surveillance), PSRA digital workers can compile submissions, manage label changes, orchestrate safety data collection and support signal detection. This accelerates spending on regulatory information management systems, safety databases, validation tooling, data platforms and integration services linking R&D, quality and commercial systems. Consulting, QA and DevOps around validated GxP environments further deepen IT services spend across both Life Sciences and Healthcare, reinforcing these sectors as some of the fastest-growing technology adopters in the global IT landscape.

2.8 Global IT spend with split and growth by digital versus traditional

Exhibit 19: IT Spending by Digital versus Legacy (2020 to 2030)



Source: Frost & Sullivan, Secondary Sources

By 2030, enterprise digital spending is expected to approach USD 5.58 trillion, with growth increasingly concentrated in digital technologies and segments like enterprise automation, RPA, agentic AI, computer-vision platforms, and technology consulting rather than traditional run-the-business IT. Instead of merely upgrading legacy infrastructure, organizations are funding integrated automation stacks: digital workers and RPA to industrialize back-office processes; agentic AI platforms to orchestrate end-to-end workflows across CRM, ERP and supply chain; and computer vision to extend automation into plants, warehouses and stores. Around these engines, spending on data and analytics, integration services, digital commerce solutions, QA and DevOps is rising sharply, as enterprises modernize data foundations, connect fragmented systems, harden reliability, and continuously ship new digital capabilities. This marks a shift from maintaining legacy estates to building intelligent, automated and data-centric operating models.

The modern business landscape demands agility and responsiveness, and these digital segments are now the primary levers. Enterprise automation and RPA shorten cycle times and free capacity; data and analytics provide real-time insight for pricing, inventory and risk; integration and digital commerce platforms enable rapid launch of new products and channels; while QA and DevOps ensure that changes can be deployed safely at high velocity. Together, they help companies adapt quickly to shifting customer expectations, compress time-to-market, and reallocate spend away from manual, error-prone processes toward scalable, software-driven operations. In an era where efficiency, resilience and differentiation are paramount, this rebalancing of IT budgets towards advanced digital services has become a strategic imperative rather than a discretionary choice.

3. GLOBAL DIGITAL TRANSFORMATION

3.1 Global Digital Transformation Landscape – Overview

In a world where digital technology permeates every facet of our lives, it's no surprise that businesses and organizations are racing to keep up with the ever-evolving landscape of digital transformation. Digital transformation is not just a trend; it's a paradigm shift that has fundamentally altered the way we conduct business, manage resources, interact with customers, and innovate in the current technology landscape.

In the relentless march of progress, digital transformation stands out as one of the defining forces reshaping the technology and business landscape. As the digital era is unfolding, this profound shift is promising to change the way we are working, interacting, and doing business in fundamental ways.

3.1.1 Shifting Paradigms: The Evolution of Digital Transformation

Digital transformation has unfolded over several decades, driven by advances in computing, connectivity, data, automation, and artificial intelligence. Each era reflects a major technological shift that reshaped how organisations operate, deliver value, and engage with customers.

Exhibit 20: Tracing the Journey of Digital Transformation

Source: Frost & Sullivan

3.1.2 ERA 1 — The Foundations (Pre-Internet / Pre-1990s)

This era marks the earliest phase of digital transformation, when organizations first began digitizing manual, paper-based processes. Businesses adopted mainframes, early databases, and electronic data processing tools. The goal was operational efficiency moving records, calculations, and routine workflows into electronic form. Although primitive by today's standards, this era created the backbone for future digitization

3.1.3 ERA 2 — The Internet & Connectivity Revolution (1990s to mid-2000s)

The arrival of the internet triggered the first major transformation wave. Organizations shifted from isolated computing environments to globally connected networks. Email, corporate websites, online catalogues, ERP systems, CRM platforms, and early e-commerce emerged. The focus broadened from internal efficiency to digital customer interactions and online communication. Businesses experienced the first shift from physical to digital business models

3.1.4 ERA 3 — Mobility, Cloud & Big Data Era (mid-2000s to 2010s)

Smartphones, mobile-first experiences, cloud platforms, and the rise of big data reshaped enterprise digital strategy. Cloud computing replaced physical infrastructure with scalable, on-demand resources. Big data technologies enabled analytics at massive scale, transforming decision-making. API-led connectivity supported flexible architectures and integration across systems. This era marked the transition from digitizing processes to redesigning entire business models around mobility, data, and cloud agility

3.1.5 ERA 4 — Data, Intelligence & Automation Era (2010s to late-2010s)

Digital transformation moved from technology adoption to intelligence-driven operations. Organizations focused on machine learning, advanced analytics, robotic process automation (RPA), customer experience engineering, and IoT-driven automation. Business decisions began relying more on data insights than human intuition. Industry 4.0 technologies started gaining traction in manufacturing, logistics, and operations

3.1.6 ERA 5 — The Acceleration Phase (2020–2022, Post-Pandemic)

The COVID-19 pandemic became revolutionary for digital transformation. Remote work, virtual collaboration, digital payments, contactless operations, and rapid cloud migration became mandatory. Organisations accelerated planned digital initiatives that would otherwise have taken years. Digital adoption became essential for business continuity

3.1.7 ERA 6 — Generative AI & Intelligent Enterprise Era (2022–Present)

We have now entered the era of intelligent digital transformation, defined by generative AI, hyper-automation, self-learning systems, digital twins, and predictive analytics. Enterprises are building adaptive digital ecosystems that can learn, optimize, and automate decisions. Transformation is no longer about digitizing—it is about creating intelligent, autonomous digital environments

3.1.8 ERA 7 — The Emerging Future (Next 5–10 Years)

The next evolution will feature autonomous business processes, ambient intelligence, full human-AI collaboration, edge-native intelligence, and composable digital architectures. Digital transformation will become continuous and self-sustaining, with enterprises designing systems that evolve automatically as market conditions change

Intellius Recode's journey reflects the broader evolution of digital transformation. Starting with core engineering and integration capabilities, the company initially focused on modernizing enterprise systems and enabling foundational digital operations. As cloud adoption accelerated, the company expanded into cloud-native development, API-led integration, and data engineering. With the rise of analytics and automation, the firm strengthened its focus on data-driven solutions and intelligent workflows. In recent years, the company has aligned itself with the AI and hyper-automation wave by introducing digital workers, advanced QA automation, and AI-assisted engineering capabilities. This progression positions Recode as a partner that has grown in step with global digital transformation trends, continuously adapting its capabilities to match each new technological era.

3.1.9 The Changing Technology Landscape Today

Digital transformation profoundly affects the technology landscape, ushering in new possibilities and trends such as:

Emergence of AI and Machine Learning: AI and machine learning have become central to digital transformation. These technologies power automation, predictive analytics, and personalization, enhancing both internal processes and customer-facing interactions.

Agentic AI: AI systems that autonomously plan, act, and adapt across tasks. From supply chain optimization to financial compliance, agentic AI reduces manual oversight, accelerates decision-making, and drives efficiency. Its ability to operate continuously and self-improve positions it as a catalyst for enterprise productivity and entirely new business models.

Computer Vision: AI-powered visual recognition enabling machines to "see" and interpret images or video. In manufacturing, it ensures defect-free production; in healthcare, it enhances diagnostics through imaging analysis; in retail, it powers cashier-less checkout. By automating perception and quality control, computer vision lowers costs, raises accuracy, and enables real-time insights across sectors.

Advanced Analytics: Advanced analytics is revolutionizing the technology landscape, enabling organizations to derive deeper insights from vast amounts of data. By employing techniques like machine learning, predictive modeling, and statistical analysis, businesses are transforming decision-making processes, leading to more informed, data-driven strategies. This shift is integral to the global digital transformation, as it allows companies to harness the full potential of their data assets, improving efficiency and innovation.

Edge Computing: Edge computing is transforming digital transformation by processing data closer to its source, reducing latency, enhancing real-time decision-making, and improving reliability. It powers smart manufacturing, autonomous systems, and IoT applications, enabling businesses globally to boost efficiency, optimize operations, and deliver faster, more personalized digital services to end-users.

Cloud Computing: Cloud services provide scalable, cost-effective solutions for businesses. The flexibility and accessibility of cloud computing are integral to digital transformation, enabling remote work, data storage, and collaboration.

Industry Matter Expertise & Business Transformation: The convergence of industry matter expertise and business transformation is pivotal in today's technology landscape. This integration facilitates the creation of tailored solutions that address specific industry challenges, leading to more effective digital transformation strategies.

Business Process Services: Business Process Services ("BPS") are at the forefront of reshaping the technological landscape. By integrating advanced technologies like AI and machine learning into traditional business processes, BPS providers are enabling organizations to streamline operations, reduce costs, and enhance customer experiences. This evolution is essential for businesses seeking to adapt and thrive in the digitally transformed world, where operational agility and efficiency are key to success.

Robotic Process Automation: RPA is a transformative force in the realm of digital technology. By automating repetitive, rule-based tasks, RPA tools are freeing up human resources for more strategic, creative work. This shift is not only improving operational efficiencies but also driving innovation, as employees are able to focus on higher-value activities. RPA's role in digital transformation is crucial, as it represents a significant step towards more intelligent, automated business processes.

Hyperautomation: Hyperautomation orchestrates a diverse array of technologies and tools, including AI, ML, event-drive architecture, RPA, Intelligent Business Process Management Suites ("iBPMS"), Integration platform as a Service ("iPaaS"), and low-code / no-code tools. This great leap forward propels businesses towards greater efficiency and agility. Hyperautomation is a key factor in the digital transformation as it eliminates human involvement in low-value processes.

DevOps: DevOps is reshaping the technology landscape by bridging the gap between software development and IT operations. This practice emphasizes collaboration, continuous integration, and rapid deployment, leading to faster and more efficient software development cycles. In the context of global digital transformation, DevOps is critical, as it enables organizations to quickly adapt to changing market demands, roll out new features seamlessly, and maintain a competitive edge in a rapidly evolving digital world.

Design Thinking: Digital transformation enhances the capabilities of design thinking by providing new tools, data, and methodologies. It empowers designers to create more user-centric, innovative, and responsive solutions in an environment where technology and human-centered design are increasingly interconnected. Technology's impact on Design Thinking includes advanced digital tools, VR and AR technologies, AI-driven insights, collaboration platforms, user-centered design software, 3D printing,

big data analytics, and IoT technologies. These advancements revolutionize the Design Thinking process, reinforcing its central role in the future of design and innovation.

Customer Experience: In the changing technological landscape, customer experience is being significantly impacted by digital transformation. Organizations across industries are leveraging advanced technologies, such as AI, IoT, and cloud computing, to enhance customer experience and drive business success. Digital transformation is shifting organizations towards a customer-centric approach, enhancing personalization and convenience. Leveraging data-driven insights improves customer experience, fostering loyalty, satisfaction, and business performance.

3.2 Defining Digital Transformation for Evolving Enterprise Requirements

As enterprises navigate through shifting market landscapes and respond to evolving consumer demands, understanding the essence of digital transformation within this context becomes crucial. At its essence, digital transformation involves strategically integrating digital technologies to elevate business operations, spur innovation, and enhance experiences for both customers and employees. It's a comprehensive transformation, not only in terms of technology adoption, but in redefining how enterprises function, communicate, and deliver value.

The evolution of modern enterprises is a testament to the transformative power of digital transformation. The transition from traditional, hierarchical structures to agile, customer-centric organizations underscores the impact of digital transformation. Modern enterprises prioritize flexibility, data utilization, remote work support, and robust security, reflecting their responsiveness to evolving customer expectations and market dynamics. Technology plays a pivotal role in driving these changes, enabling modern enterprises to navigate a dynamic, data-centric, and agile business landscape successfully.

For the evolving enterprise, digital transformation can unlock unparalleled growth opportunities across the following:

3.2.1 Business Model Innovation

Digital transformation challenges traditional business models. It encourages modern enterprises to rethink how they create, deliver, and capture value. Through innovative digital strategies, companies can diversify revenue streams, expand their market reach, and explore new lines of business. This innovative shift is particularly evident in industries where digital disruption has become the norm, such as e-commerce, streaming services, and fintech. By embracing digital transformation, enterprises position themselves to be agile and adaptable, ready to pivot when market conditions demand it.

For example, AI-driven automation reduces operational friction, while computer vision and integrated consulting services enable new digital platforms, smart factories, and data-as-a-service offerings turning technology investments into continuous revenue and innovation engines.

3.2.2 Competitive Differentiation

In an era defined by relentless competition, digital transformation provides a means for modern enterprises to stand out. By leveraging technology and data-driven insights, companies can differentiate themselves through superior customer experiences, product innovation, and efficient operations. The ability to swiftly adapt to changing market dynamics and customer needs gives modern enterprises a competitive edge. This differentiation translates into higher customer retention, market share growth, and enhanced brand reputation.

AI, computer vision, and integrated consulting for example create defensible advantages by improving speed, accuracy, and customer experience. Intelligent automation accelerates decision cycles; vision systems ensure safer, high-quality operations; and digital commerce solutions deliver frictionless, personalized engagement positioning enterprises ahead in efficiency and trust.

3.2.3 Micro-Innovation Approach

Micro-Innovation entails continuous, minor enhancements using digital technologies. These nuanced, progressive enhancements, as opposed to large-scale disruptions can significantly enhance efficiency,

customer experience, and overall value over time. A collaborative effort involving numerous micro-innovations to support and enhance innovation within an organization will foster an agile ecosystem that rapidly adapts to technological advancements and market shifts.

For example, DevOps, QA, and AI enable iterative, low-risk innovation. Continuous experimentation through analytics and automation allows rapid testing of new features, processes, and safety protocols ensuring faster adaptation to market changes without major capital disruption.

3.2.4 Product / Platform Engineering Mindset

In digital transformation, the product/platform engineering mindset centers on a user-centric approach, applying product management principles to treat the platform as a product. It emphasizes user needs, incorporates AI and automation, and necessitates user research, feedback loops, and internal marketing. Treating developers as customers, the mindset focuses on reducing friction, enhancing value, and evolving continuously for improved user experience, emphasizing the importance of internal customer interactions.

For example, enterprises combine AI models, computer vision, and data platforms into modular architectures that evolve over time. Unified engineering frameworks foster cross-domain scalability from smart manufacturing to digital commerce thus making transformation sustainable and innovation repeatable.

3.2.5 Scalability and Flexibility

Digital transformation empowers modern enterprises with scalability and flexibility that were previously challenging to achieve. Cloud-native AI, automation, and integration services ensure agility across geographies and workloads. From multi-site industrial monitoring to omnichannel digital platforms, scalability allows enterprises to expand seamlessly, reduce downtime, and meet variable demand efficiently. Further, technologies like Cloud computing and virtualization technologies allow businesses to scale their operations up or down based on demand. This flexibility minimizes the need for large, upfront investments in physical infrastructure and enables a “pay-as-you-go” model. It also provides the freedom to explore new markets and experiment with different business strategies without the limitations of traditional brick-and-mortar constraints.

3.2.6 Global Reach and Market Expansion

The digital transformation journey extends beyond local markets and opens doors to global opportunities. By leveraging e-commerce platforms, online marketplaces, and digital advertising, modern enterprises can access a global customer base. This expansion comes with its unique challenges, such as international regulations and logistics, but it also unlocks immense growth potential. The modern enterprise is no longer confined to regional limitations but can explore new territories and markets with a global perspective. Digitally enabled ecosystems, powered by AI and integrated data flows, allow companies to operate globally with localized agility. Technologies like Computer vision supports distributed manufacturing, while digital commerce platforms extend reach across new customer segments and markets.

3.2.7 Enhanced Decision-Making

Data analytics and artificial intelligence play pivotal roles in enhancing decision-making within the evolving enterprise.

Unified data, analytics, and AI intelligence transform enterprise decisions from reactive to predictive. Automation platforms provide real-time insights, computer vision ensures situational awareness, and consulting frameworks integrate governance, collectively enabling faster, evidence-based strategic moves that unlock sustained growth.

3.3 The Need and Significance of Emerging Technologies in Revolutionizing Digital Transformation Globally

- In today’s hyper-connected economy, the next wave of digital transformation is also being powered by artificial intelligence, computer vision, and intelligent technology consulting. These

technologies are not isolated innovations; together, they are redefining how enterprises operate, innovate, and scale in a data-driven global marketplace.

- Artificial intelligence and agentic automation have become central to enterprise transformation. Organizations face mounting complexity like fragmented workflows, rising customer expectations, and talent shortages that demand self-learning, adaptive systems. AI and agentic platforms automate decision-intensive processes across finance, operations, and customer experience, enabling continuous optimization and precision at scale. By turning static processes into autonomous, context-aware workflows, AI enhances productivity, reduces error, and frees human capital for innovation. This shift is not just technological but structural, enabling new digital business models that operate 24/7 across global markets.
- Computer vision–based AI platforms are equally transformative, particularly in industrial and logistics sectors. As industries pursue operational excellence and safety amid labour constraints, vision intelligence enables real-time monitoring, predictive maintenance, and automated inspection. These capabilities improve quality, ensure workplace safety, and enhance compliance across factories, warehouses, and transport networks. The fusion of vision data with analytics and automation frameworks empowers enterprises to build "smart industries" that respond dynamically to changing environments, supporting sustainable productivity and cost efficiency.
- Complementing these innovations, technology consulting encompassing data and analytics, system integration, digital commerce, quality assurance, and DevOps forms the connective backbone of global digital transformation. Consulting services translate emerging technologies into enterprise outcomes by aligning strategy, data architecture, and execution. Integration and DevOps ensure agility and interoperability across hybrid environments, while advanced analytics and QA frameworks turn data into actionable insights, driving customer-centric innovation and faster time-to-market.
- Collectively, these technologies represent the foundation of the new digital economy. AI automates intelligence, computer vision operationalizes visibility, and consulting orchestrates transformation end-to-end. Their convergence enables organizations to achieve greater resilience, agility, and insight which are key traits in a world shaped by continuous disruption.
- In the global context, the adoption of these technologies is no longer optional but a strategic imperative. They empower enterprises to reimagine business models, enhance competitiveness, and unlock new sources of growth, positioning digital transformation as both an economic and societal catalyst for the next decade.

4. USA Technology Market Potential

4.1 USA Technology Landscape

The USA technology market encompasses a wide range of hardware and software solutions, with industry leaders like Apple, Dell, HP, Cisco Systems, and Intel driving innovation in devices such as smartphones, computers, networking equipment, and semiconductors.

The USA also boasts a thriving software industry, with nearly 4.3 million software developers contributing to the development of applications across various domains, including finance, manufacturing, education, and government services. The software sector is vital for efficient operations, enhancing productivity, security, and service delivery. Additionally, the USA is a major exporter of software, influencing the global software market significantly.

The technology hardware market is poised for substantial growth as well. Factors such as cloud adoption, AI, and IoT are driving demand for powerful servers, specialized processors, and storage solutions.

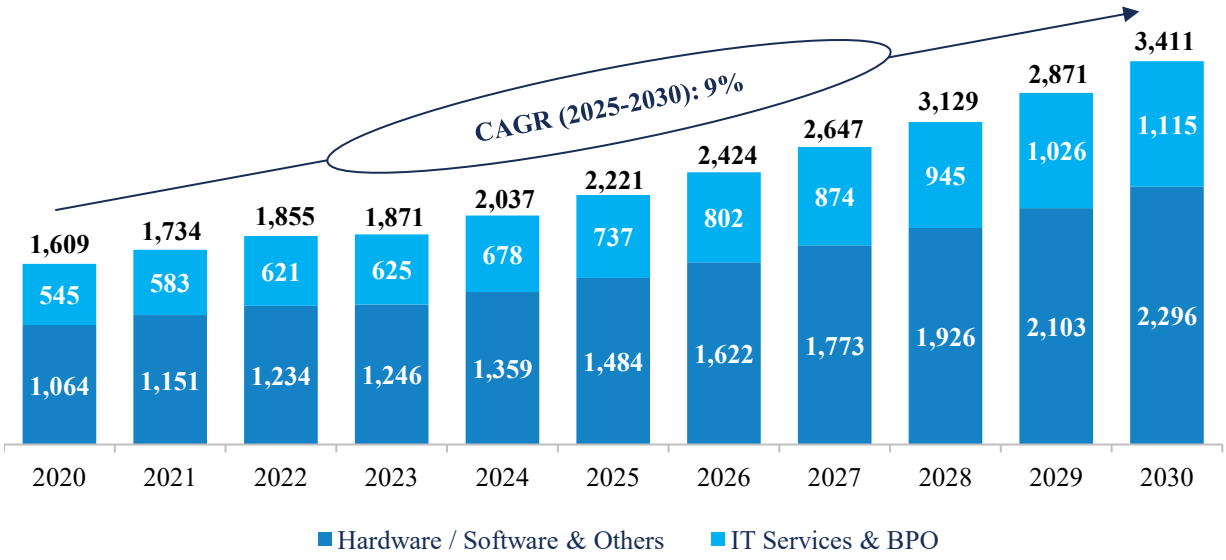
Beyond pure hardware and software, U.S. enterprises are rapidly adopting AI-led automation platforms, particularly agentic AI systems that orchestrate multiple applications and data sources to streamline end-to-end business processes across finance, supply chain, customer service, and IT operations. At the same time, computer vision platforms are being deployed on factory floors, warehouses, and field sites to support industrial automation, worker safety, and productivity gains, especially when tightly integrated with OT systems and enterprise data platforms. This shift is further accelerating demand for technology consulting services spanning data and analytics, systems integration, digital commerce modernization, quality assurance, and DevOps to design, implement, and operate these complex, AI-enabled ecosystems at scale.

4.2 USA Technology Market Size & Outlook

The USA information technology market was USD 1,609 billion in 2020. The market is forecasted to be USD 2,221 Bn in 2025 and is expected to reach USD 3,411 billion by 2030 with a CAGR of 9% over the forecast period (2025-2030). Growth is broad-based across hardware / software / others and IT services & BPO, but is increasingly driven by enterprise automation, advanced AI and data-centric consulting rather than pure "keep-the-lights-on" spending.

IT companies within the S&P 500 are expected to maintain their outperformance. Software and IT services play a vital role in driving US gross output.

Exhibit 21: USA Information Technology Market (USD Bn) - CY 2020 – 2030F



Source: Frost & Sullivan Analysis

Spend on hardware, software and other technology components increases from US$ 1.06 trillion in 2020 to US$1.48 trillion in 2025, reaching US$2.30 trillion by 2030 (with around 9.1% CAGR, 2025–2030). This category captures cloud and on-prem infrastructure, packaged software, platforms and devices. The acceleration comes from enterprise automation and AI workloads. RPA and digital-worker platforms drive demand for servers, storage and databases to run large bot farms and workflow engines. Agentic AI and computer-vision platforms require high-performance compute (CPUs/GPUs), edge hardware, cameras and specialized software stacks for model training, inference and orchestration. At the software layer, organizations are investing in automation suites, AI/ML and CV platforms, data-engineering tools, API and integration platforms, digital commerce engines and observability/security tools. Together, these form the core "digital execution stack" that supports always-on, automated and data-driven operations.

IT services and BPO spend rises from US$545 billion in 2020 to US$737 billion in 2025, and further to US$1.12 trillion by 2030 (about 8.6% CAGR, 2025–2030). While the hardware/software side provides the platforms, this services layer turns them into business outcomes. Enterprises are ramping up technology consulting in data and analytics, integration and digital commerce to redesign processes around automation and AI. Consulting firms and service providers are building data platforms, modernizing core systems, and stitching together CRM, ERP, supply chain and e-commerce into coherent digital journeys. DevOps and QA services are expanding as organizations seek to industrialize frequent releases of AI-enabled features while maintaining reliability and compliance.

On the BPO side, automation is not reducing spend; instead, it is reshaping contracts. Providers are embedding RPA, agentic AI and computer-vision into finance, HR, customer service and industry-specific processes, selling higher-value outcomes (faster cycle times, higher accuracy, richer analytics) rather than pure labor arbitrage. This requires ongoing investments in process mining, model tuning, governance and change management, all captured in IT services and BPO budgets.

Across both segments, the U.S. tech market is clearly shifting from legacy maintenance to automation- and AI-centric transformation. Hardware and software growth is fueled by AI and digital platforms, while services & BPO growth reflects the need for expertise in data, integration, digital commerce, QA and DevOps to deploy these platforms on a scale. Together, they underpin the next wave of productivity and innovation in the U.S. digital economy.

4.3 USA Technology Market Spend

4.3.1 Technology Spend Across Key Technologies

The dynamic and diverse USA technology landscape thrives on innovation across various sectors. Key emerging technologies include Generative AI, Agentic AI, computer vision and AI & ML. Generative AI fosters creativity, while AI & ML drive automation and insights.

Cloud adoption drives demand for powerful hardware infrastructure to handle massive data loads, cementing the US technology market as a global powerhouse shaping innovation and economic growth. Leading companies like Google, Amazon, and Microsoft spearhead advancements, with startups contributing to a vibrant tech ecosystem.

1. Generative AI: In 2024, North America consolidated its dominance in the global generative AI market, accounting for roughly 40–45% of global revenues. This leadership is expected to continue, with regional spend projected to grow at 30%+ CAGR over the next five years, led by U.S. technology giants and research institutions. Generative AI is rapidly transforming BFSI, healthcare, retail, and media & entertainment through copilots for knowledge workers, code generation, marketing content, spam detection, and medical imaging support. Adoption is further accelerated by hyperscale cloud providers whose platforms lower entry barriers and provide scalable compute, even as skill shortages and high model-training costs remain challenges. Critically, enterprises are now investing heavily in data and analytics foundations, integration platforms, and MLOps/DevOps and QA to safely deploy agentic GenAI that can call APIs, trigger workflows and orchestrate RPA bots. This combination of autonomous agents plus strong engineering and governance is turning generative AI from experimentation into a core budget line in U.S. technology portfolios.
2. Artificial Intelligence & Machine Learning (AI & ML): AI and ML are driving transformative change across U.S. industries, and while many enterprises already use these technologies, the rest are actively piloting them. The USA, anchored by leading research universities and companies, sits at the forefront of global AI innovation. Strong collaboration between government, industry and academia, coupled with a vibrant startup ecosystem that attracts a large share of global VC funding, continually pushes the boundaries in natural language processing, computer vision and robotics. The U.S. AI & ML market is expected to grow from US$60 billion in 2025 to US$320 billion by 2030, a 39% CAGR during 2025-2030. Growth is fueled by enterprise automation use cases such as risk scoring, demand forecasting, dynamic pricing, routing and supply-chain optimization. AI models are being embedded into digital commerce engines, customer-experience platforms and operational systems, exposed via APIs that agentic layers and RPA bots can call. This, in turn, drives spend on ML platforms, AI infrastructure, feature stores, monitoring tools and a wide range of consulting and managed services to re-engineer processes and keep models performing in production.
3. Computer Vision: Computer vision is rapidly becoming a foundational growth engine in the U.S. digital economy as AI moves from the screen into the physical world. The U.S. computer vision market (across all industries) was estimated at about US$5.2 billion in 2024 and is projected to reach US$15.9 billion by 2030, implying a CAGR of nearly 20% over 2025–2030. On factory floors, vision systems enable zero-defect quality, predictive safety and lights-out automation; in logistics and retail they power frictionless checkout, accurate inventory, store analytics and real-time loss prevention; in healthcare they augment imaging diagnostics, triage and remote care; and across mobility, agriculture and defence they unlock autonomy and precision operations. These solutions typically blend edge computing, GPU servers, 5G connectivity and specialized CV models, generating pull-through demand for hardware, cloud services and MLOps. Computer vision is tightly coupled with enterprise automation: detections in video streams can trigger RPA workflows, agentic AI decisions or alerts in MES/ERP systems. As U.S. firms scale these capabilities, they are also increasing spend on consulting, integration and QA services to connect cameras, OT systems and enterprise applications, tune models to real-world environments, and validate accuracy, privacy and bias—further reinforcing computer vision as a key pillar of U.S. technology spend.
4. Agentic AI: Agentic AI systems that plan, decide, and act across tools has become the USA's growth engine. It converts knowledge work into closed-loop workflows in sales, service, finance,

supply chain, and software, lifting productivity and margins while accelerating innovation. U.S. firms are scaling agents atop cloud data and APIs, fueling demand for GPUs, vector databases, and secure orchestration. Early adopters report faster cycle times, higher straight-through processing, and lower cost-to-serve. With clear guardrails, policy-as-code, human-in-the-loop, and auditability, agentic AI is pivotal to sustaining American competitiveness and unlocking new revenue in every major sector. The U.S. agentic AI market itself was about USD 0.4 billion in 2020 and USD 1.8 billion in 2024 and is forecasted to surge to USD 16.9 billion by 2030 (growing at a CAGR of 45%).

5. Robotic Process Automation (RPA): In the U.S., RPA has evolved from tactical task automation to a foundational layer of enterprise automation. Early spend focused on licenses and small bot farms; growth now comes from scaling digital workers across finance, HR, supply chain and customer operations, and from embedding AI and agentic capabilities. GenAI and agentic AI are increasingly used as "brains" that decide what to do, while RPA executes transactions reliably across legacy systems. This convergence is driving new investment in process mining, orchestration platforms, security and audit tooling, as well as consulting to redesign end-to-end processes rather than just tasks. QA and DevOps teams are expanding their remit to include bot testing, versioning and monitoring, increasing services spend even as per-bot costs fall.
6. Data & Analytics: The U.S. data and analytics market is also experiencing robust growth and the market is expected to expand from about US$ 95 billion in 2020 to US$ 154 in 2024. The market is expected to growth to $316 billion by 2030 growing at a CAGR of 12.7% in the 2025-2030 period. This explosive growth reflects the central role of data in enabling GenAI, AI/ML, RPA and digital commerce. Enterprises are investing in modern data stacks, data lakes and lakehouses, real-time streaming, semantic layers, governance and self-service BI to support everything from personalized marketing to risk analytics and operational intelligence. Technology consulting, data engineering and integration services are significant components of spend, as organizations migrate from legacy warehouses to cloud-native platforms. Robust QA and DevOps practices (DataOps, MLOps) are also being funded to ensure that analytical insights and AI outcomes are trustworthy and auditable.
7. Edge Computing: Edge computing spend in the U.S. is scaling rapidly, with the market size expected is grow from US$ 110 billion in 2025 to US$ 209 billion by 2030 growing at a CAGR of 13.7% in the 2025-2030 period. This growth is tightly linked to automation and AI: enterprises need low-latency processing for computer-vision workloads, IoT analytics, autonomous systems and real-time decisioning in factories, stores, vehicles and branch locations. Edge nodes run containerized AI models, RPA connectors and agentic logic locally, while synchronizing with cloud data platforms. This architecture drives spend on ruggedized hardware, 5G/private wireless, edge orchestration software and security. Integration services, DevOps/SRE and managed edge offerings are critical to operate thousands of distributed endpoints, making edge computing a significant contributor to both product and services revenues in the U.S. tech market.

As spend on these technologies scales, organizations are increasingly seeking end-to-end partners that can not only deliver AI platforms but also re-architect business processes, integrate with ERP/CRM and plant systems, build data and analytics layers, modernize digital commerce front-ends, and implement robust QA and DevOps practices to ensure that agentic AI and computer vision solutions are reliable, secure, and continuously improving in production.

4.4 Opportunities for Technology Adoption

In the United States, technology adoption pervades all aspects of society, fueling innovation, productivity, and economic expansion. From cutting-edge developments in AI and machine learning to widespread integration of IoT devices, both businesses and consumers embrace technology to streamline operations, improve communication, and tackle complex challenges. The rapid uptake of cloud computing services has transformed data storage, management, and analysis, enabling scalable infrastructure and facilitating remote work, especially evident during the COVID-19 pandemic. Additionally, digital transformation initiatives across various sectors highlight the nation's commitment to enhancing efficiency, accessibility, and sustainability through technology. Yet, challenges such as the digital divide, cybersecurity risks, and ethical considerations surrounding AI prompt ongoing discussions and efforts to ensure responsible and inclusive technology adoption, benefiting all citizens.

A key opportunity for enterprises lies in using AI, especially agentic AI, to move from isolated use cases to full-scale process automation, where digital "agents" can read context, call business applications, trigger workflows, and track outcomes across multiple systems, freeing human employees to focus on more strategic tasks.

4.5 US Technology Spend Across Key Segments (Hardware, Software, and IT Services)

Tech spending in the U.S. can be broadly categorized into three key segments: hardware, software, and IT services. Each of these areas plays a distinct role in enterprise IT and has its own drivers, challenges, and growth outlook. Historically, the mix of spending has shifted significantly – hardware (devices, infrastructure, etc.) once dominated IT budgets, but over the past decade software and services have taken the lead as organizations prioritize digital solutions and cloud-based operations. The U.S. is the largest tech market in the world and thus mirrors many global trend.

As of 2025, U.S. tech spending (including enterprise and government technology expenditures) is projected to reach approximately $2.2 trillion. This figure includes everything from data center hardware and devices to software licenses, cloud subscriptions, IT consulting, and more. Below is a breakdown of each major segment – hardware, software, and IT services – including their historical context, current drivers of growth, challenges faced, and future opportunities:

4.5.1 Hardware

In the U.S., hardware remains a substantial share of IT spend, but the growth narrative is increasingly tied to enterprise automation and AI-led digital transformation, rather than simple fleet refresh.

Current Drivers & Opportunities: Heading into 2024–2025, the hardware segment is seeing renewed pockets of growth driven by emerging needs:

- **AI-centric compute demand:** Generative AI training, LLM fine-tuning, and real-time inference are now board-level priorities, pushing hyperscalers and Fortune 500 private clouds to lock in multi-year orders for high-density GPUs/ASICs, HBM memory, advanced NICs, and liquid-cooled racks. This AI acceleration wave is also the execution engine for agentic AI and digital workers that orchestrate complex enterprise workflows, making AI-optimized servers, storage, and high-performance networking the single largest pull-through for data-center hardware through 2030.
- **Enterprise automation & RPA infrastructure:** As enterprises scale RPA and digital-worker programs from dozens to thousands of bots, they need resilient compute, storage, and networking to handle orchestration, logs, audit trails, and integration traffic across ERP, CRM, and legacy systems. Large automation estates also demand test, staging, and observability environments, creating incremental demand for servers, backup/DR hardware, and security appliances that support always-on automated operations.
- **Edge-to-core infrastructure refresh for computer vision (CV) and real time analytics:** Low-latency analytics, computer-vision inspection, autonomous material handling, and private 5G/6G roll-outs are driving demand for rugged edge servers, micro data centers, industrial PCs, and upgraded campus/branch networking. Vision-based AI platforms in factories, stores, hospitals, and logistics hubs require cameras, AI accelerators at the edge, and high-bandwidth backhaul to cloud data platforms, opening opportunities in edge hardware, networking, and OT/IT-converged infrastructure.
- **Consulting-led data, integration and digital commerce programs:** Large U.S. programs in data & analytics, integration, and digital commerce, often led by technology consulting firms, translate directly into hardware demand. Modern data platforms, API/iPaaS backbones, and omnichannel commerce engines require scalable compute, storage, and networking across dev, test, and production environments. QA and DevOps practices (CI/CD, performance testing, observability) further expand non-production infrastructure footprints, lifting hardware spend even when workloads run in hybrid or multi-cloud architectures.
- **Semiconductor and manufacturing investments (CHIPS & Science Act + state incentives):** More than $50 billion in federal subsidies, layered on top of generous state tax breaks, underwrite new fabs, advanced-packaging plants, and semiconductor R&D clusters. This not only benefits

equipment vendors but also drives demand for HPC clusters, secure on-prem data centers and specialized control hardware inside fabs creating a durable hardware pipeline through the decade.

- **Sector-specific compute: automotive, public sector and critical infrastructure:** EVs and higher-level ADAS are boosting demand for onboard AI chips, sensor fusion units and high-speed in-vehicle networks, while U.S. assembly expansion localizes parts of this supply chain. Government digital-infrastructure programs (broadband, grid modernization, health IT) continue to fund routers, optical gear, rugged endpoints and medical-grade servers, with "secure and energy-efficient" designs commanding a premium.
- **Government digital-infrastructure programs:** Broadband-equity (BEAD) funds, grid-modernization grants, and VA/DoD health-IT upgrades translate into routers, optical gear, rugged tablets, and medical-grade servers. Vendors that satisfy Buy-American and secure-supply-chain rules unlock sizable public-sector pipelines.

Combined, these drivers keep U.S. IT-hardware revenue on a mid-single-digit CAGR through 2030, with AI accelerators, secure edge servers, and energy-efficient PCs outpacing legacy categories. Energy-efficient and security-certified designs offer premium margins, while supply-chain tightness and macro swings remain watch points.

Key Challenges: Despite the areas of growth, the hardware segment faces several challenges:

- **Persistent supply-chain volatility:** While domestic fabs are ramping, the U.S. hardware stack still relies heavily on overseas substrates, advanced packaging, specialty chemicals, and rare-earth magnets. Any fresh pandemic wave, South-China-Sea tension, or shipping bottleneck can jeopardize component flow, stretching lead times and inflating bills-of-materials just as enterprises plan large AI and PC refreshes.
- **Talent & training bottlenecks:** The semiconductor workforce gap is projected to exceed 60 000 skilled positions by 2030. A shortage of lithography engineers, firmware developers, and precision-tool technicians slows fab startups, constrains board design cycles, and raises labor costs across OEMs and hyperscalers.
- **CapEx squeeze from high interest rates:** Elevated financing costs dampen hyperscaler data-center buildouts and delay mid-market server refreshes. Municipal bond markets face similar pressure, risking slippage in broadband- and smart-grid roll-outs that otherwise drive hardware demand.
- **Energy-grid constraints & permitting delays:** Rapid AI-data-center expansion clusters around a handful of metros, straining local transmission capacity. Lengthy permitting for sub-stations, renewables, and liquid-cooling plants can freeze new rack deployments for 18-24 months, throttling server, switch, and storage orders.
- **Security & IP-theft risks in globalized design chains:** Even "made in America" devices embed firmware and IP blocks sourced worldwide. Supply-chain firmware implants, counterfeit chips, and design-file leaks expose OEMs to costly recalls and regulatory fines, eroding buyer confidence.
- **ESG compliance cost drag:** Scope-3 emissions reporting, e-waste take-back mandates, and looming right-to-repair rules force manufacturers to redesign products for recyclability and traceability. Margin-diluting redesign cycles divert R&D dollars from next-gen performance features.
- **Fragmented AI-accelerator standards:** Competing chip architectures (x86+GPU, ARM+NPU, RISC-V accelerators) and interconnect specs (NVLink, CXL, PCIe Gen 6) fragment software stacks and lock buyers into vendor silos—slowing enterprise decision-making and elongating qualification cycles.
- **Consumer device saturation & budget fatigue:** Household PC, tablet, and smartphone penetration is near ceiling levels; incremental "AI-PC" features may not justify premium pricing for cost-conscious consumers facing inflation, limiting upside for client-device volumes.
- **Regulatory uncertainty on export controls:** Expanding U.S. restrictions on advanced GPU and lithography exports spawn retaliatory trade measures, clouding demand visibility for vendors that rely on multinational scale and shared R&D road maps.

- **Capital-intensive fab overbuild risk:** Subsidy-fueled capacity coming online in 2026-29 could overshoot demand if macro conditions soften, triggering pricing pressure for memory, logic, and power-device suppliers—and cutting into funds for iterative node investments.

Together, these challenges cap U.S. hardware growth to a low single-digit range in down-cycle years and could compress margins even when unit demand is healthy. Successful vendors will derisk supply chains, invest in workforce pipelines, harden security at every tier, and design modular, energy-efficient products that meet tightening ESG and regulatory demands without inflating total cost of ownership.

4.5.2 Software

In today's market, software is the fastest-growing area of IT spending and a primary engine of technology-driven innovation. Beyond general cloud adoption, growth is now anchored in enterprise automation, AI and data-centric platforms, as companies' re-platform operations and move to subscription-based, cloud-native software models.

Current Drivers & Opportunities: The software segment's strong growth in the U.S. is fueled by multiple drivers:

- **Generative and Agentic AI platforms:** Explosive adoption of large-language-model tooling is pushing enterprises to license GenAI platforms, vector databases, and orchestration layers; Budgets are shifting towards copilots, content and code-automation suites, and API-based AI services. Increasingly, agentic AI is used to call enterprise APIs, trigger workflows and orchestrate RPA bots, making AI platforms the "brain" of enterprise automation.
- **Enterprise automation & RPA software:** Enterprises are scaling from tactical RPA to full enterprise automation suites that combine workflow orchestration, process mining, digital workers and integration with ERP/CRM/supply-chain systems. This is driving spend on automation platforms, bot orchestration, rule engines and monitoring tools, as well as test automation and QA software to keep automated processes reliable and compliant.
- **Cloud-native modernization, DevOps & QA:** Lift-and-shift is giving way to refactor/re-platform programs that increase demand for Kubernetes management, service meshes, API gateways, observability and cloud FinOps tools. Mature DevOps and QA practices (CI/CD, test management, performance and security testing) are now mandatory to ship AI-enabled features quickly and safely, further expanding software spend in this stack.
- **RegTech & compliance automation:** ESG reporting, data privacy (e.g., CPRA) and AI-governance rules are fueling demand for policy engines, consent management, continuous controls-monitoring and audit-trail software—turning compliance into an analytics-rich, automation-friendly domain.
- **Data, analytics & real-time decisioning**: Competitive pressure for instant insight is shifting spend from traditional BI to modern data stacks: data fabrics, real-time streaming, in-memory and graph analytics, cataloguing, lineage and governance. These platforms are the foundation for AI/ML, computer vision and agentic AI, and are a major focus of technology consulting and integration services.
- **Low-code / no-code democratization:** Talent shortages and the need for rapid iteration are propelling adoption of visual development platforms that let business users build apps, bots, and data pipelines—expanding the software buyer base beyond IT and embedding subscription spend in line-of-business budgets.
- **Vertical SaaS, digital commerce and computer vision:** Industry-specific clouds for healthcare, manufacturing, public sector and financial services are layering analytics, AI, computer-vision modules and IoT integrations on top of core ERP/CRM. In parallel, digital commerce and CX platforms (for retail, D2C, B2B marketplaces) are driving spend on personalization engines, recommendation systems and journey-orchestration software.
- **Edge software and distributed intelligence:** As AI and computer vision move to the edge, enterprises are adopting edge-management, device-lifecycle, model-deployment and local analytics software to run workloads in factories, stores, hospitals and logistics hubs. These tools connect edge nodes back to cloud data platforms and automation stacks, enabling low latency decisioning and tying edge events into enterprise workflows.

- **Government & CHIPS-plus-Science act funding:** Federal incentives for semiconductor, energy, and defense modernization include sizable software allotments for digital-twin simulations, secure-supply-chain platforms, and AI research infrastructure—injecting public dollars into domestic ISVs and cloud providers.

Together, these forces are set to keep U.S. software outlays on a strong growth path through 2030, with subscription and platform models cushioned by AI- and automation-driven productivity gains that justify expanding software budgets even under flat headcount.

Key Challenges: Despite strong drivers, the software segment faces some challenges and considerations:

- **Macro-economic caution & IT budget compression:** Persistent rate volatility, softening consumer demand, and lingering recession fears keep CFOs in a defensive stance, stretching refresh cycles and forcing "do-more-with-less" mandates that can delay green-field software projects or downsized SaaS seat counts.
- **SaaS sprawl and value-realization fatigue:** After a decade of "there's an app for that," many enterprises run hundreds of subscriptions with overlapping features; CIOs are pivoting to consolidation and license-rationalization, capping net-new ARR for niche ISVs and pressuring vendors to show hard ROI.
- **Skills shortfall & wage inflation:** Generative-AI, cloud-native, and cybersecurity expertise remain scarce; six-figure salaries and high turnover inflate total cost of ownership and slow deployment timelines, eroding the payback narrative for advanced software investments.
- **Regulatory drag & compliance ambiguity:** Emerging rules on AI transparency, data-sovereignty, ESG reporting, and cross-border privacy (CPRA, proposed federal privacy act, EU-U.S. data-transfer friction) create legal uncertainty and raise integration costs, discouraging rapid rollout of new platforms.
- **Security & resilience concerns:** Rising breach volume and the SEC's 4-day incident-disclosure rule increase executive liability; buyers tighten third-party–risk assessments, elongating sales cycles for cloud and AI offerings and elevating the bar for compliance certifications.
- **Compute-cost explosion for AI workloads:** Scarce GPUs, soaring electricity prices, and data-center capacity constraints can make AI-heavy SaaS economics untenable, forcing vendors to raise prices or throttle usage—both potential dampers on broader market expansion.
- **Interoperability & vendor lock-in fears:** Proprietary AI stacks, divergent data-mesh standards, and multi-cloud egress fees complicate portability; enterprises hesitate to commit to platforms that could trap data or models, slowing deal closure and favoring incremental over transformative buys.
- **Open-source commoditization & pricing pressure:** Mature OSS alternatives (Linux Foundation AI, OpenTelemetry, PostgreSQL forks) undercut commercial licenses; vendors must differentiate on value-added services, squeezing gross margins and limiting headroom for aggressive growth targets.
- **Capital-market retrenchment:** Post-pandemic valuation resets and tighter venture funding mean fewer moon-shot bets and slower scale-ups for emerging software players, reducing the pipeline of disruptive entrants that typically energize demand.
- **Sustainability scrutiny:** Data-center carbon footprints are drawing regulatory and investor attention; software projects lacking a clear energy-efficiency story may face stakeholder push-back, particularly in ESG-committed enterprises and government bids.

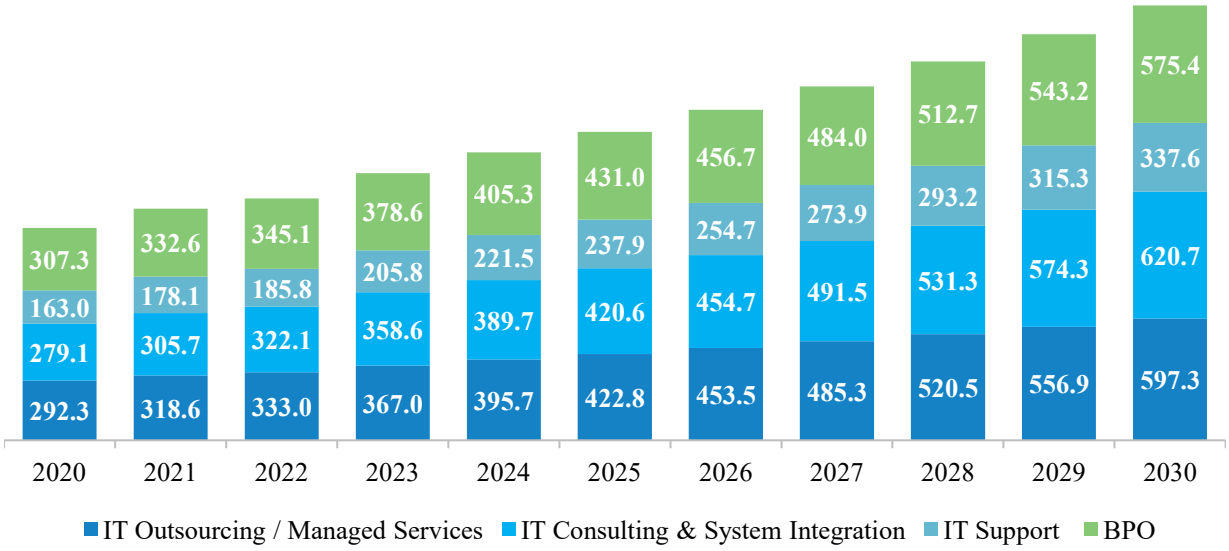
These factors combine to create a more disciplined, risk-averse buying climate through 2030. Growth will still occur, but vendors must pivot from "land-grab" to "land-and-expand with verified value," emphasize interoperability, and embed security-and-compliance by design to overcome procurement hurdles and muted budget elasticity.

4.6 Global IT Services Industry Overview

The global IT services industry has experienced robust growth from 2020 to 2025 and is poised for continued expansion through 2030. IT services encompass a broad range of activities from technology consulting and systems integration to outsourcing, technical support, and business process outsourcing

(BPO). Globally, IT services form a significant category of enterprise tech spending, reflecting organizations' heavy reliance on external IT expertise and managed solutions. In fact, the global IT services spending reached about US$1.412 trillion in 2024 and is estimated to reach US$ 2.131 trillion by 2030, making it one of the biggest segments of worldwide IT expenditures. This surge was driven by enterprises upgrading infrastructure and adapting to new operational demands, notably accelerated digital transformation efforts and cloud adoption in the wake of the COVID-19 pandemic. Post 2020, many organizations fast-tracked projects like cloud migrations, digital platforms, and remote work enablement, boosting demand for IT consulting, integration, and support services. At the same time, economic uncertainties and post-pandemic budget pressures led companies to prioritize IT investments that improve efficiency and optimize operations. IT service providers have been central to these efficiency and modernization initiatives, helping enterprises navigate challenges from legacy system upgrades to new cybersecurity threats.

Exhibit 22: Global IT Services Market (USD Bn) - CY2020 – 2030F



Source: Frost & Sullivan analysis

Looking forward to 2025–2030, as per Frost & Sullivan estimates, the IT services market is expected to reach US$ 2,131 billion growing at a CAGR of 7.1% in the same period.

Key trends powering this growth include the mainstreaming of cloud and "as-a-service" models, rising adoption of AI and automation, and an ongoing enterprise focus on digital transformation. For the worldwide IT spend, a significant portion will be driven by investments in software, cloud infrastructure, and AI-enabled services. Generative AI in particular is emerging as a catalyst for IT spend prompting hardware upgrades and new AI-based services – though its impact will be gradual and mainly seen in the latter half of the decade. Crucially, IT services firms and cloud "hyperscalers" (large cloud providers) are expected to grow stronger, underscoring how services (from consulting to managed cloud offerings) dominate the tech landscape. Enterprises are increasingly not just buying products but partnering with service providers to achieve outcomes, whether optimizing business processes, migrating to hybrid cloud architectures, or leveraging advanced analytics.

4.6.1 Market Drivers

Several drivers underpin the global IT services boom:

Exhibit 23: Market Drivers for Global IT Service

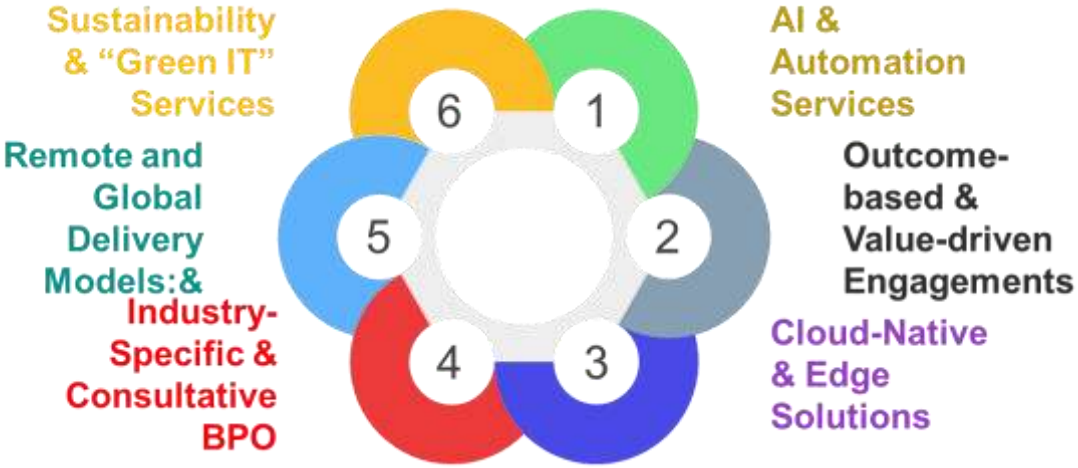
Source: Frost & Sullivan, Secondary Sources

- **Digital Transformation Imperative:** Across industries, organizations see technology modernization as essential for competitiveness. Enterprises worldwide have been pursuing digital transformation initiatives by mid-decade, from modernizing legacy systems to deploying data analytics and AI solutions. This has in turn fuelled demand for IT consulting and integration services as companies seek external expertise to implement cloud, AI, and data-driven projects.
- **Emerging technologies:** Emerging technologies like blockchain, IoT, and edge computing—etc. are transforming how organizations design, deploy, and manage digital solutions. These technologies are accelerating demand for IT services in consulting, systems integration, managed services, cybersecurity, and cloud-edge infrastructure. As enterprises and governments invest heavily in digital transformation, IT service providers are expanding capabilities to deliver end-to-end solutions that integrate these innovations, fueling sustained market growth and redefining global technology competitiveness.
- **Cloud Adoption at Scale:** The 2020s have seen a massive shift to cloud infrastructure and software-as-a-service. Enterprises globally have increasingly migrated workloads to cloud platforms (public, private, or hybrid), aiming for greater agility and cost efficiency. Multi-cloud and hybrid cloud strategies are now common, creating demand for integrators to stitch together on-premise and cloud systems. Cloud adoption drives needs for cloud consulting, cloud management (a core managed service), and cloud-enabled support. IT infrastructure and application services tied to cloud are a major growth area in IT services.
- **Need for Cost Efficiency and Focus on Core Business:** Especially during economic uncertainties (e.g. pandemic disruptions, inflationary periods), companies have leaned on outsourcing and managed services to control costs and improve focus. Cost optimization has traditionally been a top reason to outsource IT work in 2020. Post-2020, while cost is still important, businesses also seek more value-added benefits (like access to skilled talent and improved service quality) from providers. Nonetheless, the fundamental motivation to "do more with less" remains, sustaining demand for IT services that can increase operational efficiency.
- **Workforce and Skill Gaps:** The rapid pace of tech innovation has led to shortages of in-house skills in areas like cloud architecture, AI/ML, cybersecurity, and data science. This lack of internal talent drives organizations to partner with external providers for emerging technologies. For instance, companies that lack AI or cloud experts will hire consulting firms or managed service providers to fill those gaps. Globally, many IT service providers are experiencing a talent shortage in specialized skills (AI, DevOps, security, etc.) and see that as a major challenge. Thus, accessing skilled human capital is a critical driver for the IT services outsourcing market.

- **Focus on Core Competencies:** Beyond technical skills, companies increasingly outsource non-core IT functions (infrastructure management, helpdesks, routine back-office processes) so they can concentrate on strategic, core business activities. This trend has bolstered BPO and managed IT services, where specialist vendors run supporting operations more effectively.
- **Post-Pandemic IT Support Needs:** The COVID-19 era (2020–2022) forced a sudden shift to remote work and digital customer engagement, straining IT support models. Organizations had to rapidly deploy remote collaboration tools and provide support for distributed workforces. This spurred demand for cloud-based IT support services and external support partners. In fact, remote work models worldwide increase in use of cloud-based collaboration and IT support services. The pandemic essentially elevated IT services from a back-office role to a frontline enabler of business continuity.

Opportunities and Emerging Trends: Alongside these drivers, new opportunities are shaping the future of IT services:

Exhibit 24: Opportunities & Emerging Trends for Global IT Services



Source: Frost & Sullivan, Secondary Sources

- **AI and Automation Services:** The integration of artificial intelligence is a game-changer for IT services. Enterprises are increasing investments in AI-driven automation to improve accuracy and efficiency. Service providers are embedding AI into operations – e.g. AI for network monitoring (AIOps), AI chatbots for support, and AI analytics in consulting. Generative AI is a particularly hot area. As AI adoption grows, IT services firms are offering AI advisory, implementation, and managed AI services, making this a key growth opportunity into 2030. Automation is also reshaping outsourcing – routine tasks in support and BPO are increasingly handled by RPA (robotic process automation) and intelligent bots, allowing service vendors to deliver faster and cheaper service.
- **Outcome-based and Value-driven Engagements:** Clients are expecting more than cost savings – they seek **business outcomes** and agility from IT partners. This is shifting service contracts toward outcome-based models (where payment is tied to results achieved) and flexible "as-a-service" arrangements. For example, in consulting, instead of lengthy fixed projects, some firms now offer "consulting as a service" subscriptions to provide on-demand expertise in a fast-changing environment. In outsourcing, there is a noted trend that companies now emphasize talent quality, innovation, and fast delivery from providers almost as much as cost control. This is an opportunity for service firms to differentiate via higher-value offerings (innovation labs, co-creation with clients, continuous improvement commitments, etc.).
- **Cloud-Native and Edge Solutions:** As cloud adoption matures, the next opportunity is managing complex hybrid multi-cloud environments and pushing computing to the edge. IT service providers are capitalizing by offering cloud optimization services, cloud integration, and edge computing solutions (e.g. managing IoT devices and edge data centers). The proliferation of cloud services also means enterprises need guidance on architecture, governance, and cost management fueling

ongoing consulting engagements and managed cloud services. Cloud and edge are thus key growth areas through 2030.

- **Industry-Specific and Consultative BPO:** In BPO, providers are moving up the value chain to offer knowledge process outsourcing (KPO) and industry-specialized services. Rather than just generic back-office work, BPO firms now provide domain-specific expertise, for example, in healthcare BPO handling medical coding with high accuracy, or in finance BPO providing risk analytics support. The evolution to KPO is enabled by technology (AI can handle data-heavy tasks) and by clients' willingness to outsource more complex functions to trusted partners. This is seen as a major opportunity, as BPO moves from just cost play to a value play.
- **Remote and Global Delivery Models:** The acceptance of remote work has expanded the talent pool and delivery models for IT services. Providers can now tap experts globally without relocating them, and clients are more comfortable with virtual project delivery. This trend benefits offshore and nearshore outsourcing destinations. Countries like India, Poland, the Philippines, Mexico, and others with strong IT talent continue to see high demand as service delivery hubs. Service firms are seizing this opportunity by building distributed teams and follow-the-sun support models, offering 24/7 services and resilience. The flip side is increased competition and the need for collaboration tools – which themselves drive IT consulting on remote work solutions.

The global IT services landscape has been marked by accelerating digital initiatives, a push for cloud and efficiency, and greater reliance on external experts amid rapid tech change. From 2025 onward, emerging technologies (AI, automation, edge) and evolving client demands (value-driven partnerships, industry-specific solutions) are set to shape the market.

4.6.2 Global IT Consulting & System Integration

IT Consulting & Systems Integration refers to project-based technology services, experts advising organizations on IT strategy and implementing complex systems or software solutions. This segment includes activities like technology consulting, solution architecture, software development and integration, enterprise system implementation (ERP, CRM, etc.), and IT project management. Essentially, when a business undertakes a digital transformation initiative – be it adopting a new cloud platform, integrating data across systems, or rolling out an AI solution, they often engage IT consulting and integration partners to plan and execute the project. Post 2020, this segment grew steadily as companies invested in modernizing their IT for competitiveness. Enterprises worldwide have been prioritizing such project-oriented services and have had active digital modernization programs, leading to a surge in consulting demand as clients sought guidance on cloud, analytics, and emerging tech adoption. Even amid the pandemic, consulting firms stayed busy helping firms go digital quickly (for example, deploying e-commerce and remote working solutions in 2020–21). However, some traditional large-scale integration projects were delayed in early 2020 due to uncertainty, only to rebound strongly by 2022 once the strategic need became evident. By 2024, IT consulting was in high demand for cloud migration strategies, cybersecurity enhancements, and data analytics implementations, among other priorities.

The global IT Consulting and system integration market was valued at US$ 279 billion in 2020 and grew to reach an estimated US$ 390 billion by 2024. Looking forward to 2025–2030, as per Frost & Sullivan estimates, global IT Consulting and system integration market is expected to reach US$ 621 billion growing at a CAGR of 8.1% in the same period.

4.6.3 Global IT Outsourcing / Managed Services

IT Outsourcing / Managed Services covers the ongoing operational management of IT assets and processes by third-party service providers. This includes infrastructure outsourcing (managing data centers, networks, end-user devices), application management (maintaining and supporting software applications), cloud managed services (operating cloud environments for clients), outsourced IT service desks, and overall Managed IT Services where a provider takes responsibility for delivering a defined set of IT services under a contract (often with SLAs). In essence, rather than handling all IT in-house, companies contract external providers to run

certain IT functions continuously. Post 2020, this segment grew as companies sought efficiency, reliability, and scalability in IT operations. Notably, 2020 saw a short-term disruption in some outsourcing (e.g. BPO call centers had to adapt to work-from-home), but overall the pandemic reinforced the value of managed services: companies pivoted to remote operations with the help of outsourcers (for VPN management, cloud support, etc.), and many who needed to cut costs accelerated outsourcing non-core IT tasks.

Organizations continue to offload routine IT activities (like infrastructure upkeep, basic support, software maintenance) to specialized providers, freeing up internal teams for strategic work. Moreover, the rise of cloud computing changed the nature of outsourcing – instead of traditional legacy IT outsourcing alone, providers began offering cloud-managed services, DevOps as a service, security as a service, etc., catering to modern IT environments. The period also saw large deals in outsourcing, including more "managed services" contracts where vendors deliver outcomes (performance, uptime, etc.) for a fixed monthly fee.

The global IT outsourcing market was valued at US$ 292 billion in 2020 and grew to reach an estimated US$ 396 billion by 2024. Looking forward to 2025–2030, as per Frost & Sullivan estimates, global IT outsourcing market is expected to reach US$ 597 billion growing at a CAGR of 7.2% in the same period.

4.6.4 Global IT Support Services

IT Support Services refers to technical support and maintenance for IT systems – ensuring that end-users and enterprises can use technology smoothly. This includes help desks/service desks that handle user issues, technical support for software and hardware, IT infrastructure support (troubleshooting networks, servers), and maintenance services like system patching and upgrades. It can also extend to training and user education as part of support. Often, IT support is delivered via multi-tier service teams (Level 1 basic help, up to Level 3 expert engineering support). In the industry segmentation, support services sometimes overlap with outsourcing (many companies outsource their helpdesks or hardware maintenance) but it's considered its own segment due to its specialized role of issue resolution and system upkeep.

Post 2020, IT support services had to adapt rapidly to new demands. The pandemic forced a dramatic shift: millions of employees moved to home offices and needed remote IT support for connectivity, devices, and new collaboration software. Support teams rolled out new protocols for remote troubleshooting and massively scaled use of VPNs and video conferencing support. This period also saw a spike in support for cloud-based apps as businesses adopted tools like Zoom, Teams, cloud ERP etc., and needed users to be onboarded and supported remotely. Many organizations turned to external IT support providers or augmented their helpdesks via managed service contracts to handle the surge in tickets from remote workers. By 2022–2023, support volumes stabilized, but expectations had increased – users now demand faster, 24/7 support and often multi-channel assistance (phone, chat, self-service, etc.).

From a market perspective, a significant portion of IT services revenue comes from support and maintenance. Companies worldwide outsource some aspect of customer support or IT helpdesk functions, highlighting that support is frequently entrusted to service vendors. Many hardware / software vendors also provide support services. Overall, the support segment grew in absolute terms, but providers also faced pressure to improve efficiency – leading to widespread introduction of AI and automation in support workflows.

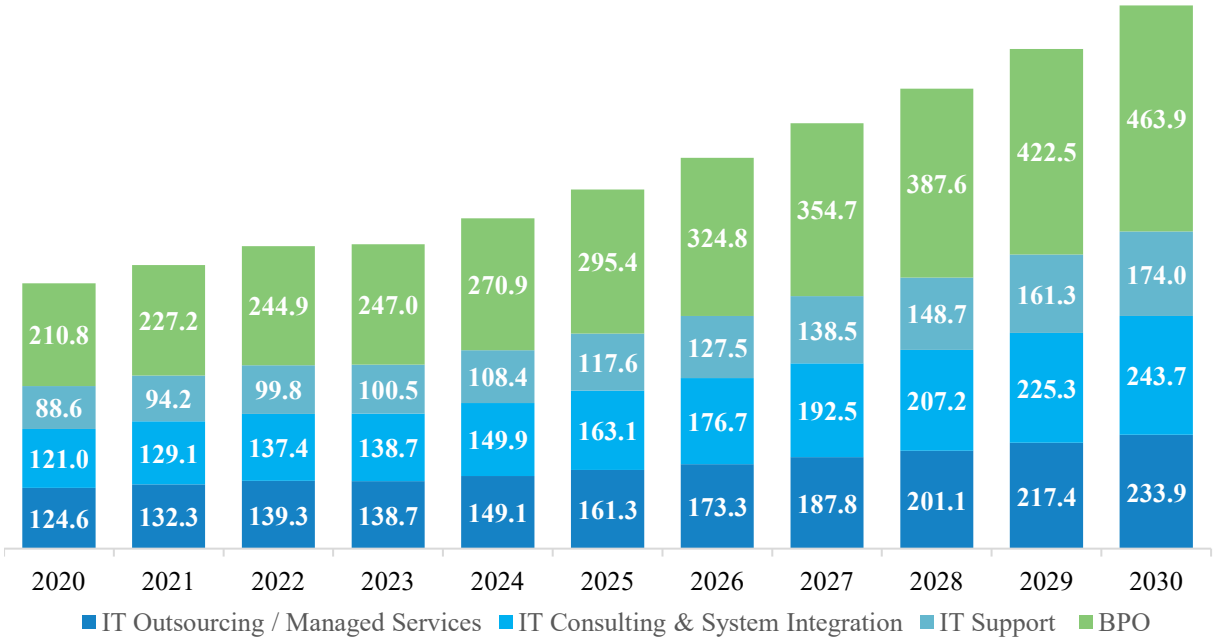
The global IT support services market was valued at US$ 163 billion in 2020 and grew to reach an estimated US$ 222 billion by 2024. Looking forward to 2025–2030, as per Frost & Sullivan estimates, global IT outsourcing market is expected to reach US$ 338 billion growing at a CAGR of 7.3% in the same period.

4.6.5 U.S. IT Services Industry

The United States is the largest and most mature market for IT services globally, accounting for a substantial share of worldwide IT spending and services demand. Through 2020–2025, the U.S. market has mirrored global trends (cloud adoption, digital transformation, etc.) but often leads in early adoption of new technologies and models. The U.S. economy's scale, combined with its tech-savvy enterprises, make it a bellwether for the IT services industry. U.S. corporations are among the biggest consumers of IT consulting, outsourcing, support, and BPO services.

2020–2025 Overview: The U.S. IT services market saw robust growth during this period, though not without challenges. Early in 2020, the pandemic caused some project delays and IT budget caution. But it quickly became clear that digital tech was critical for resilience, leading to surging demand for services in cloud migration, remote work enablement, e-commerce, and cybersecurity. U.S. enterprises accelerated their digital roadmaps – for example, retailers invested heavily in online channels and supply chain digitization, healthcare providers stood up telehealth and patient portals, banks enhanced online banking and data analytics for risk. All these initiatives required consulting and integration assistance, as well as ongoing managed services.

Exhibit 25: USA IT Services Market (USD Bn) - CY2020 – 2030F



Source: Frost & Sullivan analysis

The US IT Services market was valued at US$ 545 billion in 2020 and grew to reach an estimated US$ 678 billion by 2024. Looking forward to 2025–2030, as per Frost & Sullivan estimates, US IT services market is expected to reach US$ 1,115 billion growing at a CAGR of 8.6% in the same period.

IT spending in the U.S. rebounded strongly by 2021–2022 and has continued to rise. Key drivers in the U.S. included an imperative to modernize aging tech infrastructure (some large enterprises and government agencies run decades-old systems), fierce competition pushing customer-facing innovation, and a heightened cybersecurity threat environment prompting security service investments. Moreover, emerging technologies like blockchain, IoT, and edge computing were also instrumental in driving this growth, powering innovation in finance, manufacturing, healthcare, and logistics. Their ability to enhance efficiency, security, and real-time decision-making is prompting significant investments across public and private sectors. Moreover, U.S. firms have abundant access to capital, especially with interest rate cuts in early 2020s, which helped fund technology initiatives.

A notable feature of the U.S. market is that enterprises here often engage multiple service providers, including the top global firms and niche specialists. The presence of the headquarters of many service

giants (Accenture, IBM, Deloitte, etc.) and a vibrant ecosystem of tech startups/consultancies means U.S. clients have many choices. U.S. companies also pioneered the use of hybrid sourcing, blending in-house IT, onshore contractors, nearshore teams (e.g. in Canada or Mexico), and offshore outsourcing to India, Philippines, etc. By 2025, this model has become standard, with many large U.S. firms maintaining significant offshore captive centers or vendor relationships for cost efficiency.

4.6.6 U.S. Enterprise Priorities: American organizations in this timeframe prioritized:

Exhibit 26: U.S. Enterprise Priorities

Source: Frost & Sullivan, Secondary Sources

U.S. enterprises prioritized cloud and data-driven transformation, leading with multi-cloud, hybrid strategies, and automation, especially in finance and tech. Spending on emerging technologies accelerated digital transformation and efficiency, while cybersecurity and compliance gained urgency after high-profile breaches and stricter regulations in finance, healthcare, and critical infrastructure. Customer experience investments drove demand for digital platforms, personalization, and omnichannel commerce in retail and media. Simultaneously, IT cost optimization remained central, with outsourcing, managed services, and cloud subscriptions helping firms balance innovation with efficiency. Together, these priorities reinforced U.S. enterprises' global leadership in secure, data-driven, and customer-centric digital growth.

Forward-Looking (2025–2030): The U.S. IT services market is expected to maintain strong growth into 2030, propelled by ongoing digitalization across both private and public sectors:

Federal and State governments in the U.S. are ramping up modernization (some using big funding packages allocated for IT), which will open many opportunities for IT contractors and consultants (with focus on cloud, cybersecurity, citizen digital services).

U.S. industries like automotive (with the electric and autonomous vehicle push), manufacturing (Industry 4.0 and IoT adoption), and energy (grid modernization) will increasingly need IT integration and managed services – these represent growth verticals.

The talent shortage in IT is especially acute in the U.S. given low unemployment in tech fields; this will likely cause even more reliance on outsourcing and staff augmentation from abroad. We might see U.S. companies expanding their own captive centers in places like India or engaging larger outsourced development teams, not just for cost but because they can't hire enough skilled workers locally. For instance, there's huge demand for AI/ML engineers and cloud specialists in the U.S., and providers are bridging that gap.

Geopolitical and supply chain considerations could influence sourcing: while cost pressures still favor offshoring, there's also a push in some quarters to create U.S.-based IT jobs (for resilience and political support). The balance between offshoring vs onshore/nearshore delivery in U.S. outsourcing will be interesting to watch – already nearshoring to Latin America is on the rise, benefiting from geographic and cultural proximity.

In terms of spend areas, U.S. companies are expected to heavily invest in advanced analytics, AI solutions (including generative AI enterprise applications), cybersecurity (zero-trust architectures, etc.), and modernization of legacy core systems (especially in banking, government, healthcare where many older systems still run). Each of these areas requires significant consulting and integration work.

Sustainability and ESG are becoming important in the U.S. corporate agenda; IT services related to carbon tracking, efficient IT operations (Green IT), and ESG data management may see increased demand from U.S. clients as they work toward climate goals and reporting requirements.

Overall, the U.S. will continue to set the pace for the global IT services sector in many ways. It's often the first to adopt new tech, and service providers frequently pilot new offerings with U.S. clients (who have the budget and appetite for innovation). The expectation is the U.S. IT services market will remain highly competitive and dynamic, with a focus on delivering tangible business outcomes and innovation to clients.

4.7 US IT Consulting & System Integration Market

The U.S. IT consulting and systems integration market is arguably the most developed in the world. American companies are frequently early adopters of new technologies, and they rely heavily on consulting partners for strategy and implementation. The 2020–2025 period saw U.S. enterprises engaging consulting firms for a wide range of transformative projects: migrating core business applications to cloud (e.g., many U.S. banks moving systems to AWS/Azure with consulting help), implementing advanced analytics and AI (retailers using consultants to stand up AI-driven supply chain systems), and modernizing customer-facing systems (telecom and media companies overhauling their digital products). U.S. businesses also undertook large-scale ERP upgrades (such as transitions to SAP S/4HANA or Oracle Cloud ERP), which created plenty of SI work.

The US IT Consulting and system integration market was valued at US$ 121 billion in 2020 and grew to reach an estimated US$ 150 billion by 2024. Looking forward to 2025–2030, as per Frost & Sullivan estimates, US IT Consulting and system integration market is expected to reach US$ 244 billion growing at a CAGR of 8.4% in the same period.

4.8 US IT Outsourcing / Managed Services

The United States has one of the most extensive markets for IT outsourcing / managed services, characterized by both a high adoption rate and a diverse set of delivery models. American companies have been outsourcing IT functions for decades, from the early era of mainframe facilities management to the large offshore application development deals of the 2000s and now to cloud-managed services. In 2020–2025, U.S. organizations continued to outsource heavily, but the nature of outsourcing evolved. Traditional outsourcing (like long-term contracts to run data centers or handle IT support) continued in many legacy-heavy firms, while newer managed services (like managing AWS environments, SaaS operations, cybersecurity monitoring) surged.

A noteworthy trend in the U.S. has been multi-sourcing – instead of awarding all IT outsourcing to one big vendor, companies now often use multiple specialized providers. For example, a U.S. firm might use one provider for infrastructure management, another for applications, and a niche security firm as MSSP. This creates a competitive, segmented landscape. It also demands more vendor management skills on the client side.

The US IT outsourcing market was valued at US$ 125 billion in 2020 and grew to reach an estimated US$ 149 billion by 2024. Looking forward to 2025–2030, as per Frost & Sullivan estimates, US IT outsourcing market is expected to reach US$ 234 billion growing at a CAGR of 7.7% in the same period.

4.9 US IT Support Services

IT support services in the United States encompass a broad range of activities to assist both end-users and IT systems. The U.S. being a highly digitized economy, the scale of support required is enormous – millions of employees, customers, and citizens needing technical help daily. U.S. companies generally

aim for high-quality support to ensure productivity and customer satisfaction, and many invest significantly in support infrastructure or outsource to capable providers.

Corporate IT Support: Most medium to large U.S. enterprises maintain an IT helpdesk for their employees. However, the operation of these helpdesks is often outsourced or co-sourced. For example, a common model is a U.S.-based Level 2/3 team (for complex issues and leadership) with a Level 1 helpdesk outsourced to a call center either domestically or offshore. Many U.S. firms outsource night and weekend support coverage to offshore teams to provide 24/7 service. It's reported that a majority of U.S. enterprises (especially 24x7 operations like global firms) have some portion of IT support handled externally.

Consumer Tech Support: The U.S. also has a significant consumer tech support segment – for instance, telecom companies providing tech support to their customers or PC manufacturers offering support plans. These are often delivered from large contact centers (onshore or offshore). Companies like Apple, for example, have both in-house (AppleCare) and outsourced support for their customers. ISPs and cable companies in the U.S. often contract third-party support firms for tier-1 customer technical support.

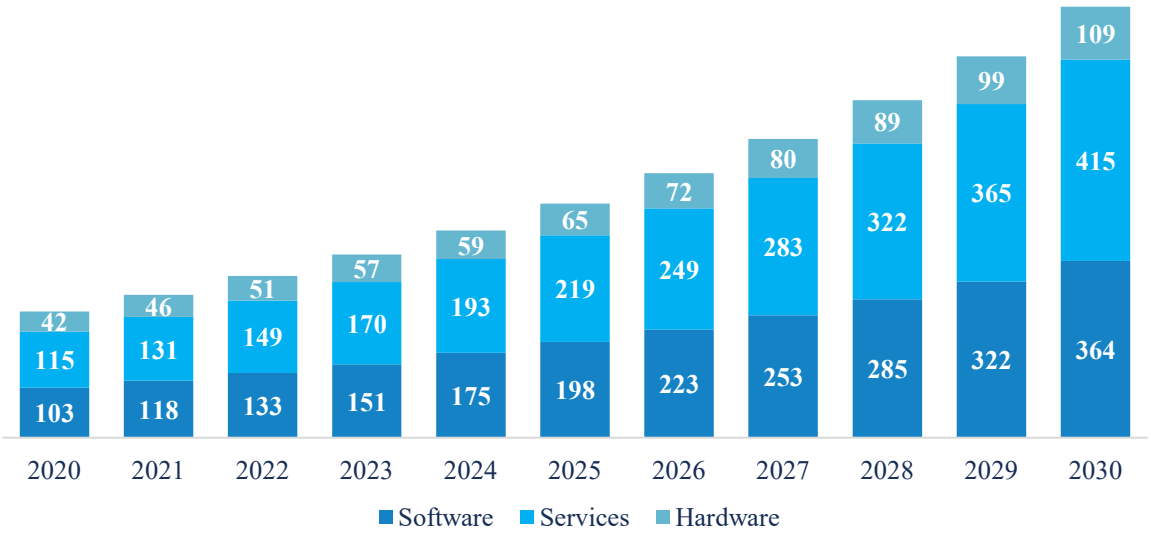
During 2020–2025, U.S. support services underwent big changes:

- The mass shift to remote work in 2020 meant corporate IT support had to assist users at home. VPN issues, home Wi-Fi, personal device usage – support teams dealt with these new challenges. Many U.S. companies quickly rolled out remote support tools (like remote desktop control, collaboration troubleshooting guides) and expanded support hours.
- Surge in customer support volume in sectors like e-commerce, online banking, telehealth, etc., put pressure on customer support operations. Many B2C companies had to scale up their support contact centers in 2020–21 to handle new digital customers. This often meant bringing on BPO support partners or accelerating AI chatbot deployment to handle frontline queries.
- AI and Self-Service in U.S.: U.S. consumers are generally open to self-service if it's effective. Companies responded by beefing up online knowledge bases, community forums, and AI-driven FAQs. For internal IT support, many U.S. firms introduced AI virtual assistants in their ITSM (IT Service Management) platforms (like chatbots employees can ask for help with password resets or software install instructions).
- Emphasis on Experience: American companies track metrics like CSAT (customer satisfaction) and employee satisfaction with IT support closely. Tech support is seen as part of overall employee experience. Thus, support services in the U.S. put focus on soft skills, quick resolution, and not just technical closure of tickets. The "shift-left" strategy (solving issues at the lowest possible tier quickly) was widely implemented, meaning more empowerment and knowledge at tier-1 support.

The US IT support services market was valued at US$ 89 billion in 2020 and grew to reach an estimated US$ 108 billion by 2024. Looking forward to 2025–2030, as per Frost & Sullivan estimates, US IT outsourcing market is expected to reach US$ 174 billion growing at a CAGR of 8.2% in the same period.

5. Data and Analytics Market: Global and USA Market Overview

Exhibit 27: Global Data & Analytics Market, Split by Segments (in USD billion), 2020 - 2030



Source: Frost & Sullivan, Secondary Sources

The global data and analytics market is experiencing explosive growth. As per Frost & Sullivan estimates the market expanding from about $260 billion in 2020 to $427 billion in 2024. The market is expected to growth to $889 billion by 2030.

In tandem with software demand, **analytics consulting and managed services** are booming. Organizations often lack the in-house data-science expertise to exploit big data, so they hire consultancies and system integrators. The services component of data and analytics market is the dominant segment with a market size of $219 billion in 2025 and growing at a CAGR of 13.6% until 2030 to reach an estimated $415 billion. Key drivers include the explosion of data (today ~2.5 quintillion bytes created daily) and the shift to cloud-based analytics platforms. Industry groups like the World Economic Forum emphasize that data-driven decision-making is now critical for efficiency and customer personalization. Meanwhile, regulations like GDPR and CCPA force firms to invest in data governance and secure analytics pipelines, driving demand for expert consulting.

Alongside traditional BI and reporting, enterprises are now prioritizing automation of data pipelines, decisions, and workflows. For example, auto-scaling ingestion, rule-based data quality checks, and automated insight-to-action loops in CRM, ERP, and operations. Providers like Intellius Recode that combine data engineering, analytics, and AI-led automation are well-positioned to turn raw data into self-updating KPIs, alerts, and agent-triggered actions.

5.1 Key trends and drivers:

Exhibit 28: Data & Analytics Market – Key Trends & Drivers

Source: Frost & Sullivan Analysis

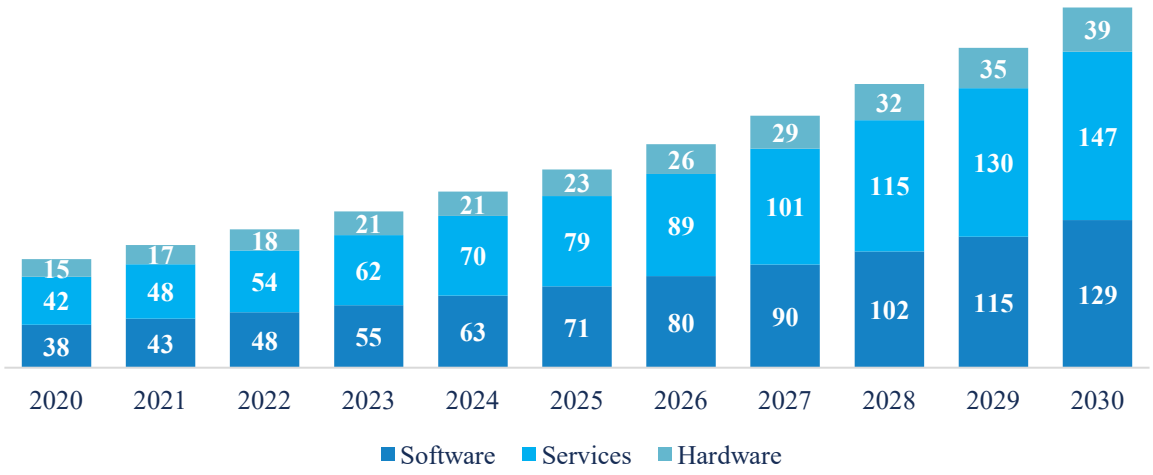
- **AI/ML-driven analytics:** Companies are embedding artificial intelligence into analytics platforms (so-called augmented analytics), speeding up predictive modelling and insight generation. Augmented analytics is embedding machine learning into platforms to accelerate forecasting, anomaly detection, and natural-language querying. This is evolving into closed-loop decision automation, where models not only generate insights but also trigger workflows (e.g., repricing, routing tickets, adjusting production plans) through orchestration engines or agentic digital workers. Analysts estimate AI could add up to $13 trillion to the global economy by 2030, motivating businesses to adopt ML-driven analytics (e.g. automated anomaly detection, natural-language data querying).
- **Real-time and edge analytics:** The rise of IoT devices and 5G connectivity is driving demand for instant analytics. Real-time (streaming) analytics is forecast as a fastest-growing segment. Firms are deploying edge computing and streaming platforms (e.g. Apache Kafka, AWS Kinesis, ClickHouse) to process data in motion. For example, AWS now collaborates with ClickHouse to optimize high-throughput analytics.
- **Cloud and modern data platforms:** There is a strong shift to cloud data warehouses and "lakehouse" architectures (Snowflake, Databricks, Google BigQuery, etc.). This transition (often offered as cloud-based analytics services) makes scalability easier but drives demand for migration and integration services. Companies need help designing hybrid-cloud data architectures that support analytics at scale.
- **Data democratization and self-service:** BI and visualization tools are becoming more user-friendly, enabling non-experts to analyze data. This democratization boosts overall analytics use but also increases demand for governance frameworks and training, fueling services around data literacy and change management.
- **Data governance and security:** With global regulations like GDPR and CCPA, firms must implement strict data governance in analytics. Consulting on "privacy-by-design" architectures and security is a growing niche. Analytics platforms are also embedding governance features to meet compliance demands.
- **Industry-specific solutions:** Vendors and consultancies are creating tailored analytics solutions for verticals. Examples include predictive patient-care analytics in healthcare, AI-driven marketing analytics in retail, and risk-analysis in finance. This focus on industry use cases accelerates adoption by leveraging domain expertise.

These trends open many avenues for growth. Analytics product vendors can expand by adding AI/ML features and offering flexible deployment (on-premises, cloud, hybrid). Consulting firms can capture new business by providing end-to-end analytics services: from data strategy and platform deployment to analytics model development and management. In particular, as cloud adoption rises globally,

demand is surging for cloud migration, data integration, and DevOps-for-analytics services. Emerging markets (e.g. India, Southeast Asia, Latin America) also represent large new customer bases as they invest in analytics.

5.2 U.S. Market Overview

Exhibit 29: US Data & Analytics Market, Split by Segments (in USD billion), 2020 - 2030



Source: Frost & Sullivan Analysis

The U.S. data and analytics market is also experiencing robust growth. As per Frost & Sullivan estimates the market expanding from about $95 billion in 2020 to $154 billion in 2024. The market is expected to growth to $316 billion by 2030 growing at a CAGR of 12.7% in the 2025-2030 period.

The services component of data and analytics market is the dominant segment in the U.S. as well with a market size of $69.7 billion in 2024 and growing at a CAGR of 13.3% from 2025 until 2030 to reach an estimated $147.3 billion by 2030.

The United States is the largest individual market for data and analytics. North America as a whole accounts for roughly ~40% of the global data and analytics market, with the U.S. making up the lion's share.

Key trends and drivers::

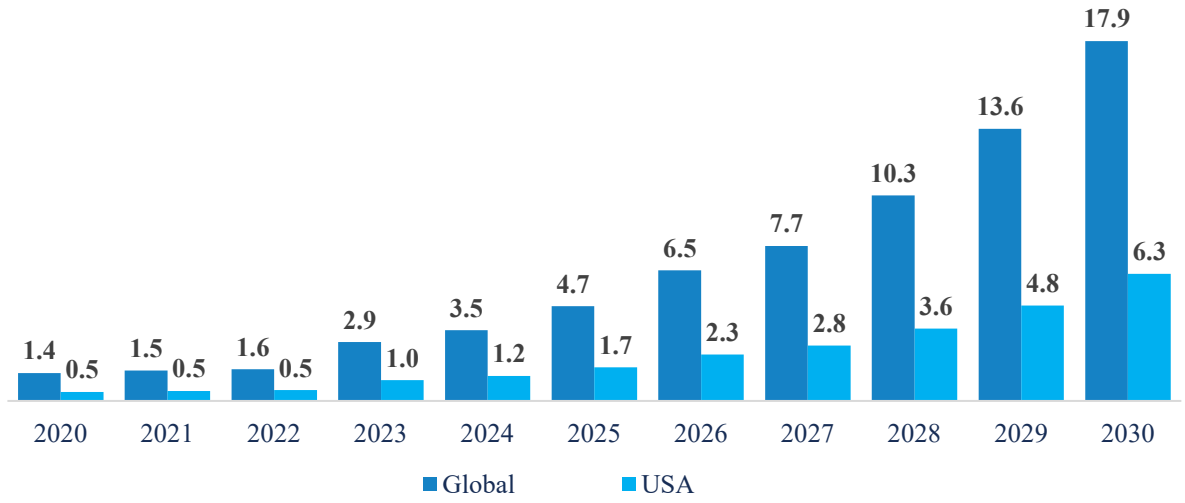
- **Technology leadership:** Major cloud and analytics vendors and many analytics startups are U.S.-based. This ecosystem means new data tools and AI capabilities are often developed and adopted first in the U.S., spurring local demand.
- **High enterprise demand:** Large U.S. corporations (finance, retail, healthcare, tech, etc.) are aggressive analytics users. For example, banks apply AI for fraud detection and risk modeling, retailers use predictive analytics for inventory and personalization, and healthcare systems analyze patient data for better outcomes. U.S. growth is driven by the increasing adoption of big data solutions across various sectors with AI/ML further accelerating this trend.
- **Advanced cloud adoption:** U.S. companies have broadly embraced cloud-based analytics. The market for Data-as-a-Service (cloud analytics platforms) is growing rapidly. Over 50% of Americans will be covered by 5G by 2025, enabling more IoT data and real-time analytics (e.g. smart grids, autonomous vehicles, industrial IoT). This combination of cloud and high-speed networks fuels advanced analytics projects.
- **Robust consulting ecosystem:** The U.S. has a mature analytics services sector. Major consulting firms offer end-to-end analytics services. U.S. digital transformation consulting (which overlaps analytics) is projected to nearly double by 2030.
- **Regulation and security:** U.S. data privacy is governed by a patchwork of state and sector laws (e.g. California's CCPA, HIPAA, financial regulations). This drives demand for compliant

analytics solutions. Cybersecurity is also a priority, so analytics for threat detection and risk management are growing fields. Government and defense use of analytics (for public health, transportation, national security, etc.) further expands the market.

U.S. trends largely mirror global ones. Companies prioritize *data-driven decision-making* and allocate significant budgets to AI and analytics. Big data adoption and AI/ML are key growth drivers in the U.S. market. Many U.S. firms are also early adopters of next-generation analytics (e.g. automated ML platforms, natural-language querying). Spending on analytics tools and services remains a strategic focus for U.S. businesses.The U.S. market offers robust opportunities for analytics services. Firms that specialize in cloud analytics migrations, AI/ML model development, and data platform engineering are in high demand. SMBs are increasingly adopting cloud analytics tools, expanding the potential client base. Additionally, emphasis on secure, explainable AI creates demand for consulting in AI governance. Public-sector and defense investments (e.g. in smart infrastructure and security) also expand consulting opportunities for data and analytics services.

6. Enterprise Robotic Process Automation: Global and USA Market Overview

Exhibit 30: Global & USA Enterprise Robotic Process Automation (RPA) Market (in USD billion), 2020 – 2030



Source: Frost & Sullivan Analysis

Global Enterprise RPA market size is projected to grow exponentially from 2025 to 2030. The market was about US$ 4.7 billion in 2025 and is expected to reach US$ 17.9 billion by 2030 reflecting a strong CAGR of 31% in the 2025-2030 period, driven by widespread adoption across industries.

The global Enterprise Robotic Process Automation (RPA) market is experiencing robust growth as organizations automate repetitive processes to improve efficiency and cut costs. USA currently leads with roughly 35% of global RPA revenue (2025), while Asia-Pacific is the fastest-growing region as more enterprises embrace automation. Key industry adopters include banking and financial services (BFSI) along with sectors like healthcare, manufacturing, retail, and telecom. Enterprise RPA has become a foundational tool in enterprise digital transformation, often used to bridge legacy systems, reduce human error, and accelerate processes in areas from data entry and claims processing to customer service. The market's expansion is not just in software licenses but also in associated services. In fact, services (consulting, integration, support) make up the majority of RPA revenues underscoring the importance of solution providers and system integrators in deploying Enterprise RPA at scale. Leading RPA technology vendors such as UiPath, Automation Anywhere, Blue Prism, and others have a global presence, and enterprise software giants are integrating RPA into their automation platforms. Overall, Enterprise RPA is now entrenched as a key component of enterprise automation strategies worldwide, valued for its ability to improve productivity, compliance, and cost-efficiency.

6.1 Key trends and drivers:

- **Enterprise Automation & Hyperautomation:** Organizations are moving beyond isolated bot deployments toward end-to-end automation of business processes. RPA is increasingly part of hyperautomation initiatives, orchestrating workflows in tandem with AI, machine learning, and process mining tools to achieve enterprise-wide automation. This trend reflects RPA's evolution from simple task automation to a broader role in digital transformation (often termed enterprise automation), where multiple technologies are combined to streamline complex workflows.
- **AI-Enhanced RPA and Agentic AI:** RPA is becoming more intelligent as it converges with artificial intelligence. Modern "intelligent automation" integrates RPA with AI capabilities like natural language processing and computer vision so bots can handle unstructured data (images, documents, free text) and make real-time decisions. This enables use cases such as reading invoices or recognizing on-screen elements visually, tasks that traditional RPA struggled with. The incorporation of AI is giving rise to agentic AI within automation: systems of bots that can learn

and adapt autonomously rather than just follow static rules. This agentic automation marks a shift toward software robots that exhibit more cognitive, decision-making abilities, closing the gap between scripted RPA bots and human-like AI agents.

- **Cloud Adoption and RPA-as-a-Service:** The RPA ecosystem is rapidly embracing cloud computing. Many companies are opting for cloud-native RPA platforms and RPA-as-a-Service (RaaS) delivery models. Cloud-based automation offers easier deployment, scalability on demand, and lower upfront costs through subscription models. This trend is lowering barriers to entry for RPA as even smaller firms can deploy bots without heavy infrastructure investment. It also aligns with the broader movement of enterprise software toward SaaS models, enabling integration of RPA with cloud analytics and AI services more readily.
- **Democratization via Low-Code Tools:** RPA technology is becoming more accessible to non-programmers. Leading platforms now offer low-code/no-code development environments with intuitive drag-and-drop interfaces, enabling "citizen developers" (business users) to build or customize bots. This democratization of RPA development is a response to the high demand for automation and limited IT resources by empowering business analysts and process owners to automate their own tasks, organizations can scale automation faster. Combined with proper governance, citizen-led development helps embed automation culture across the enterprise.
- **Industry-Specific Solutions (Vertical Focus):** Vendors and service providers are increasingly delivering tailored RPA solutions for specific industries to accelerate time-to-value. There is growing availability of pre-built bot templates and use-case libraries for domains like healthcare (e.g. patient record handling), banking (e.g. loan processing), insurance (claims processing), manufacturing, and more. In retail and digital commerce, for example, RPA bots are used to update inventories, process online orders, manage invoices, and handle customer inquiries across e-commerce platforms. Such vertical specialization addresses domain-specific requirements (compliance rules, typical legacy systems, etc.) and is driving deeper penetration of RPA in those sectors.
- **Process Mining and Analytics Integration:** To maximize automation opportunities, companies are integrating process mining and task mining tools with RPA platforms. These tools analyze event logs and user interactions to identify inefficiencies and pinpoint ideal RPA candidates. The insight gained helps prioritize high-ROI automation projects. Additionally, there's a strong focus on analytics and performance monitoring for deployed bots. RPA platforms now often include real-time dashboards and robotic process intelligence features that track bot performance, error rates, and savings achieved. This data-driven approach enables continuous improvement of automation workflows and helps quantify the business value (ROI) of RPA initiatives, which in turn drives further investment.
- **Integration Services, Quality Assurance and DevOps:** Given that RPA often needs to work within complex enterprise IT landscapes, integration and consulting services play a critical role in successful RPA programs. Organizations must integrate RPA bots with legacy systems, ERPs, CRMs, and custom applications, a task that requires significant IT expertise. Indeed, services like process assessment, bot development, integration, and ongoing support form the largest segment of the RPA market by revenue. Enterprise adopters are also infusing software development best practices into their automation programs: treating bots as software assets that go through rigorous testing and change management. For example, companies establish RPA Center of Excellence teams to enforce standards, and they integrate RPA development into existing DevOps pipelines for version control and continuous deployment. There is an increasing emphasis on quality assurance for RPA bots (through testing frameworks and monitoring) to ensure bots are reliable and resilient to changes (e.g. updates in underlying applications). This focus on governance, QA, and DevOps helps organizations scale their RPA deployments more sustainably, avoiding the pitfalls of bot failures or sprawl.

The global Enterprise RPA market is maturing from basic task automation toward more intelligent, scalable, and integrated automation as part of the broader digital workforce. Trends like hyperautomation and agentic AI are extending RPA's capabilities, while cloud services and low-code

tools are broadening its reach. At the same time, the need for integration into enterprise environments and alignment with business goals means that expert services, robust governance, and cross-functional strategies remain key drivers of RPA success worldwide.

6.2 U.S. Market Overview

The United States represents the single largest national market for Enterprise RPA, underpinning North America's leading position. In 2025, the U.S. Enterprise RPA market was estimated around US$ 1.7 billion in size, and it is on an aggressive growth trajectory. Frost & Sullivan forecasts project the U.S. Enterprise RPA market to grow at over 31% CAGR through 2030 and reach US$ 6.3 billion. This rapid expansion is fueled by American enterprises' drive for operational efficiency, cost reduction, and digital transformation. Sectors such as banking / financial services, healthcare, manufacturing, retail, and even government agencies are adopting Enterprise RPA at scale. The U.S. business environment, characterized by relatively high labor costs and competitive pressure to innovate, provides a strong incentive to automate repetitive, labor-intensive processes.

Several factors give the U.S. a favorable landscape for RPA growth. First, the technological infrastructure is highly developed, organizations have widespread access to cloud computing, AI services, and modern IT systems, which makes implementing automation solutions easier. This is coupled with a culture of innovation and large IT budgets in Fortune 500 companies that allow for experimentation and scaling of automation. Second, many of the leading RPA vendors and solution providers are based in or heavily focused on the U.S. market, ensuring strong marketing and partner networks. Companies are actively helping U.S. clients deploy RPA. Third, there is growing government support and adoption of RPA: U.S. federal and state agencies have launched automation programs to improve efficiency in areas like claims processing, procurement, and public services. This public sector uptake not only drives RPA demand but also signals credibility, encouraging more private-sector adoption. Notably, strong regulatory compliance requirements in the U.S. (for example, in finance and healthcare) are also pushing organizations toward RPA as a way to reduce human error and enhance auditability in routine processes.

Overall, the U.S. Enterprise RPA market can be characterized by large-scale deployments in big enterprises, a fast follower mentality for new automation technologies, and a comprehensive ecosystem of technology providers and integrators. U.S. organizations that were early to implement RPA are now focusing on scaling up and integrating AI to amplify the benefits, while newcomers are rapidly piloting bots to catch up.

Key trends and drivers:

- **Shift to Intelligent & Agentic Automation:** In the U.S., there is a clear trend of moving from traditional rule-based RPA toward more AI-driven automation. Leading RPA providers and enterprises are evolving their automation strategies to incorporate "agentic AI", essentially blending deterministic RPA bots with intelligent AI agents for greater autonomy. For example, U.S.-based RPA teams are embedding advanced AI (ML models, NLP, computer vision) into bots so they can understand context, handle exceptions, and make adaptive decisions on the fly. This means an RPA bot isn't limited to a fixed script; it can, say, interpret an email's intent or detect an anomaly in an invoice image and respond appropriately. Such agentic automation efforts are often spearheaded by innovative firms in fintech, healthcare, and tech sectors, and are enabled by the easy availability of cutting-edge AI tools (many from U.S. AI labs). This trend is positioning U.S. businesses at the forefront of the RPA-to-IPA (Intelligent Process Automation) evolution, where generative AI and cognitive services are increasingly plugged into RPA workflows to achieve outcomes that previously required human judgment.
- **Broad Enterprise and Government Adoption:** U.S. organizations are deploying RPA at scale across both corporate and public sectors, driven by the need to streamline operations and improve service delivery. In banking and insurance, RPA is now common for loan processing, compliance checks, and customer onboarding; in healthcare, it's used for patient data management and billing; in manufacturing and logistics, for supply chain and ERP data entry. Notably, U.S. government agencies have become significant adopters of RPA to automate administrative tasks, from

processing claims in departments like Veterans Affairs to speeding up procurement and HR paperwork. This has led to hours saved in back-office tasks and faster response times in public services. The government's embrace of RPA (often under the banner of IT modernization) not only provides a sizable market on its own but also acts as a catalyst for broader acceptance of automation technologies. Moreover, many U.S. enterprises have progressed from pilot projects to enterprise-wide automation programs, often establishing centers of excellence to manage hundreds of bots across departments. Such large-scale rollouts are a key driver in the U.S., creating demand for robust governance, bot management tools, and integration expertise.

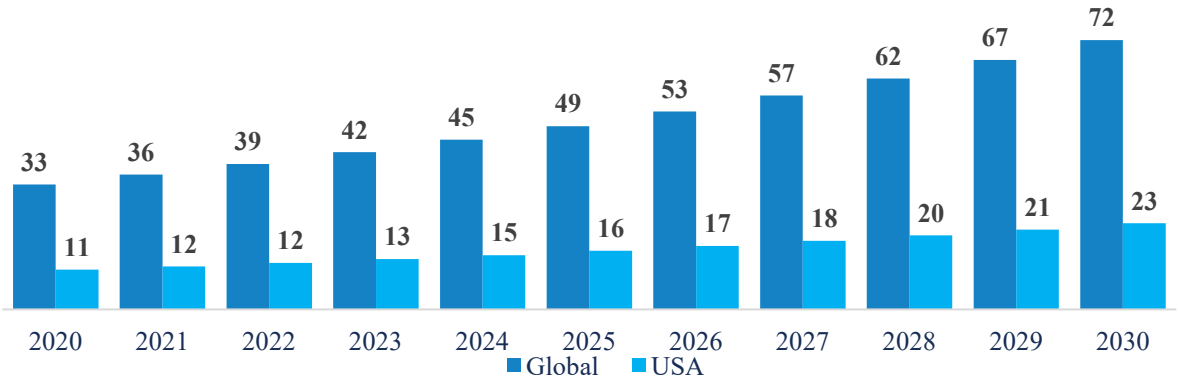
- **Focus on Compliance, Security, and Reliability:** A distinguishing driver in the U.S. market is the emphasis on meeting regulatory compliance and security standards through automation. Industries like finance and healthcare in the U.S. operate under strict laws (e.g. HIPAA for health data, SOX for financial processes, GDPR/CCPA for data privacy), which means any automated workflows must be auditable, secure, and accurate. This requirement is pushing RPA vendors to incorporate advanced compliance features such as secure credential vaults, detailed audit logs, role-based access control, and fail-safe exception handling into their platforms. Companies are prioritizing resilience and quality in their bot operations: a bot that processes mortgage applications, for instance, must handle exceptions (missing data, system downtimes) gracefully and maintain data integrity. As a result, U.S. enterprises tend to invest in strong oversight for their RPA implementations, including rigorous testing (often using QA automation tools in tandem with RPA) and real-time monitoring of bot performance. Ensuring reliability is key, because any error by a bot in a sensitive process could have legal or customer trust repercussions. The net effect is that "bot governance" and security considerations are front and center in U.S. RPA projects, driving demand for solutions that offer encryption, compliance reporting, and integration with IT security frameworks. This focus on doing automation "right" aligns with the U.S. corporate priority on risk management and helps organizations scale RPA with confidence.
- **Integration with Broader Tech Ecosystems:** U.S. companies often view RPA as one component of a larger enterprise automation and digital transformation stack. There is a strong drive to integrate RPA with other technologies like data analytics, BPM (Business Process Management) workflows, integration middleware, and DevOps toolchains. Many U.S. organizations are embedding RPA bots into end-to-end process revamps, for example, coupling RPA with API integrations, or using RPA to glue together legacy systems while a new IT system is being rolled out. This has led to a trend of RPA being offered as part of comprehensive consulting services: U.S.-based consultancies bundle RPA implementations with analytics solutions (to measure process improvements), with digital commerce platforms (to automate e-commerce operations as mentioned), and with continuous improvement initiatives (Six Sigma, Agile, etc.). Additionally, American firms are increasingly managing RPA bots similar to software projects, applying DevOps practices. They integrate bot code into version control, use continuous integration systems to deploy updates, and maintain dev/test/prod environments for bots, ensuring changes are tested before live rollout. All of this reflects a mature approach where RPA is not a standalone endeavor but part of the holistic automation strategy. The presence of large IT teams and consulting expertise in the U.S. facilitates this integration-heavy approach, and it drives further RPA adoption as companies see better results when bots work in concert with other enterprise systems (like feeding RPA-collected data into analytics dashboards, etc.).
- **Ongoing Innovation and Investment:** Finally, the U.S. RPA market is driven by a continuous cycle of innovation, as both vendors and customers push the boundaries of what automation can do. On the supply side, RPA providers in the U.S. are investing heavily in next-gen capabilities, for instance, adding AI/ML modules, conversational interfaces, and cognitive document processing to their products. The concept of "Automation + AI" (sometimes termed Hyperautomation) is a strategic focus, with providers differentiating themselves by how well their bots can understand documents, images, or even interact via chatbots. On the demand side, U.S. companies are early adopters of emerging trends like generative AI integrated with RPA. Many are experimenting with large language models (LLMs) to enhance automation, a notable example is UPS using a GPT-based solution to automatically draft responses to customer emails, cutting email handling time.

Similarly, major banks having already automated thousands of routine tasks with RPA, are now piloting AI to extend automation into more judgment-intensive domains. This synergy between RPA and AI is essentially the realization of agentic automation discussed earlier, and U.S. firms are at the leading edge of applying it. The strong venture funding and enterprise budgets in the U.S. mean that RPA initiatives often have the resources to incorporate the latest tech, be it process mining tools or cloud-based AI services, thereby continuously driving the market forward. Hyperautomation which is the strategy of combining RPA with AI and other tools to automate as much as possible is a key theme in the U.S., and it's accelerating as companies seek competitive advantage through smarter and faster processes.

The Enterprise RPA market, both globally and in the U.S., is rapidly evolving from basic robotic task automation to a more sophisticated, AI-powered automation fabric that spans entire organizations. Globally, the focus is on expanding RPA's capabilities and accessibility, while in the U.S., we see a microcosm of these trends amplified by large-scale investments and cutting-edge adoption. Key drivers like enterprise-wide hyperautomation, the rise of agentic AI, integration of computer vision and analytics, and a strong emphasis on governance and integration services are shaping the current landscape. Going forward, Enterprise RPA's role will likely blend even more with AI (such as autonomous agents and generative AI), and markets like the U.S. will continue to lead in experimenting with these frontiers. Both globally and in the U.S., Enterprise RPA is no longer an optional efficiency tool but a strategic imperative for organizations aiming to improve productivity, customer experience, and agility in the digital age.

7. Software Quality Assurance Market: Global and USA Market Overview

Exhibit 31: Global & USA Software Quality Assurance Market, Split by Segments (in USD billion), 2020 - 2030



Source: Frost & Sullivan Analysis

7.1 Global Software QA Market

Global spending on software QA services is expanding steadily. As per Frost & Sullivan estimates, global software QA market was valued at USD 33.3 billion in 2020 and USD 45.4 billion in 2024, and is expected to grow to an estimated USD 72 billion growing at a CAGR of 8% in the 2025-2030 period. North America currently holds the largest share of QA spend at ~35%, while Asia-Pacific is the fastest-growing region. North American dominance is driven by heavy IT adoption in the US and Canada, while Asia's growth is fueled by rapid digitization and ample tech labour. In all regions, enterprises are massively investing in digital transformation, migrating to cloud platforms, mobile/web apps and emerging tech which in turn drives QA budgets.

The QA market is broadly segmented into testing software and testing services. On the software side, vendors offer automated test platforms, performance/security testing tools, test management and AI/ML-driven QA solutions. On the services side, IT consultancies and specialized firms provide professional testing, managed test labs, consulting and outsourcing. Leading technology service firms and IT-outsourcing companies dominate QA services.

7.2 Key Trends and Drivers

- **Agile/DevOps & Continuous Testing**: Companies are embedding QA earlier into development ("shift-left") using continuous integration pipelines. This drives demand for test automation frameworks, CI/CD-integrated test tools, and ever-faster regression suites.
- **Emerging Technologies**: AI/ML, IoT, 5G, cloud-native and autonomous systems introduce new quality risks. Firms are deploying AI-enabled testing (for predictive defect detection, self-healing tests, etc.) to cope. For example, test-automation tools now integrate generative AI to prioritize test cases and find complex bugs.
- **Non-Functional Testing**: There is growing focus on performance, security and reliability testing. The rise of cyber threats and cloud scale means performance/load testing and security penetration testing are expanding rapidly. Vendors highlight non-functional QA (e.g. penetration testing, usability testing) as a key fast-growing segment, since ensuring uptime and data security is critical for competitive applications.
- **Quality of Data and AI Models**: As enterprises leverage big data and AI in production, specialized QA for data pipelines and ML models is emerging. This includes data quality testing, ETL/analytics validation, and fairness/accuracy testing of AI models. Demand for "data QA" is rising in tandem with analytics adoption.
- **Regulation and Standards**: Increased regulation (data privacy laws, industry standards like PCI-DSS or HIPAA) is a market driver. Organizations must validate compliance through testing. For

example, QA providers often specialize in domain-specific compliance (e.g. healthcare security or finance data privacy) to meet these needs.

Market drivers include widespread digitalization and IoT adoption in emerging economies, which enlarge the QA addressable market. Conversely, challenges include the fragmented QA tooling ecosystem and shortage of skilled testers. Many firms operate hybrid legacy/cloud environments, so integrating testing across platforms is complex. High upfront test-infrastructure costs and data security/privacy concerns can also restrain growth. Nevertheless, the opportunity is significant: enterprises know that faster, bug-free releases improve customer satisfaction and save costs. AI-driven quality engineering services promise to reduce manual effort and accelerate testing cycles, which vendors are aggressively developing.

7.3 U.S. Market Overview

The U.S. software QA market reflects the global dynamics but on a larger scale. As per Frost & Sullivan estimates, the U.S. software QA market was valued at USD 10.7 billion in 2020 and USD 14.5 billion in 2024 and is expected to grow to an estimated USD 23 billion growing at a CAGR of 8% in the 2025-2030 period. American companies spend tens of billions annually on QA tools and services, driven by Silicon Valley tech firms, financial giants, and major retailers. In practice, the U.S. market is the engine of North American QA growth. Silicon Valley and other tech hubs have high concentrations of QA professionals; for example, BLS statistics show 8,600 QA testers in the San Jose metro and 8,260 in San Francisco. Seattle has 9,180 testers. New York City tops all metros with 13,810 QA jobs. These figures highlight the U.S. emphasis on quality: employers are willing to pay premium wages for testers in high-tech and financial markets.

U.S. Trends and Drivers

Key trends in the U.S. mirror global themes but with local nuances. Agile and DevOps have near-universal adoption, so continuous testing is standard practice. U.S. firms are early adopters of AI in QA, for instance, U.S. testing consultancies offer AI-driven test automation, predictive analytics for defect detection, and ML-based test generation. Given America's leadership in cloud computing, cloud-based test environments and testing as a service are rapidly growing. Security and privacy are especially critical: U.S. companies operate under strict regulations (e.g. HIPAA for healthcare data, PCI-DSS for payment processing). QA service providers thus often include compliance testing in their offerings, a QA partner in healthcare must design tests around HIPAA requirements, while fintech QA must address PCI-DSS and SEC rules.

Driver factors unique to the U.S. include heavy investment in cutting-edge sectors (AI/ML startups, biotech, IoT). Government initiatives (like federal IT modernization and NIST cybersecurity frameworks) also spur QA in public-sector projects. Major U.S. verticals like fintech, health tech, e-commerce, defense, all heavily rely on software quality. For instance, the surge in online banking and contactless payments has meant continuous QA for mobile apps and blockchain integrations, while telehealth expansion has driven QA in medical device software.

Challenges in the U.S. parallel global ones: talent shortages are acute (many firms report difficulty filling QA roles), and the fragmented tooling landscape (especially across legacy/modern systems) creates complexity. However, American companies benefit from a mature IT services ecosystem and high R&D spending. Many U.S. firms prefer working with large consultancies or offshore-nearshore combinations for scalability.

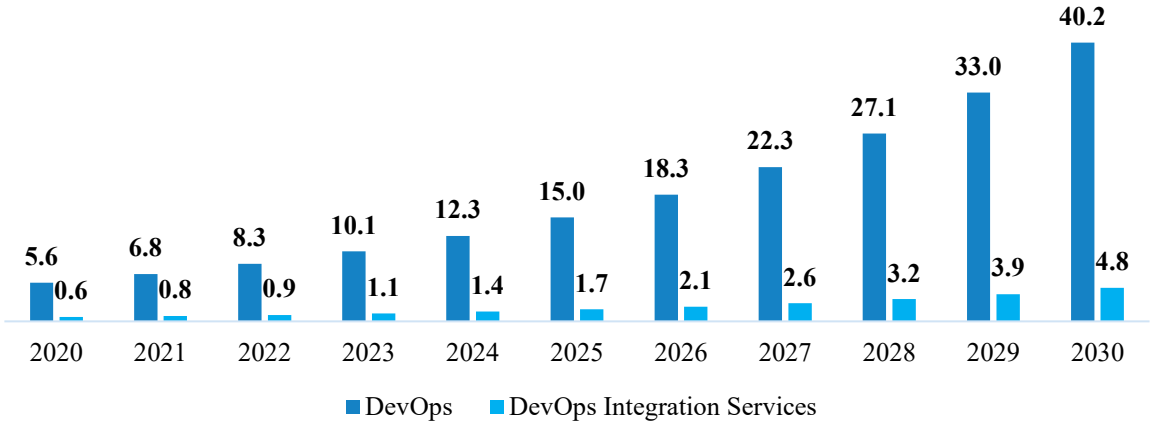
The U.S. QA sector continues to evolve. With the rapid rollout of AI and ML across industries, specialized QA services (such as AI model testing, fairness audits, and ML ops) are poised for growth. Cloud migration in the U.S. also creates demand for cloud-native QA tools and services. Additionally, burgeoning areas like autonomous vehicles and smart cities involve extensive U.S. QA activity (testing vehicle software, 5G network integrations, etc.). Moreover, the ubiquity of subscription-based software and microservices suggests ongoing need for regression and integration testing at scale.

Overall, the U.S. market's combination of high-tech development and strong consulting infrastructure ensures that software testing and QA as well as data & analytics consulting remain robust growth

segments. Firms that can offer end-to-end quality solutions (from code to data to AI models) are well-positioned to capitalize on America's continued push toward digital innovation.

8. DevOps & Integration Services Market: Global and USA Market Overview

Exhibit 32: Global DevOps & Integration Services Market (in USD billion), 2020 - 2030



Source: Frost & Sullivan, Secondary Sources

The global DevOps market is surging as enterprises embrace continuous delivery, automation and cloud-native practices. Frost & Sullivan forecasts rapid expansion as the market which was valued at USD 5.6 billion in 2020 and USD 12.3 billion in 2024 is expected to reach an estimated USD 40.2 billion by 2030 (growing at CAGR of 21.8% in the 2025-2030 period). This boom is driven by the need for faster, higher-quality software and analytics deployments. DevOps adoption cuts time-to-market automates testing/deployment, and scales operations (e.g. through CI/CD pipelines and infrastructure-as-code). Globally, North America remains the largest region (roughly 35% of global market share). Asia–Pacific is the fastest-growing, fueled by SME cloud adoption and digitalization. Major verticals include IT/Telecom, BFSI, retail, healthcare and government, all increasingly using DevOps to deliver agile analytics and digital services.

Software tools (CI/CD platforms, container orchestration, monitoring, etc.) still dominate overall DevOps revenue, but services (consulting, integration, managed DevOps) are the fastest growing subsegment. Leading vendors and service providers include cloud/IT firms and large consulting firms. Many DevOps consultancies explicitly bundle DataOps and analytics services into their offerings – e.g. DevOps services now commonly include "DataOps advisory" and data governance to integrate big data/ML pipelines with CI/CD processes.

The DevOps integration services market has emerged as a critical segment within the broader DevOps services ecosystem, driven by the growing complexity of enterprise IT environments and the need to seamlessly connect development, operations, cloud infrastructure, and application platforms. Frost & Sullivan forecasts rapid expansion as the DevOps integration services market which was valued at USD 0.6 billion in 2020 and USD 1.4 billion in 2024 is expected to reach an estimated USD 4.8 billion by 2030 (growing at CAGR of 22.8% in the 2025-2030 period). Globally, organizations are increasingly adopting microservices architectures, multi-cloud environments, and continuous integration / continuous deployment (CI/CD) pipelines, which require specialized integration capabilities across diverse tools and systems. The market is being propelled by accelerated digital transformation, rising cloud adoption, and the need for faster software delivery cycles. Going forward, the demand for DevOps integration services is expected to expand further as enterprises scale automation, adopt platform engineering, and modernize legacy systems within increasingly distributed digital infrastructures.

- **Key Trends & Drivers:**
  - Cloud & Automation: Widespread cloud adoption (public/hybrid/multi-cloud) and CI/CD frameworks are core drivers. DevOps enables seamless app delivery in cloud environments, addressing the complexity of hybrid systems. In practice, many enterprises now run in the cloud, making automated provisioning, containers (Docker) and orchestration (Kubernetes) essential for scalability.

- Agility & Digital Transformation: Global digitization forces (e.g. IoT expansion, mobile apps, real-time analytics) push companies to modernize IT. DevOps's collaborative culture (breaking silos between dev, ops, data teams) directly supports faster innovation and continuous delivery.
- DevSecOps & Compliance: Security integration is now a mainstream trend. As cyber threats and regulations grow, organizations embed automated security checks (DevSecOps) and continuous compliance into DevOps pipelines. This shift improves code security without slowing delivery. Many industries (finance, healthcare, government) are mandating tighter security, driving DevOps tools with built-in vulnerability scanning and governance features.
- AI/ML and AIOps: Artificial intelligence and machine learning are being infused into DevOps workflows. AI-assisted coding (e.g. GitHub Copilot), automated testing, predictive monitoring and log analysis (AIOps) accelerate development and issue detection. Integration of AI also creates demand for DevOps in data pipelines: firms are investing in MLOps/AnalyticsOps to deploy AI models, which often falls under DevOps consulting services.
- Containerization & Microservices: Enterprises are breaking monoliths into microservices managed by containers (Docker, Kubernetes). This trend meshes with DevOps: e.g. Kubernetes adoption exemplifies how container orchestration drives resilient, scalable delivery. DevOps practices allow independent services to be updated rapidly without downtime, a critical need for global SaaS/analytics platforms.

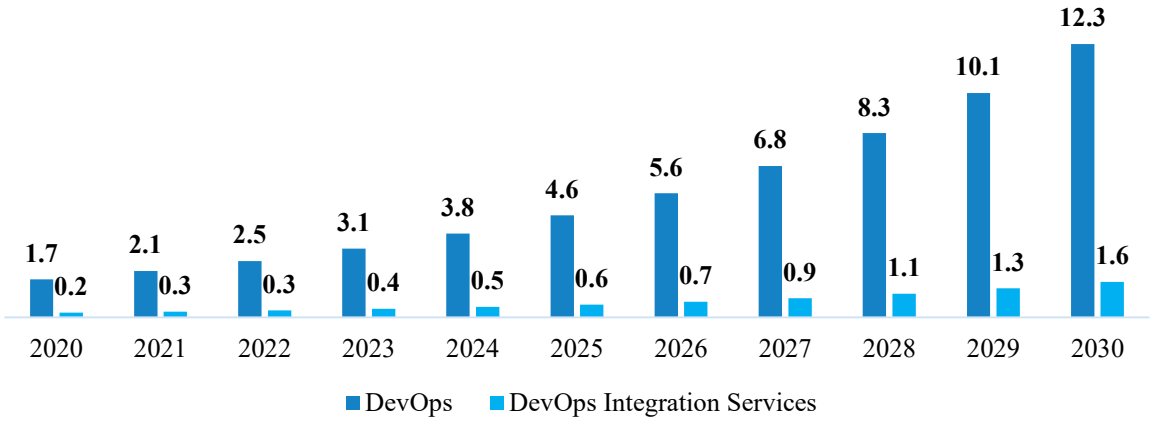
For DevOps integration services, the following two key drivers are shaping the growth in global markets:

- Increasing Complexity of Multi-Cloud and Hybrid IT Environments: Enterprises are increasingly operating across multi-cloud, hybrid cloud, and on-premise infrastructure environments. This requires seamless integration between cloud platforms, development pipelines, monitoring tools, security frameworks, and legacy enterprise systems. DevOps integration services play a critical role in orchestrating these interconnected environments, ensuring interoperability across CI/CD pipelines, container platforms, and cloud-native architectures.
- Accelerated Digital Transformation and Demand for Faster Software Delivery: Organizations are under pressure to release software updates more frequently and improve application reliability. DevOps practices such as continuous integration, continuous deployment (CI/CD), and automated testing require tightly integrated toolchains and workflows. As enterprises modernize their development and operations processes, demand for specialized integration services is increasing to build scalable, automated DevOps environments that support faster product releases and improved operational efficiency.

Overall, the global DevOps landscape is characterized by explosive growth, mature leadership by tech-savvy regions, and evolving consulting services. Continuous trends like multi-cloud, AI-powered automation, security integration, and the convergence with data analytics are shaping the market. Technology consultancies are capitalizing on these by offering integrated DevOps plus data/analytics transformations – for example, delivering DataOps and ML/CI-CD pipelines – to help clients modernize software and analytics delivery processes.

8.1 U.S. DevOps & Integration Services Market

Exhibit 33: U.S. DevOps & Integration Services Market (in USD billion), 2020 - 2030



Source: Frost & Sullivan, Secondary Sources

The **U.S. DevOps market** mirrors global growth but with unique drivers. The DevOps market in U.S. was about **USD 1.7 billion in 2020 and USD 3.8 billion in 2024** and is expected to climb to **USD 12.3 billion by 2030** (growing at a CAGR of 21.8% CAGR in the 2025-2030 period). This expansion is fueled by the country's high-tech maturity: nearly every major U.S. enterprise and agency is pursuing cloud migration and digital modernization. U.S. firms were early adopters of cloud-native DevOps strategies, so current trends focus on automation scale-up and security. U.S. adoption is standout due to tech-driven companies and cloud strategies that cut delivery time and bolster compliance.

North America (chiefly the U.S.) remains a leading DevOps region. In practice, U.S. DevOps projects overwhelmingly use public / hybrid cloud platforms with CI/CD tooling. Key U.S. players include the same tech giants, along with large domestic consultancies. In 2023, tools like Jenkins, Docker and Kubernetes dominated U.S. DevOps deployments. Western tech hubs (Silicon Valley, Seattle) lead adoption, but major banks, retailers and government agencies nationwide are rapidly catching up.

The DevOps integration services market in the United States is one of the most advanced globally, supported by the country's mature digital ecosystem and high enterprise technology adoption. Demand for DevOps integration services is primarily driven by the need to integrate CI/CD pipelines, cloud infrastructure, microservices architectures, and enterprise systems within increasingly complex multi-cloud environments. Rapid digital transformation initiatives and the push for faster, more reliable software release cycles are also accelerating adoption of DevOps practices across U.S. enterprises.

Frost & Sullivan forecasts rapid expansion as the DevOps integration services market which was valued at USD 0.2 billion in 2020 and USD 0.47 billion in 2024 is expected to reach an estimated USD 1.6 billion by 2030 (growing at CAGR of 22.8% in the 2025-2030 period). Going forward, the market is expected to expand further as organizations scale cloud-native development, automation, DevSecOps, and AI-enabled operations, increasing the need for specialized integration services to orchestrate complex DevOps toolchains and modernize legacy IT systems.

- **Trends and Drivers:** Major U.S. drivers include:
  - Automation and Cloud: American companies emphasize automation to improve agility and reduce costs. Increasingly U.S. enterprises are now using cloud services. This drives adoption of CI/CD pipelines and container platforms, making DevOps a must-have for any digital initiative. Hybrid and serverless architectures (microservices and "DevOps on cloud") are especially popular.
  - Security & Compliance: U.S. regulatory and cybersecurity priorities (HIPAA, PCI DSS, CCPA, NIST guidelines) push firms to embed security into DevOps (DevSecOps). Federal modernization efforts from cloud-first mandates to multi-million infrastructure bills also

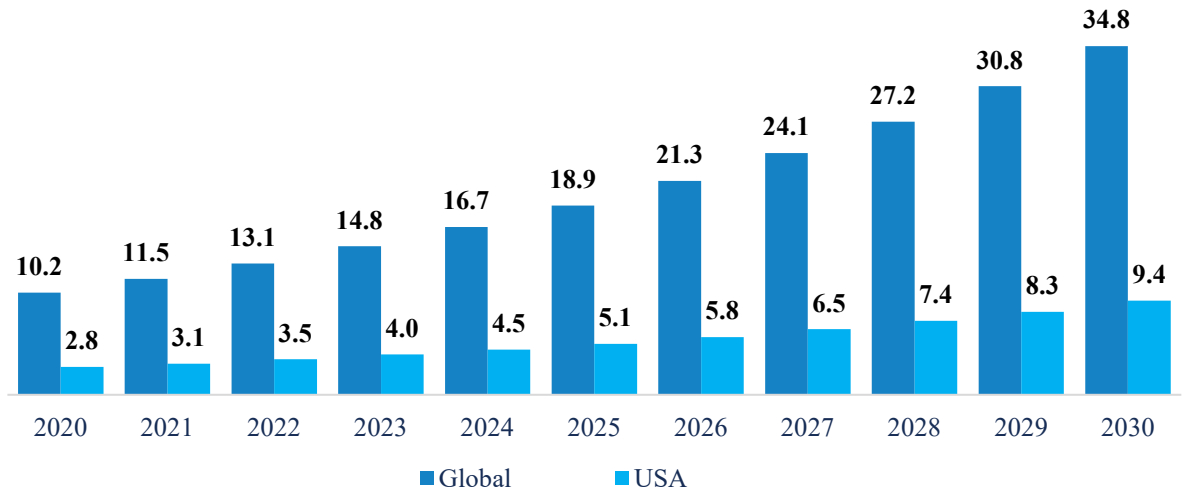
require DevOps to streamline new services. Government reports highlight agencies integrating DevOps to enhance software delivery, efficiency and security.

- Enterprise Digital Transformation: Large-scale IT overhauls in finance, healthcare and retail account for much demand. Finance / health sectors are major adopters seeking faster innovation. U.S. projects often include aggressive data analytics and AI components, so DevOps practices must accommodate complex data pipelines (DataOps/MLOps). Leading DevOps consulting firms now offer end-to-end AI/ML deployment services.
- Talent and Services: The U.S. has a deep pool of DevOps engineering talent and a strong professional services market. Many organizations partner with service firms (or hire DevOps engineers) to implement transformations. Job growth and skill shortages highlight that DevOps roles are in high demand across U.S. tech companies.

The U.S. DevOps market is robust and maturing. It benefits from intense cloud migration, advanced tech ecosystems, and significant IT budgets. U.S. companies and consulting firms lead many innovations (e.g. integrated AI/DevOps platforms, developer experience improvements). The market drivers in the U.S. are automation, cloud, security, and digital transformation, closely mirror global trends, but with a uniquely strong emphasis on federal initiatives and data-intensive applications. The separate focus ensures that strategies for growth and investment can be tailored to U.S. conditions without repeating the broader global analysis. The key drivers shaping the growth of the DevOps integration services market in the United States are similar to the ones driving the global markets.

9. Digital Commerce Solutions Market: Global and USA Market Overview

Exhibit 34: Global & U.S. Digital Commerce Solutions Market (in USD billion), 2020 - 2030



Source: Frost & Sullivan, Secondary Sources

The digital commerce solutions market encompassing e-commerce platforms, mobile commerce, integrations, and related services is growing rapidly on the back of surging online retail and B2B transactions worldwide. Frost & Sullivan forecasts rapid expansion as the Digital Commerce solutions market which was valued at USD 10.2 billion in 2020 and USD 16.7 billion in 2024 is expected to reach an estimated USD 34.8 billion by 2030 (growing at CAGR of 13% in the 2025-2030 period). This growth is driven by widespread Internet/mobile adoption (especially in Asia-Pacific) and the need for omnichannel selling. Global internet access and consumer electronics are major factors fueling digital commerce platform demand. North America accounts for a significant share of global digital commerce platform revenue (~30%), reflecting its mature e-commerce economy. In sum, the digital commerce technology market today represents an increasing opportunity, underpinned by an underlying global e-commerce economy and growing strongly.

Digital commerce solutions firms typically offer end-to-end services from platform implementation and API integration to mobile-responsive UI design, testing/QA, and ongoing support. These services address key client needs around omnichannel customer experience and platform reliability. This full-lifecycle approach is mirrored across the industry as businesses seek agile, secure commerce architectures to attract, engage and transact with customers online.

9.1 Key Global Trends and Drivers

- **Omnichannel Commerce Platforms.** Unified commerce is a primary driver: retailers and manufacturers are integrating online, mobile, social and in-store channels into single platforms. Digital commerce solutions increasingly emphasize seamless shopping experiences (e.g. unified carts, single customer profiles) across all touchpoints.
- **AI-Driven Personalization and Automation.** Artificial intelligence and machine learning are revolutionizing online selling. Modern commerce platforms embed AI-powered recommendation engines and predictive analytics. Business buyers now expect personalized interactions with context-aware recommendations, and that AI is poised to transform the entire buying journey. In practice, AI personalization can boost conversion rates, and AI-based pricing / fulfilment optimization drives efficiency.

- **Mobile-First & Headless Architectures.** Smartphones dominate internet access globally, so **mobile commerce (m-commerce)** is ubiquitous. Solutions increasingly adopt mobile-first responsive design and API-driven (headless) architectures. Smartphone proliferation and e-commerce apps are major growth factors. New sites often use headless CMS and PWA frameworks for faster performance and agility.
- **Cloud & Composable Commerce.** The move to cloud-based, API-first systems is accelerating. Businesses prefer scalable, SaaS-based platforms and modular microservices. This allows rapid feature rollout and easy integration. The trend towards composable commerce (best-of-breed components orchestrated via APIs) aligns with the services offered by solution partners.
- **Global Marketplaces and Social Commerce.** Cross-border and social channels are expanding e-commerce reach. Global platforms and local marketplaces make shopping global. Simultaneously, **social commerce** (selling directly via social media) is growing, especially in APAC. Digital commerce solutions now routinely include integrations for payment wallets, chat platforms, and marketplace feeds to capture these sales.
- **Emerging Channels (Voice, AR/VR).** New interaction modes are reshaping commerce. Conversational voice commerce is emerging and will continue to grow. Similarly, AR/VR try-before-you-buy experiences are rising: bulk of U.S. shoppers are expected to use AR tech in online purchases. These trends drive demand for specialized commerce solutions (voice-enabled storefronts, AR product visualization).
- **Payment Innovation.** Checkout and payment solutions are a key differentiator. Digital wallets and "buy now, pay later" are widely adopted. Secure, seamless payment integration (including tokenization and fraud protection) is a core feature of modern commerce platforms.
- **Sustainability and Consumer Values.** Consumers increasingly favor brands with ethical and sustainable practices. **Global shoppers** are willing to pay more for sustainable products. As a result, digital commerce systems now often include features for carbon-offset options, supply-chain transparency, and circular-economy marketplaces, reflecting this driver.

These trends collectively push enterprises to invest in scalable, agile commerce architectures and the expert services that implement them. The net effect is a broadening addressable market for digital commerce solutions encompassing SMBs to enterprise clients across retail, CPG, manufacturing, and services.

9.2 USA Digital Commerce Solutions Market

Market Overview

The United States is the world's largest and most mature digital commerce market. According to government data, U.S. retail e-commerce totaled approximately $1.23 trillion in 2025, about 16.4% of all retail sales. This sustained growth reflects deep internet penetration, widespread mobile use, and a digital-first consumer base. Correspondingly, U.S. companies spend heavily on e-commerce technology and services. Frost & Sullivan forecasts Digital Commerce solutions market in the U.S. to grow from USD 2.8 billion in 2020 and USD 4.5 billion in 2024 to an estimated USD 9.4 billion by 2030 (growing at CAGR of 13.1% in the 2025-2030 period).

In addition, the U.S. B2B commerce market (manufacturing and wholesale) exceeds $15 trillion per year. While overall B2B sales have stabilized, digital channels (e-commerce websites, marketplaces and electronic procurement) are growing as well within that segment. In practice, this means a vast

secondary market for digital commerce solutions: manufacturing, distribution, and services firms are increasingly implementing online portals and integrations for their complex B2B buyers.

Major verticals like retail, consumer goods, electronics, healthcare, and finance lead U.S. digital commerce spending. The omni-channel integration of physical and online operations is especially pronounced: retailers have deeply blended e-commerce, mobile apps and in-store experiences. These investments in technology platforms, logistics integrations and customer analytics drive demand for specialized implementation and QA services.

9.3 Key USA Trends and Drivers

- **Leading Adoption of Unified Commerce.** U.S. retailers have widely embraced omnichannel strategies. For example, Starbucks syncs its mobile app with in-store rewards and purchases, illustrating the trend toward seamless shopping. U.S. buyers expect streamlined product discovery and context-aware recommendations in B2B and B2C commerce. In practice, omnichannel U.S. merchants see significantly higher customer spend.
- **Mobile Commerce (m-Commerce).** Americans are among the world's most active mobile shoppers. U.S. smartphone penetration is well over 80%, and mobile now accounts for roughly half of U.S. e-commerce traffic. Commerce solutions in the U.S. prioritize responsive/mobile-first design, app integration, and SMS/push notifications. Even last-mile experiences (in-store mobile pickup or checkout) leverage mobile platforms.
- **Advanced Payments & Checkout.** U.S. consumers demand convenience and security at checkout. Digital wallets and BNPL services are highly popular. As noted, digital wallets will account for nearly half of all retail payments globally by 2027. U.S. merchants therefore invest heavily in integrating multiple payment options (tokenization, one-click payments) and optimizing checkout flows to reduce cart abandonment.
- **AI and Data Analytics.** U.S. companies lead in adopting AI-powered commerce capabilities. From chatbots to personalized recommendations and inventory forecasting, AI/ML is embedded across the stack. Organizations must prepare by building robust data foundations to fully leverage AI. U.S. retailers and platforms use AI for dynamic pricing, A/B testing of UX, fraud detection, and logistics optimization, thus driving demand for analytics and AI consultancy services on top of standard commerce implementations.
- **B2B E-Commerce Transformation.** Beyond retail, the U.S. industrial sector is rapidly digitizing procurement. As per DigitalCommerce360 report, while overall B2B sales have stalled, digital commerce has expanded at a double-digit pace as companies shift orders from phone and fax to online channels. This trend is pushing U.S. distributors and manufacturers to deploy complex B2B portals (multi-tier pricing, approvals, contract catalogues). Solution providers in the U.S. are thus seeing growth in implementations for B2B platforms and integrations with ERP systems.
- **Customer Experience and Personalization.** U.S. consumers have very high expectations for user experience. Speed, reliability and personalization are table stakes. Luxury or service-oriented segments emphasize white-glove UX and 24/7 support. For example, leading U.S. fashion and electronics e-tailers use high-speed content delivery, real-time inventory displays, and personalization engines to keep engagement high. This drives demand for robust quality assurance and continual UI optimization in U.S. digital commerce projects.
- **Regulation and Security.** Compliance and trust are critical. U.S. data privacy laws (e.g. CCPA) and payment security standards require specialized solutions (PCI compliance, privacy-by-

design). Enterprises invest in secure architectures, identity management, and fraud prevention as part of their digital commerce solutions. Demand for these services is high in the U.S. given the strict regulatory environment.

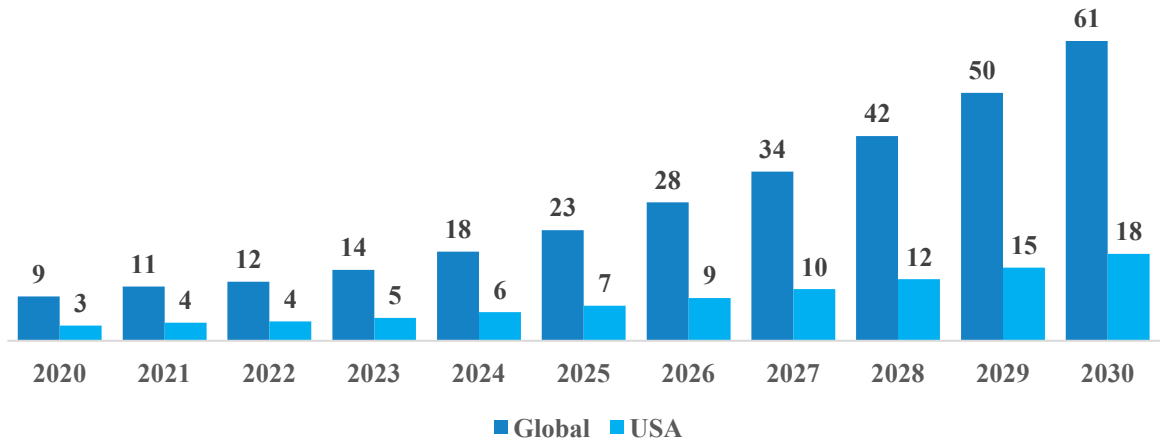
The U.S. market combines very large scale with advanced technology adoption. Enterprises and emerging brands alike drive a robust market for digital commerce platforms and the consulting/integration services around them. The convergence of high consumer expectations, multi-channel retail strategies, and enterprise digitalization underpins continued growth of the U.S. digital commerce solutions industry.

10. Computer Vision: Global and USA Market Overview

10.1 Global Market Landscape

Computer vision (CV) is the ability of machines to interpret and understand visual data. The technology has become a cornerstone of modern industrial automation. CV-based AI platforms are now widely used in factories, warehouses, and industrial sites to enhance productivity, improve safety, and ensure quality. These systems use cameras and AI algorithms to perform tasks like defect detection, equipment monitoring, and safety surveillance, effectively giving "eyes" to industrial machines.

Exhibit 35: Global and US Computer Vision Market (in USD billion), 2020 - 2030

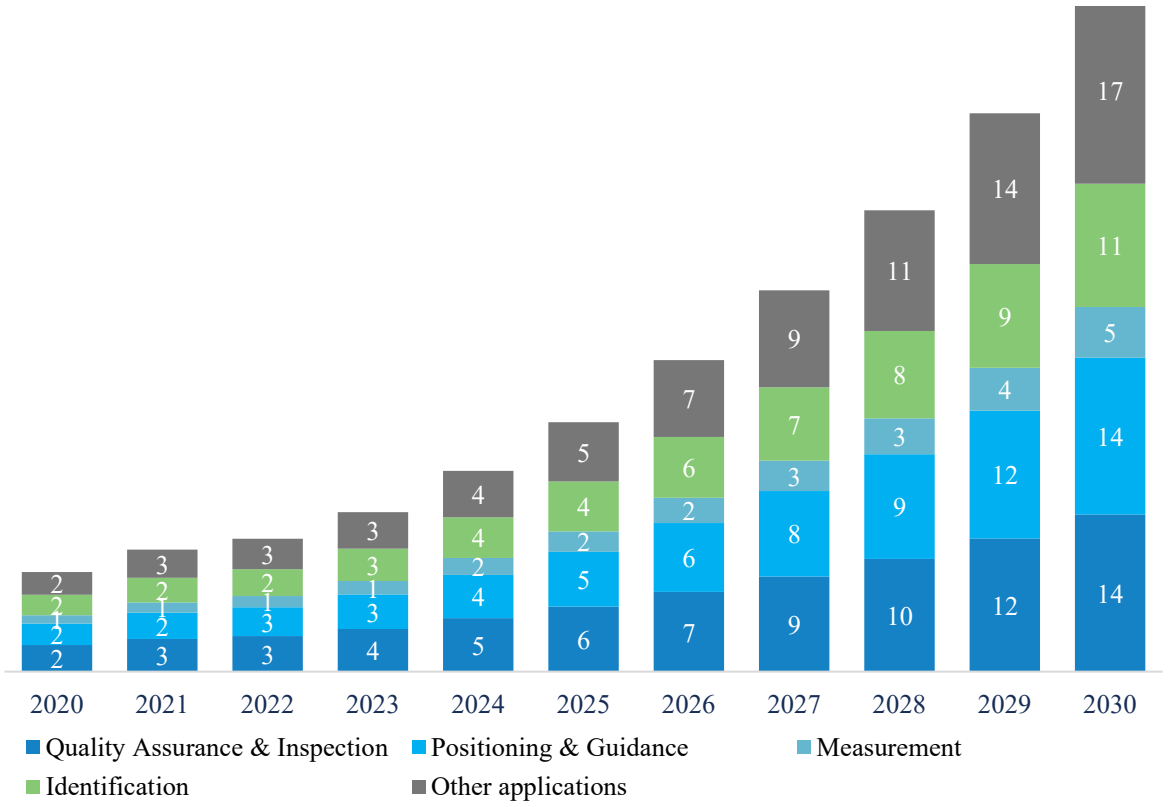


Source: Frost & Sullivan, Secondary Sources

The global market for computer vision reflects this growing importance. In 2024, the overall computer vision market (across all industries) was estimated at about **USD 18.1 billion**, and it is projected to reach **USD 60.9 billion by 2030** (growing at a CAGR of nearly 22% in the 2025 – 2030 period). A significant share of this growth comes from industrial applications, often termed machine vision which focus on visual inspection and automation in manufacturing and related sectors. There's a robust demand for automation solutions that can boost efficiency while maintaining high standards of safety and quality.

The global computer vision landscape is characterized by a mix of technology giants and specialized industrial vision companies. Leading tech companies have introduced CV platforms and tools, while industrial-focused firms provide cameras, sensors, and turnkey vision systems. Hardware is equally critical as industries invest in high-resolution cameras, sophisticated sensors, and edge computing devices to deploy vision on the factory floor. However, software is the fastest-growing component, thanks to advances in AI algorithms and the need for intelligent analytics. Smart camera-based vision systems (self-contained cameras with onboard processing) have especially gained traction due to their compactness and ease of integration, surpassing traditional PC-based setups in many new deployments. Globally, the push for Industry 4.0 (smart factory) transformations is a common theme fueling CV investment.

Exhibit 36: Global Computer Vision Market (in USD billion), Split by Applications, 2020 - 2030



Source: Frost & Sullivan, Secondary Sources

10.2 Key Computer Vision Applications

The computer vision market could expand almost 6-7X over the decade (2020–2030), with the market crossing $40 billion by 2028 and approaching $60 billion by 2030. The curve is smooth, with a visible step-up post-2024 as AI-native vision (deep learning at the edge, better sensors, and no/low-code workflows) moves from pilots to line-wide rollouts. The growth is broad-based: every segment expands, but Quality Assurance & Inspection and Positioning & Guidance outpace the average.

Quality Assurance & Inspection covers in-line defect detection, surface and assembly checks, packaging/label verification, and serialization quality control across factories and process lines. It remains the anchor of industrial CV because it delivers immediate yield and scrap benefits; the segment scales from $5.9 billion in 2025 to $14.2 billion in 2030, a ~19.3% CAGR over the 2025-2030 period.

Positioning & Guidance encompasses vision-guided robotics and cobots (pick-and-place, bin picking), tool alignment, machine tending, autonomous mobile robot navigation, and AR-assisted placement. It is the fastest-growing "core" automation segment as manufacturers shift from hard tooling to flexible, vision-guided cells; it rises from $4.9 billion (2025) to $14.1 billion (2030), ~23.5% CAGR over the 2025-2030 period. Two drivers stand out, which is flexible automation replacing hard tooling, and higher-mix production, where robots need eyes to handle variable parts and packaging.

Measurement (Gauging/Metrology) includes 2D/3D dimensioning, tolerancing, and high-speed gauging to verify critical geometries on the line; it grows from $1.9 billion (2025) to $4.6 billion (2030), reflecting a 19.3% CAGR over the 2025-2030 period.

Identification spans barcode /QR / Datamatrix reading, OCR/ICR, object/class recognition for sortation, track-and-trace, and workflow automation; regulatory serialization and warehouse automation keep this line robust, expanding from $4.5 billion (2025) to $11.1 billion (2030), a 19.9% CAGR over the 2025-2030 period. Serialization, track-and-trace, and workflow automation in regulated and consumer sectors keep this line strong.

Other applications is the platformized growth bucket that aggregates site-wide safety, compliance and security analytics, environmental and condition monitoring, advanced imaging, logistics/traffic analytics etc. and this segment scales from $5.4 billion (2025) to $16.9 billion (2030), the fastest at ~25.9% CAGR, reflecting the shift from point tools to multi-use CV platforms deployed across plants, warehouses, and yards.

10.3 Key Industrial Applications

In industrial settings, **quality assurance and inspection** is the paramount application of computer vision, accounting for the largest share of usage. Manufacturers are under pressure to achieve "zero defect" production and comply with stricter quality standards, so they are deploying vision systems for real-time inspection of products and components. CV cameras on production lines automatically check for surface flaws, dimensional accuracy, proper assembly, and correct labelling / packaging, far faster and more consistently than human inspectors. Another core application is **vision-guided robotics** where robots and cobots (collaborative robots) use camera feedback to pick and place objects, navigate, or tend machines with precision. This has enabled greater flexibility in automation, as robots can adapt to variations by "seeing" their environment (for example, guiding a robot arm to insert a part in an assembly or to handle mixed items on a conveyor). **Predictive maintenance** is an emerging use: computer vision monitors equipment (looking for signs of wear like leaks, vibrations or abnormal heat via thermal imaging) to predict failures and reduce unplanned downtime. Lastly, **safety monitoring** has become a critical application as vision-based safety systems can automatically detect unsafe conditions, such as a worker too close to a robot or missing personal protective equipment, and trigger alerts or shut down machinery to prevent accidents. This blending of safety and productivity is a notable trend in modern industrial AI platforms, as discussed further below.

10.4 Key Trends in Computer Vision for Industrial Automation

Several powerful trends are shaping how computer vision technology is being applied to drive industrial automation, safety, and productivity globally:

- **AI-Powered Vision:** The rise of artificial intelligence and deep learning is perhaps the biggest game-changer. Traditional machine vision relied on rule-based algorithms, but now learning-based AI models can recognize patterns and anomalies with far greater accuracy. This has significantly improved the capabilities of vision systems in tasks like complex defect detection and classification. Deep learning enables, for example, identifying subtle product flaws or differentiating between acceptable variations and true defects, tasks that were hard to explicitly program. AI-driven vision is especially excelling in areas like surface inspection, assembly verification, and predictive anomaly detection, which boosts quality control beyond what was previously possible. The flip side is an increasing focus on data: to train these models, industries are leveraging big data (images collected from production) and improving image quality (more on hardware advances below) to feed the AI. Overall, AI integration into vision is making systems smarter, more adaptive, and more autonomous in decision-making on the factory floor.
- **Edge Computing and Smart Cameras:** There is a clear trend towards processing visual data at the edge, i.e. on cameras or on local devices, rather than sending everything to a distant server. Smart camera-based vision systems combine image capture and processing in one unit, which simplifies deployment and reduces latency. By performing analysis in real time on the device, these systems can instantly flag a defect or safety hazard and take action (e.g., rejecting a faulty product or stopping a machine) without network delays. Advances in embedded processors (including specialized AI chips) have enabled this miniaturization of vision. In practice, this means easier integration as factories can retrofit a smart camera on a production line without needing a separate industrial PC. Edge AI vision also addresses bandwidth and privacy concerns, since only relevant results (not raw video) may need to be sent to the cloud. As a result, many new industrial vision solutions are leaning towards a decentralized architecture of many intelligent cameras, rather than a few centralized processing units. This trend supports faster scaling of vision across large operations (multiple lines or sites) while keeping each node responsive.
- **Industry 4.0 and IIoT Connectivity:** Computer vision has become a key enabler of Industry 4.0, which seeks to create smarter factories through connectivity and data-driven automation. Modern

vision systems are increasingly connected as part of the Industrial Internet of Things (IIoT) sharing data with manufacturing execution systems, SCADA dashboards, and cloud analytics platforms. This connectivity allows vision-derived insights (like defect rates, throughput counts, or safety incidents) to feed into larger operational intelligence frameworks. Many Industry 4.0 initiatives across major economies are driving investment in intelligent imaging systems to improve operational efficiency and product consistency. For example, a network of vision cameras might continuously monitor production quality and send statistics to a central dashboard for plant managers, enabling data-driven decisions and continuous improvement. Integration with other sensors and production data (temperature, machine status, etc.) creates a more holistic view, sometimes called a "digital twin" of the production process where computer vision contributes the visual context. Thus, CV is part of the broader trend of smart manufacturing and is often deployed in tandem with automation solutions like robotics, sensor networks, and advanced analytics.

- **Workplace Safety and Vision-Based Monitoring:** A significant emerging trend often dubbed "Safety 4.0" is the use of computer vision to augment industrial safety and compliance. High-speed cameras combined with AI can continuously watch over work areas to detect unsafe behaviors or conditions. For instance, vision systems can ensure proper use of Personal Protective Equipment (PPE) by detecting if workers are missing hardhats, safety glasses, or other gear. They can also monitor restricted zones (making sure no person enters a robot's operating cell when it's active) and identify hazards like spills or fires. This approach provides real-time, automated safety supervision, reducing reliance on human oversight and catching issues instantaneously. According to industry use cases, such vision platforms have enabled unprecedented accuracy in monitoring safety compliance and hazard detection. By alerting supervisors the moment a rule is violated (e.g., someone not wearing a helmet in a hazardous area), companies can prevent accidents before they happen. Early adopters report sizable improvements, for example, AI vision reduced certain workplace accidents and improved safety compliance rates dramatically in pilot programs. This trend is driven by the dual benefits of protecting workers and avoiding costly downtime or liabilities from accidents. As the technology matures, we see a convergence where the same vision system contributes to both quality control and safety monitoring, aligning with the goal of maximum overall productivity.
- **Advancements in Vision Hardware:** On the hardware front, continuous improvements are enabling more powerful and versatile vision solutions. Camera sensors are achieving higher resolutions, better low-light performance, and faster frame rates. Notably, advanced imaging modalities are becoming more accessible, for example, 3D vision systems (using stereo cameras or structured light) allow robots to perceive depth and volume for tasks like bin picking or 3D inspection. Multispectral and hyperspectral imaging are also emerging, where cameras capture wavelengths beyond visible light (e.g., infrared or ultraviolet) to reveal material properties or contaminants invisible to the naked eye. These were once niche, expensive technologies, but lower-cost and compact sensors (like SWIR sensors) are making their way into industrial use. Another hardware trend is improved lighting and optics: LED lighting has largely replaced older halogen lamps in vision systems, offering more control and consistency for image capture (even spurred by regulations like Europe's ban on halogen for certain imaging uses). Additionally, specialized optics and lenses are being developed to handle diverse requirements (for instance, fisheye lenses for wide coverage or telecentric lenses for precise measurement). These hardware advancements collectively mean modern vision systems can capture higher-quality data faster, which in turn boosts the effectiveness of AI algorithms and expands the range of automation tasks that computer vision can tackle.
- **Democratization and No-Code Solutions:** As computer vision matures, there is a push toward making the technology more user-friendly and widely adoptable in industry. An important trend is the emergence of no-code or low-code vision platforms, which allow engineers or even line managers to configure vision applications without deep programming skills. This democratization is seen in platforms that offer graphical interfaces to train AI models on custom images or to set up inspection criteria with minimal coding. The benefit is that smaller manufacturers (who may not have a dedicated computer vision expert) can still leverage AI vision by using these more accessible tools. It also enables faster iteration for example, updating a defect detection model when a new

product variant is introduced can be done in-house quickly. Cloud-based vision services and pre-trained models are also contributing, as companies can subscribe to an AI vision API or use pre-built models (for common tasks like object detection) and integrate them into their processes. Overall, this trend lowers the barrier to entry, meaning the market is expanding beyond just large high-tech manufacturers to mid-tier and smaller firms, further driving global growth.

10.5 Market Drivers and Growth Factors

Beyond the technological trends, several key market drivers are propelling the adoption of computer vision in industrial automation worldwide:

- **Demand for Automation and Productivity:** Manufacturers globally are under pressure to increase productivity and efficiency while controlling costs. Computer vision enables greater automation of tasks that were historically manual (like visual inspection or guiding material handling). By automating these visually intensive tasks, companies can operate faster and with fewer errors, directly boosting output. This is crucial in an era where margins are thin and competition is high, any improvement in yield or reduction in scrap translates to financial gains. The drive for lights-out or minimally staffed factories (especially after the disruptions of recent years) makes vision-guided automation a key enabler of 24/7 production. Simply put, the need to do more with less (less labor, less downtime) is a fundamental driver for CV adoption.
- **Quality Standards and Zero-Defect Initiatives:** Today's consumers and industrial clients expect high and consistent product quality, and regulatory standards in sectors like automotive, aerospace, electronics, and pharmaceuticals are increasingly stringent. **Rising demand for high-quality products and real-time inspection** is fueling investment in computer vision systems. Companies are pursuing zero-defect manufacturing goals to eliminate defects and costly recalls. Vision systems, with their ability to inspect every item in real-time, are essential to these efforts. In pharmaceuticals and food, for example, regulators mandate thorough inspection and traceability, vision cameras check fill levels, seal integrity, and correct labeling on packaging to ensure safety and compliance. This regulatory and customer-driven emphasis on quality is a strong market driver, compelling even traditionally manual factories to implement machine vision to meet compliance and avoid the penalties of faulty products.
- **Workforce Challenges and Safety Regulations:** Many industrialized and emerging economies face labor shortages and rising labor costs, particularly for tedious or hazardous roles. Skilled technicians and quality inspectors are hard to find or retain. Computer vision helps alleviate this by automating routine inspection tasks and reducing reliance on large labor forces for monitoring. Additionally, workplace safety regulations and corporate safety initiatives drive adoption of vision for monitoring compliance. Companies have moral and legal incentives to maintain safe operations, and vision systems that can detect unsafe acts or equipment issues fulfil that need. Reducing accidents not only protects workers but also avoids downtime and liability costs. Thus, both the scarcity of labor (pushing automation) and the emphasis on safety (pushing monitoring) are important drivers. For instance, leveraging CV for safety checks can significantly reduce accidents by ensuring proper procedures (like PPE usage and keeping people out of danger zones) are followed.
- **Industry 4.0 Investments and Government Initiatives:** Around the world, governments and industries are investing in smart manufacturing and Industry 4.0 programs, which often subsidize or encourage adoption of advanced technologies like AI and computer vision. Nations like Germany, Japan, China, South Korea, and the United States have strategic initiatives to modernize manufacturing, improve domestic production capabilities, and remain competitive. Many of these initiatives highlight automation and AI as focal points. For example, grants or tax incentives may be offered for factories that upgrade with intelligent automation. In some countries, favourable government initiatives directly support integration of vision systems (e.g., as part of safety improvement programs or quality certification processes). This top-down push creates a supportive environment for market growth. Moreover, in regions like Asia-Pacific, the vision of becoming global manufacturing hubs means both public and private sectors are pouring resources into automation. Asia-Pacific is rapidly adopting vision tech in automotive, electronics, packaging, and other industries to boost output and quality, contributing to strong growth in those markets.

- **Advancements and Cost Decline in Technology:** As with many high-tech markets, as technology matures, costs tend to decrease and performance improves. The cost of cameras (per megapixel) and processing power (per inference) has been dropping, making sophisticated vision solutions more economically viable for a wider range of companies. At the same time, ease of use is improving (as noted with no-code tools and better interoperability of components). These factors reduce the barrier to adoption. The improved price-performance ratio convinces more businesses of the ROI of vision systems, today even mid-sized manufacturers can justify installing automated vision where a decade ago it might have been too expensive or complex. Additionally, the rise of standardized platforms and better integration (cameras that plug-and-play with common software, for instance) means deployment is faster and maintenance is easier. This technological maturing acts as a market driver by itself: as vision solutions become more reliable, affordable, and user-friendly, adoption naturally accelerates.
- **Emergence of New Use Cases:** Finally, the discovery of new applications for computer vision in the industrial domain continues to open opportunities. For instance, beyond manufacturing, industries like logistics and warehousing are now big adopters of vision (for automated parcel sorting, inventory scanning, and forklift/pedestrian safety systems). Energy and construction sectors are using vision-based drones or surveillance for inspecting infrastructure and ensuring safety. Each new successful use case in any vertical can drive growth as it can be replicated elsewhere. The versatility of CV means that once companies invest in a platform, they often find multiple ways to leverage it (quality, safety, process optimization, etc.), increasing the overall value derived and prompting further investment. This virtuous cycle of expanding use cases and demonstrated ROI is propelling the market forward.

Globally computer vision in driving industrial automation, safety, and productivity. With strong growth fueled by technology advances and market forces, CV has evolved from a niche technology into a mainstream must-have for smart manufacturing. Companies worldwide are embracing vision-based AI platforms to not only automate what was once manual, but also to gain deeper insights and control over their operations. As the technology continues to mature, we can expect even broader adoption and novel applications, making computer vision a foundational element of the factories of the future.

10.6 USA Market Overview

The United States represents one of the most dynamic and important markets for computer vision. In fact, the U.S. has been a leading adopter of computer vision, holding a dominant position in the global market as of 2024. Many of the pioneering companies and research in computer vision originate from the U.S., giving it a strong domestic ecosystem. The computer vision market in USA (across all industries) was estimated at about USD 5.2 billion in 2024, and it is projected to reach USD 15.9 billion by 2030 (growing at a CAGR of nearly 20% in the 2025 – 2030 period). This steady growth in the U.S. is backed by broad adoption across manufacturing sectors, from automotive and electronics to food processing and pharmaceuticals. While the U.S. market is only a subset of the global CV market, it is characterized by high innovation, early technology adoption, and integration into advanced production lines. North America as a whole is considered an opportunistic region for machine vision, with the U.S. leading that charge due to its tech-forward industries and the presence of major vision system manufacturers.

Key Drivers in the USA: Several factors are specifically driving the uptake of computer vision in U.S. industries:

- **Reshoring and Automation:** A notable trend in recent years is the effort to bring manufacturing back onshore to the United States. To make domestic manufacturing cost-competitive, companies are heavily investing in automation. Automation systems featuring robots and vision technology are key to making onshoring efforts viable, as they improve quality control and productivity, helping offset higher labour costs in the U.S. In essence, computer vision is viewed as a strategic tool to enhance output and reduce defects, thereby justifying the return of production from overseas. This trend, supported by both industry and government initiatives, is a unique driver in the U.S. market.

- **Advanced Quality and Efficiency Demands:** U.S. manufacturers often operate on large scales and supply critical industries (like aerospace, medical devices, etc.), where quality management is paramount. There is strong demand for advanced quality inspection and productivity improvements through technology. Computer vision addresses this by enabling near-perfect inspection and data-driven process optimization. Many U.S. companies have adopted Six Sigma and other quality programs which align well with machine vision deployment. Additionally, facing tight labour markets, U.S. factories aim to maximize output per worker, CV helps by automating tedious tasks and letting human workers focus on higher-level roles, thus increasing overall efficiency.
- **Technological Ecosystem and Innovation:** The presence of a robust tech ecosystem in the U.S. greatly spurs CV adoption. Silicon Valley and other innovation hubs are home to leading AI and vision companies. These companies not only supply the market but often collaborate directly with manufacturers to implement cutting-edge solutions. The result is that U.S. industries have early access to the latest vision technologies, from the newest high-speed cameras to state-of-the-art AI software. Moreover, U.S. research institutions and government agencies (like DARPA, NIST, etc.) fund advancements in AI vision, especially for defense or space applications, and these innovations often trickle down to commercial industrial use. This virtuous cycle of innovation ensures the U.S. market remains at the forefront of CV capabilities.
- **Diverse Application Across Sectors:** The U.S. economy is diverse, and computer vision is seeing uptake in multiple sectors. The automotive industry (particularly in Michigan and other manufacturing states) has long used machine vision for assembly and inspection, and this continues with even greater reliance as cars become more complex (and electric vehicles require new manufacturing techniques). The electronics and semiconductor sector in the U.S. (including fabs and assembly of high-tech devices) uses vision for precision inspection of tiny components. Food and beverage producers utilize vision to inspect packaging and ensure safety. Notably, the pharmaceutical industry is a fast-growing segment for vision technology in the U.S.. Pharma companies, under strict FDA regulations, employ machine vision to inspect vials, verify labels, and track products, ensuring full compliance and product safety. The FDA's requirements for traceability and quality control have essentially made vision systems a necessity in modern pharma manufacturing. This broad base of applications means the U.S. market growth is spread across various industries, providing resilience and multiple avenues for expansion.
- **Integration of AI and IoT:** U.S. industries are embracing trends like Artificial Intelligence (AI), deep learning, and IoT connectivity, integrating them with machine vision. This has been a driver because it enables more sophisticated use cases such as predictive maintenance and smart manufacturing operations. For example, American manufacturers are linking vision systems with IoT sensors on equipment to get a holistic view of machine health, a camera might visually detect a machine anomaly while vibration sensors provide complementary data, together predicting a failure. The tech-savvy nature of U.S. firms means many are pushing the envelope in combining these technologies, which in turn drives further investment in upgrading vision systems to be AI-ready and IoT-connected.

Key Trends in the USA Market: Many global trends are reflected in the U.S., but some have particular prominence:

- **Smart Cameras & Vision Systems:** In the U.S., there is strong adoption of smart camera-based vision systems. These self-contained units are popular in American factories for their ease of deployment and reliability. The U.S. market sees continuous product innovation in this area, for instance, companies have launched advanced multi-spectral line-scan cameras that dramatically increase imaging speed and bandwidth. The trend is towards cameras that not only capture images but perform on-device analysis and integrate seamlessly with production lines. U.S. industries, often early adopters of new hardware, are quick to implement these improved cameras to maintain a competitive edge in production.
- **Vision for Security and Surveillance:** While industrial automation is the focus, U.S. companies also leverage vision systems for facility security and loss prevention, blurring lines between industrial vision and security surveillance. Many factories and warehouses employ vision not just inwardly for production, but outwardly to monitor perimeters, authenticate personnel (facial

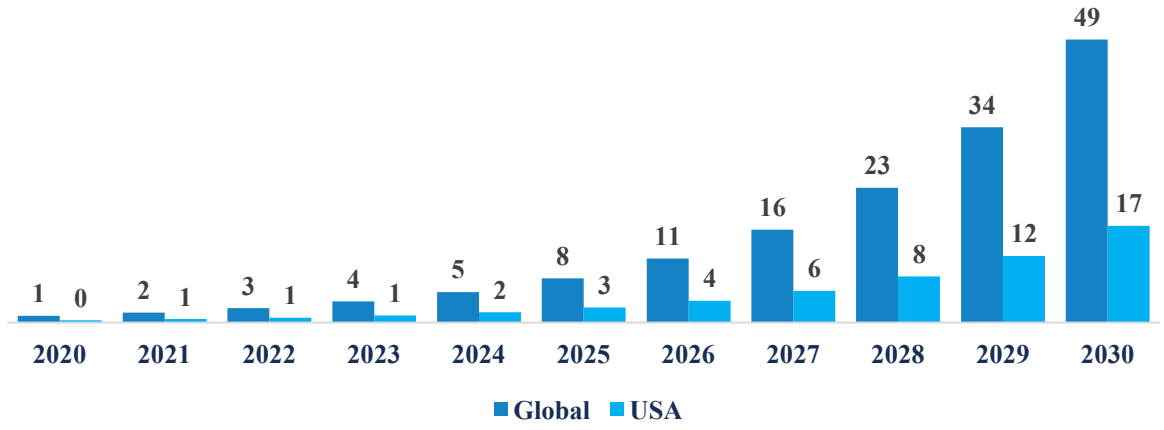
recognition for access control), and detect anomalies (like an unauthorized person in a sensitive area). The integration of security functions can be seen as an added driver for vision adoption, a machine vision camera might double as a safety monitor and a security device. In the U.S., where workplace security is taken seriously, this dual-use of vision tech is a notable trend (e.g., using the same vision platform to detect product defects and to flag any safety or security violations on the shop floor).

- **Emphasis on ROI and Operational Savings:** U.S. businesses are highly ROI-focused. There is a trend of closely linking vision system deployments with clear return on investment. For instance, American firms often start with pilot projects that measure how much scrap reduction or labor saving a vision system achieves and then scale up based on results. This has led to growing proof of the value of vision case studies in the U.S. show significant reductions in defect rates and labor hours, which in turn encourages broader adoption. One specific trend is using vision for predictive maintenance in industrial facilities: U.S. companies have found that catching equipment issues through vision (like identifying a small leak or misalignment early) can prevent expensive downtime. This ability to reduce operational expenses via preventative measures has become a selling point for vision systems in the U.S. market.
- **Regulatory Compliance and Standards:** The regulatory environment in the U.S. can indirectly shape machine vision trends. Apart from FDA in pharma, agencies like OSHA (Occupational Safety and Health Administration) influence safety practices. We see a trend of U.S. companies adopting vision-based safety monitoring to proactively comply with OSHA regulations and avoid penalties. Similarly, environmental regulations might drive the use of vision to monitor emissions or waste. On the standards side, the U.S. has industry groups (like the Association for Advancing Automation, A3) that push standards for vision systems interoperability and training (such as the Certified Vision Professional program), this creates a more knowledgeable user base and smoother integration of systems. Thus, the U.S. market benefits from a framework that supports the successful deployment of vision technology at scale.

The USA's market for computer vision in industrial automation benefits from a confluence of factors: a high need for automation (especially to support reshoring manufacturing), a culture of technological innovation, and proven ROI in quality and safety improvements. While the U.S. already leads in many respects, there is plenty of room to deepen the penetration of vision technology across all levels of industry. The ongoing trends suggest that vision-based AI platforms will become ever more standard in American factories, as common as industrial robots, driving the next leap in productivity, safety, and competitiveness for U.S. manufacturing in the global arena.

11. Agentic AI: Global and USA Market Overview

Exhibit 37: Global and US agentic AI Market (in USD billion), 2020 - 2030



Source: Frost & Sullivan, Secondary Sources

Agentic AI (often envisioned as digital workers or autonomous AI agents) refers to AI systems that operate independently, make decisions, and perform complex tasks without constant human oversight. Unlike simple chatbots or rule-based bots, these agents can take initiative, adapt to changing conditions, and collaborate in multi-agent workflows. In practice, an *agentic AI* "digital worker" might sense its environment, plan and execute objectives, and learn from experience to optimize business processes. This next-generation automation is transforming enterprises worldwide by embedding intelligence directly into workflows, for example, orchestrating end-to-end customer service, supply-chain management, or financial processing with minimal manual intervention.

11.1 Global Market Landscape

The global market for agentic AI and AI-enabled digital workers is poised for explosive growth. As per Frost & Sullivan forecasts, the agentic AI market was valued at USD 1.2 billion in 2020 and USD 5.3 billion in 2024, and is projected to jump from USD 7.7 billion to USD 49.3 billion by 2030 (growing at a CAGR of approximately 45% during 2025-2030). These forecasts reflect a convergence of factors: enterprises across all major sectors are rapidly adopting digital workers to scale up automation and productivity.

Industries leading this charge include financial services, banking and insurance (BFSI), retail and e-commerce, manufacturing, healthcare, and telecom. Sectors with massive data workloads and repetitive tasks see immediate payoff. For example, banks deploy AI agents for fraud detection, underwriting, and automated client support, while retailers use agents for personalized marketing and inventory optimization. BFSI, retail/e-commerce, and professional services currently account for the largest shares of agentic AI deployment because of their need for contextual decision-making and high-volume workflow automation. In general, any domain with structured processes or large-scale knowledge work is exploring digital workers, even traditionally low-tech fields like mining or construction are expanding AI usage.

In this context, "Digital Worker as a Service / Solution (DWaaS)" models such as those offered by Intellius Recode Solutions package agentic AI as outcome-based, ready-to-run digital workers for specific domains (IT operations, finance, CX, supply chain), allowing clients to subscribe to governed automation rather than build agents from scratch.

A key trend driving this expansion is the fusion of advanced AI technologies. Modern agentic AI platforms combine large language models (LLMs), computer vision, reinforcement learning, and traditional RPA (robotic process automation) under unified orchestration frameworks. The convergence of large language models, robotic process automation, and autonomous tool orchestration is enabling firms to move beyond static, scripted automation into *dynamic, goal-driven systems*. In practice, an AI

agent can, for example, parse unstructured data via NLP, call APIs in enterprise systems, schedule tasks, and learn from each outcome, all as part of a coordinated "team" of agents. This multi-agent orchestration is akin to having a symphony of specialist tools (customer-service agents, data-analytics agents, finance agents, etc.) that communicate and adapt in real time.

LLMs are especially important here: they provide natural-language understanding, reasoning over semi-structured documents, and flexible tool use, which means a DWaaS-style digital worker can read emails or tickets, interpret policies, decide which systems to call, and then execute multi-step workflows with minimal templating.

Another technological catalyst is the ongoing advancement of LLMs and AI platforms. Newer generative models grant agents better understanding of context and language, while emerging "memory" and planning frameworks let them tackle multi-step processes across applications. High-performance cloud infrastructure and specialized AI hardware (GPUs, TPUs) have also matured, making it feasible to run sophisticated agents at scale. For example, recent corporate announcements underscore this trend: OpenAI unveiled a "ChatGPT Agent" that can autonomously handle complex workflows, and Google released an "Agent Space" platform to let businesses build interoperating agents for workflow automation. Likewise, IBM and Microsoft have integrated agentic features into enterprise software (Watson Orchestrate on AWS, AI Copilot features in Dynamics 365) to help companies automate tasks across departments. These developments demonstrate the shift from theory to deployed systems, agents are increasingly embedded in mainstream enterprise tools.

Enterprise adoption metrics echo this rapid uptake. Going forward many enterprise applications will include task-specific AI agents. Enterprises are moving swiftly from experimentation to large-scale use of AI-driven digital workers.

11.2 Key Market Drivers

Several factors are fuelling the global agentic AI market. Chief among them is the **insatiable need for hyper-automation and efficiency**. Organizations face intense pressure to reduce operational costs, eliminate manual errors, and provide 24/7 service. Digital workers promise to streamline end-to-end processes from customer support to supply chains by automating routine tasks and augmenting decision-making. AI agents can handle tasks like triaging support tickets, filling out forms, reconciling data across systems, or even triaging insurance claims, freeing human employees for higher-value work.

Breakthroughs in AI capabilities also drive the market. Advances in LLMs (for understanding language and unstructured content), memory architectures (for maintaining context), and autonomy frameworks mean that agents can perform complex multi-step tasks with minimal human input. The widespread availability of cloud computing and GPU-based AI infrastructure has lowered cost and latency barriers. Additionally, the maturation of supporting technologies such as edge computing, 5G connectivity, and digital twins enhances how agents interact with real-world systems, enabling scenarios like adaptive factory control or smart city management.

Another driver is the **digital transformation imperative**. Companies across the globe are modernizing their IT stack (ERP, CRM, HR systems) and see AI agents as the next layer of innovation. For instance, when organizations update their software to include AI-powered "copilots," they inadvertently lay groundwork for full agentic autonomy. Executives increasingly view agentic AI as a strategic priority. In effect, businesses believe that scaling autonomous agents will yield a competitive edge, a notion based on the belief that firms which rapidly adopt agentic AI tend to outperform peers.

A particularly powerful driver is the shift from "assistive copilots" to fully agentic digital workers: where copilots suggest actions for humans, DWaaS models commit to owning KPIs, for example, closing tickets within SLA, reconciling invoices, or clearing order backlogs—under explicit guardrails. Vendors like Intellius Recode Solutions design their digital workers around measurable outcomes (MTTR, cost-to-serve, DSO, NPS), making agentic AI adoption a P&L conversation rather than a pure technology experiment.

Regional and industry opportunities also spur growth. In Asia-Pacific, national AI strategies and rapid digitalization are creating fertile ground. Countries like India, China, South Korea, and Singapore

are pouring resources into AI innovation. For example, India recently announced a USD 1.2 billion national AI mission to develop foundational models and integrate AI in enterprise sectors, directly accelerating agentic AI deployments. Chinese tech and financial firms are piloting LLM-driven agents for customer service, fraud detection, and insurance claims. Even emerging economies see promise: Southeast Asian companies (e.g. Grab, DBS Bank) are embedding agentic copilots in customer platforms, while Japan's manufacturing giants adopt agentic modules in smart factories. Altogether, APAC is expected to be the fastest-growing region for agentic AI through 2030, leveraging a combination of strong public-sector support and a young tech workforce.

Within verticals, certain segments stand out as early adopters. The **BFSI sector** is the most significant one for agentic AI usage today, given its intense need for data processing, risk management, and compliance automation. Healthcare is another frontier: agents are used for administrative workflows (claims, billing) and are beginning to assist in diagnostics and patient support. Manufacturing and supply chain companies deploy agents for inventory planning, predictive maintenance, and quality control essentially taking Industry 4.0 to the next level by coupling IoT with autonomous decision-making. Retailers and telecom providers are enhancing customer experience with AI agents that can handle returns, resolve issues, and cross-sell services. Even government agencies are piloting agentic AI for tasks like benefits adjudication, cybersecurity monitoring, and smart city operations. The common thread is that any process involving large datasets, rule-based decisions, or human hand-offs is ripe for an AI-powered digital worker to improve efficiency and consistency.

11.3 USA Market Analysis

The United States is a leading market for agentic AI and AI-driven digital workers. By recent estimates, North America already commanded roughly 38%-39% of the global agentic AI market in 2024, reflecting the region's robust technology landscape and early adoption. The U.S. agentic AI market itself was about USD 0.4 billion in 2020 and USD 1.8 billion in 2024 and is forecasted to surge from USD 3 billion to USD 16.9 billion by 2030 (growing at a CAGR of 45% from 2025 to 2030). This rapid growth is fuelled by heavy R&D spending from U.S. tech companies, strong enterprise investment, and supportive government initiatives. In short, the U.S. serves as a bellwether for agentic AI trends.

A key market driver in the U.S. is **strategic priority and investment** at the highest levels. U.S. policymakers recognize AI agents as critical to national competitiveness. The White House's AI Action Plan explicitly highlights enabling AI agent adoption as "critical to how America can win" the global AI race. Government agencies are incorporating agents for their own missions: for example, in 2025 the U.S. Department of Defense announced contracts (each ~ $200 million) with leading AI firms (including xAI, Google, Anthropic, OpenAI) to develop autonomous systems for military intelligence tasks. Such initiatives accelerate innovation and set de facto standards for agentic technologies.

In the private sector, **tech giants and startups** are pouring resources into AI agents. Leading tech companies are integrating agentic features into their cloud and software platforms. For instance, Microsoft's Dynamics 365 now includes "Copilot" enhancements that let sales reps or service agents trigger automated actions via natural language. Google's "Agent Space" opens cross-organization agent development, and Amazon Web Services offers services for hosting AI agents. On the startup side, U.S.-based ventures are attracting large funding rounds. A notable example is AppZen (based in California), which provides an agentic AI platform for finance teams. AppZen's agents automate expense audits and payables processing and count major U.S. corporations (Amazon, Salesforce, JPMorgan Chase, etc.) as clients. Such capital flows and high-profile users indicate that the technology is passing early inflection points.

Enterprise adoption in the U.S. is progressing rapidly. Large majority of American companies are already moving forward with AI agents and are looking at actively adopting AI agents. US enterprises see immediate ROI in customer-facing and back-office processes and customer support for example as the use case is delivering high impact. U.S. banks are automating customer service chatbots into fully autonomous support agents, insurers are using AI to adjudicate claims, and retailers (from e-commerce startups to big box chains) are deploying agents for inventory management and personalized marketing.

Sector-wise, the U.S. market mirrors global trends but with some distinct emphases. The **Financial Services** industry in the U.S. has quickly embraced digital workers for compliance (KYC/AML checks), risk analysis, and account servicing. For example, major banks in U.S. are clients of AI-agent vendors (like AppZen) to streamline accounts payable and audit processes. In **Healthcare**, U.S. insurers and hospital systems are using agents for insurance claims processing, patient scheduling, and even preliminary diagnostics support. U.S. manufacturers (auto, aerospace, electronics) are pilots of smart-factory solutions that incorporate agentic AI for supply-chain coordination and predictive maintenance. Even **telecom and utilities** are employing agents for network monitoring and automated customer fault resolution. The energy sector (especially oil & gas) in Texas and the financial hubs of New York/Silicon Valley are fertile ground for trialing autonomous AI on both physical processes and data workflows.

U.S. specific Market Drivers: Several factors make the U.S. market particularly receptive. The U.S. has a high demand for skilled labor, and digital workers are seen as a way to augment a tight workforce. U.S. companies face intense global competition and margin pressures, so automation is viewed as a strategic imperative. The large base of legacy enterprise systems in the U.S. (financial, ERP, CRM) also creates a sweet spot: many firms are already upgrading these systems with AI capabilities or wrapping them with agentic layers. Furthermore, the U.S. has massive cloud and connectivity infrastructure, enabling AI agents to integrate with enterprise data securely. Remote and hybrid work trends in the U.S. economy also drive adoption: American firms want agents that can support employees seamlessly in decentralized environments.

Regulatory and Ecosystem Factors: Unlike some regions, the U.S. currently has a relatively flexible regulatory stance on AI (though oversight is increasing). Industry bodies and federal agencies are actively working on AI guidelines, but explicit barriers to enterprise agent use are lower than in heavily-regulated markets. This encourages faster experimentation by U.S. firms. At the same time, data privacy and security concerns remain front-of-mind: U.S. companies often need to ensure that autonomous systems comply with industry regulations (e.g. HIPAA in health, SEC rules in finance). Major U.S. organizations are therefore investing in governance frameworks and encrypted agent platforms. On the ecosystem side, the U.S. boasts many prominent AI tool providers. This concentration of know-how and talent means U.S. enterprises have access to a wealth of commercial agent solutions and expertise.

Importantly, the U.S. market is characterized by both breadth and depth of use cases. Enterprises are not only using off-the-shelf digital workers but are also building custom AI agents for unique internal tasks. The presence of leading edge customers (Fortune 500s, innovative SMEs, and government) means U.S. adoption often sets examples for others. In turn, successful American deployments (such as autonomous procurement agents, IT-operations bots, legal-research assistants, etc.) are frequently shared through industry conferences and media, reinforcing the global narrative.

The United States stands at the forefront of the agentic AI movement. With one of the largest domestic markets and the most advanced R&D environment, the US has become a proving ground for enterprise digital workers. Strong governmental interest (from the Pentagon to the White House), coupled with aggressive uptake by private-sector leaders, has created a virtuous cycle of innovation. The US agentic AI market is on track to grow at rates comparable to the global market (roughly 45% annually), but off a larger base. Given the strategic emphasis on AI across U.S. industries, and the capital available for technology adoption, American companies will likely continue to lead on both developing and deploying AI-enabled digital workforce solutions in the coming years.

11.4 Threats and Challenges to the Growth of Digital Commerce, Cloud / Application, and Tech Consulting

The emerging digital services industry is a highly competitive and fast-evolving one. The digital commerce, cloud / application, and tech consulting offerings, faces both external market pressures and internal execution risks. Key external threats include intense competition, rapid technology shifts, economic/regulatory headwinds, and changing enterprise buyer preferences. Internally, there are challenges with respect to talent acquisition and retention. The following outlines these factors, with attention to both global and U.S. contexts.

External Market and Industry Challenges

- **Fierce competition from large and niche players.** The global IT services market is dominated by large cloud and consulting firms. North America alone accounts for over bulk of IT services spending, led by U.S.-based demand. So, in digital commerce and cloud services, there's good competition from established platform vendors and system integrators. Vendors therefore must differentiate on specialization, speed and agility. Smaller, agile consultants are weathering today's slowdowns better than the brand-name giants, but the competition remains intense.
- **Rapid technology shifts.** The pace of change in enterprise IT is rapid, and failure to keep up is a threat. Clients are increasingly adopting AI, machine learning, generative AI, IoT and data analytics to improve efficiency and customer experience. At the same time, emerging technologies also bring new risks (e.g. AI-augmented cyberattacks). So vendors must continually evolve their services. Moreover, enterprise buyers now expect seamless omnichannel digital experiences and robust cloud platforms; vendors must continually invest in these areas and also in skill-building and partnerships to match these shifts.
- **Macroeconomic and regulatory headwinds.** Global economic uncertainty can dampen demand. Trade tensions and "deglobalization" trends have added complexity to multinational planning. In the U.S., inflation and tariffs are putting pressure on business and consumer budgets. In this environment, corporations often freeze or cut discretionary spending, including consulting and IT projects. Regulatory factors also matter: data privacy laws (e.g. CCPA, GDPR), cybersecurity mandates, and industry-specific regulations (e.g. in finance or healthcare) impose compliance burdens on clients. This can slow down digital initiatives and increase delivery complexity.
- **Evolving enterprise buyer preferences.** Today's enterprise clients are savvy: they demand clear ROI, rapid time-to-value, and flexible delivery models. Firms are shifting away from "bet-the-business" transformation projects toward more targeted, value-driven engagements. Clients place a premium on strong data foundations, security, and a collaborative culture in their tech partners. They also expect vendors to bring turnkey solutions while delivering continuous improvement and metrics.
- **Supply chain and risk factors.** Global supply-chain issues can indirectly affect clients. For example, manufacturing or retail clients may delay technology spending due to hardware shortages or disrupted logistics.

Internal Organizational Challenges

- **Talent acquisition and retention.** Finding and keeping skilled people is a critical challenge. The tech talent market is extremely tight and recruiting/retaining talent is a major issue, even amid layoffs in other areas. In India, the IT sector's attrition rates have climbed to around 13–14% annually. Skilled professionals, especially in AI/ML, cloud and data analytics, are in high demand. They often chase higher pay and advanced projects at larger companies or global capability centers (GCCs).

11.5 Challenges and Hurdles to the Growth of Recode Solutions' Offerings

Despite operating in high-growth digital transformation segments, Recode Solutions' offerings face certain structural and market-specific challenges that may influence adoption, scalability, and long-term growth across its solution portfolio:

Data and Analytics Solutions

The data and analytics services market presents significant opportunities but also several structural challenges for vendors. Data transformation initiatives require deep integration across enterprise systems, strong governance frameworks, and scalable cloud based data architectures, making implementation complex and resource intensive. One of the primary challenges is the fragmented nature of enterprise data ecosystems, where organizations operate multiple legacy systems, data warehouses, and applications that are often incompatible with modern analytics architectures. This creates integration complexity and slows adoption cycles. Additionally, enterprises increasingly demand real

time analytics, predictive insights which require sophisticated data engineering and continuous platform modernization. The shortage of skilled data engineers, data architects, and AI specialists globally further constrains delivery capacity. Moreover, the data and analytics market is highly competitive, with global technology consulting firms, cloud providers, and specialized analytics companies offering similar services. Clients also face increasing concerns about data privacy, regulatory compliance, and cybersecurity risks when implementing large scale data platforms. These factors collectively create longer sales cycles, higher implementation risks, and increased pressure on pricing and margins for service providers operating in this space.

Enterprise Robotic Process Automation (RPA)

The enterprise RPA market is evolving rapidly but also faces several structural challenges that could affect growth prospects. Although organizations are increasingly adopting automation to reduce operational costs and improve productivity, many enterprises struggle to move beyond initial pilot deployments into large scale automation programs. Automation initiatives often require deep process re-engineering, integration with legacy enterprise systems, and organizational change management, which can slow implementation timelines. Another challenge is the growing commoditization of RPA tools, as major vendors dominate the platform layer. As a result, technology service providers must continuously differentiate themselves through domain expertise, implementation frameworks, and AI-led automation capabilities rather than relying solely on RPA implementation services. Additionally, automation projects frequently face internal resistance from employees concerned about job displacement, which can slow adoption across business functions. The emergence of agentic AI and intelligent automation also introduces uncertainty, as enterprises may delay investment decisions while evaluating evolving technologies. These factors create execution risk and require continuous innovation and capability expansion for automation service providers.

Software Quality Assurance (QA)

Software quality assurance remains a critical component of enterprise digital transformation, but the market is increasingly competitive and rapidly evolving. As enterprises adopt agile development methodologies and continuous integration pipelines, the traditional testing lifecycle is being compressed, requiring QA providers to deliver faster and more automated testing solutions. This shift toward DevOps driven delivery models reduces the demand for conventional manual testing services and places greater emphasis on automated testing frameworks and AI-driven testing tools. Companies providing QA services must continuously invest in new tools, frameworks, and automation capabilities to remain relevant. Another challenge is pricing pressure due to the commoditization of basic testing services and competition from global IT services firms as well as offshore providers offering low cost QA resources. Furthermore, enterprises increasingly expect QA providers to offer end-to-end testing capabilities across complex ecosystems involving cloud platforms, mobile applications, APIs, and enterprise software such as ERP systems. Meeting these expectations requires significant investment in specialized testing infrastructure, domain expertise, and global delivery capabilities.

Integration and DevOps Services

Integration and DevOps services play a central role in modern enterprise IT architectures by enabling continuous deployment, platform modernization, and system interoperability. However, this segment faces several structural challenges. First, enterprises operate increasingly complex technology environments that include legacy systems, cloud platforms, microservices architectures, and third-party SaaS applications. Integrating these disparate systems requires highly specialized engineering capabilities and deep domain knowledge. The rapid evolution of cloud native technologies,

containerization platforms, and orchestration tools also creates continuous skill gaps within the workforce. Another challenge is the rising expectation for near zero downtime and high system reliability, which increases operational accountability for DevOps service providers. Organizations also increasingly demand real time monitoring, automated incident management, and performance engineering capabilities, requiring investments in sophisticated observability and monitoring tools. Additionally, the DevOps services market is highly competitive, with large global IT consulting firms, hyperscale cloud providers, and platform vendors offering integrated DevOps services and tools. This competitive intensity may exert downward pressure on service margins and require smaller providers to focus on niche capabilities or specialized industry solutions.

Computer Vision Solutions

Despite strong growth potential, this market faces several challenges. Implementing computer vision solutions often requires significant upfront investment in hardware infrastructure such as cameras, sensors, and edge computing systems, which may limit adoption among smaller enterprises. In addition, deploying computer vision systems in real-world environments can be technically complex due to variability in lighting conditions, environmental factors, and operational processes. Achieving high accuracy in image recognition and object detection models requires extensive training datasets and continuous model optimization. Data privacy and regulatory considerations also pose challenges when computer vision systems involve surveillance or sensitive visual data. Furthermore, competition in this market is intensifying, with large technology companies and AI startups investing heavily in computer vision platforms, making differentiation increasingly difficult for specialized service providers.

Agentic AI

While Agentic AI as a technology has significant transformative potential, it also faces a number of challenges that may impact the growth trajectory of companies providing such solutions. One of the key hurdles is the relatively early stage of enterprise adoption, as many organizations are still evaluating the risks, governance requirements, and reliability of autonomous AI agents. Enterprises often require strict oversight, auditability, and explainability in AI-driven decision-making systems, which increases implementation complexity. Additionally, the development and deployment of agentic AI systems require significant computational resources, specialized AI engineering skills, and robust data pipelines. Concerns around AI ethics, regulatory compliance, and data security are also becoming increasingly prominent, particularly as governments begin to introduce new AI governance frameworks. Finally, rapid technological evolution in the AI ecosystem means that companies must continuously invest in research, platform upgrades, and talent to remain competitive in a market that is being shaped by large technology vendors and well-funded AI startups.

11.6 Competitive Landscape

Globally, the IT Services & Solutions market is composed of three key segments. First, it includes large-scale IT providers offering a broad range of services such as consulting, systems integration, infrastructure, managed services, and BPO, led by firms like Accenture, IBM, TCS, and Capgemini etc. Second, while not traditional IT service vendors, hyperscalers such as AWS, Microsoft Azure, and Google Cloud play a critical role due to their dominance in cloud infrastructure and growing influence in AI and hybrid-cloud deployments. Finally, a new wave of segment leaders and disruptors is emerging comprising AI-first consultancies like Xavier AI, Perceptis, and Unity Advisory, along with SaaS and data platform companies like Salesforce, Adobe, Intuit, and Snowflake, which are expanding into consulting-driven cloud solutions.

In summary, the global IT Services & Solutions landscape is shaped by hyperscalers leading cloud infrastructure, Tier-1 system integrators capturing a significant share of IT services revenue, and niche

specialists driving competitive pressure in AI, BPM (Business Process Management.), and digital transformation.

11.7 Top Vendors in the IT Services & Solutions Market in US

The U.S. IT services and solutions market largely reflects the global competitive landscape. At the top end, Tier-1 global system integrators (GSIs) such as Accenture, TCS, IBM, Capgemini and Cognizant dominate large transformation programs. They bring massive scale, broad consulting and integration capabilities, and global delivery, but typically operate with longer decision cycles and a higher risk of vendor lock-in for buyers.

Alongside them, hyperscalers (AWS, Microsoft Azure, and Google Cloud) have become de facto infrastructure and innovation platforms. While not traditional services firms, they increasingly offer reference architectures, packaged industry solutions, and advisory support around migration, data, security, and AI, shaping how enterprises design and run IT.

Below this layer, a set of digital engineering focused mid-tier providers such as Sasken, Cyient, Sonata, Happiest Minds, Coforge, Xoriant, and Birlasoft specialize in software product engineering, cloud-native builds, and vertical-specific solutions. They tend to offer strong delivery discipline, competitive pricing, and flexibility, though often with more limited proprietary IP in areas like agentic AI or edge platforms.

In parallel, a new class of agentic automation and AI platforms including C3.ai, Moveworks, Aisera, NICE, and Verint targets specific, high-value domains such as IT operations, customer service, and contact centers. These vendors provide pre-built AI capabilities (virtual agents, autonomous ticket handling, workflow orchestration, CX analytics) that sit on top of existing enterprise systems rather than replacing core IT stacks.

Finally, specialist managed service providers (MSPs) and niche players remain important in regulated and mission-critical segments such as government, healthcare, critical infrastructure, and public safety where deep domain knowledge, compliance readiness, and local presence are as important as technical capability. Together, these segments form a layered ecosystem in which enterprises typically combine a GSI or mid-tier partner with one or more hyperscaler and domain-specific AI platforms to meet their IT and transformation needs.

11.8 Key Product/Service Categories

The global & US IT services & solutions market is broadly segmented into several core product and service categories, each addressing different enterprise technology needs.

1. Consulting & Advisory Services
    - Consulting services help organizations design, align, and execute their IT strategy in line with business goals. Core areas include Guidance on digital operating models, IT roadmaps, and business alignment (IT Strategy & Transformation), Design thinking, innovation labs, and emerging tech exploration (Digital Innovation Advisory), Technology Risk mitigation & regulatory Compliance, Cybersecurity Consulting, Sustainability & Green IT.
2. Systems Integration Services
    - This category focuses on enabling interoperability between diverse technologies and systems. Key offerings are Custom Application Development (Building scalable, enterprise-grade apps), Legacy Modernization (Migrating from outdated technologies to modern cloud-native stacks), Enterprise Systems Implementation (Deploying and integrating ERP, CRM, SCM, and HCM platforms like., SAP, Oracle, Salesforce), API & Middleware Integration (Connecting disparate systems through APIs and service buses).
3. Infrastructure Services
    - This segment covers the backbone IT architecture and its ongoing management. This includes Data Center Management, Server, Storage & Network Services (Provisioning and managing physical and virtual infrastructure), Virtualization Services (Implementing VMware, Hyper-V, Citrix, etc.), Enterprise Backup & Disaster Recovery).
4. Managed Services

- Outsourcing the day-to-day management responsibilities of IT functions like IT Infrastructure Outsourcing (ITO) (management of servers, desktops, networks), End-User Computing (EUC): (Helpdesk, device management, and desktop virtualization), Managed Security Services (MSS) (Real-time monitoring, threat detection, and response), Cloud Management Services (Multi-cloud monitoring, cost optimization, performance tuning).

5. Business Process Services (BPO/BPM)
   - Involves outsourcing non-core but essential business processes like Finance & Accounting Outsourcing (FAO), Human Resource Outsourcing (HRO), Customer Support Services, Industry-Specific BPM (Insurance claims processing, healthcare RCM, loan servicing).
6. Application Services
   - This segment ensures the full lifecycle support of enterprise applications. Key areas include Application Development & Maintenance (ADM) (Agile or traditional builds, support, and enhancement), Quality Assurance & Testing, DevOps Services (automated deployments, infrastructure-as-code), Mobile & Web Development (Cross-platform responsive development using modern frameworks).
7. Cloud & Platform Services
   - Cloud-first transformation and platform engineering to enhance agility and scalability. Typical offerings include: Cloud Migration Services (Transitioning workloads from on-prem to public/hybrid clouds), Multi-Cloud & Hybrid Cloud Management, Platform-as-a-Service (PaaS) Enablement, Containerization & Microservices (Kubernetes, Docker, and modern microservice deployments).
8. Data & Analytics Services

- Data-driven services to support decision-making and innovation. Core areas include Data Engineering & Warehousing (Data lakes, ETL/ELT pipelines, and cloud-native storage), Business Intelligence (BI) (Dashboards, KPIs, and visualization (Power BI, Tableau, Qlik)), Advanced Analytics (Predictive and prescriptive analytics using ML models), Data Governance (Master data management, lineage tracking, privacy and compliance frameworks).

9. Cybersecurity Services
   - Dedicated services to protect digital assets, data, and infrastructure. Includes Threat Intelligence & Monitoring, Identity & Access Management (IAM), Compliance Management (Ensuring adherence to PCI-DSS, ISO 27001, SOC 2, HIPAA, etc.), Security Architecture & Design (Zero trust, secure SDLC, network segmentation).
10. Emerging Technology Services
    - High-growth, innovation-led areas transforming how IT services are delivered. Includes Artificial Intelligence & Machine Learning (AI/ML), IoT, Blockchain, AR/VR & Spatial Computing.
    - These service categories are often bundled into end-to-end digital transformation programs, especially by large system integrators.

11.9 Key Service Providers Profiled

Frost & Sullivan has identified the following companies as the most relevant peers among industry players. Revenue segment wise listed Indian as well as global players have been considered. While there are no exact listed comparables in India or globally in terms of size and product bouquet, Frost & Sullivan has selected the closest matches for a quick comparison. These peers have a business mix that is closely aligned with that of Intellius Recode Solutions across the major streams.However, for the purpose of financial analysis, only publicly listed Indian Companies are considered. The competitors are indicative and not an exhaustive list for comparison.

Various financial parameters, such as operating income, EBITDA, profitability margins, return ratios, working capital, etc. have been considered for the comparison.

11.10 Sonata Software

Sonata Software is a “modernization engineering” company driven by its proprietary “Platformation” framework. It partners with Fortune 500 clients globally to modernize and digitalize business processes. Core competencies include cloud migration (AWS/Azure), data & analytics, Microsoft Dynamics/CMS,

Salesforce, GenAI, and application modernization. Sonata's services cover enterprise application development, legacy modernization, managed IT services, automation, and digital contact centers. It has a broad industry focus (retail, distribution, CPG, manufacturing, travel & hospitality) and a global delivery model (offices in US, UK, Europe, APAC, ANZ). Sonata's "Platformation" strategy (combining platforms with transformation) helps clients become "digital, connected, open enterprises." It maintains strategic partnerships with AWS, Microsoft, Salesforce, Snowflake and Google.

- **Services & Products:** Cloud-native development, big data analytics, Dynamics 365 implementations, modernization of legacy ERPs, managed infrastructure, RPA & AI-driven automation, and digital commerce solutions.
- **Strategic Capabilities:** Outcome-based modernization approach, strong cloud & Microsoft ecosystem presence, and a focus on high-impact digital platforms.
- **Achievements:** Consistent revenue growth through acquisition of clients (e.g. partnerships with global retailers), and recognition as a Microsoft Solutions Partner (Gold) and AWS Partner.

11.11 Happiest Minds

Happiest Minds Technologies is an AI-led digital engineering and "Mindful IT" company founded in 2011. It offers end-to-end digital transformation solutions with a "chip-to-cloud" approach. Its services include product engineering, cybersecurity, cloud, data analytics, IoT, automation, and enterprise mobility. The company focuses on emerging technology areas especially Generative AI, machine learning, cybersecurity and blockchain and maintains partnerships with Microsoft and AWS. It also develops proprietary platforms such as **Arttha** (digital payments suite) and **FuzionX** (gaming development environment). As of June 2025, Happiest Minds reports over INR 20,608 **million** in annual revenue, 6,500+ employees, 43 global offices, and 280+ customers (85+ of which are billion-dollar enterprises).

- **Services:** Digital engineering (product design, DevOps, QA), cloud solutions, managed security services, analytics, cognitive customer engagement, and intelligent automation (AI/ML-based).
- **Strategic Capabilities:** Emphasis on "Mindful IT" culture (employee well-being), AI-driven innovation, industry-specific solutions in BFSI, Healthcare, Manufacturing, Retail, and focus on sustainability. ISO/IT certifications and Golden Peacock corporate governance awards underpin its quality ethos.
- **Achievements:** Rapid growth post-IPO (2020); recognition as a Great Place to Work; backed by marquee investors; multiple industry awards for governance and innovation.

11.12 NIIT Technologies (Coforge)

NIIT Technologies was rebranded as Coforge in 2020 after being acquired by a private equity firm. Coforge is a global digital IT services company (headquartered in Noida/Melbourne) delivering solutions at the intersection of deep domain expertise and emerging technologies. It serves select industries such as banking & financial services, insurance, travel & hospitality, and manufacturing. Coforge's offerings include digital engineering, product engineering, cloud, data analytics, integration, automation (RPA/AI), and legacy modernization. The company is known for its "product engineering" approach and proprietary platforms (e.g., for travel reservation systems, banking middleware). It operates 30+ delivery centers in 23 countries and holds a rich partner ecosystem with Microsoft, SAP, Salesforce, etc. Coforge (NASDAQ: CG) serves ~10,000 clients (over 80% of Fortune 100 companies).

- **Services:** Domain-aligned consulting and technology services in the core verticals; enterprise integration (APIs, microservices), cloud migration, digital workplace, IT outsourcing, and managed services.
- **Strategic Capabilities:** Deep knowledge of client industries (especially BFSI and travel), proprietary accelerators (CodeInsightAI, BlueSwan), and focus on customer-centric agile delivery. Coforge prides itself on "domain-led, IP-based" solutions.
- **Achievements:** Ranked a leader in multiple analyst reports, continuous growth through strategic acquisitions, and high customer retention in core verticals.

11.13 Xoriant

Xoriant is a global technology consulting and software engineering firm (headquartered in the U.S.) specializing in digital engineering and product development for growth-stage technology companies. It offers a wide range of IT services including product/platform engineering, application development and management, cloud migration, data analytics, cybersecurity, and Internet of Things (IoT) solutions. According to its website, "Xoriant is a technology consulting and software services company specializing in digital engineering–led digital transformation acceleration". Its clients range from startups to Fortune 100 enterprises across industries like BFSI, high-tech, healthcare, manufacturing, telecommunications, and automotive. Xoriant also develops in-house product accelerators (e.g. X·CELERATE suites for invoicing, eKYC, etc.). The company has delivered digital solutions in microservices, AI, and cloud to hundreds of clients.

- **Services:** Enterprise software development, cloud-native development, data engineering, quality and DevOps, embedded and IoT engineering, legacy application modernization, and support services.
- **Strategic Capabilities:** Three decades of experience (founded 1990) with a partner ecosystem including AWS, Microsoft, Salesforce; emphasis on IP-led product engineering; and recognitions such as NASSCOM awards for best workplace and cybersecurity excellence.
- **Achievements:** Awarded "Most Preferred Workplace" by industry bodies; a portfolio of government-grade security projects; and steady growth driven by tech-sector clientele.

11.14 Birlasoft

Birlasoft is an IT services and consulting company within the C.K. Birla Group. It positions itself as a "global technology company enabling next-generation digital transformation through expertise in Cloud, AI, Data, and enterprise solutions". With around 12,000 professionals worldwide, Birlasoft combines deep industry domain knowledge (manufacturing, banking, insurance, life sciences, utilities, etc.) with digital technology skills. Its offerings include enterprise application services (Oracle, SAP, Microsoft solutions), data & analytics, IoT/connected products, cloud and infrastructure, and intelligent automation. Birlasoft focuses on transforming business processes to be agile, resilient and "future-ready".

- **Services:** ERP and CRM implementation and support (especially Oracle and SAP stacks), cloud migration and management, AI/ML solutions, IoT/IIoT for connected products, quality engineering and cybersecurity.
- **Strategic Capabilities:** Backed by Birla Group's legacy, strong experience in manufacturing and engineering industries, and industry-specific platforms (e.g., for supply chain and asset management). Birlasoft has CMMI Level 5 and ISO certifications.
- **Achievements:** Consistently recognized by analysts for ERP and digital services; numerous Center of Excellence (CoE) initiatives; high retention of long-term enterprise customers.

11.15 CognitiveScale (Cortex AI)

CognitiveScale is an Austin-based enterprise AI software company known for its **Cortex** AI platform. It provides AI solutions for industries such as financial services, healthcare, and digital commerce. The core offering is the Cortex platform, which enables businesses to rapidly build, deploy, and manage "trusted AI/ML-powered digital systems" with transparency and compliance. Cortex consists of components like **Marketplace** (AI accelerators library), **Studio** (visual workbench for composing AI applications), and **Fabric** (data and compute layer). Notably, Cortex includes *Cortex Certifai*, which automates assessment of AI model fairness, robustness, and compliance (creating an "AI Trust Index"). CognitiveScale's software is used by leading banks and insurers to improve customer engagement, automate insights, and monitor AI risks. The company holds numerous patents for explainable and ethical AI.

- **Products:** Cortex AI Platform (enterprise-grade AI development), Cortex Certifai (AI assurance tool), and domain-specific AI accelerators (for loan servicing, claims, etc.).

- **Strategic Capabilities:** Focus on "explainable, transparent, trusted AI," hybrid human-AI augmentation, and scalable enterprise deployments. Strengths include deep IP in regulatory-compliant AI and expertise in healthcare and financial domains.
- **Achievements:** Recognized as a leader in AI ethics; partners with Microsoft (Azure), IBM, and Deloitte; serves large clients like JPMorgan Chase and Texas Mutual Insurance.

11.16 C3.ai

C3.ai (NYSE: AI) is a leading enterprise AI software provider founded by Tom Siebel. It offers the **C3 AI Suite**, an "agentic AI platform" for developing and operating large-scale AI applications. C3 provides turnkey AI applications (over 130 out-of-the-box solutions) and a development platform for industries including manufacturing, energy, utilities, financial services, and healthcare. Use cases include predictive maintenance, fraud detection, supply chain optimization, energy management, anti-money laundering, and customer engagement. Its model-driven platform accelerates AI projects by handling data integration, model deployment, and application logic. C3.ai has high-profile customers and partners with Google, Microsoft, and other tech vendors.

- **Services:** Enterprise AI Applications (e.g. C3 AI CRM, Inventory Optimization, Fraud Detection), C3 AI Platform (data lake integration, ML model services), and consulting.
- **Strategic Capabilities:** End-to-end AI development lifecycle support, strong performance on big datasets, and an "agentic" approach (AI agents that act across systems). The company invests heavily in R&D under industry and government collaborations (C3 AI Digital Transformation Institute).
- **Achievements:** Recognized by analysts as a leader in AI/ML platforms; listed on the Fortune 1000; major growth as an early mover in enterprise AI

11.17 NICE Ltd.

NICE Ltd. (Nasdaq: NICE) is a multinational software company specializing in customer experience (CX) and contact-center solutions. NICE's AI-powered platforms automate and orchestrate customer engagements across voice, digital, and self-service channels. Its flagship product is **CXone** (cloud contact center platform), which offers unified omnichannel routing, AI-based virtual agents, workforce optimization, analytics and quality management. NICE also develops solutions for back-office automation and digital safety. The company emphasizes AI "that puts people first," turning interactions into proactive, intelligent actions. NICE has a 27-year history in cloud CX and extensive patent holdings in AI/analytics.

- **Services:** Contact center software (AI chatbots, IVR), analytics (customer journey, speech/text), workforce engagement (planning/scheduling), and cloud infrastructure/services. NiceCXone, CXone AppHub integrations, and GenAI-powered self-service assistant (XDA).
- **Strategic Capabilities:** Strong AI and automation for CX (NICE Enlighten AI), broad partnership ecosystem (Microsoft, Cisco, etc.), and multi-industry expertise (banking, telecom, utilities). Its AI solutions have won industry awards.
- **Achievements:** Consistent growth, global deployment scale (150+ countries), and customer accolades for CX automation ROI.

11.18 Verint Systems

Verint Systems (Nasdaq: VRNT) is a leading provider of customer engagement and security intelligence software. It brands itself as "The CX Automation Company." Verint's Open Platform delivers a suite of AI-powered bots and analytics tools to automate customer experience (CX) and employee workflows. Core products include contact-center workforce management, omnichannel routing, intelligent self-service (virtual assistants), compliance recording, and engagement analytics. Verint's patented Da Vinci AI models at the platform core enable real-time decisioning and automation. Serves over 10,000 enterprise customers in 175+ countries (80% of Fortune 100 use Verint). Verint holds hundreds of patents in AI and security.

- **Services:** CX Engagement (IVR, chatbot, messaging), Workforce Engagement Management (WFM/WEM), Customer Analytics (speech/text analytics, text analytics), and fraud/security intelligence.
- **Strategic Capabilities:** Open, extensible architecture integrating behavioral data; focus on AI bots that work alongside humans; and strong sales/go-to-market in both private sector and federal markets.
- **Achievements:** Leader in industry reports for WFM and analytics; numerous "Best Workplace" honors; and a track record of innovation

11.19 Intellius Recode

Intellius Recode is a India-based and Chennai headquartered digital transformation firm founded in 2018 and next generation technology solutions provider enabling businesses in their digital transformation. It is a specialized Industry 4.0 technology services company. Its mission is to make work smarter and faster through AI-powered solutions, using a software-first delivery model rather than traditional, labor-heavy consulting. From offices in the US and India, Intellius Recode serves a global client base across Australia, Europe, and North America.

Offerings and Capabilities Intellius Recode delivers end-to-end technology consulting and implementation, spanning:

- **Agentic AI & Digital Workers** – AI-enabled automation that closes the loop from intent to workflow to resolution across IT, operations, and customer functions, improving cycle times, MTTR, and cost-to-serve.
- **Data & Analytics** – Full stack services from data engineering and warehousing to BI and predictive analytics, with governance and KPI frameworks for revenue, risk, and CX decisions.
- **Cloud & Platform Engineering** – Cloud migrations, Kubernetes/microservices, and platform operations that modernize legacy estates, enhance resilience, and optimize run-rate.
- **Computer Vision (KamerAI)** – Industrial-grade CV for quality inspection, safety, and productivity, combining smart cameras/edge deployments with analytics to lift OEE and first-pass yield.
- **Digital Commerce Modernization** – Re-platforming and omnichannel enhancements that improve conversion, AOV, and operational visibility, integrated with ERP/OMS/CRM using API-first patterns.
- **Systems Integration (API/Microservices)** – Secure, observable integration across ERP, CRM, SCM and third-party platforms, enabling composable enterprise architectures.
- **Quality Assurance & DevOps** – Automation-led QA and CI/CD that reduce defect escape rates and time-to-production, tailored for regulated and high-traffic environments.

11.20 Strategic Positioning

Intellius Recode differentiates itself at the intersection of AI-led automation, data/analytics, cloud engineering, and computer vision. It emphasizes AI-powered digital workers and advanced process automation rather than generic staff augmentation. Strategic partnerships with Automation Anywhere (RPA), AWS (cloud), and Soroco (work-graph analytics), alongside proprietary IP such as the Digital Worker For Computer Vision use cases, allow Intellius Recode to deliver end-to-end Industry 4.0 solutions from back-office workflow automation to intelligent quality inspection and cloud modernization. In 2024, its automation practice was recognized with the Automation Anywhere Global Growth Partner of the Year award, underscoring its ability to scale client automation programs.

Recode Solutions is strategically positioned at the intersection of surging global AI investment and the enterprise need for tangible, operations-focused outcomes. Per industry estimates, in 2025, enterprises are expected to spend over US$300 billion on AI solutions, with total AI-related spending, including applications, infrastructure, services, servers, semiconductors and GenAI smartphones is approaching US$1.5 trillion. This wave of capital is not only building massive AI-ready infrastructure but also creating a clear demand gap: large organizations have GPUs and platforms but still lack trusted partners who can turn that capacity into real productivity, safety, and cost gains on the ground. At the same time, sustained funding for AI workplace safety and computer-vision companies, as well as rapid international

expansion of such platforms, validates Recode's long-standing thesis that AI-powered safety and productivity solutions are becoming a core operational requirement. Against this backdrop, Recode's hybrid model of combining deep AI, computer vision, and digital-worker capabilities with enterprise-grade consulting and integration, positions the company as an execution partner of choice. Recode is able to sit on top of hyperscaler and OEM ecosystems and translate generic AI infrastructure into domain-specific digital workers for factories, warehouses, yards, and back offices, directly aligning its growth with the broader AI investment cycle.

Operating with an IP-light, accelerator-heavy model, Recode competes effectively against large global system integrators by offering lower lock-in, faster time-to-value, and lean teams focused on outcome velocity rather than headcount. A balanced delivery footprint across the US, Australia, and India supports near- and offshore execution, 24×7 coverage, and attractive TCO for mid-market and enterprise buyers who want agility without the overhead of multi-year "big-bang" transformations.

11.21 Evolving Consulting Model and Digital Worker as a Service

Intellius Recode's strategy reflects a broader shift in the consulting industry toward a hybrid model—part product company, part managed service. Intellius Recode pursues AI-powered, outcome-based pricing, where small expert teams leverage reusable IP and continuous AI-Ops to deliver, run, and iteratively improve governed automations. This "productized consulting" approach de-links growth from linear headcount expansion, enabling superior margins and scalable delivery.

Within this model, Digital Worker as a Service (DWaaS) is the flagship offering. It combines:

- **Full-cycle agentic autonomy**, fusing perception (CV/sensors), agentic reasoning, and integrated action, with human-in-the-loop governance and clear KPI improvements.
- **Flexible, compliant deployment** across VPC, on-premise, and hybrid environments, meeting data residency and sovereignty requirements for regulated enterprises.
- **Deep enterprise integration**, where goal-driven agents plan and execute multi-step workflows across ERP, CRM, ITSM, and other core systems, reducing bespoke integration effort and time-to-production.
- **Capital-efficient scale-out**, using reusable industry blueprints and low-lock-in connectors for rapid, repeatable multi-site rollouts.
- **Defensible governance and security**, with policy guardrails, immutable audit trails, RBAC, VAPT-tested surfaces, and compliance-ready architecture that shortens security/procurement cycles.
- **Future-proofing and low vendor lock-in**, via an abstracted data layer and multi-model support that preserve portability and position Intellius Recode as a long-term, flexible partner.

Recode's digital workers are built on domain-specific language models, reflecting a major shift from generic to deeply contextual AI. This gives them functional superiority as they understand industry workflows, edge cases, and terminology far better than generic copilots. At the same time, their SLM-based architecture delivers technical superiority by lowering infrastructure costs, running entirely inside the customer's environment for maximum data privacy, and continuously learning from real work. Each digital worker can operate independently or in concert, enabling complete, end-to-end digitization of complex business processes with higher accuracy, reliability, and control.

Taken together, Intellius Recode's returns-focused model, automation-first partnerships, and concentrated portfolio make it a high-efficiency challenger to large SIs and platform incumbents—well suited for organizations seeking rapid, measurable outcomes in AI automation, data, cloud, and computer vision without the complexity of traditional transformation programs.

Intellius Recode solutions is the one of the first technology solutions provider to provide AI-enabled digital workers in the product stewardship and regulatory affairs in the chemical industry.

11.22 Empsing

Empsing is an AI-driven "digital employee" platform that embeds specialized virtual workers into business processes, aiming to transform how organizations execute knowledge work at scale. Positioned

as an AI Employees & Automation platform, Empsing focuses on augmenting existing teams with role-specific AI employees such as financial analysts, HR executives, operations coordinators, and customer support specialists.

Services & Products: The core offering is a configurable digital employee platform that automates routine, rules-based and semi-judgment tasks across departments like finance, HR, sales, customer operations, and more. The platform combines workflow automation, natural language processing, and machine learning to handle activities like data ingestion, document understanding, reporting, and conversational interactions with internal users or customers. Key capabilities include workflow automation, chatbot-style interfaces, document management, and integration with common business applications and databases.

Strategic Capabilitie: Empsing's strategic value lies in offering "almost human" digital employees that can be scaled up or down without the overheads of traditional hiring. The platform supports real-time data access, multi-source data ingestion, and analytics features that allow these digital employees to make context-aware decisions, not just execute static scripts. With role-configured AI workers and API-driven integration, Empsing can be embedded into diverse enterprise environments and aligned with specific process nuances.

Achievements: As an emerging platform, Empsing has been recognized in software marketplaces as a high-performing AI solution, with early adopters citing strong ratings on usability, features, and value for money. Its premium and enterprise tiers support scalable digital workforces, custom roles, and security features typically expected in mid-market and enterprise deployments. Empsing's traction underscores growing interest in digital employees as a pragmatic path to enterprise automation and cost optimization, particularly for organizations seeking to modernize operations without overhauling their entire application stack.

11.23 WiseLayer

WiseLayer is a fintech-focused AI company that builds specialized "digital workers" for finance and accounting teams. Its mission is to relieve highly skilled finance professionals from repetitive, compliance-heavy tasks such as accruals, reconciliations, and lease accounting, so they can focus on strategic work that drives growth.

Services & Products: WiseLayer offers a suite of named AI agents like Angela (accruals), Payton (payroll accounting), Rick (bank reconciliations), Diana (depreciation & fixed assets), Lisa (lease accounting), Preston (prepaid expenses), and others. Each agent automates a specific, complex finance process end-to-end: ingesting data from ERPs, billing systems, HRIS, and other tools; performing calculations; flagging anomalies; and even drafting emails or explanations for human reviewers. The platform includes 300+ integrations into common finance systems and delivers recurring alerts, digests, and AI-generated summaries so controllers, FP&A, and accounting teams can act quickly.

Strategic Capabilities: WiseLayer differentiates itself with "AI that shows its work": the platform exposes the reasoning, calculations, and evidence behind each recommendation, reducing black-box concerns for auditors and CFOs. Its combination of deep finance domain expertise and AI engineering allows it to encode complex accounting policies and controls into reusable agents. WiseLayer's design also supports human-in-the-loop workflows, where specialists can interrogate the AI like an analyst, refine alerts, and delegate tasks via one-click AI-generated emails.

Achievements: WiseLayer has attracted venture backing to scale its AI workforce for finance and accounting teams, signaling strong investor confidence in its category. The platform is used by over 100 companies, including public firms, indicating its maturity in security, compliance, and reliability. Its growing roster of digital workers and customers positions make WiseLayer a notable player in the next wave of enterprise automation within the Office of the CFO.

11.24 WorkFusion

WorkFusion is a pioneer in applying agentic AI to financial crime compliance (FCC) for banks and financial institutions. Originally known for intelligent automation and document processing, the

company pivoted in 2022 to focus on AI agents that perform Level 1 analyst functions in AML, sanctions, KYC, and related regulatory workflows.

Services & Products: WorkFusion provides a portfolio of pre-built AI agents tailored to specific FCC roles, including name and payment sanctions alert review, adverse media monitoring, KYC refresh, enhanced due diligence, transaction monitoring investigations, and customer lifecycle management. These agents ingest structured and unstructured data, review alerts, compile evidence, and write case narratives, drastically reducing manual workload. The platform is complemented by training (Automation Academy), documentation, and partner services that help institutions implement, tune, and govern these agents in production.

Strategic Capabilities: WorkFusion's strengths lie at the intersection of domain-specific AI, intelligent document processing, and regulatory-grade workflow orchestration. Drawing on a decade of automation experience, its agents are designed to scale FCC operations by 3–5x, automate over a million alerts daily, and save thousands of FTE-equivalent hours, while maintaining or improving compliance outcomes. The platform emphasizes agentic capabilities, reasoning over complex files, following policies, and operating within strict audit and control frameworks.

Achievements: WorkFusion's solutions are deployed at global banks and other leading financial institutions, underscoring its credibility in a high-stakes environment. In September 2025, the company raised $45M to further scale its AI agents for FCC, reflecting strong market demand for specialized, production-grade AI in compliance operations. WorkFusion is widely covered in industry as a reference player in AI-driven financial crime compliance.

11.25 Avaamo

Avaamo is an enterprise-grade conversational and agentic AI platform that helps large organizations build digital workforces across customer and employee-facing workflows. Positioned as "the most advanced conversational AI platform for enterprise," it combines verticalized AI models, a powerful dialog engine, and agentic orchestration capabilities to deploy AI agents at scale.

Services & Products: Avaamo's portfolio includes customer-facing contact center AI, voice agents, agent copilots for human agents, conversational intelligence for analytics, and specialized solutions for healthcare, banking, insurance, telecom, and retail. More recently, its Workplace Agents - Faith (IT support), Grace (HR), Grant (procurement), James (talent) - extend the digital workforce to internal employee support, handling tasks like troubleshooting, policy queries, ticketing, procurement workflows, and recruiting interactions.

Strategic Capabilities: Avaamo's core strength is its end-to-end stack: a contextual dialog engine, multilingual NLU supporting 100+ languages and dialects, vertical domain models, and a "Trust Layer" that addresses enterprise security, accuracy, and compliance requirements. The platform is engineered for the "last mile" of enterprise deployment, integrating with legacy systems, CRMs, EMRs, ERPs, and data lakes via 100+ connectors, while managing identity, access, and governance. This allows Avaamo to move clients from pilots to production across numerous high-volume, regulated use cases.

Achievements: Avaamo is a robust global conversational AI platform with strong personalization and outcome-focused implementations across industries. The April 2025 launch of Workplace Agents marks a significant expansion of its digital workforce strategy, with Avaamo positioning itself as a provider that "turns labor into software" for both customer and employee support scenarios. Its continued innovation in agentic reasoning, multi-agent orchestration, and ambient AI for healthcare reinforces Avaamo's standing among leading enterprise AI providers.

11.26 OpenBots

OpenBots is an intelligent automation and RPA platform known for its "Zero Bot Licensing" model, which allows organizations to deploy unlimited software robots without paying per-bot license fees. This cost-disruptive approach targets one of the biggest barriers to scaling enterprise automation programs.

Services & Products: OpenBots offers an end-to-end RPA platform including design, orchestration, and execution tools, along with Business Center for monitoring human bot workflows. The platform supports document processing, healthcare revenue cycle use cases, insurance and banking automations, and document indexing and classification. Its Ninja migration tool enables customers to migrate bots from other leading RPA platforms with high accuracy, accelerating transitions away from license-heavy incumbents. Professional services include "Automation in a Box" packages and migration services that help organizations build their first enterprise automations and expand portfolios quickly.

Strategic Capabilities: OpenBots' key differentiator is its economic model - zero per-bot licensing - which shifts budget away from platform fees toward building and maintaining automations, particularly attractive for enterprises with hundreds of bots. The platform aims for functional parity with major RPA vendors while offering cloud and on-prem options, making it suitable for highly regulated environments. It also supports multi-vendor strategies, allowing organizations to gradually introduce OpenBots alongside existing RPA tools.

Achievements: OpenBots has gained recognition as one of the first RPA vendors to champion zero-bot licensing, highlighted through its "Zero Bot License RPA Revolution Tour" across major U.S. cities. Case studies showcase savings of 60% or more on RPA program costs and successful deployments in sectors such as healthcare and legal services. This positions OpenBots as a compelling alternative for enterprises seeking to scale automation without runaway licensing costs.

11.27 Cevitr

Cevitr is a UK-based provider of Robotic Process Automation (RPA) and Intelligent Process Automation services, focused on delivering "digital workmates" as a fully managed service. The company's philosophy is to pair advanced automation technology with a simple engagement model, making RPA accessible to organizations of all sizes.

Services & Products: Cevitr offers cloud-based Digital Workers, software robots branded as "Jo," the digital workmate that take over repetitive, rule-based computer tasks such as data entry, report generation, invoice processing, and other back-office workflows. Its portfolio spans core RPA, intelligent process automation, managed automation services, and domain-specific accelerators across finance, HR, IT, operations, customer service, and multiple verticals including healthcare, construction, hospitality, retail, and charities.

Strategic Capabilities: Cevitr's digital workers operate 24/7, delivering 5–50x throughput over human processing while maintaining high accuracy and consistent security and data hygiene. Its Zero CapEx, savings-based subscription model lowers the barrier for automation adoption, particularly for mid-sized businesses that might find traditional RPA implementations too complex or capital-intensive. Cevitr also emphasizes minimal disruption: its bots work on top of existing systems without requiring major changes to core applications, making deployment faster and less risky.

Achievements: Cevitr has delivered digital workforce BPO services to clients such as ReeLabs in India, automating time-critical, rules-based processes across finance, compliance, and customer service for a healthcare provider handling sensitive stem-cell banking workflows. With a growing base of cross-industry deployments, Cevitr positions itself as a practical automation ally for organizations seeking managed digital workers rather than building RPA capabilities in-house.

11.28 Fractal Analytics

Fractal Analytics is an enterprise AI and advanced analytics company founded in 2000 and headquartered in Mumbai. It works with large global enterprises (including major Fortune 500 clients) to drive decision intelligence and business outcomes across functions and industries. Its solution suite is organized into Fractal.ai (AI services + AI products largely hosted on Cogentiq) and Fractal Alpha (AI businesses).

Services and products: Fractal delivers end-to-end AI programs from strategy and use-case identification through data engineering, model development, and deployment alongside packaged enterprise products. A key product is Cogentiq, positioned as an enterprise agentic AI platform with functional solutions (e.g., procurement, contract management, marketing/content operations, invoice-

to-cash) designed to automate workflows and accelerate measurable outcomes. Cogentiq has also been made available via the AWS Marketplace AI Agents and Tools category, supporting faster enterprise adoption.

Strategic capabilities: Fractal's differentiation is its mix of industry domain depth, scalable delivery across global locations, and increasing productization of GenAI and agentic workflows. It has highlighted partnerships with leading AI ecosystems (including OpenAI-based solution development, per reporting) and a sustained R&D emphasis as it competes in enterprise GenAI.

Achievements: Won the 2025 Microsoft Partner of the Year (Retail & Consumer Goods) award, reinforcing credibility in enterprise-scale AI delivery.

Table 1: Operational overview of peer group for consulting business

Company	Headquarters	About the company	Operational segments
Intellius Recode Limited	India	• Technology services and solutions company that delivers enterprise automation and agentic artificial intelligence–enabled digital worker solutions • Develops and deploys domain-specific digital worker solutions and also provides complementary technology services, including data and analytics, systems integration, DevOps, and quality assurance, to support end-to-end customer requirements. • Serves global clients through delivery centers in India with an international footprint (US, Australia) •	• Industry 4.0, Automation, and Agentic AI Solutions: This segment comprises the provision of Industry 4.0–focused technology services, including automation-led digital transformation, Agentic AI–enabled digital workers, and computer vision–based solutions supporting enterprise operational and business workflows. • Cloud, Data, and Analytics Services: This segment includes services relating to cloud-native application development, implementation of scalable data platforms, data engineering, analytics, and related quality assurance and DevOps services to support enterprise technology initiatives. •
Sonata Software	India	• Indian IT services and modernization engineering company with global delivery footprint • Deep strategic alliance with Microsoft and AWS (Azure Expert MSP, Fabric launch partner, Dynamics Inner Circle)	• Modernization engineering (cloud, data, Dynamics 365, application modernization) • AI-led modernization & platform engineering (Platformation.AI, Harmoni.AI, AgentBridge) • Digital transformation, managed/outsourcing

Company	Headquarters	About the company	Operational segments
		• Focused on "AI-led modernization" across data, cloud, automation and cybersecurity for Fortune 500 clients	services and infrastructure management • Vertical solutions for BFSI, healthcare & life sciences, telecom/media/technology, retail & manufacturing
Happiest Minds	India	• "Born digital, born agile" IT services firm focused on AI-led digital engineering and transformation • Strong capabilities in cloud, cybersecurity, analytics, IoT, computer vision and Gen-AI • Serves global clients across banking, CPG, edtech, energy, healthcare, hi-tech, manufacturing, media and retail	• Product & Digital Engineering Services (merged Product Engineering Services + Digital Business Services) • Infrastructure Management & Security Services (IMSS) • Gen-AI / agentic-AI-led digital engineering and transformation services
NIIT Technologies (CoForge)	India	• Global IT services and digital solutions provider with heritage as NIIT Technologies • Known for deep domain specialization in financial services, insurance and travel/transport • Growing portfolio in cloud, data, automation and AI-centric platforms for regulated industries	• Digital services and digital process automation for enterprises • Cloud, infrastructure and platform services • Data & analytics and AI-driven solutions • Application development, modernization and product engineering, with strong vertical focus (BFSI, insurance, travel/transport, etc.)
Xoriant	USA	• Silicon Valley–headquartered digital engineering services company with global delivery centers • Works with ISVs and enterprises to build, modernize and scale software products and platforms • Strong focus on cloud-native architectures, data platforms, DevOps and security-by-design	• Digital engineering and product/platform engineering (including SaaS/PaaS) • Cloud & infrastructure services and application modernization • Data & AI/analytics and enterprise integration • Quality engineering, security and compliance services
BirlaSoft	India	• Global technology company in the CK Birla Group, with major presence across US, Europe and APAC • Provides end-to-end IT consulting, application	• Digital & cloud transformation services • Data & analytics and AI-driven insights • Enterprise applications (ERP, CRM and industry solutions)

Company	Headquarters	About the company	Operational segments
		development, testing and support for large enterprises • Strong capabilities in SAP, Oracle and other ERP/CRM platforms, coupled with digital and analytics offerings	• Infrastructure management and managed services
CognitiveScale (Cortex AI)	USA	• Pioneered "Trusted AI" / AI engineering with 100+ AI patents underpinning the Cortex platform • Enables data scientists and citizen developers to build transparent, explainable AI across any data and cloud • Recognized by the World Economic Forum and acquired by Tecnotree to power AI-driven 5G and digital-services monetization	• Enterprise AI engineering platform (Cortex) for building and operationalizing AI applications • Trusted / Responsible AI and model risk management • Hyper-personalization and decision-intelligence solutions for financial services, healthcare, telecom and digital commerce
C3.ai	USA	• Enterprise AI software company serving energy, manufacturing, financial services, defense and public sector clients • Focused on accelerating AI deployment via a model-driven architecture and extensive pre-built use cases • Publicly listed in the US, positioned as a pure-play enterprise AI platform provider	• C3 AI Platform for enterprise AI application development and model management • Pre-built C3 AI Applications (e.g., for predictive maintenance, fraud detection, ESG, CRM, supply chain) • C3 Generative AI for retrieval-augmented enterprise search and domain copilots
NICE Ltd.	Israel	• Global enterprise software company focused on AI-driven CX and risk/compliance • Provides cloud-native CCaaS and WEM solutions used by large enterprises and service providers worldwide • Recognized as a leader in analyst evaluations (e.g., CCaaS Magic Quadrant) for customer engagement platforms	• AI-powered customer engagement and contact-center platforms (CXone Mpower) • Customer service automation, analytics and workforce engagement management • Financial crime, fraud prevention and compliance solutions • Public safety and digital evidence management (Evidencentral)
Verint Systems	USA	• US-based analytics and CX automation company serving 10,000+ clients in 175+ countries	• Customer engagement / CX automation (Verint Open Platform)

Company	Headquarters	About the company	Operational segments
		• Open platform approach with modular AI bots and applications to automate CX workflows and lower costs • Historically evolved from call-recording and analytics into a pure-play customer engagement / CX automation vendor	• AI-powered bots for contact centers, branches, back-office and digital channels • Workforce engagement & optimization and quality management • Voice of the customer, analytics and feedback management
Empsing	United Kingdom	• Empsing provides an AI-based "digital employees" platform with 50+ role-specific virtual workers that plug into business functions and tools. • Focuses on augmenting human teams by handling repetitive, data-heavy and coordination tasks, rather than only point RPA. • Positions itself around combining AI with human ingenuity and reskilling, supporting workforce transition into higher-value roles.	• AI digital employees / virtual workforce platform • Cross-functional enterprise automation (finance, HR, operations, CX, marketing) • Workflow and task automation using NLP and ML
WiseLayer	USA	• WiseLayer builds named AI "workers" that automate end-to-end finance processes for CFO and controller teams. • Its agents integrate with ERPs/HR/CRM and "show their work," emphasizing transparency and auditability of calculations and reasoning. • Serves 100+ companies across industries and has raised over $7M (Series A) to scale its finance-focused AI workforce.	• AI-powered digital workers for finance and accounting • Automation of F&A workflows (accruals, reconciliations, payroll, revenue recognition, etc.) • Data-driven anomaly detection and finance analytics
WorkFusion	USA	• WorkFusion is a pioneer in AI agents for FCC, with pre-built AI "digital workers" that perform Level-1 analyst tasks across AML/sanctions/KYC. • Its agents free up millions of hours by triaging alerts, gathering evidence and drafting case narratives, enabling compliance teams to focus on higher-risk cases.	• AI agents for financial crime compliance (AML, KYC, sanctions, fraud) • Intelligent document processing and case management • Compliance operations automation for banks and financial institutions

Company	Headquarters	About the company	Operational segments
		• Serves many of the world's leading banks and recently raised $45M to expand its AI compliance offerings.	
Avaamo	USA	• Avaamo provides an enterprise conversational/agentic AI platform to build digital agents for contact centers, self-service, and internal helpdesks. • Offers vertical models and pre-built solutions tuned to industry vocabularies and workflows, integrated with core systems of record. • Recognized as a mature, global conversational AI provider powering AI workforces across multiple sectors.	• Conversational and multimodal generative AI platform • Agentic AI workforce for customer and employee interactions • Industry solutions (banking, insurance, telecom, healthcare, retail, etc.)
OpenBots	USA	• OpenBots offers an enterprise-grade RPA and automation platform known for its "zero bot licensing" / open-licensing approach to scaling bots. • Provides tools for bot development, orchestration, document AI, and AI chatbots, targeting sectors such as healthcare, insurance and banking. • Positions itself as a cost-disruptive alternative to traditional RPA platforms, enabling organizations to deploy many automations without per-bot license constraints.	• Enterprise RPA and intelligent automation platform • Document AI and GPT-powered document processing • Agentic AI chatbots and business process orchestration
Fractal Analytics	India	• Founded in 2000; positions itself as an AI+ advanced analytics partner for enterprises. • Mission framing: "power every human decision in the enterprise" through AI, engineering, and design. • Works with large global enterprises / Fortune 500 across multiple industries	• Enterprise AI & analytics services: strategy-to-execution work across data/AI, decision intelligence, engineering, and design, often oriented around customer/marketing/revenue analytics and business performance outcomes. • AI product/platform portfolio: enterprise products designed to

Company	Headquarters	About the company	Operational segments
		(e.g., TMT, CPG, retail, BFSI, life sciences). • Builds/launches AI products and platforms (e.g., Cogentiq, an agentic AI platform). • Has an ecosystem that has included AI ventures such as Qure.ai, Cuddle.ai/Crux, Trial Run.	operationalize AI in workflows—e.g., Cogentiq with unified data integration, retrieval/RAG tooling, and agentic orchestration, plus functional "agents" for areas like finance / procurement / marketing. • Industry/venture ecosystem: incubated/acquired or built offerings to scale repeatable IP beyond services.

12. Financial Benchmarking

Company Name	Revenue from Operations (Rs. Million)				Revenue from Operations CAGR, FY2023 – FY2025
	FY2023	FY2024	FY2025	For the 6 months ended September 30, 2025	
Intellius Recode Limited	695.60	798.79	707.90	290.17	0.88%
Birlasoft Ltd	47,947.69	52,781.45	53,752.39	26,138.01	5.88%
Sonata Software Ltd	74,491.20	86,130.60	1,01,572.50	50,844.80	16.77%
Happiest Minds Technologies Ltd	14,292.90	16,246.60	20,608.40	11,234.70	20.08%
Coforge Ltd	80,146.00	90,089.00	1,20,507.00	76,743.00	22.62%
Fractal Analytics Limited	19,854.00	21,963.00	27,654.00	15,590.00	18.02%
Nice Ltd	1,71,660.06	1,96,382.11	2,28,883.66	NA	15.47%
C3.ai	21,563.55	25,744.72	32,965.34	NA	23.64%

Company Name	EPS (Rs.)			EPS CAGR, FY2023 – FY2025
	FY2023	FY2024	FY2025	
Intellius Recode Limited	4.13	9.24	8.17	40.65%
Birlasoft Ltd	11.92	22.25	18.48	24.51%
Sonata Software Ltd	15.75	7.90	15.29	-1.47%
Happiest Minds Technologies Ltd	16.01	16.73	12.26	-12.49%
Coforge Ltd	111.53	129.59	122.03	4.60%
Fractal Analytics Limited	62.08	-15.60	66.82	3.75%
Nice Ltd	314.79	422.09	565.67	34.05%
C3.ai	-198.02	-193.97	-189.80	-2.10%

Company Name	NAV			NAV CAGR, FY2023 – FY2025
	FY2023	FY2024	FY2025	
Intellius Recode Limited	4.67	4.81	10.02	46.48%
Birlasoft Ltd	89.07	110.32	125.17	18.55%
Sonata Software Ltd	93.77	50.68	61.45	-19.05%
Happiest Minds Technologies Ltd	58.54	99.11	104.94	33.89%
Coforge Ltd	518.81	603.06	1,245.39	54.93%
Fractal Analytics Limited	439.81	458.03	562.91	13.13%
Nice Ltd	3,957.92	4,417.10	4,859.53	10.81%
C3.ai	634.28	551.08	506.58	-10.63%

Company Name	PAT (Rs. Million)				PAT Margin (%)				PAT-CAGR, FY2023 - FY2025
	FY2023	FY2024	FY2025	For the 6 months ended September 30, 2025	FY2023	FY2024	FY2025	For the 6 months ended September 30, 2025	
Intellius Recode Limited	41.38	92.46	81.80	24.15	5.95%	11.57%	11.55%	8.32%	40.60%
Birlasoft Ltd	3,315.84	6,237.60	5,167.60	2,225.00	6.92%	11.80%	9.60%	8.51%	24.84%
Sonata Software Ltd	4,519.00	3,085.00	4,246.70	2,295.30	6.00%	4.00%	4.00%	4.51%	-3.06%
Happiest Minds Technologies Ltd	2,309.90	2,483.90	1,846.60	1,111.50	15.90%	14.50%	8.50%	9.89%	-10.59%
Coforge Ltd	7,451.00	8,489.00	9,361.00	7,818.00	9.30%	9.42%	8.00%	10.19%	12.09%
Fractal Analytics Limited	1,944.00	-547.00	2,206.00	709.00	NA	NA	NA	4.55%	6.53%
Nice Ltd	20,929.36	27,943.55	37,035.33	NA	12.19%	14.23%	16.18%	NA	33.02%
C3.ai	-21,728.43	-23,185.01	-24,461.77	NA	-100.76%	-90.06%	-74.20%	NA	6.10%

Company Name	EBITDA (Rs. Million)				EBITDA Margin (%)				EBITDA CAGR, FY2023 – FY2025
	FY2023	FY2024	FY2025	For the 6 months ended September 30, 2025	FY2023	FY2024	FY2025	For the 6 months ended September 30, 2025	
Intellius Recode Limited	73.94	115.88	110.93	42.22	10.63%	14.51%	15.67%	14.55%	22.49%
Birlasoft Ltd	5,204.65	8,362.00	6,974.00	3,721.00	10.85%	15.80%	13.00%	14.24%	15.76%
Sonata Software Ltd	6,749.50	8,529.80	7,604.00	NA	9.00%	10.00%	7.00%	NA	6.14%
Happiest Minds Technologies Ltd	3,799.70	4,212.20	4,622.40	2,443.20	26.20%	24.60%	21.40%	21.75%	10.30%
Coforge Ltd	13,250.00	14,706.00	18,312.00	NA	17.50%	18.00%	18.00%	NA	17.56%
Fractal Analytics Limited	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nice Ltd	39,915.69	49,121.34	62,342.26	NA	23.25%	25.01%	27.24%	NA	24.97%
C3.ai	-22,958.55	-25,386.63	-26,377.53	NA	-106.47%	-98.61%	-80.02%	NA	7.19%

Company Name	ROE (%)				ROCE (%)			
	FY2023	FY2024	FY2025	For the 6 months ended September 30, 2025	FY2023	FY2024	FY2025	For the 6 months ended September 30, 2025
Intellius Recode Limited	80.06%	194.90%	110.23%	21.93%	34.29%	74.64%	45.54%	14.60%
Birlasoft Ltd	13.50%	22.20%	15.60%	NA	16.90%	25.70%	18.00%	NA
Sonata Software Ltd	38.00%	23.00%	27.00%	NA	35.00%	20.00%	23.00%	NA
Happiest Minds Technologies Ltd	27.80%	16.90%	11.90%	NA	32.80%	22.30%	20.80%	NA
Coforge Ltd	24.80%	23.60%	11.70%	NA	NA	NA	NA	NA
Fractal Analytics Limited	NA	NA	NA	NA	NA	NA	NA	NA
Nice Ltd	9.07%	10.55%	12.66%	NA	8.48%	10.60%	13.04%	NA
C3.ai	-28.66%	-31.13%	-33.92%	NA	-30.84%	-36.25%	-38.49%	NA

Company Name	Net Debt/Total Equity			
	FY2023	FY2024	FY2025	For the 6 months ended September 30, 2025
Intellius Recode Limited	2.10	1.75	1.26	0.72
Birlasoft Ltd	NA	NA	NA	NA
Sonata Software Ltd	NA	NA	NA	NA
Happiest Minds Technologies Ltd	NA	NA	NA	NA
Coforge Ltd	0.11	0.12	0.08	NA
Fractal Analytics Limited	NA	NA	NA	NA
Nice Ltd	0.04	0.05	NA	NA
C3.ai	NA	NA	NA	NA

Company Name	Day Sales Outstanding				Days Payable Outstanding (in days)			
	FY2023	FY2024	FY2025	For the 6 months ended September 30, 2025	FY2023	FY2024	FY2025	For the 6 months ended September 30, 2025
Intellius Recode Limited	73	74	109	121	63	79	141	213
Birlasoft Ltd	53	55	54	55	NA	NA	NA	NA
Sonata Software Ltd	NA	NA	NA	NA	NA	NA	NA	NA
Happiest Minds Technologies Ltd	86	87	88	NA	NA	NA	NA	NA
Coforge Ltd	61	56	60	NA	NA	NA	NA	NA
Fractal Analytics Limited	NA	NA	NA	NA	NA	NA	NA	NA
Nice Ltd	NA	NA	NA	NA	NA	NA	NA	NA
C3.ai	NA	NA	NA	NA	NA	NA	NA	NA

Note: Financials in INR million; Exchange rate used is 1 USD = INR 80.51 for FY23, 82.79 for FY24, 84.57 for FY25 (for C3, & NICE)

Data for Birlasoft, Sonata Software, Happiest Minds, Coforge, Fractal and Intellius Recode is for the respective financial years ending March 2023, 2024 and 2025; Fiscal year considered for these companies is April-March; Data for Nice is for FY22, FY23 and FY24; Fiscal year for NICE is Jan – Dec. Fiscal year for C3.ai is May – Apr

NA indicates that the data is not available in the annual reports of the organisation.

The table represents consolidated financials for the respective companies including all lines of businesses.

1. *Revenue from operations means the Revenue from operations for the period/year*
2. *EBITDA is calculated by reducing direct purchases, employee benefit expenses and other expenses from revenue from operations.*
3. *'EBITDA Margin' is calculated as EBITDA divided by Revenue from operations.*
4. *'CAGR' refers to Compounded Annual Growth Rate.*
5. *CAGR for EBITDA is the annual growth rate in EBITDA taking the EBITDA for the year ended 2023 as the base.*
6. *'PAT' is the Profit after tax for the period/year.*
7. *PAT Margin is calculated as profit/ (loss) for the period/year divided by Revenue from operations.*
8. *CAGR for PAT is the annual growth rate in PAT taking the PAT for the year ended 2023 as the base.*
9. *'ROE' (Return on Equity) is calculated as profit/ (loss) after tax for the period/year divided by Average shareholder's equity.*
10. *Return on Capital Employed is calculated as EBIT divided by capital employed. Capital employed is calculated as total equity plus non-current borrowings plus current borrowings while EBIT is calculated as profit/ (loss) for the period/year plus total income tax expenses plus finance costs.*
11. *Net Debt to Total Equity is calculated as net debt divided by total equity. Net Debt is calculated as non-current borrowings plus current borrowings less cash and cash equivalents less bank balances*

other than cash and cash equivalents. Total equity is the sum of equity share capital and other equity.

12. *Days Sales Outstanding is calculated as average trade receivables times number of days in the period (365 for a year and [180 365/2] days for 6 months) divided by credit sales.*
13. *Days Payable Outstanding is calculated as average trade payables divided by the credit purchases (including payments for services availed from contractors) times the number of days in the period (365 for a year and 180 [365/2] days for six months).*

12.1 Intellius Recode in Focus: Strategic SWOT Review

12.1.1 Strengths

- Strong foundation in AI-driven automation and low-code solutions
- Flagship "Digital Workers" automate complex, repetitive tasks with high accuracy
- Live AI deployments in manufacturing, logistics, warehousing, airlines industry
- Highly customizable solutions that integrate smoothly with existing enterprise systems
- Modern tech stack combining ML, computer vision, and RPA; in-house computer-vision platform for industrial automation
- Strategic partnerships with leading tech providers enhance capability and credibility
- Global delivery model (US, India, Australia) with diverse, domain-savvy teams
- Proven enterprise impact: 100+ clients, 1M+ transactions automated, clear ROI (e.g., $650K annual savings for a retail client)
- Consultative go-to-market approach focused on efficiency and cost savings

12.1.2 Weaknesses

- Younger player (founded 2018) with limited scale vs major low-code vendors
- Less of a broad, self-service low-code platform for citizen developers; more pre-configured solutions and services
- Scalability, robustness, and compliance credentials of proprietary platforms still being proven
- Limited ecosystem/marketplace and small external developer community
- Enterprise-focused subscription model and limited pricing transparency may deter SMEs and price-sensitive clients

12.1.3 Opportunities

- Benefiting from fast-growing low-code/no-code and automation demand as firms accelerate digital transformation
- Further productizing and scaling Digital Worker-as-a-Service (DWaaS) as a cloud-based, on-demand automation model
- Expanding the library of pre-built digital workers into more functions (finance, customer service) and industries
- Deepening vertical solutions in sectors where it already has experience (retail, manufacturing, etc.)
- Leveraging emerging AI (including generative AI) for natural language interfaces, process discovery, and predictive analytics
- Broadening strategic alliances and integrations (e.g., Microsoft Power Platform, popular enterprise apps) to open new channels
- Geographic and segment expansion into new regions and mid-market customers needing plug-and-play automation plus consulting

12.1.4 Threats

- Intense competition from large low-code platforms with strong ecosystems and communities
- Overlap and competition with RPA vendors that are also adding AI and "digital worker" features
- Market commoditization and rise of low-cost/open-source alternatives increasing price pressure and shrinking differentiation

- Rapid AI advances by big vendors embedding gen AI in their platforms, potentially outpacing younger players' capabilities
- "Build vs buy" dynamics: enterprises may use generic low-code tools or internal teams to build custom automation instead of buying Recode's solutions
- Macroeconomic pressure and IT budget constraints pushing enterprises to consolidate spend with a few large or low-cost vendors.