Industry Report on Mechanical, Electrical and Plumbing (MEP) Services in India

June 2024

Disclaimer

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Global Macroeconomic Scenario

The global economy, estimated at 3.1% in 2023, is expected to show resilience at 3.1% in 2024 before rising modestly to 3.2% in 2025. Between 2021 – 2022, global banks were carrying a historically high debt burden after COVID-19. Central banks took tight monetary measures to control inflation and spike in commodity prices. Russia's war with Ukraine further affected the global supply chains and inflated the prices of energy and other food items. These factors coupled with war-related economic sanctions impacted the economic activities in Europe. Any further escalation in the war may further affect the rebound of the economy in Europe.

While China, the largest manufacturing hub of world, was facing a crisis in the real estate sector and prices of properties were declining between 2020 - 2023, with the reopening of the economy, consumer demand is picking up again. The Chinese authorities have taken a variety of measures, including additional monetary easing, tax relief for corporates, and new vaccination targets for the elderly. The Chinese Government took several steps to help the real estate sector including cracking down on debt-ridden developers, announcing stimulus for the sector and measures to encourage the completion and delivery of unfinished real estate projects. The sector is now witnessing investments from developers and demand from buyers.

Global headline inflation is set to fall from an estimated 6.8% in CY 2023 to 5.8% in CY 2024 and to 4.4% in CY 2025. This fall is swifter than anticipated across various areas, amid the resolution of supply-related problems and tight monetary policies. Reduced inflation mirrors the diminishing impact of price shocks, particularly in energy, and their subsequent influence on core inflation. This decrease also stems from a relaxation in labour market pressure, characterized by fewer job openings, a slight uptick in unemployment, and increased labour availability, occasionally due to a significant influx of immigrants.

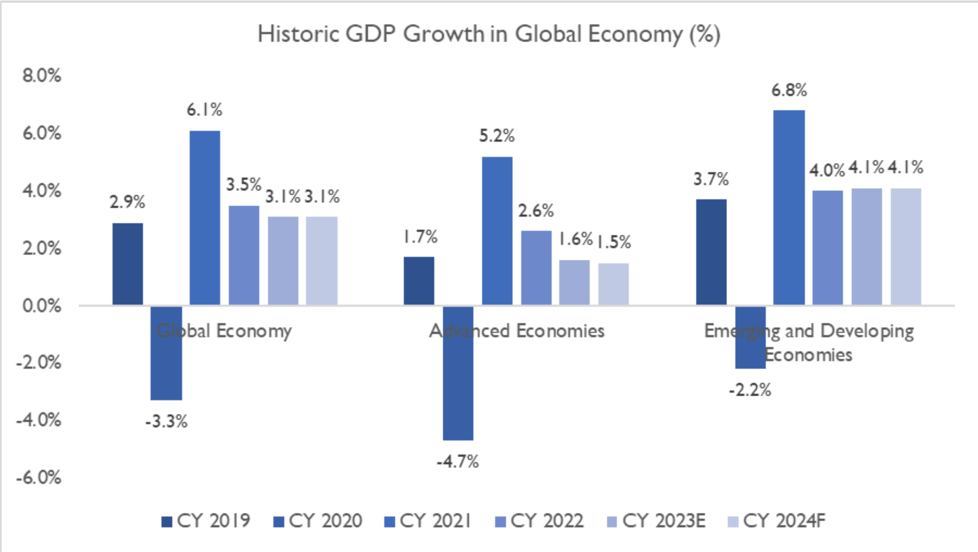
Global GDP Growth Scenario

The global economy started to rise from its lowest levels after countries started to lift the lockdown in 2020 and 2021. The pandemic lockdown was a key factor as it affected economic activities resulting in a recession in the year CY 2020, as the GDP growth touched -3.3%.

In CY 2021 disruption in the supply chain affected most of the advanced economies as well as low-income developing economies. The rapid spread of Delta and the threat of new variants in mid of CY 2021 further increased uncertainty in the global economic environment.

Global economic activities experienced a sharper-than-expected slowdown in CY 2022. One of the highest inflations in decades, seen in 2022, forced most of the central banks to tighten their fiscal policies. Russia's invasion of Ukraine affected the global food supply resulting in a further increment in the cost of living.

Further, despite initial resilience earlier in 2023, marked by a rebound in reopening and progress in curbing inflation from the previous year's highs, the situation remained precarious. Economic activity lagged behind its pre-pandemic trajectory, particularly in emerging markets and developing economies, leading to widening disparities among regions. Numerous factors are impeding the recovery, including the lasting impacts of the pandemic and geopolitical tensions, as well as cyclically-driven factors such as tightening monetary policies to combat inflation, the reduction of fiscal support amidst high debt levels, and the occurrence of extreme weather events. As a result, global growth declined from 3.5% in CY 2022 to 3.1% in CY 2023.

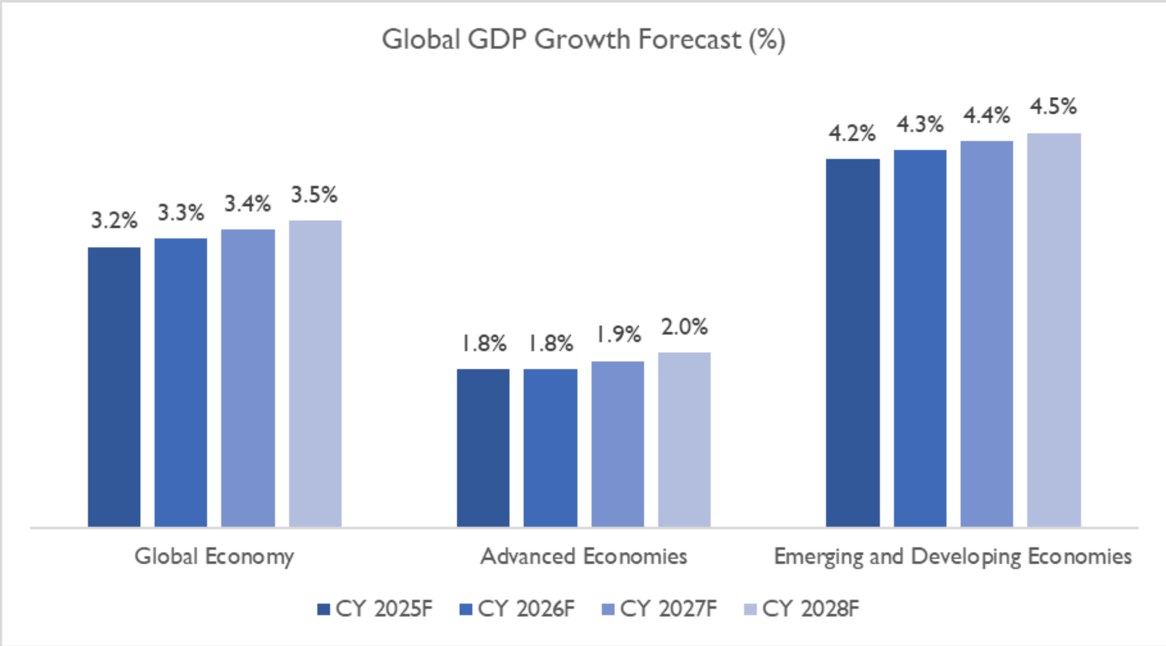


Source – IMF Global GDP Forecast Release 2024

Note: Advanced Economies and Emerging & Developing Economies are as per the classification of the World Economic Outlook (WEO). This classification is not based on strict criteria, economic or otherwise, and it has evolved over time. It comprises of 40 countries under the Advanced Economies including the G7 (the United States, Japan, Germany, France, Italy, the United Kingdom, and Canada) and selected countries from the Euro Zone (Germany, Italy, France etc.). The group of emerging market and developing economies (156) includes all those that are not classified as Advanced Economies (India, China, Brazil, Malaysia etc.)

In the current scenario, global GDP growth is estimated to have recorded a moderate growth of 3.1% in CY 2023 as compared to 3.5% growth in CY 2022. While high inflation and rising borrowing costs are affecting private consumption, on the other hand, fiscal consolidation is affecting government consumption.

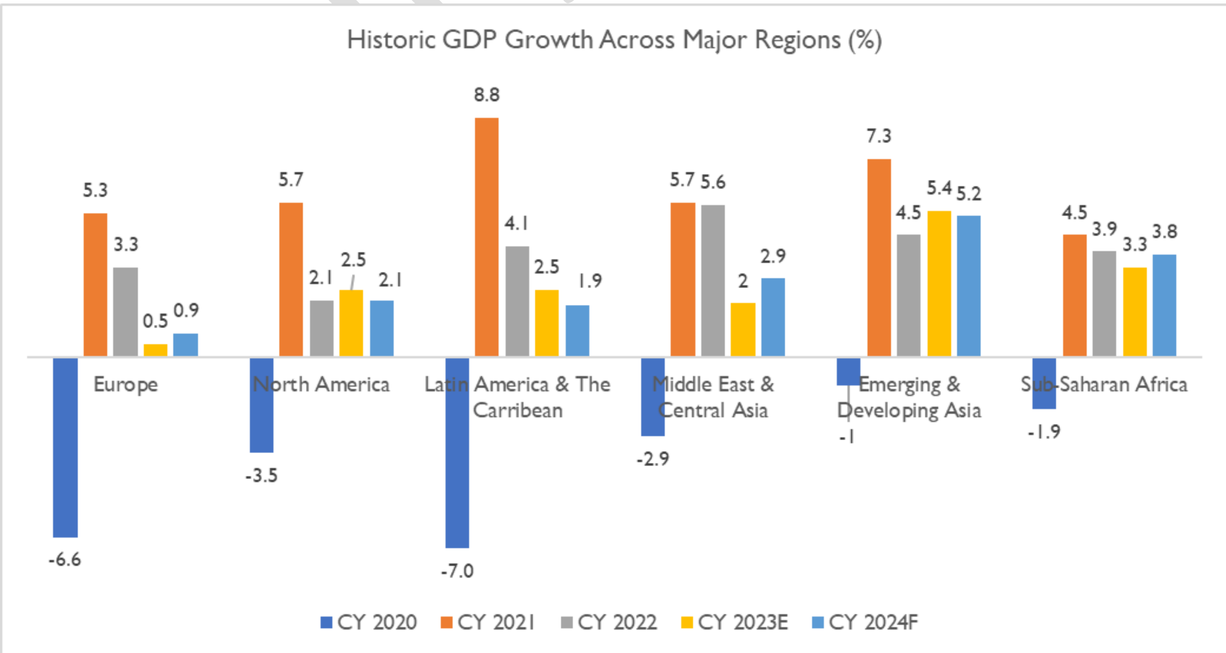
Slowed growth in developed economies will affect the GDP growth in CY 2024 and global GDP is expected to record a flat growth of 3.1% in CY 2024. The crisis in the housing sector, bank lending, and industrial sectors are affecting the growth of global GDP. Inflation forced central banks to adopt tight monetary policies. After touching the peak in 2022, inflationary pressures slowly eased out in 2023. This environment weighs in for interest rate cuts by many monetary authorities.



Source – IMF Global GDP Forecast Release 2024, D&B Estimates

GDP Growth Across Major Regions

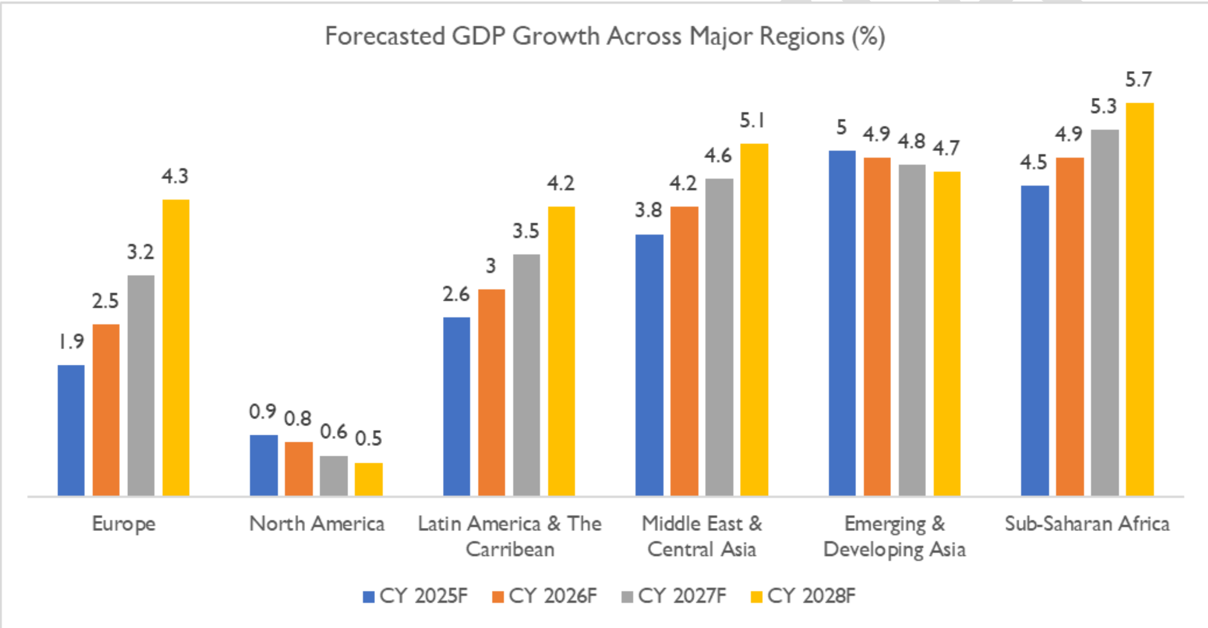
GDP growth of major regions including Europe, Latin America & The Caribbean, Middle East & Central Asia, and Sub-Saharan Africa, were showing signs of slow growth and recession between 2020 – 2023, but leaving Latin America & The Caribbean, 2024 is expected to show resilience and growth. Meanwhile, GDP growth in Emerging and Developing Asia (India, China, Indonesia, Malaysia etc.) is expected to decrease from 5.4% in CY 2023 to 5.2% in CY 2024, while in the United States, it is expected to decrease from 2.5% in CY 2023 to 2.1% in CY 2024.



Source-IMF World Economic Outlook January 2024 update

Except for Emerging and Developing Asia, Latin America & The Caribbean and the United States, all other regions are expected to record an increase in GDP growth rate in CY 2024 as compared to CY 2023. GDP growth in Latin America & The Caribbean is expected to decline due to negative growth in Argentina. Further, growth in the United States is expected to come down at 2.1% in CY 2024 due to lagged effects of monetary policy tightening, gradual fiscal tightening, and a softening in labour markets slowing aggregate demand.

Although Europe experienced a less robust performance in 2023, the recovery in 2024 is expected to be driven by increased household consumption as the impact of energy price shocks diminishes and inflation decreases, thereby bolstering real income growth. Meanwhile, India and China saw greater-than-anticipated growth in 2023 due to heightened government spending and robust domestic demand, respectively. Sub-Saharan Africa's expected growth in 2024 is attributed to the diminishing negative impacts of previous weather shocks and gradual improvements in supply issues.



Source-IMF, OECD, and World Bank, D&B Estimates

Global Economic Outlook

We are more optimistic about the global economy's prospects than we were at the onset of last year – and for good reason. The global economy avoided a widely anticipated recession in 2023 and will likely not see one in 2024. Looking at the current inflation trajectory, no one is guessing how much higher interest rates will go from here, which is a good outcome for both businesses and policymakers. Instead, financial markets are now betting on the timing and magnitude of rate cuts – and this is where we recommend caution for businesses. There are a few things to consider; first, rate cuts will likely follow an evident deterioration in economic conditions, i.e., after the economic damage is visible in data, which usually comes with a lag. By that logic, rate cuts by themselves may not be a positive outcome but only a means to offer relief from economic pain. Second, for most central banks that have been grappling with high inflation, higher expectations of rate cuts from financial markets will make them harder and riskier to deliver. Loosening too soon risks reversing the inflation trajectory and if key central banks get their inflation projections wrong for a second time, it will only spell more trouble.

The violence that began in the Middle East on October 7 continues to escalate. Apart from Israel and the Palestinian territories, Yemen, Syria, Iraq, Jordan, Iran, and Pakistan have all become embroiled in some form of violence over the past four months, including cross-border fire. This can be largely attributed to the heavy presence of militias and terrorist groups in these countries. Consequently, security threat levels are elevated across the region and business operations are difficult. The most obvious impact on commercial activity has been on shipments passing through the Red Sea, which have been forced to re-route under attacks from Houthi rebel groups, elevating shipping costs and stretching delivery timelines. It has also added to volatility in the global energy markets. More importantly, the escalating conflict has reversed the gains made on global supply-side normalization and remains the biggest risk to hard-earned global disinflation – the two big economic accomplishments of 2023. Dun & Bradstreet's Global Supply Chain Continuity Index captured this dynamic as it fell 6.3% for Q1 2024, with suppliers' delivery time and delivery cost indices both deteriorating. In this context, for the global economy, a lot is riding on the ceasefire discussions that are currently underway between Israel and Hamas.

February marked the second anniversary of the start of the Russia-Ukraine conflict, which, at present, seems to be at a stalemate. From a business impact standpoint, events outside the zone of action, particularly in the EU, have gained more prominence than the conflict itself. These impacts range from immediate concerns about manufacturing performance, the cost of living, and energy security in the largest European economies, and go on to cover longer-term themes such as the bloc's first serious attempt at expansion in years, which includes Ukraine's bid for membership.

Geopolitical rumblings are also on the rise in the Asia-Pacific region, with North Korea issuing fresh threats, in words and in actions. Incessant saber-rattling may not necessarily lead to a conflict, but such posturing is unhelpful for the business and investment climates. In summary, geopolitics remains the biggest risk to the global economy today, dampening investments, disrupting supplies, and weakening the fight against inflation. There is one silver lining in all of this. High geopolitical temperatures around the world seem to have raised the stakes of stability for the U.S. and Mainland China. This was evidenced in their willingness to diffuse the Middle East, in keeping North Korea in check, and in Beijing's relatively muted reaction to a Democratic Progressive Party (DPP) victory in Taiwan Region's January 2024 polls. Mainland China may be keen to hold on to this new equilibrium until its economy fully stabilizes. As for the U.S., the outcome of the nomination races and the presidential election in November 2024 will be the key determinant of its foreign policy direction.

India Macroeconomic Analysis

GDP Growth Scenario

India's economy showed resilience with GDP growing at estimated 7.6% in FY 2024. The GDP growth in FY 2024 represents a return to pre pandemic era growth path. Even amidst geopolitical uncertainties, particularly those affecting global energy and commodity markets, India continues to remain one of the fastest growing economies in the world.

Country	Real GDP Growth (2023)	Projected GDP Growth 2024
India	7.8%	6.8%
China	5.2%	4.6%
Russia	3.6%	3.2%
Brazil	2.9%	2.2%
United States	2.5%	2.7%
Japan	1.9%	0.9%
Canada	1.1%	1.2%
Italy	0.9%	0.7%
France	0.7%[1]	0.7%
South Africa	0.6%	0.9%
United Kingdom	0.1%	0.5%
Germany	-0.3%	0.2%

Source: The International Monetary Fund

Countries considered include - Largest Developed Economies and BRICS (Brazil, Russia, India, China, and South)

Countries have been arranged in descending order of GDP growth in 2023).

There are few factors aiding India's economic recovery – notably its resilience to external shocks and rebound in private consumption. This rebound in private consumption is bringing back the focus on improvements in domestic demand, which together with revival in export demand is a precursor to higher industrial activity. Already the capacity utilization rates in Indian manufacturing sector are recovering as industries have stepped up their production volumes. As this momentum sustains, the country may enter a new capex cycle. The

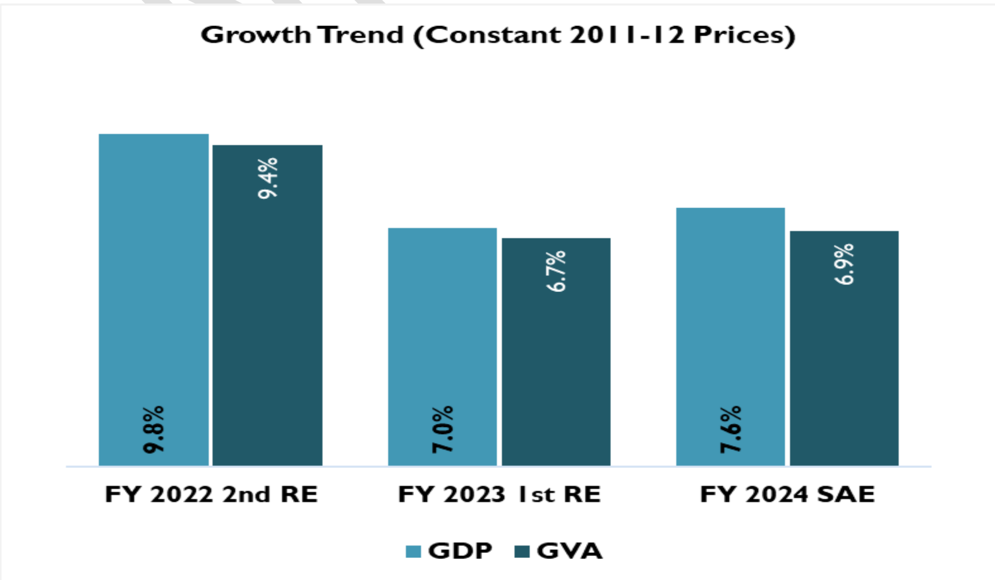
[1] European Commission

universal vaccination program by the Government has played a big part in reinstating confidence among the population, in turn helped to revive private consumption.

Realizing the need to impart external stimuli, the Government stepped up its spending on infrastructure projects which in turn had a positive impact on economic growth. The capital expenditure of central government increased by 37.4% increase in capital expenditure (budget estimates), to the tune of Rs 10 trillion in the Union Budget 2023-2024. The announcement also included 30% increase in financial assistance to states at Rs 1.3 trillion for capex. The improvement was accentuated further as the Interim Budget 2024-2025 announced an 11.1% increase in the capital expenditure outlay at Rs 11.11trillion, constituting 3.4% of the GDP. This has provided the much-needed confidence to private sector, and in turn attracted private investment.

On the lending side, the financial health of major banks has witnessed an improvement which has helped in improving the credit supply. With capacity utilization improving, there would be demand for credit from corporate sector to fund the next round of expansion plans. Banking industry is well poised to address that demand. Underlining the improving credit scenario is the credit growth to micro, small and medium enterprise (MSME) sector as the credit outstanding to the MSME sector by scheduled commercial banks in the financial year FY 2023 grew by 12.3% to Rs 22.6 trillion compared to FY 2022. The extended Emergency Credit Linked Guarantee Scheme (ECLGS) by the Union Government has played a major role in improving this credit supply.

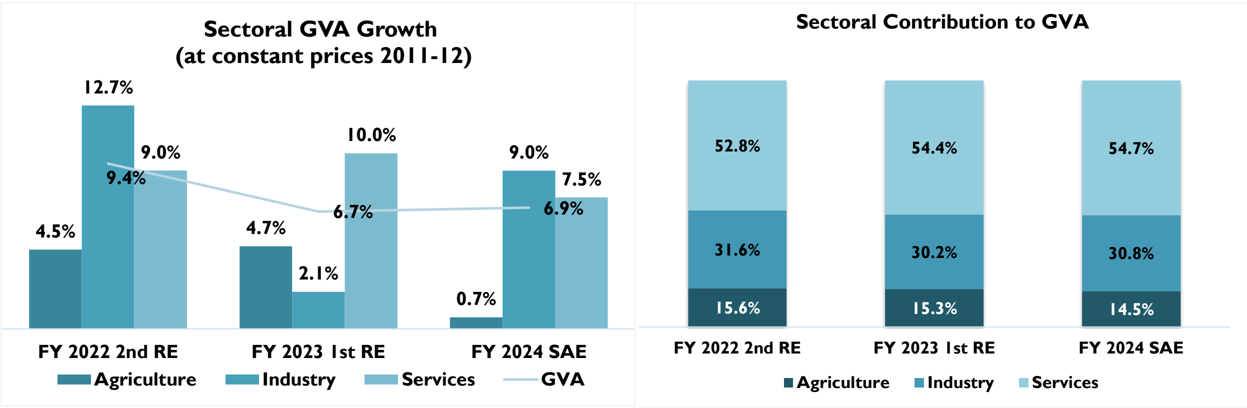
As per the second advance estimates 2023-24, India's GDP in FY 2024 grew by 7.6% compared to 7.0% in the previous fiscal on the back of solid performances in manufacturing, mining, and construction sectors. The year-on-year increase in growth rate is also partly due to by a strong growth in investment demand led by public capital expenditure.



Source: Ministry of Statistics & Programme Implementation (MOSPI), National Account Statistics, 2023-24

RE stands for Revised Estimates, SAE stands for Second Advance Estimates

Sectoral Contribution to GVA and annual growth trend



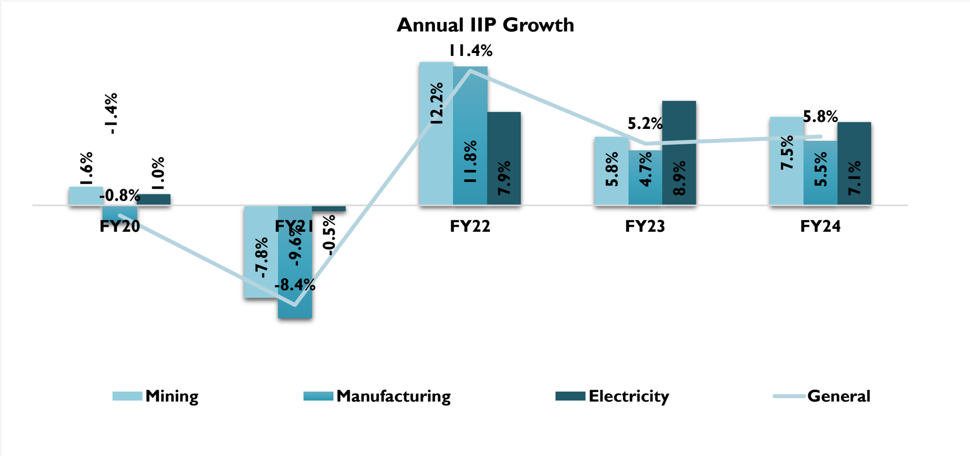
Source: Ministry of Statistics & Programme Implementation (MOSPI)

Sectoral analysis of GVA reveals industrial sector recovered sharply registering 9% y-o-y increase in FY 2024 against 2.1% in the previous fiscal. In the industrial sector, growth across major economic activity such as mining, manufacturing, construction sector rose significantly and it registered a growth of 8.1%, 8.5% and 10. 7% in FY 2024 against a growth of 1.9%, -2.20%, and 9.44% in FY 2023, respectively. Utilities sector observed a marginal moderation in y-o-y growth to 7.5% against a 10% in the previous years.

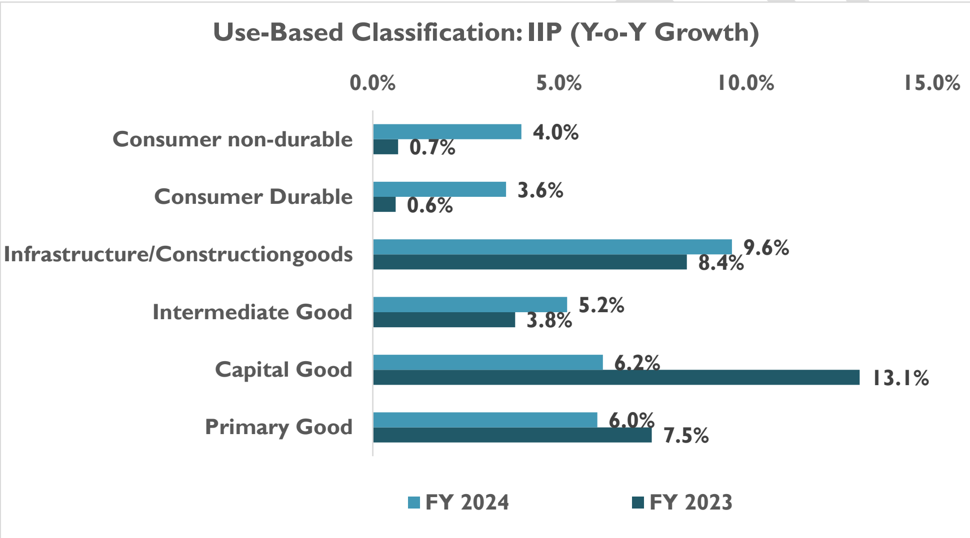
Talking about the services sectors performance, with major relaxation in covid restriction, progress on covid vaccination and living with virus attitude, business in service sector gradually returned to normalcy in FY 2023. Economic recovery was supported by the service sector as individual mobility returned to pre-pandemic level. The trade, hotel, transport, communication, and broadcasting segment continued to strengthen and grow by 10% in FY 2023 against 9% in the previous year. However, second advance estimates for FY 2024 reveal a decelerated growth in the largest component of the GDP, i.e., the service sector. In FY 2024, the sector registered a growth of 7.5%, as compared to the 10% growth recorded in FY 2023. This slowdown is primarily attributed to a pronounced deceleration in the Trade, Hotel, Transport, Communication, and Broadcasting services. The growth rate in this subsector nearly halved, decreasing from 12% in FY 2023 to 6.5% in FY 2024. This slowdown is influenced by the normalization of the base effect and potentially some dilution in discretionary demand. Financial services, real estate and professional services sector recorded 8.21% y-o-y growth against 9.05% y-o-y growth in the previous year, while public administration and defence services sector recorded 7.75% yearly increase against 8.92% increase in the previous year.

Index of Industrial Production

Industrial sector performance as measured by IIP index exhibited mild improvement in FY 2024 by growing at 5.8% (against 5.2% in FY 2023). Manufacturing index, with 77.6% weightage in overall index, grew by 5.5% in FY 2024 against 4.7% in FY 2023 while mining sector index too grew exhibited healthy improvement by growing at 7.5% against 5.8% in the previous years. Electricity sector Index witnessed improvement of 7.15% against 8.9% y-o-y growth in FY 2023.



Source: Ministry of Statistics & Programme Implementation (MOSPI)

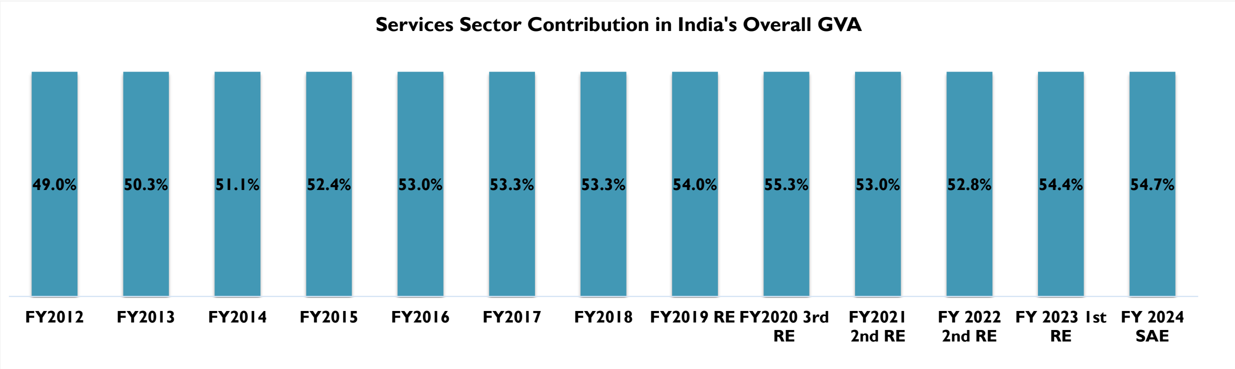


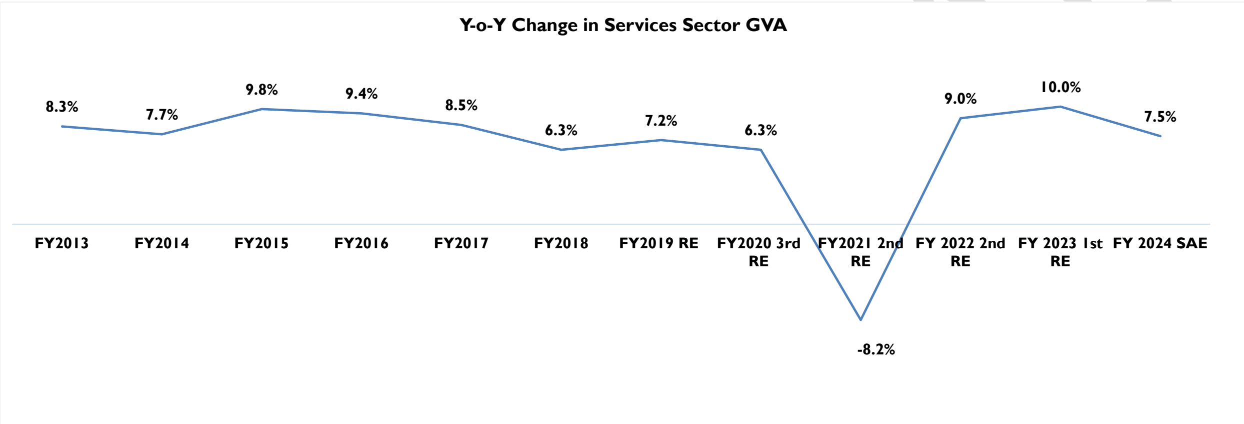
Sources: MOSPI

As per the use-based classification, excluding capital good and primary good, other segment observed healthy y-o-y growth against the previous year. Infrastructure / construction goods followed by intermediate goods were the bright spot while consumer non-durable and consumer durable both observed sharp growth over the previous year. However, the mild growth in IIP indicates towards challenging operating business climate as global headwinds, high inflation, and monetary tightening cumulatively impacted the broader industrial sector performance.

Expansion in Service Sector

Services sector is a major contributor to the country's overall economic growth. Since 2012, its contribution to India's GVA has increased from 49% to nearly 55% currently (in FY 2024) as per Second Advance estimates. While excluding 8.2% decline in FY 2021, the services sector GVA has observed average 8.2% growth between growth between FY 2013-24 and it has exhibited robust 8.8% average increase in the post pandemic period (FY 2022-24). The expansion of the service sector has spurred the development of multiple industries, including IT, healthcare, tourism, transport, and finance, among others.



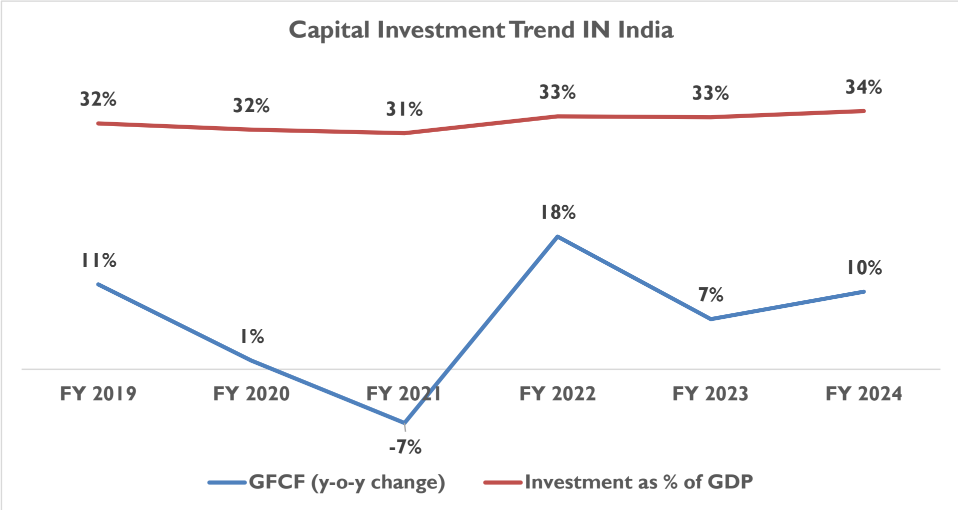


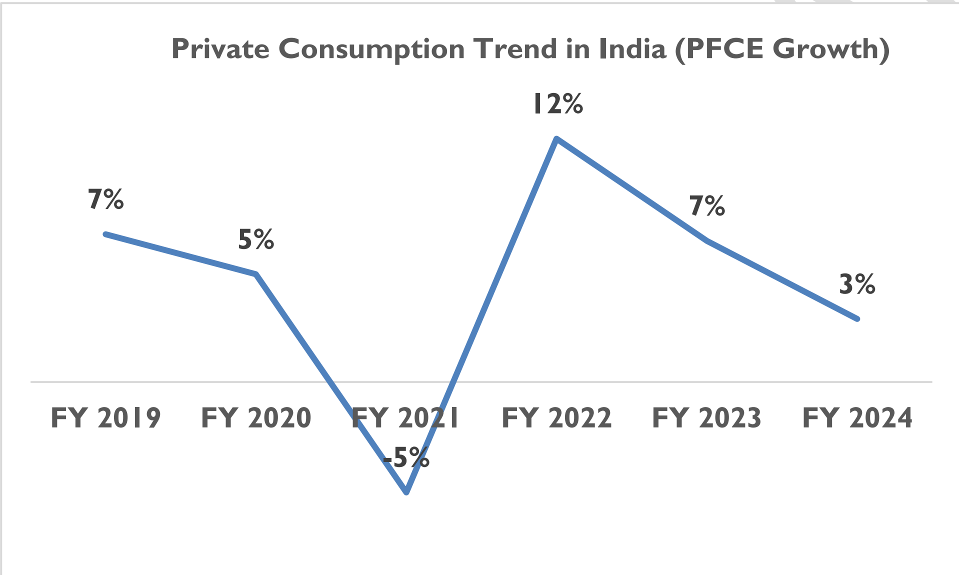
Source: Ministry of Statistics & Programme Implementation (MOSPI)

India's HSBC Services Purchasing Managers' Index**,** an important indicator to track service sector performance, increased to 61.4 in May 2024 from 60.8 in the previous month. Since August 2021, the services sector has consistently remained above the threshold of 50, which distinguishes growth from contraction.

Investment & Consumption Scenario

Other major indicators such as Gross fixed capital formation (GFCF), a measure of investments, gained strength during FY 2024 as it grew by 10% on y-o-y basis against 7% yearly growth in the previous fiscal, while GFCF to GDP ratio measured all time high settled higher at 34%.



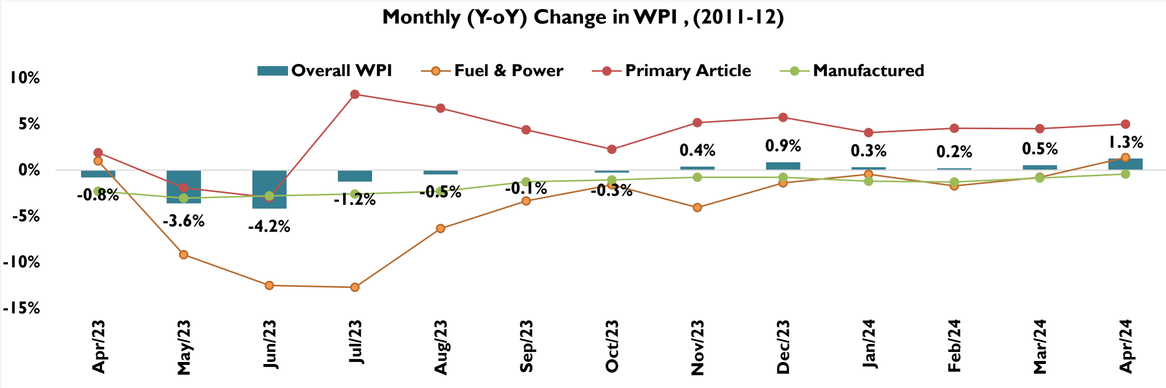


Sources: MOSPI

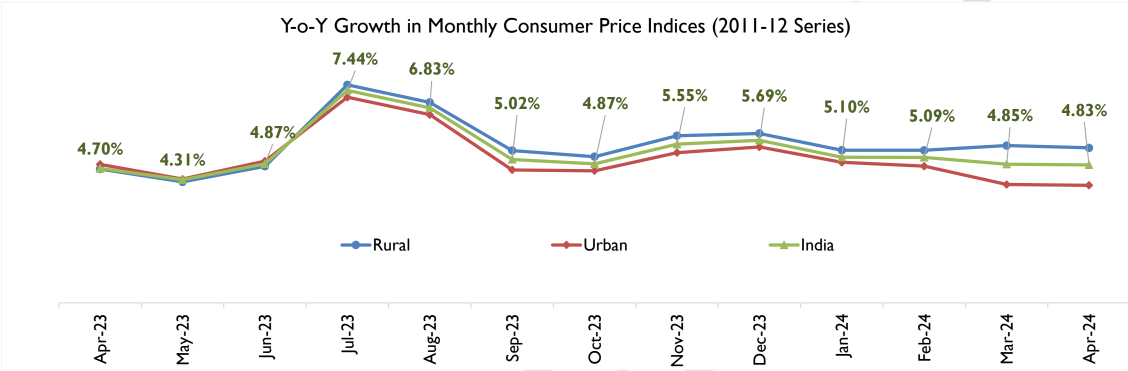
Private Final Expenditure (PFCE) a realistic proxy to gauge household spending, observed decelerated and registered 3.1% y-o-y growth in FY 2024 which is less than half of the previous year indicating sustained weakness in consumer spending.

Inflation Scenario

The inflation rate based on Wholesale Price Index (WPI) exhibited rose to1.3% in the month of April 2024 on the back of steady growth in the prices of primary article which grew by 5% in April 2024 on y-o-y bases. Increasing prices of food articles and energy prices contributed to increasing inflation.



Source: MOSPI, Office of Economic Advisor.

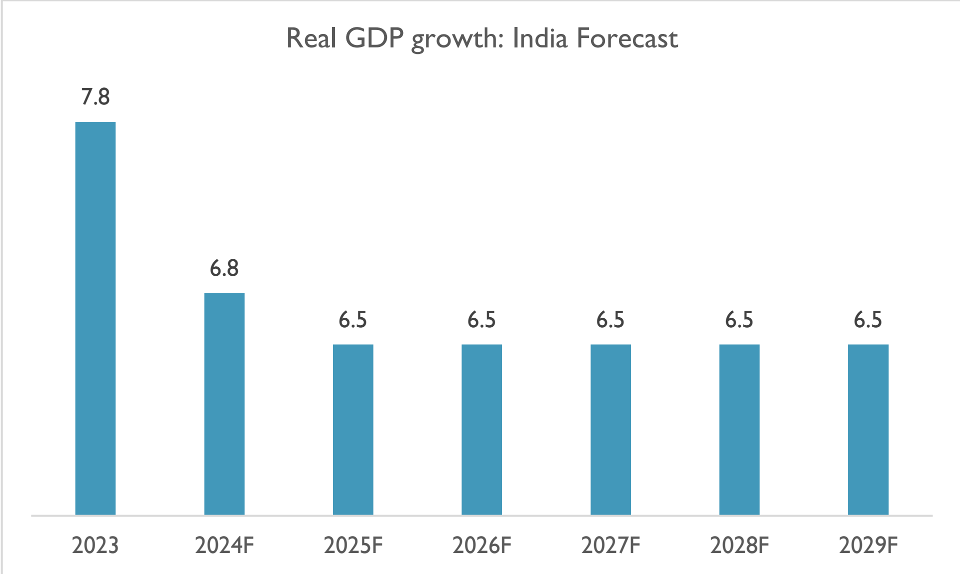


Source: CMIE Economic Outlook

Retail inflation rate (as measured by Consumer Price Index) eased to 4.83% in April 2024 as compared to 4.85% in March 2024. The CPI inflation for rural and urban for the month of April 2024 was 5.43% and 4.11% against 5.51% and 4.14% respectively in March 2024. Retail inflation moderated during FY 2024 after the peak of 7.4% in July 2023 and it fluctuated between 4.85%-6.83%. CPI measured below 6% tolerance limit of the central bank since September 2023. As a part of anti-inflationary measure, the RBI has hiked the repo rate by 250 bps since May 2022 to current 6.5% while it has been holding the rate at 6.5% since 8 Feb 2023.

India's Economic Growth Outlook

Looking ahead to 2024, India's projected GDP growth of 6.8% in 2024 stands out as the fastest among major emerging markets, significantly outpacing China's 4.6% and Brazil's 2.2%. This robust growth trajectory is expected to sustain at 6.5% annually from 2025 to 2029, reflecting strong economic fundamentals and continued momentum.



Source: IMF

This decent growth momentum in near term (2024) is accompanied by a slowdown in inflation, as well as various other factors in the medium to long term that will support the economy. These include enhancements in physical infrastructure, advancements in digital and payment technology, improvements in the ease of doing business and a higher quality of fiscal expenditure to foster sustained growth.

On the demand side, improving employment conditions and moderating inflation are expected to stimulate household consumption. Further, the investment cycle is gaining traction, propelled by sustained government capital expenditure, increased capacity utilisation and rising credit flow. Additionally, there are positive signs of improvement in net external demand, as reflected in the narrowing merchandise trade deficit. Despite the supply disruptions, exports clocked positive y-o-y growth in December 2023 and January 2024.

From uplifting the underprivileged to energizing the nation's infrastructure development, the Government has outlined its vision to propel India's advancement and achieve a 'Viksit Bharat' by 2047 in the interim budget announced on 1st Feb 2024. Noteworthy positives in the budget include achieving a lower-than-targeted fiscal deficit for FY24 and setting a lower-than expected fiscal deficit target for FY25, proposing dedicated commodity corridors and port connectivity corridors, providing long-term financing at low or nil interest rates to the private sector to step up R&D in the sunrise sectors.

Achieving a reduced fiscal deficit of 5.8% in FY24 and projecting a lower than-anticipated fiscal deficit of 5.1% are positive credit outcomes for India. This showcases the country's capability to pursue a high-growth trajectory while adhering to the fiscal glide path. There has been a significant boost to capital expenditure for two consecutive years; capital expenditure – which is budgeted at 3.4% of GDP (INR 11.1 trillion/USD 134 bn) for 2024/25 – is at a 21-year high (3.3% of GDP in 2023/24). The enhancement of port connectivity, coupled with the establishment of dedicated commodity corridors (energy, mineral and cement), is poised to enhance manufacturing competitiveness. This strategic move aims to fulfil India's export targets and reduce logistics costs.

However, headwinds to external demand emanate from recession in key exporting partners - the UK and Germany (which collectively account for over 5% of India's export portfolio) - and the spiralling effect it will have on other European countries. Supply disruptions posed by the conflict in the Red Sea, leading to rerouting of shipments through Africa, are impacting sectors exposed to exports to Europe, running on thin margins, especially small businesses. Although headline inflation moderated to 5.1% in January 2024, a three-month low, volatility in crude prices and uncertainties about food inflation are likely to keep the central bank cautious in the near term.

India's optimistic economic outlook is underpinned by its demographic dividend, which brings a substantial workforce that boosts labor participation and productivity. The burgeoning middle class and urbanization contribute to increased domestic consumption, driven by rising incomes and purchasing power. Extensive investments in infrastructure, encompassing roads, railways, ports, and digital connectivity, are enhancing productivity and efficiency, with government initiatives like the Smart Cities Mission and PM Gati Shakti creating a conducive growth environment. This digital transformation, catalyzed by initiatives such as Digital India, is fostering a tech-driven economy marked by enhanced internet penetration, digital payments, and e-governance, thereby fueling growth in sectors like fintech, e-commerce, and digital services. The push to position India as a global manufacturing hub through Make in India and PLI schemes is further boosting industrial output, exports, and domestic production capabilities. Compared to other major emerging markets facing demographic and economic challenges, India's combination of demographic strengths, policy reforms, and strategic initiatives positions it as a standout performer and a significant driver of global economic growth in the foreseeable future.

Some of the key factors that would propel India's economic growth.

Government focus on infrastructure development & Road Infrastructure Improvement

Infrastructure development has remained recurring theme in India's economic development. The launch of flagship policies like National Infrastructure Pipeline (NIP), and PM Gati Shakti plan have provided the coordination & collaboration that was lacking earlier. Both NIP and PM Gati Shakti are ambitious billion-dollar plans that aim to transform India's infrastructure, elevating it to the next level. These projects are expected to improve freight movement, debottleneck the logistics sector, and improve the industrial production landscape, which would provide the incremental growth in GDP India's growing economic activities are propelling the development and expansion of road infrastructure across the nation. As the Indian economy continues its robust growth trajectory, it relies heavily on the presence of efficient transportation networks to facilitate the movement of goods and people. Roads play a vital role in opening areas and stimulating economic and social development and growth of several allied industries including lithium-ion batteries application in several sector.

Development of Domestic Manufacturing Capability

The Government launched Production Linked Incentive (PLI) scheme in early 2020, initially aimed at improving domestic manufacturing capability in large scale electronic manufacturing and gradually extended to other sectors. At present it covers 14 sectors, ranging from medical devices to solar PV modules. The PLI scheme provides incentives to companies on incremental sales of products manufactured in India. This incentive structure is aimed to attracting private investment into setting up manufacturing units and thereby beef up the domestic production capabilities. The overall incentives earmarked for PLI scheme is estimated to be INR 2 lakh crore. If fully realizing the PLI scheme would have the ability to add nearly 4% to annual GDP growth, by way of incremental revenue generated from the newly formed manufacturing units.

Strong Domestic Demand

Domestic demand has traditionally been one of the strong drivers of Indian economy. After a brief lull caused by Covid-19 pandemic, the domestic demand is recovering. Consumer confidence surveys by Reserve Bank / other institutions are points to an improvement in consumer confidence index, which is a precursor of improving demand. India has a strong middle-class segment which has been the major driver of domestic demand. Factors like fast paced urbanization and improving income scenario in rural markets are expected to accelerate domestic demand further. This revival is perfectly captured by the private final consumption expenditure (PFCE) metric. PFCE as a percentage of GDP increased to nearly 59.2% during the first half of FY 2023F[2], which is the highest level it has achieved during the past few years. Although pent-up demand has played a part in this surge, this is an indication of normalization of demand. There are two factors that are driving this domestic demand: One the large pool of consumers and second the improvement in purchasing power. As per National Statistics Office (NSO) India's per capita income (in current prices) stood at INR 1.72 lakhs in FY 2023 which is nearly double of what it was in FY 2015. This increase in per capita income has impacted the purchasing pattern as well as disposable spending pattern in the country. Consumer driven domestic demand is majorly fueled by this growth in per capita income.

Digitization Reforms

Ongoing digitization reforms and the resultant efficiency gains accrued would be a key economic growth driver in India in the medium to long term. Development of digital platforms has helped in the seamless roll out of initiatives like UPI, Aadhaar based benefit transfer programs, and streamlining of GST collections. All of these have contributed to improving the economic output in the country. Some of the key factors that have supported the digitization reforms include – the growth in internet penetration in India together with drop in data tariffs, growth in smartphone penetration, favourable demographic pattern (with higher percentage of tech savvy youth population) and India's strong IT sector which was leveraged to put in place the digital ecosystem. All these factors are expected to remain supportive and continue to propel the digitization reforms in India.

[2] India Economic Survey FY 2023, Full year data is yet to be released.

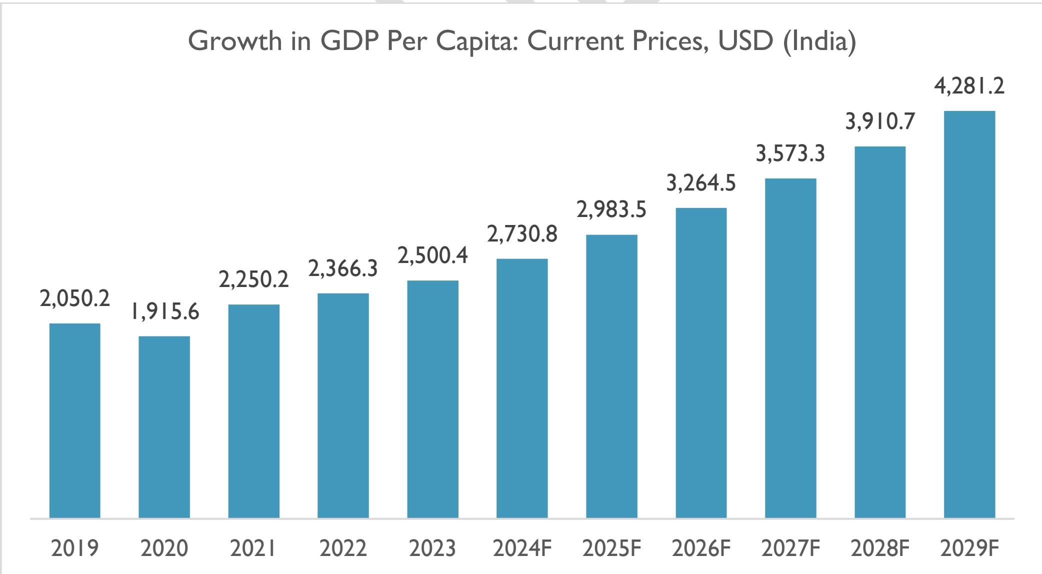
Increased adoption of digital technology and innovation, inclusive and sustainable practices, business-friendly and transparent regulations, and heightened corporate research and development (R&D) investments will further bolster the country's growth. These factors will collectively support employment growth across both private and public sectors, including micro, small, and medium enterprises (MSMEs).

Major Demographic Factor Contributing to India Growth

India's Per capita GDP trends

India is poised to become the world's third-largest economy with a projected GDP of USD 5 trillion within the next three years, driven by ongoing reforms. As one of the fastest-growing major economies, India currently holds the position of the fifth-largest economy globally, following the US, China, Japan, and Germany. By 2027-28, it is anticipated that India will surpass both Germany and Japan, reaching the third-largest spot. This growth is bolstered by a surge in foreign investments and a wave of new trade agreements with India's burgeoning market of 1.4 billion people. The aviation industry is witnessing unprecedented orders, global electronics manufacturers are expanding their production capabilities, and suppliers traditionally concentrated in southern China's manufacturing hubs are now shifting towards India.

To achieve its vision of becoming the world's third-largest economy by 2027-28, India will need to implement transformative industrial and governmental policies. These policies will be crucial for sustaining the consistent growth of the nation's per capita GDP over the long term.

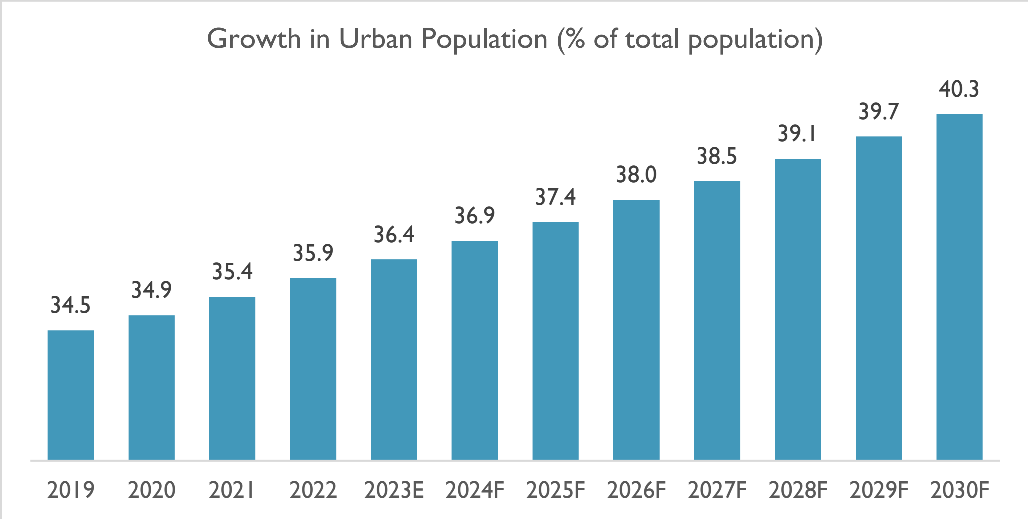


Source: IMF

From 2024 to 2029, India's per capita GDP is projected to grow at a compound annual growth rate of 9.4%. This growth will be driven by the service sector, which now accounts for over 50% of India's GDP, marking a significant shift from agriculture to services.

Increasing Urbanisation

As per the handbook of urban statistics 2022, India's urban population has been on a steady rise, with urban dwellers accounting for over 469 million in 2021, is projected to soar to over 558 million by 2031 and further exceed to 600 million by 2036.



Source: World Bank, D&B Research and Estimates

The share of urban population in total population has been quickly escalating. In 2019, 34.5% of the total population was urban. By 2023, this is estimated to have reached to 36.4%, showing an increment of 2.1% in a span of four years. The share of urban population is further forecasted to cross 40% by 2030. This increase in urban population is set to demand drastic changes in infrastructure development. With cities expanding rapidly, there will be an increased need for improved housing, water supply, sewage systems, and electricity. Urban planning will need to account for higher population densities, necessitating the development of smart cities with integrated technology for efficient management of resources and services. This transformation will also require significant investment in public health, education, and recreational facilities to enhance the quality of urban living.

Construction Industry in India

Overview

The construction sector is a key component of the Indian economy with linkages across more than 200+ sub sectors. It is the second largest employment generator in India with nearly 71 million workforce which is expected to cross 100 million by 2030. Further, India is poised to become the third largest construction market in the next 2-3 years on the back of stable economic growth as the real estate sector has emerged to be a critical engine in the country's growth story. As per a Knight Frank report, the construction sector, along with the output generated from real estate services and ownership of dwellings, contributes nearly 18% to the economy's total output.

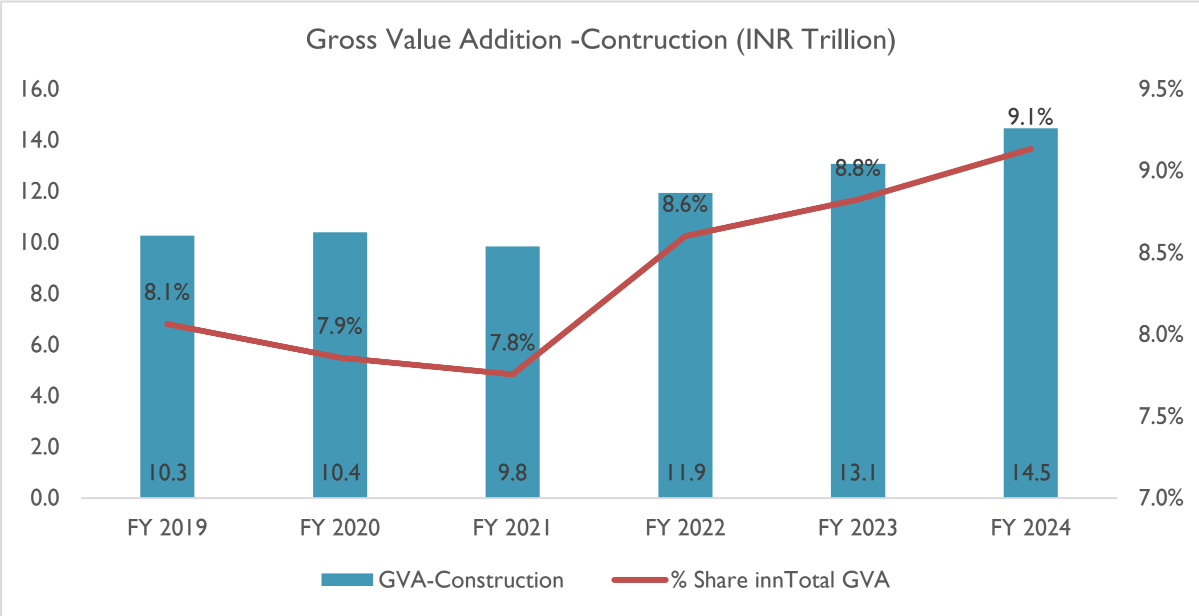
Cities are a major driver for the construction industry as more than 40% of the population is expected to live in urban India (compared to the current 33%), leading to a demand for 25 million additional mid-end and affordable units by 2030. Further, the Smart Cities Mission targeted at 100 cities is aimed at improving the quality of life through modernized/ technology driven urban planning.

India's construction industry is on a phenomenal growth trajectory, projected to reach a staggering USD 1.4 trillion by 2025, accounting for 8%-10% of India's GDP. This represents a significant leap from its current size of approximately USD 820 billion, showcasing the dynamism and potential of this sector. The Indian government's ambitious Gati Shakti National Master Plan plays a pivotal role in propelling the construction industry forward. This comprehensive roadmap aims to seamlessly integrate infrastructure development across various sectors, creating a national logistics network that will boost efficiency and reduce costs.

The Bharatmala Pariyojana initiative complements Gati Shakti by focusing specifically on developing a world-class highway network spanning over 83,000 kilometers. This ambitious project comprises several expressways, ring roads, and economic corridors, aiming to improve connectivity, boost regional development, and facilitate trade. The booming construction industry is a significant job creator, directly employing millions of workers across various disciplines like engineering, construction, architecture, and skilled labor. Additionally, the sector indirectly supports numerous job opportunities in associated industries like manufacturing, transportation, and logistics.

Contribution to national economy by the construction sector has steady improved over the years, and by FY 2024 it is estimated to account for nearly 9.1% of national Gross Value Added (GVA). In actual terms, the GVA by construction sector reached approximately INR 14.5 trillion in FY 2024.

This positive development is based on increased government spending on infrastructure as well as faster than expected demand growth in the real estate sector. The housing sector especially is seeing stable demand, on the back of low loan rates, deductions in stamp duty announced by several state Governments as well as drop in property price volatility.



Source: Ministry of Statistics & Programme Implementation (base year 2011-12)

The government has identified infrastructure as a priority sector to bolster GDP growth. Various reforms have been introduced from time to time to attract investment in infrastructure. Infrastructure sector was opened to private participation post-liberalization in 1991 and currently up to 100% FDI under automatic route is allowed in most sectors/activities.

100% FDI under automatic route is allowed in construction-development projects which would include development of townships, construction of residential/commercial premises, roads or bridges, hotels, resorts, hospitals, educational institutions, recreational facilities, city and regional level infrastructure, townships.

India has emerged as a safe investment destination in the last decade. The construction development segment (townships, housing, built-up infrastructure and construction-development projects) is the seventh largest FDI recipient with its share in total FDI inflows standing at nearly 4% (at the end of March 2024) and cumulatively amounted to INR 3,407 billion from Apr 2000 – March 2024.

Segment	FY 2021 INR Bn	FY 2022 INR Bn	FY 2023 INR Bn	FY 2024 INR Bn	Cumulative FDI From Apr 2000-March 2024 INR Bn
Construction Development *Townships, housing, built-up infrastructure and construction-development projects*	31.17	9.32	11.96	21.13	1,313.21
Construction (Infrastructure) Activities	582.40	241.78	135.88	350.76	2,395.55

Source: Department for Promotion of Industry and Internal Trade

Real Estate Scenario

The post-Covid period from 2021, witnessed gradual revival in the real estate sector on the back of economic revival, increasing per capita income and strong credit growth from financial institutions among others. The growth of the sector is well complemented by the growth in urban and semi-urban areas as well as growth in the corporate environment and demand for office space. A robust demand, attractive and affordable opportunities, policy support and increasing investments all are collectively contributing to the growth of this sector.

PE investments in the real estate sector are expected to remain a little tepid in the short run. According to Knight Frank India, private equity (PE) investment in the Indian real estate sector declined by 20% to USD billion in the first half of 2023 as a result of a conservative shift in investment strategies. However, the overall PE investments in the real estate sector are estimated to touch USD 5.6 billion in 2023, recording a 5.3% Y-o-Y growth on the back of broad-based growth of the economy.

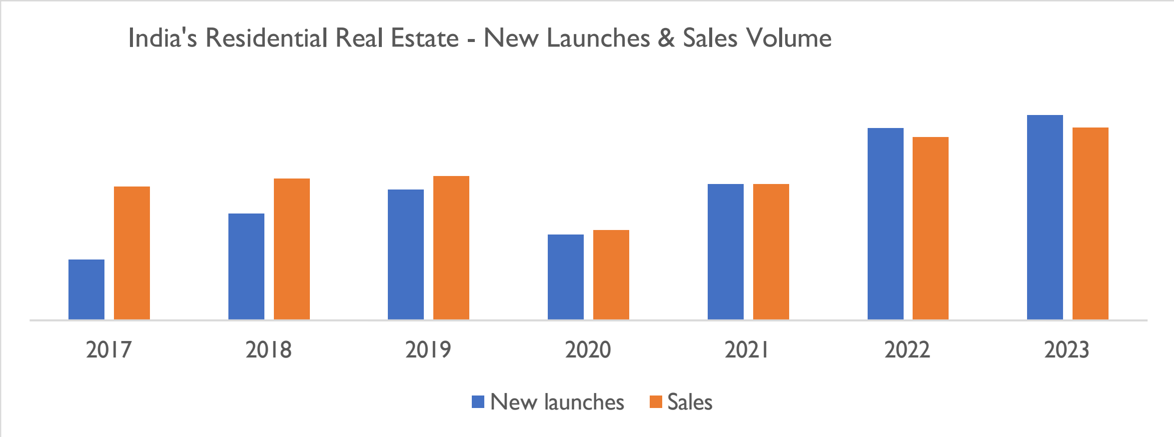
The office sector accounted for the largest share of 68% amounting to nearly USD 1.8 billion in H1 2023 showing 24% growth Y-o-Y owing to the resilience of the investable grade office assets. On the other hand, the warehousing sector which accounted for the second largest share of 21% showed a contraction in H1 2023, with an amount of USD 555 million compared to USD 1.2 billion in the same period of the previous year. The residential sector accounted for 11% share with 3 regions Mumbai, NCR and Bengaluru accounting for more than 90% of the PE investments in the residential sector.

The residential segment is expected to play a major role in driving the growth of the real estate sector in India. According to the Economic Times Housing Finance Summit, about three houses are built per 1,000 people per year in India compared with the required construction rate of five houses per 1,000 population. The current shortage of housing in urban areas is estimated to be ~10 million units and an additional 25 million units of affordable housing units are required by 2030 to meet the country's growing urban population.

Residential Real Estate Scenario

Since the outbreak of the pandemic, Indian homebuyers' goals have shifted as in addition to cost, now better-quality real estate and a better location have become crucial factors in decision-making. The pandemic caused millennials, who were previously thought of as the generation of renters, to change their preference from renting spaces to buying homes. While it's more likely that older generations will make up the majority of the demand for residential space, the younger generation, which includes Gen Z and late millennials (those who are 33 years old or younger), will become more active as they gradually enter the housing market. Also, the continued adoption of a hybrid workplace model is changing the dynamics as a property's quality and surroundings are turning out to be just as important as the unit itself in terms of surroundings. Therefore, places with good physical and social infrastructure will serve as the focal point for future housing developments.

For India's real estate sector, 2023 had significant growth despite inflation. Both home sales and new launches improved significantly, and this momentum of growth will most likely last through 2024. The housing market remains robust, with sales volumes reaching a ten-year peak, and there's no notable impact on the fundamental factors supporting it. The calendar year 2023 witnessed unprecedented growth in residential sales in India and recorded 3,50,746 launches of housing units and sales of 3,29,097 units. This shows a y-o-y increase of a significant 7% and 5% respectively. Of the total sales of residential units in 2023, 63% were dominated by three cities: Mumbai, NCR and Bengaluru.



Source: Knight Frank Report on Indian Real Estate Sector (Statistics for Top 8 Cities in India)

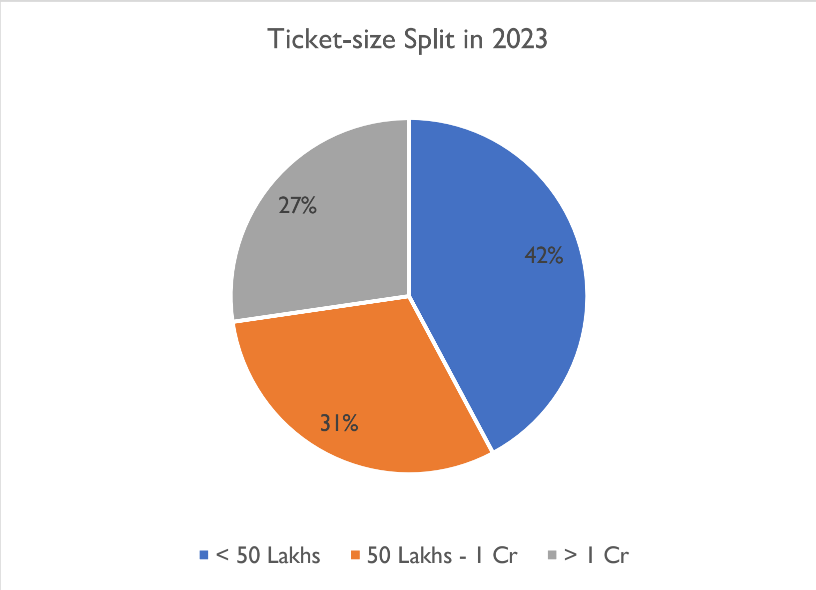
As central banks responded to inflation by raising policy rates and increasing mortgage costs, the global housing market's momentum slowed after an initial rebound in 2023. Despite the Reserve Bank of India's 250 basis points increase in policy rates from May 2022 to February 2023, residential property demand in the country not only remained resilient but also reached a ten-year high in annual sales for 2023.

During this period, new launches rose by 7% YoY to 3,50,746, while residential units sold increased by 5% YoY to 3,29,097. Factors such as increased savings during lockdowns, minimal income disruptions in mid and high-income brackets, and a positive economic growth forecast have contributed to the robust demand in India's real estate market.

Additionally, a trend of house price growth since 2021 has boosted buyer confidence, further supporting sales. The 0.17 million units sold in H2 2023 marked a healthy 12% YoY volume growth. The increased demand has also accelerated residential development, with both half-yearly and annual unit launch volumes reaching ten-year highs. Notably, the launch volumes in 2022 and 2023 have surpassed sales volumes for the respective periods, a phenomenon observed only twice in the past ten years.

Affordable segment (housing units with ticket price less than INR 50 Lakhs) dominates the residential real estate sector in India. However, the market share for the same has noted a decline from 45% in CY 2020 to 42% in CY 2023. Moreover, H2 2023 saw a decline in the segment with a 28% share, as compared to 35% in H2 2022. A similar trend was observed for INR 50 Lakhs – 1 Cr category. In CY 2023, this category had a share of 31%. However as compared to H2 2022 with a share of 37%, H2 2023 has a reduced share of 35%.

The ticket-size split for houses greater than INR 1 Cr in CY 2023 stood at 27%. In H2 2023, this category showed a significant increase in terms of market size by capturing a share of 37% in H2 2023, as compared to the previous 28% observed in H2 2022. This shift underlines the gradual change in demand pattern, as the demand for larger houses increased. The pandemic together with changes in working model (remote working & hybrid working) have necessitated the need for larger and better homes, translating into increased sale of premium residential properties.



Sales & Launches by Cities

Among top 8 markets, Mumbai accounted for 26% of the total sales, which is highest among all the markets. Kolkata, Ahmedabad, and Pune displayed robust growth with strong uptick in both sales and launches. Increased hiring and steady income growth dominated the new-age markets such as Ahmedabad and Pune, also buoyed homebuyer demand.

City	Launches		Sales	
	H2 2023 (YoY change)	2023 (YoY change)	H2 2023 (YoY change)	2023 (YoY change)
Mumbai	42,505 (-1%)	93,051 (3%)	46,073 (12%)	86,871 (2%)
NCR	32,911 (-5%)	62,649 (-1%)	29,888 (2%)	60,002 (3%)
Bengaluru	27,584 (24%)	51,126 (18%)	27,799 (4%)	54,046 (1%)
Pune	21,203 (0%)	42,437 (10%)	27,596 (28%)	49,266 (13%)
Hyderabad	24,134 (7%)	46,985 (7%)	17,525 (7%)	32,880 (6%)
Ahmedabad	11,941 (15%)	22,497 (8%)	8,131 (39%)	16,113 (15%)
Chennai	8,150 (4%)	16,272 (6%)	7,770 (6%)	14,920 (5%)
Kolkata	8,954 (59%)	15,730 (28%)	7,675 (32%)	14,999 (16%)
All India	1,77,382 (6%)	3,50,746 (7%)	172,457 (12%)	329,097 (5%)

Source: Knight Frank Report on Indian Real Estate Sector (Statistics for Top 8 Cities in India)

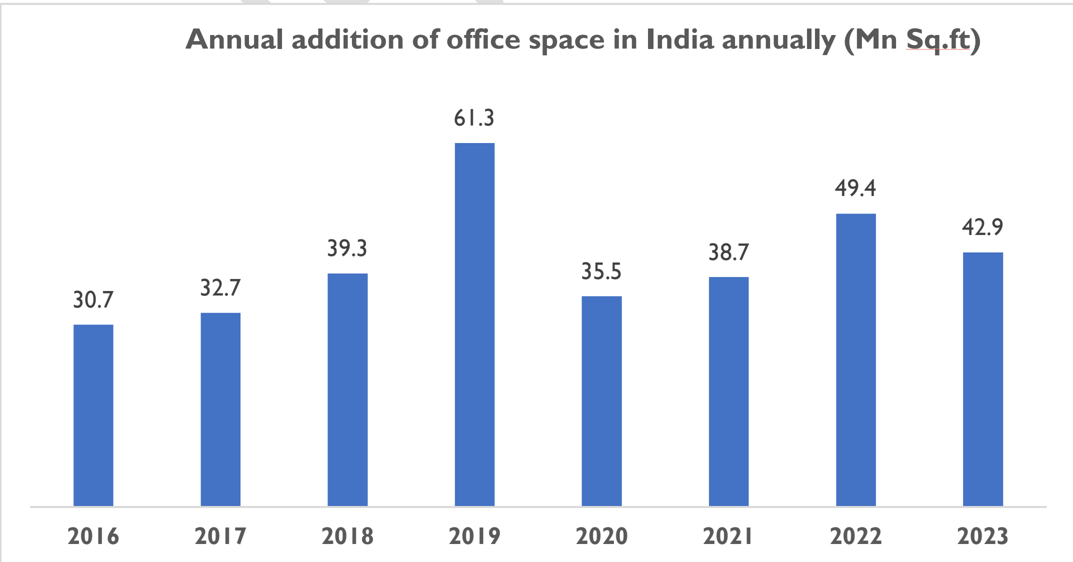
Office Space Real Estate Scenario

The year 2022 was a landmark year for Indian commercial office space segment, reaching record high level of new addition as well as absorption / transactions after two years of pandemic hit. In 2022, approximately 49.4 million sq.ft of new office space was added while 51.6 million sq.ft of office space was subject to transactions – leasing / rentals. A robust demand scenario in IT sector, which is the largest consumer of office space in India, triggered this strong growth.

However, the onset of Covid-19 pandemic significantly affected the segment in 2020-21 – both in terms of demand as well as supply. Lockdown, and associated disruptions (in terms of availability of building materials & labour) brought new construction to a standstill. Meanwhile the shift to remote working model by service industry (led by IT-BPM sector) lowered the demand for fresh office space, hitting the transaction volume.

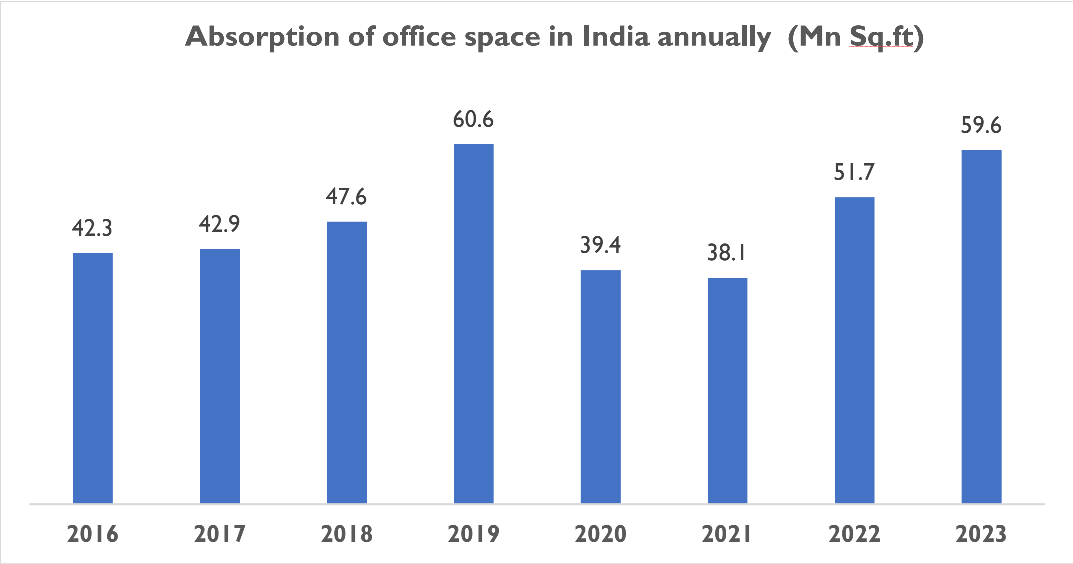
Revival in addition of new space and transactions began to pick up pace by the second half of 2022. Transactions received a boost as the service industry readied for a return to office scenario. Meanwhile near normalization of construction scenario helped in improving the addition of office space. Backed by these factors, the addition of new office space increased by 27% in 2022, compared to previous year. Additionally, the number of transactions climbed by 23% in 2022, recording a downward trend from the 3% fall that occurred in 2021.

Compared to leasing activity, additions of new office space in 2023 were subdued at 42.9 million square feet. This represents a 2% decrease from 2022. This decline suggests developers are finding greater opportunities in the residential market, likely due to a steeper rise in sales and prices there. There was a positive sign in the second half of 2023 with 24.8 million sq ft of additions, representing a 7% year-over-year increase.



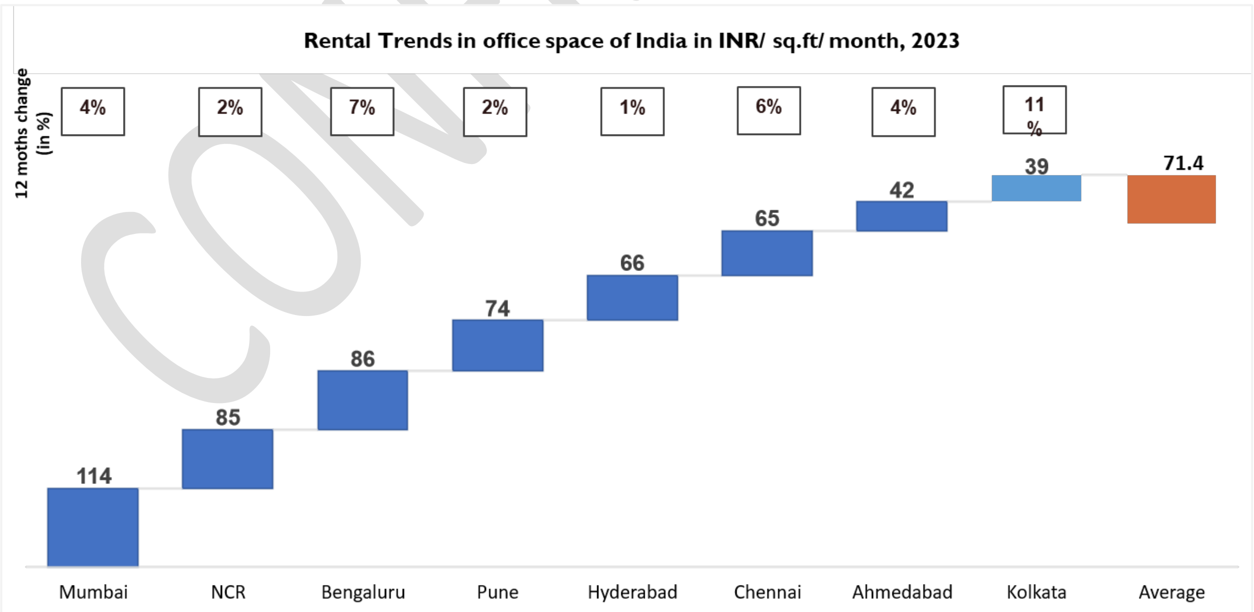
Source: Knight Frank, Industry Sources

However, there was a steady rise in leasing activity throughout 2023. In fact, the total amount of leased space across eight major markets kept increasing each quarter. By the end of the year, leasing came close to reaching record highs, with a total of 59.6 million square feet occupied. The second half of the year (H2) was particularly strong, with a 15% increase in leasing compared to the same period in 2022. This marks the highest volume of space leased in a half-year since 2012.



Source: Knight Frank, Industry Sources

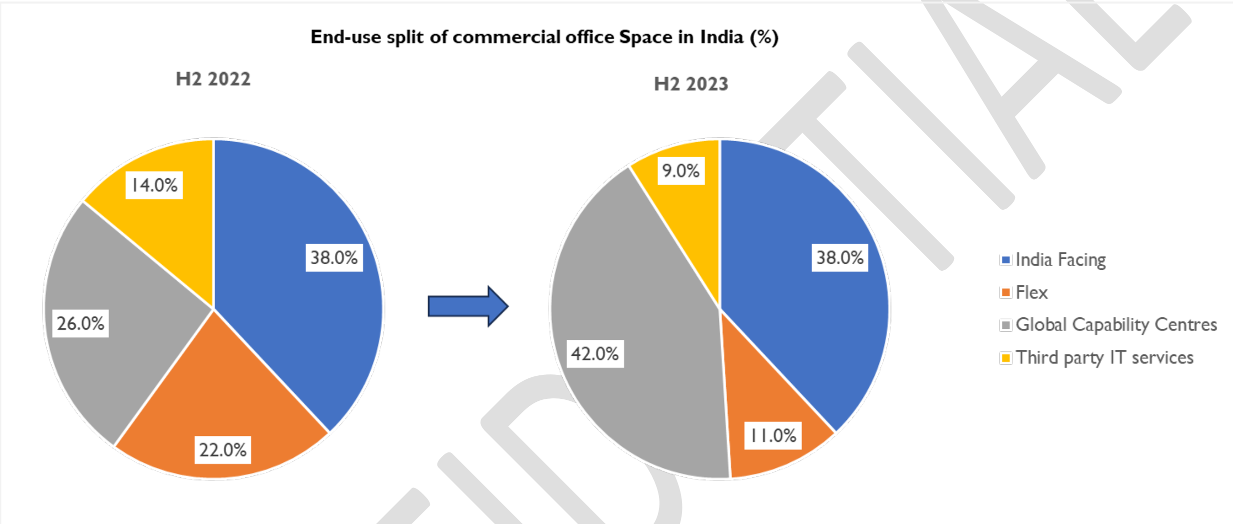
Office rents in India have been on a steady rise throughout 2023. This marks the third consecutive six-month period where rents have either increased or held steady across all major markets. Mumbai and NCR, being major financial and business centers, command premium rents. IT hubs like Bengaluru and Pune also see high rental values due to strong demand from the technology sector. Secondary cities like Hyderabad and Chennai are catching up with rising IT activity, but their rents remain lower compared to the top tier cities.



Source: Knight Frank, Industry Sources

Despite not experiencing the highest volume of leasing activity, Bengaluru witnessed the strongest rent growth at 7%. This could be due to continued demand from the IT sector and limited availability of prime office space. Mumbai, NCR, and Chennai also saw rent increases, albeit at a slower pace. Rents rose by 4% in Mumbai, 2% in NCR, and 6% in Chennai. This suggests a strengthening market even in these key commercial centers.

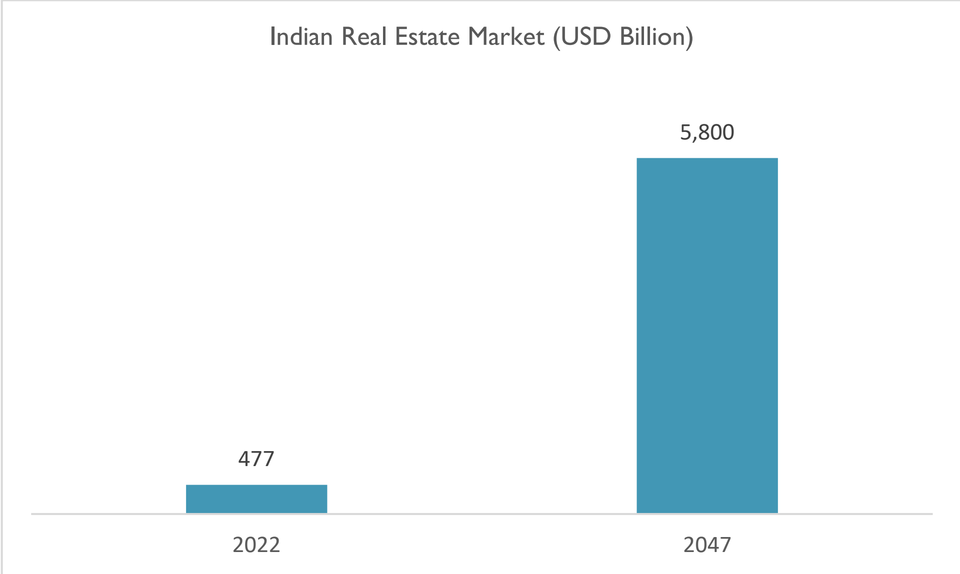
Companies catering to the domestic Indian market continue to be the primary driver of office space absorption with consistent Demand of 38% in both H2 2022 and H2 2023. A remarkable trend is the surge in demand from Global Capability Centers (GCCs). Their share of office space absorption jumped from 26% in H2 2022 to a dominant 42% in H2 2023, signifying India's growing appeal as a strategic hub for multinational corporations to establish centers for IT, finance, or R&D activities.



Source: Knight Frank, Industry Sources

Outlook for the Real Estate Sector

According to a report 'India Real Estate: Vision 2047' released by National Real Estate Development Council and Knight Frank India, the Indian real estate sector is estimated to increase by more than 12-fold to USD 5.8 trillion (USD 5,800 billion) by 2047 from USD 477 billion last year. The sector is expected to contribute over 15% to the total economic output of the country in 2047 from an existing share of 7.3%.



Source: India Real Estate: Vision 2047, National Real Estate Development Council and Knight Frank India

The size of the residential real estate market is estimated to grow to USD 3.5 trillion in 2047 from USD 299 billion last year. The size of the office real estate market is likely to grow to USD 473 billion from USD 40 billion, while the warehousing market is expected to reach USD 34 billion from USD 2.9 billion.

According to Knight Frank India there will be an estimated requirement of 230 million units of housing in India by 2047. The demand for housing is expected to remain concentrated in the affordable housing segment, which is expected to gradually shift towards mid segment and luxury housing. The share of lower income households will reduce from existing 43% currently to 9% in 2047. The growth will be primarily driven by favourable economic conditions, government policies, alternative investment models and increasing per capita income among others.

According to the report, Real Estate Investment Trusts (REITs) in the coming years are expected to expand into diverse sectors such as residential and warehousing, in addition to the office and retail segments. Further, builders could also explore opportunities by venturing into REITs for alternative asset classes like data centers, hospitality, healthcare and education.

Industrial Construction Scenario

Construction sector is one of the major segments that drives an economy. Growth in the number of construction projects creates as well as strengthens the demand for a myriad range of products and services. These include project management services, EPC/EPCM services and architecture consulting services, to name a few.

In industrial segment, with rising number of projects and complexities in the scope of work, the responsibility of successful project execution has shifted from project owner/developer to EPC and EPCM contractors. For industrial plants spanning across chemical, fertilizer, oil & gas and petroleum sector, amongst other, prominent turnkey solution and services provided by EPC companies include Site Investigation Service, Project Management, Procurement & Supply, Design & Detail Engineering, Manufacturing & Erection of Equipment, Installation and Mechanical Completion, Piping, Instrumentation, Commissioning, Performance Guarantee Test Run, and Operation & Maintenance, amongst others.

EPC contractors carry out the detailed engineering design of the project, procure all the equipment and materials necessary, and then construct to deliver a functioning facility or asset to their clients. The scope of EPC service also varies according to the sub segment within the industry. The type of services required by an infrastructure developer would be entirely different from a residential real estate developer. EPC is a major service sought by infrastructure developer while real estate developers would look for support in building finishing (cladding & glazing), and mechanical, electrical & plumbing works. However, in both cases, the role of MEP specialists becomes critical as MEP needs are turning out to be fundamental requirements of any construction project.

Infrastructure Investment Trend So Far

The government remains committed of creating new and upgrading existing infrastructure to raise the quality of life and ease of living in India to global standards. According to the Report of the Task Force on National Infrastructure Pipeline, the infrastructure investment in 12th Five Year Plan (FY 2013 to 2017) amounted to Rs 36 trillion (at current prices). India's infrastructure investment for FY 2018 and FY 2019 stood at ~Rs 10.2 trillion and ~Rs 10 trillion respectively. During this period, infrastructure investment was predominantly made by the public sector with a share of ~70%. Sector wise, Power, roads and bridges, urban, digital infrastructure and railways observed maximum investment with respective share of 31%, 18%, 15%, 12%, and 10% in total cumulative infrastructure kms pending between FY 2013-19. Together these 5 sectors constituted ~85% of the total infrastructure investment in India during fiscals 2013 to 2019.

The total capital expenditure in infrastructure sectors in India during FY 2020 to 2025 is projected at ~Rs 111 trillion. During this period such as energy (24%), roads (18%), urban (17%) and railways (12%) are expected to account for ~71% of the projected infrastructure investments in India.

Sector	Amount to be invested in FY 2020 - 2025 (Rs Trillion)	% Share in Total Investment
Energy	27	24%
Roads	20	18%
*Urban	19	17%
Railways	14	12%
Irrigation	9	8%
Rural Infrastructure	8	7%
**Social Infrastructure	4	4%
Industrial Infrastructure	3	3%

Digital Communication	3	3%
Agriculture and food processing infrastructure	2	2%
Airports	1	1%
Ports	1	1%
Total	**111**	**100%**

Source: Report of the Task Force on National Infrastructure Pipeline
Note
* Includes Atal Mission for Rejuvenation and Urban Transformation, Smart Cities, MRTS, Affordable Housing, Jal Jeevan Mission
** Includes higher education, school education, health and family welfare, sports and tourism

Government Initiatives and Regulations

The Union Budget 2023 – 24 announcements indicate the government's sustained efforts to boost the real estate and construction sector, which can have a positive impact on the economy as a whole. It places significant emphasis related to infrastructure development, urban planning, affordable housing, domestic manufacturing and energy transition with a focus on sustainability among others. Some of the major announcement include –

- An augmentation of 33% in the capital investment outlay taking it to Rs 10 trillion.
- The enhancement of the PM Awas Yojana with a 66% increase in allocation to Rs 790 bn is a major step towards increasing the availability of affordable housing, thereby providing a boost to the real estate sector.
- The newly established Infrastructure Finance Secretariat will assist all stakeholders for more private investment in infrastructure, including railways, roads, urban infrastructure, and power.
- An annual allotment of Rs 100 billion for the Urban Infrastructure Development Fund to foster urban infrastructure in tier 2 and 3 cities.

RERA & Its Impact

Real estate sector in India is regulated by multiple rules and regulations, which often overlap with each other. The Real Estate (Regulation and Development) Act was introduced in the year 2016 to protect the home buyers and also make sure that the investments in the field of the real estate industry get uplifted with time. It is playing a critical and transformational role in transforming the real estate sector by bringing greater transparency and better governance practices. Effective addressal of housing issues is increasing the credibility level of the real estate sector and the confidence of the customers.

The residential sector's operational development between 2016 and 22 can be used to gauge the impact of RERA. The performance of the residential sector was primarily a result of the improved transparency and trust injected by RERA, notwithstanding the introduction of larger policy reforms that affected real estate during the same era. Once the new procedure was in place and all parties were in agreement with the modifications made by RERA, residential sector sales and launches improved. The expansion of the residential sector and other drivers of growth, with the exception of the pause caused by the epidemic, have received attention.

The RERA-instituted escrow mechanism allowed for the efficient use of cash. The increased home sales helped developers with their cash flow and lessened their reliance on institutional capital funding requirements. Consequently, the overall effect has been an improvement in the sector's financial health.

REIT & Its Impact

The Real Estate Investment Trust (REIT) - an investment vehicle that invests in rent-yielding completed real estate properties has the potential to transform the Indian real estate sector. Currently, developers incur huge capital expenditure especially in Commercial Real Estate (CRE), on land, construction, interior fit outs, etc. which remains locked for years until the asset generates returns to bredak-even. REIT will help attracting long-term financing from domestic as well as foreign sources. This could improve fund availability to real estate developers and reduce some burden on completed assets by allowing owners of such assets to raise capital from investors against issue of units. Further, for the investors, the REIT can provide a new investment vehicle with ongoing returns, elevated transparency and governance standards.

Also, in 2023, the amendment in the Finance Bill ensured softening the tax impact for REITs and InvITs (Infrastructure Investment Trust) could lead to REITs and InvITs remaining an appealing investment mechanism.

Mechanical Electrical and Plumbing (MEP) Services

Overview

Mechanical, electrical & plumbing (MEP) services is the umbrella term for the range of technical / engineering services in the construction domain that are used to transform a building to be fit for human occupancy. The MEP service provider offers turnkey solution majorly to the residential, commercial, and industrial buildings, airports, hospitals, educational units, hotels, laboratories, research centers amongst others.

MEP services are key elements for efficient functioning of buildings, ensuring proper environmental conditions, energy conservation and compliance with the required building codes and standards for making the building safe and habitable. MEP services need detailed planning, designing, installation and maintenance to optimize performance, provide higher energy efficiency and improve occupant safety and comfort. Breakdown in the MEP system can affect the entire operations of the building and cause great inconvenience to the residents.

Due to the high degree of interaction between the three systems, MEP installations are generally bundled together to avoid conflicts which tend to happen when MEP systems are designed in isolation from each other. As the integrated module is complex in nature, MEP engineering firms use software solutions to speed up the design process.

MEP systems are developed by specialists as it involves complex designs, coordination, and detailing issues. Additionally, to operate at maximum capacity and minimal errors, they must meet several designs, installation, commissioning, operating and maintenance thresholds and standards.

The key components of MEP include:

- **Mechanical Engineering:** Mechanical systems are generally those systems associated with HVAC (heating, ventilation, air conditioning systems) but can also comprise elevators, escalators, fire protection systems etc. The three most common types of mechanical design work in commercial construction include space heating, air conditioning and mechanical ventilation. Such systems interact with each other to ensure that temperature and humidity is maintained within a certain pre-determined range deemed suitable for the inhabitants. Mechanical design involves laying out optimal routes for heat distribution systems such as air ducts, hydronic piping, or steam piping.
- **Electrical Engineering:** The deals with distribution and supply of electricity, communication systems, control and security systems, alarm detection, interior and exterior lighting etc. In high-rise construction finding the optimal routes for conduit and wiring is one of the major challenges which can be overcome by using MEP which allows conduit and wiring to be laid out with minimal circuit lengths and avoid location conflicts with mechanical and plumbing installations. During the MEP design process, mechanical and electrical engineers collaborate closely on HVAC systems as the mechanical engineers calculate heating and cooling loads to determine equipment capacities, while the electrical

engineers design the electrical circuits and protection measures that allows equipment to operate continuously and safely.

- **Plumbing Engineering:** Plumbing systems comprise pipes, tubes, tanks, valves etc. that facilitate the movement and storage of fluids used for water supply, treatment and recovery, waste removal, heating and cooling etc. MEP plays a key role for plumbing systems as they interact with both mechanical and electrical systems. For example, high-rise buildings typically need water booster pumps that require electricity. Domestic hot water systems get their heat through a boiler, or a heat exchanger connected to a space heating boiler or an electric heater.

Some of the most common MEP services deployed in construction industry include:

Mechanical Engineering	**Electrical Engineering**	**Plumbing Engineering**
- HVAC Systems - Central Plant Design - Exhaust Systems - Direct Digital Control Systems - Heating Water Systems - Chilled Water System	- Comprehensive Electrical System Design - Onsite Power Generation Requirements and Distribution - Integration of IT and AV (audio visual) Into Overall Building Design - Device Coordination and Arc Fault Services - Lightning Protection Systems - Fire Alarm Systems	- Hot and Cold-Water Systems - Water Conservation Systems - Domestic Waste and Vent Systems - Storm Water Systems - Automatic Sprinkler Systems - Fuel Gas Piping Systems
Energy Management	**Lighting Design**	**Communication Technologies**
- Thermal Storage Systems - Energy Recovery Systems - Free Cooling Systems - Utility Monitoring Systems - Chilled Beam Systems - Displacement Ventilation Systems - Dedicated Outside Air and Underfloor Air Distribution Systems	- Architectural Lighting Plan Design - International Design and Lighting Specifications - Lighting Control Design - Renderings and Other Lighting Visualization Techniques - Illuminance Calculations - Color Temperature Analysis - Custom Lighting Design	- Voice, Data and Video Integration - Security and Alarm Systems Integration - Audio/Visual System Design

Commissioning	**Sustainable Design**
- Design Stage Reviews	- Cost Effective Designs

- Functional Testing - Owner Training - System Documentation	- Leadership in Energy and Environmental Design (LEED) Consulting - Exploring Alternative Sources of Energy - Energy Conservation Technologies - Energy Modelling

Role of MEP in Construction: Benefits & Advantages

MEP firms can provide value at every stage of the construction process from providing comprehensive schematic designs to administration and monitoring during the post occupancy stage. The MEP model covers all major aspects of the construction project such as development of preliminary design (in conjunction with the architect's plans) involving detailed drawings and diagrams of all floor plans, elevations and sections, technical specifications on the systems to be installed, list of materials needed, overview of execution methods for the materials, products, and systems etc.

Investment can be maximized through a range of services such as building evaluation, system diagnostics, feasibility studies etc. By working with all major stakeholders such as the architects, contractors, building owners, project management team etc. a common plan can be developed reducing friction between different stakeholders at later stages.

Some of the key benefits & advantages accrued due to the inclusion of effect MEP services during construction phase include:

- **Efficient Energy Usage:** Energy cost is one of the major operating expenses incurred in a building, with energy demand coming from multiple aspects like heating, ventilation, and lighting. In 2021, the building sector – including construction & operation – accounted for approximately 34% of global energy consumption[3]. Effective MEP system can be designed to reduce the energy consumption by introducing system components such as lighting device efficiencies as well as through building system controls such as day lighting.
- **Controlling Emissions:** Building and construction sector accounted for nearly 37% of energy and process related carbon dioxide emission in 2021[4]. With countries across the world agreeing on reducing the green house gas (GHG) emissions, the need to control emissions from building & construction sector is becoming increasingly important. MEP service providers play a major role in this by designing & implementing sustainable systems that optimises energy usage thereby helping control carbon dioxide and GHG emissions.

[3] UN Environment Program, 2022 Global Status Report for Buildings and Construction
[4] UN Environment Program, 2022 Global Status Report for Buildings and Construction

Market Scenario

Transitions in the Industry

The global market for MEP services is driven by infrastructure development happening across the world. Across developing economies, there is a relentless push to improve infrastructure pertaining to commercial, residential, industrial, and civil construction and this push is creating demand for MEP services. Meanwhile in the developed world the demand for MEP services is driven by upgradation of infrastructure facilities.

Based on service, the global MEP market is categorized into three segments: consulting & engineering, maintenance & support, and system integration. North America is the largest market, but the growth has shifted to Asian market owing to the presence of some of the fastest growing developing economies in the world.

The industry is witnessing the emergence of several trends, all in a bid to improve efficiency and reduce cost. 3D modelling and virtual project planning are two such trends which is gaining strength in the industry, as they have proven to be effective in driving down cost, transferring to improved profit margins. However, the adoption of these trends is currently limited to top players, and primarily in developed markets.

Technological investments that are required to integrate these practices is emerging as a roadblock for small and medium sized firms in the industry. Moreover, usage of 3D modelling and virtual project planning is still to gain precedence, and there are not many customers who would be willing to move from tried and tested model to these new approaches. Nevertheless, as technology progresses these trends (and other emerging trends) will become more of a norm rather than a novelty.

The adoption of digital technologies by global MEP industry has hastened in 2020 and 2021, in response to the spread of covid-19. Adoption of digital technologies has become more of a necessity for the industry, to tide over the troubled times. The focus on outcome-based design has increased, as consumer demand has witnessed a drastic change. With fast spreading of covid virus in enclosed spaces, Companies were looking at HVAC systems more closely. Recirculated air systems are increasingly making way to clear air options while filtration specifications is becoming more stringent. These changing consumer need have forced MEP industry to invest more on design modelling & simulation, as the industry needs to accurately model real-world conditions.

The increase in remote working is expected to have an impact on the nature of demand for MEP services. With people spending more and more time indoors, there will be increased focus on residential HVAC requirements. MEP industry is expected to see higher interaction levels with retail consumers, and this could increase the operational expenses. To tide over this cost, the industry would be open to adopting more and more digital tools like remote diagnostics using virtual support.

Although the short-term impact of covid-19 on MEP industry has been disastrous – by way of reduced business – the pandemic forced the industry to digitize, something which has been notoriously lacking in this industry. The industry today has managed to build up its digital automation capability, and this in turn has improved its ability to meet the emerging demand.

Indian Market Scenario

Indian market for MEP services is undergoing a transition. The major factors behind this is the emergence of complex construction projects across all segments of real estate, as well as changes in building codes resulting in mandatory installation of certain products and systems. The changing regulations in electrical voltage systems for different consumer classes (residential, commercial, and industrial) is a major feature that is reshaping the MEP industry. Moreover, the focus on Green Buildings is getting stronger and more and more projects (primarily in commercial real estate space) is vying to get the coveted green certification. This entails compliance with an entirely different set of codes and regulations, which in turn is opening up new opportunities for construction services including MEP services as well as HVAC services.

Today, the world is moving towards smart buildings, wherein the buildings are closely integrated with technology. Smart homes and connected buildings are a reality today, and the penetration of smart devices (from smart speaker to lighting system to locks) is becoming widespread. This calls for a new level of competence and skillsets from the MEP sector, who should be equipped to meet the tall demands from the customer segment. Thus, to stay relevant, the MEP players are finding it integral to invest in upgrading their skills and capabilities, making them more technology friendly.

Key Demand Drivers

The demand for MEP services is directly correlated to the construction sector. The prevailing sentiment in the construction industry is an indicator of the demand scenario existing in the MEP services segment. An increase in the number of construction projects would directly result in higher demand for MEP services, which accounts for 40% of building construction cost. Similarly, any drop-in construction activity would directly impact the demand for MEP services.

The increasing complexities in the construction sector, and a move towards more scientific & organized construction process has led to widespread adoption of centralized MEP services. Earlier these services used to be met through local vendors. The move towards a more organized process has led to preference for a single vendor. Building developers today prefer a single vendor for all its MEP demands.

Thus, it could be stated that the above-mentioned change in construction processes as well as the boom in building construction in India has helped in the growth of MEP services segment. Furthermore, the evolution in building construction standards as well as maturing of regulatory landscape have increased the demand for superior HVAC & associated facilities. This has promoted MEP service providers to develop expertise in these associated services, which is today offered as a bundled service along with their core MEP service.

Growth in Construction Activity in India

Construction activity in India has rebounded strongly in FY 2022 and FY 2023, after the contraction of nearly 6% in FY 2021 due to the impact of Covid-19 pandemic. Strong Government spending on infrastructure development, supportive policy measures (like Production Linked Incentive Scheme) that is triggering a demand in industrial construction, and resumption in real estate construction have all contributed to this rebound.

Some of the key factors that are driving the construction activity in India:

Rapid Urbanization: Urban population increased from 286 Mn to 377 Mn during the past decade (2001-11) and proportion of urban population to total population increased from ~27% to ~31%. Increase in urbanization was synonymous with the rise in service sector that created jobs in urban centers. As a result, the number of cities with population of more than 1 million reached 47 by end of 2011. According to the UN World Urbanization Prospects 2018 report, urban population in India is expected to grow from 410 million in 2014 to 814 million by 2050. At present, around 34% of Indians live in cities and this share is expected to rise to 46% by 2025. This rapid pace of urbanization is expected to create a huge demand for residential units.

Infrastructure Development: As India aims to grow to a USD 5 trillion economy by 2027, Construction sector that include Infrastructure construction will be critical for boosting economic growth as it is the key growth enabler for several other sector. Infrastructure development provides impetus to other sectors like cement, bitumen, iron and steel, chemicals, bricks, paints, tiles, financial services among others. A unit increase in expenditure in construction sector has a multiplier effect on other sectors with a capacity to generate income as high as five times in other sectors.

The sector enjoys intense focus from the Government which is well reflection in higher budgetary allocations. In Union Budget 2019-20, the government announced to invest INR 100 trillion in infrastructure over the next five years. Consequently, the National Infrastructure Pipeline worth INR 103 trillion spread across over 6500 projects across sectors was launched on 31st December 2019 while the value of projected investment has got revised to INR 111 trillion in May 2020. This translates in per year spending of around INR 22 trillion. The National Infrastructure Pipeline aims to improve the ease of living for its citizen.

Strong Industrial Construction Segment: After the implementation of economic liberalization policies in early 1990s, the industrial investment scenario in India has largely been shaped by market forces. Government's role was mostly related to designing and implementing policies that would at best improve the investment landscape and attract private investment. Rapid economic growth and rise in demand saw an influx of private investment which was directed towards improving the industrial base of India. As a result, several industrial sectors in India went on to add capacity to become amongst largest in the world.

However, the launch of Production Linked Incentive (PLI) scheme by the Government in 2020 to improve domestic manufacturing capability of India is different from policies launched before. For one, the scheme offers direct incentives on incremental sales from products manufactured in domestic units – thereby promoting domestic production. At present PLI scheme is active in 14 industrial sectors, manufacturing products ranging from electronics to medical devices. The scheme has proved successful in attracting industrial investment across all these 14 sectors, triggering a wave of industrial construction projects geared towards capacity expansion (Greenfield / brownfield construction).

Changing Demand Dynamics

Green and Sustainable Construction – Focus on green development and transition to sustainable energy sources wherein MEP services can play a key role in energy conservation practices. With India focusing on achieving its installed renewable energy target of 500 GW by 2030, renewable energy integration is emerging as a key driver of the MEP market with increasing focus on energy efficient MEP systems. The need arises as different types of renewable energy sources such as solar panels, wind turbines, biomass generators etc. have to be integrated with the building's electrical system to power lighting, HVAC and other systems. For example, in modern buildings, hybrid systems combining conventional energy production with renewable energies are integrated into the MEP system which ensures seamless switchover of energy source according to the prevailing demand and supply.

Rising Demand for HVAC Services - Traditionally, commercial, and industrial applications were the primary adopters of the HVAC industry in the country. However, beginning 2000 the usage of HVAC system in residential and retail consumer segment has started becoming more prominent owing to substantial increase in income levels and aspirational changes. Meanwhile in traditional industrial and commercial segments, the rapid expansion in office space as well as industrialization ensured the demand for HVAC remain strong.

The HVAC market in India is experiencing a gradual shift towards energy-efficient systems, primarily driven by rising energy costs and environmental concerns. The government's initiatives to promote energy efficiency measures, such as the Energy Conservation Building Code (ECBC) and the Standards and Labelling (S&L) program, are playing a crucial role in driving the adoption of energy-efficient HVAC systems.

Additionally, there is a growing awareness of indoor air quality and the need for improved ventilation and air purification, leading to increased demand for HVAC systems that can address these concerns. The industry is witnessing a shift towards technologically advanced HVAC solutions, including smart controls, remote monitoring, and energy management systems, providing enhanced comfort and energy efficiency. With rising energy costs and increasing environmental concerns, there is a growing demand for HVAC systems that consume less energy while providing optimal performance. The adoption of advanced technologies such as smart controls, IoT integration, energy management systems, and improved insulation materials will drive the industry further towards greater efficiency and reduced carbon footprint.

The sectors that employ HVAC systems most in India include commercial buildings, hospitals, hospitality (hotels and restaurants), retail spaces, educational institutions, and industrial facilities. These sectors require efficient HVAC systems to maintain comfortable and healthy indoor environments for occupants.

Buildings account for approximately 20% of energy usage in India, with the share as high as 31% in commercial buildings. Application of MEP systems could result in superior HVAC system to improve energy efficiency in the residential and commercial buildings.

Opportunities & Challenges

Opportunities

MEP services is a specialized type of service as it involves the integration of different system at different levels. An inefficient MEP system can prove to be a high-risk factor for the entire building's system. As MEP providers have the required skill sets and knowledge to handle such operations, developers prefer to outsource these services to MEP specialists who are more capable of handling these activities. Further, with increasing adoption of MEP systems, the relationship between the MEP providers and buyers is shifting from a contractual / transactional basis to a long-term relationship basis which is more collaborative in nature. Also, by outsourcing these services the end users can continue to focus on their core business activities as well as nullify the issues associated with training, maintaining and retaining of skilled workforce required for MEP services.

Along with office buildings, increasing number of commercial complexes such as malls, theatres and shopping complexes are supporting the growth of the MEP industry.

The Indian market for MEP services is undergoing a transition on the back of emergence of complex construction projects across all segments of real estate and infrastructure construction, as well as changes in building codes resulting in mandatory installation of certain products and systems. Policies and standards such as Energy Conservation Building Code (ECBC), Eco Niwas Samhita, and Green Building rating systems have been developed and implemented to encourage the design and construction of efficient buildings. Moreover, the focus on Green Buildings is getting stronger, primarily in the commercial real estate space, as buildings are making serious attempts for obtaining the Green Certification. This entails compliance with an entirely different set of codes and regulations, which in turn is opening up opportunities for MEP services.

Integration of renewable energy and its impact on MEP

The integration of combination of conventional and renewable energy sources is having a significant impact on the overall MEP industry. MEP engineers are increasingly being called upon to design and install renewable energy systems in buildings. This is creating new opportunities for MEP companies and professionals.

The integration of renewable energy sources is also leading to the development of new technologies and products. For example, there is a growing demand for energy storage systems that can be used to store excess renewable energy generated during the day and use it at night or during peak demand periods.

There is a growing trend towards the integration of combination of conventional and renewable energy sources in the construction industry in India. This is being driven by a number of factors, including government policies and incentives, falling costs of renewable energy technologies, and increasing awareness of the environmental impacts of the construction sector.

The Indian government is offering a number of incentives for the use of renewable energy in the construction sector. For example, the government offers a subsidy for the installation of solar panels on commercial and residential buildings. The costs of renewable energy technologies, such as solar panels and wind turbines, have fallen significantly in recent years. This has made them more affordable for construction companies and building owners. There is also increasing awareness of the environmental impacts of the construction sector in India. This is leading to a growing demand for sustainable buildings that use renewable energy sources.

- The Confederation of Indian Industry (CII) Green Business Centre in Hyderabad is a platinum-rated LEED building that uses a combination of renewable energy sources, including solar panels and wind turbines, to meet its energy needs.
- The Infosys campus in Bangalore is a LEED-gold-certified building that uses a combination of renewable energy sources, including solar panels and biogas generators, to meet its energy needs.
- The Delhi International Airport is using a combination of renewable energy sources, including solar panels and wind turbines, to meet its energy needs.

Challenges

Today, the world is moving towards smart buildings, wherein the buildings are closely integrated with technology. Smart homes and connected buildings are a reality today, and the penetration of smart devices (from smart speaker to lighting system to locks) is becoming widespread. This calls for a new level of competence and skillsets from the MEP sector, who should be equipped to meet the tall demands from the customer segment. Thus, to stay relevant, the MEP players are finding it integral to invest in upgrading their skills and capabilities, making them more technology friendly.

Complexity in designing and installation, testing and maintenance are some of the challenges that impact the MEP systems. Lack of skilled labour required for MEP services related to designing, installing and maintenance is a major challenge that could affect the quality of work resulting in system failures.

Indian MEP industry is yet to move into an integrated service level model wherein the industry provides an overarching consulting approach rather than a piecemeal approach. Increasing complexity in Indian construction sector translates into the need for coordination among vendors and services providers across different service segments is becoming a necessity. Although the industry is witnessing improvements in these areas, more work needs to be done to graduate to the next level.

Innovations and Trends in MEP Industry

The rapid growth of commercial infrastructure such as office buildings, retail spaces, hotels, healthcare facilities on the back of economic revival and increasing per capita income are driving the growth of the MEP segment. It is also supported by the increasing demand for energy-efficient and sustainable MEP services to meet environmental regulations and reduce operating costs. Moreover, the rising adoption of advanced technologies, such as BIM, building automation and smart systems etc., in commercial buildings is further boosting the demand for MEP services.

The growth of the construction industry is the primary driver for the growth of the MEP industry. Further, factor such as increasing focus on sustainability/energy conservation, technological advancements and stringent building codes among others are all collectively supporting it.

The rapid growth of cities would boost energy demand for powering buildings thus increasing the importance of measures such as the revised Energy Conservation Building Code (ECBC). The adoption of green building materials and energy efficient HVAC and lighting systems would be at the forefront of such environmentally friendly measures.

The need for improved quality, cost efficiencies and faster construction are driving the implementation of techniques such as aluminium formwork, prefabricated buildings, building information modelling (BIM), etc.

The trend of smart buildings is catching up fast in India which involves the use of advanced and integrated building technology systems such as building automation, facility management, safety systems, tele communication systems etc. They use advanced sensors, IoT devices and data analytics among others to enhance the performance of the building systems, manage energy consumption, improve safety measures etc. MEP firms can leverage these technologies to design intelligent building systems that can monitor and control key variables related to energy, lighting, HVAC etc. on a real-time basis.

Building Information Modelling (BIM)

The conventional approach comprised 2D drawings and MEP coordination was conducted through overlay processes wherein the engineers supplied the designs and details were developed by the experts. The drawings were then compared with a superimposition of the plans to detect conflicting areas. However, a unified approach can result in cost and time savings along with better quality.

Building Information Modelling (BIM) is a 3D digital representation of a building's design that provides key stakeholders such as architects, engineers and construction professionals with the requisite tools needed to plan, design, construct, and manage buildings and infrastructure more effectively. It combines multidisciplinary data to create detailed digital representations that can be maintained in real-time on an open cloud platform.

Building Information Modelling (BIM) enables different stakeholders involved in construction activities such as engineers, architects, contractors, MEP owners etc. to collaborate more effectively in a seamless manner by sharing a single, unified centralized model. It reduces errors, rework and provides precise quantities for

MEP components resulting in more accurate estimates and budgeting. Further, BIM generates detailed and comprehensive documentation comprising designs, schedules, specifications etc. leading to smoother construction and maintenance operations. Some major benefits include –

- Improved Collaboration and Coordination - BIM enables the key stakeholders mainly the MEP engineers, architects, contractors and other stakeholders to collaborate with each other in real-time thus resulting in better coordination and communication ensuring uniformity across the board. This helps in identifying potential conflict areas, finding solutions acceptable to key stakeholders and reduce the risk of rework and overruns among others.
- Enhanced Visualization and Accuracy – A BIM provides a digital 3D representation of the building with streamlined design and construction process, allowing the MEP engineers to identify potential issues and make the necessary adjustments at the initial stage. The visualization also allows MEP engineers to understand the linkages and the interaction between different systems allowing them to improve the quality of work by reducing the risk of rework and errors. It also reduces the need for manual calculations and site visits resulting in time and cost savings.
- Effective Budget Management – Cost estimation and budget management tools are a part of the BIM software which makes it easier for MEP engineers to effectively manage their overall costs.
- Improved Safety – As BIM can be used to simulate different construction scenarios (including potential safety hazards), it allows MEP engineers to detect and mitigate risks before the actual construction begins, thus making the work site safer. BIM also helps to ensure that the MEP systems are installed correctly and comply with all relevant safety standards thus reducing the possibilities of hazardous incidents.
- Improved Project Management – BIM, being a centralized platform for managing all aspects of a building project, from design to construction makes it easier for MEP engineers to track progress, manage resources and timelines and coordinate with other stakeholders thus increasing the overall efficiency of project management.
- Saving on Prefabrication Material –BIM visualization allows contractors to prefabricate material offsite more easily and accurately saving time and money as well as order / procure raw material more accurately to avoid stocking up of inventory.

Some of the disadvantages of BIM for MEP include the cost of software and hardware which can be more expensive than the conventional Computer Aided Design (CAD). BIM also requires a steep learning curve for those who are not familiar with it. The implementation time could also be higher as it requires detailed planning and coordination.

Building Automation

MEP engineering and building automation share a mutually beneficial relationship. An effective MEP design provides the foundation for different building automation systems to operate optimally. For example, MEP-designed HVAC systems must integrate seamlessly with building automation systems to ensure precise temperature control, efficient energy usage and timely maintenance alerts among others. Building automation takes MEP engineering a step ahead by enabling remote monitoring and control resulting in managing control settings, trouble shooting, monitoring etc. without being physically present on-site. The integration of MEP engineering and building automation has a significant positive impact on occupant experience as well as in managing the overall building systems through precise control over temperature, lighting, indoor air quality and other elements. For example, smart lighting systems can adjust lights based on occupancy and availability of natural light whereas automated HVAC systems can adjust based on occupancy levels and climatic conditions. The collaboration of MEP engineering and building automation systems can result in operational efficiency, optimizing costs, enhancing building performance and reduce energy consumption among others.

3D modelling and Virtual Project Planning

Preplanning the design layout and cost approximation is typically estimated during the project initiation phase. The adoption of 3D modelling and virtual project planning helps the stakeholders in designing more accurate layouts or explore design defects at the prototype stage which results in cost and time savings at the later stages. It also serves as a barometer to actually visualize the entire project which could help various stakeholders to offer their suggestions at the initial stage resulting in conflict reduction later. MEP could be a great asset as it also uses 3D modelling for detailed construction visualization and planning.

Competitive Landscape

Indian construction sector, which include developers, material suppliers as well as service providers continues to be a fragmented industry. Small players, with limited geographical presence (regional presence) continues to account for majority share of the industry. This scenario holds true for MEP services too, where small firms which offer individual services or combination of MEP services holds sway. With MEP activities accounting for nearly 40% of the total cost, price-based competition is very much a reality. This price-based competition is most evident in the unorganized construction segment, as all stakeholders work towards finishing the project without cost over runs.

Organized players in the MEP service segment has managed to gain better traction among the organized segment of the construction industry. Large developers executing mega projects can be loosely classified under this tag of organized segment. Since the project scale in this segment tends to be huge, the preference is for a MEP service provider who has end-to-end expertise. Smaller players with regional focus catering to unorganized segment often falls short of the expectations / demand emanating from large construction companies. The wide portfolio of services and ability to service construction projects with a varied level of complexity provides larger firms an advantage in the highly competitive MEP and turnkey construction service segment.

Currently, there are few large players in the segment, with MEP as one of their business segments, providing a wide range of MEP and turnkey construction services to all segments within the construction industry such as Voltas Ltd, Blue Star Electro-Mechanical Ltd., and Sterling & Wilson Ltd. Godrej Green Building Consultancy Services, HOCHTIEF (India) Private Limited (HTI), Associated Building Co. Ltd., Outsource2india, and Bridge & Roof Co. (India) Ltd are few of the major companies.

As the MEP market continues to be fragmented, some of the small and mid-sized players with MEP as their core business include -

Company	**Total Income (Rs Million)**			**CAGR FY 2020 - 2022 (%)**
	FY20	**FY21**	**FY22**	
Anemo Projects Private Limited	448	268	354	-11.1
Atom MEP Engineers Private Limited	80	20	68	-7.8
BR MEP Engineers Private Limited	68	288	371	133.6
INI Infrastructure & Engineering Private Limited	55	51	58	2.7
MECELP Projects Private Limited	22	18	13	-23.1
PillarPlus Private Limited	0.6	12	12	347.2
QDC India Consulting Private Limited	54	63	93	31.2
Vaya MEP Engineers Private Limited	31	13	25	-10.2

Source: Company Financial Statements

Brief Profile of Notable Players

Company	Brief Description
Anemo Projects Private Limited	In addition to MEP services, provides HVAC EPC projects, electrical EPC projects, interior and exterior works, BMS automation works, AMCs etc. The company has completed 500+ projects with a diverse base of clients such as BHEL, ONGC, IOCL, NTPC, EIL etc.
Atom MEP Engineers Private Limited	A part of the Atom Group, the company in addition to MEP services, is also specialized in acting as Liaising and Approvals Consultants for local & International organizations. Some of the company's major clients include Hyatt, RITES, Domino's Pizza, Larsen & Toubro etc.
BR MEP Engineers Private Limited	MEP services include design, supply, erection / installation, up gradation and commissioning all Mechanical ,Electrical, Plumbing, Fire Fighting & HVAC services. Some of the key clients include NIMR and NCDC in medical segment, ITC Maurya, Radisson and Fortune in hospitality, Guru Gobind Singh Indarprastha University in education and Khajuraho Airport in aviation among others.
INI Infrastructure & Engineering Private Limited	The company provides services for projects in India and internationally with six office locations. Its services portfolio includes MEPF, IT&LV, Infrastructure services, acoustics, lighting design, energy, sustainability and commissioning. Some key projects include Adajan Bus Terminal, Surat, Umaid Heritage Villas, Jaipur, Baku City Mall, Ajairbaijan etc.
MECELP Projects Private Limited	In addition to MEP services, the company provides public health engineering, clean rooms, cold rooms, building energy audits and project consulting. Through its team of BIM modelers and spatial CAD coordinators, designers, visualizers etc. it provides services to commercial buildings, hotels, factories, R&D labs etc.
PillarPlus Private Limited	The company leverages artificial intelligence-based software to automate the generation of MEP drawings/blueprints. The company has worked on more than 200 projects across the globe. Some of its key projects include MCH Hospital, Haridwar; Pashupati Hotel, Nepal; Beach Resort, Panama etc.

QDC India Consulting Private Limited	The company has a strategic alliance with Qatar Design Consortium, Doha – a Qatar based 40-year-old Grade A Consulting and Project Management firm. It provides services to its clients across India, Middle East and US. Some of its key projects include Mega Food Park at Telangana, Sports City at Bangalore, Meditation Centre at Tirupati etc.
Vaya MEP Engineers Private Limited	The company's business portfolio includes MEP services and land development. Some of its key MEP projects include Hilton Hotel at Gurgaon, Nippon Steel Pipe India Ltd at Rajasthan, Sudhir Power Projects Ltd at Delhi etc.

Growth Outlook in Indian MEP Industry

The outlook for the MEP industry is directly proportional to the progress of the construction industry. As the Indian growth story continues with its momentum, industrial infrastructure will be playing a key role in it. Initiatives such as the building of 50 new airports, aerodromes, helipads etc. announced during the FY 2023 – 24 Budget will definitely support the growth of the MEP sector.

As tier-II towns are expected to witness robust demand with the rise in employment opportunities and economic activities in these markets, holistic growth across Tier I, II and III cities are expected to take place in the coming years. Further, the boost in the e-commerce industry and India's emergence as the fastest-growing business & IT hub has led to an impressive demand in the country's commercial real estate. The critical role of MEP in sunrise sectors such as data centers and cold storage will definitely help its acceleration to touch new heights. Emerging trends such as managed office spaces and co-working spaces, which are predicted to grow over 10% - 13% annually over the next three years will also provide more opportunities for the MEP sector to showcase its potential.

The real estate sector could be approaching the phase of consolidation leading to the dominance of large players which typically prefer working with MEP service providers who can deliver end-to-end solutions which helps the developers to focus on their core construction activities. Outsourcing of these MEP related activities could also result in long term agreements with MEP service providers instead of short-term contracts thus signalling a shift in the relationship between the developers and MEP service providers. The transition from a service provider to a solution provider seems to be already taking place as MEP companies are factoring in the new age building structures for long term sustainability. Consequently, such transitions would also translate into employment generation of more skilled MEP personnel.

With limited resources and complex structures coming in place, there would be a dire need to avoid recurrent misinterpretation and workflow disturbances, resulting in project delays and cost overruns. Digital project management which would provide more accuracy in a cost-efficient time would be in great demand. These factors combined with environmental concerns and advent of technology and automation provides the MEP industry a great opportunity to showcase its full potential in the coming years.