India REWIRED

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Contents

Executive summary

India rewired

Over the past few years, regulatory reforms, thrust to infrastructure spending, and increased digitalisation have helped rewire India's economy.

These include Goods and Services Tax, Insolvency and Bankruptcy Code, Production Linked Incentive, lower corporate taxes, National Infrastructure Pipeline, and implementation of Aadhaar are some key initiatives helping unshackle the economy's growth potential.

India has been agile in introducing investor-friendly reforms and policies amid global headwinds such as the Covid-19 pandemic, geopolitical tensions and supply-chain constraints.

India is today the fastest-growing emerging economy and the fifth-largest economy in the world.

The economy's structural strengths, along with policy reforms and evolving global dynamics, has enabled quicker recovery, alternative trade avenues, and lower reliance on imports.

India's growth story will be driven by favourable demographics, under-penetrated markets and four pillars of growth: consumption, infrastructure investments, corporate capital expenditure, and innovation.

CRISIL Market Intelligence & Analytics, in this report for Edelweiss Alternatives, has evaluated the key elements of these pillars that will shape the long-term advancement of the Indian economy.

The report draws insights on the present state of India's economy to ascertain its outlook.

It underlines significant and unique investment opportunities amid strong consumption growth, a reform-focused policy framework, continued infrastructure development, and a renewed private capex cycle.

Government incentives and public investments augur well for infrastructure development and domestic competitiveness.

India's inclusive growth can be bolstered by digital and technological innovations, higher productivity and efficiencies across value chains, and enhanced digital and financial inclusivity.

A robust and large-scale digital infrastructure ecosystem will provide the final push for India to become a $5 trillion economy by 2027, and then march forward until 2047.

Panchamrit – the five nectar elements for India's climate action – will complement the focus on renewable energy infrastructure, hydrogen capacity, and decarbonising in hard-to-abate sectors.

Clearly, India is well placed to continue on a high-growth trajectory in the coming decade.

The rise and rise of India

India overtook China as the world's fastest-growing economy in 2021 despite covid-19 induced speed breakers and the latter's supply-chain-induced commodity super cycle. The vault rode on the back of structural reforms and innate resilience to volatility.

Back in 2010, India was ranked ninth globally in nominal gross domestic product (GDP) terms. Today, it is the fifth-largest, having recently overtaken the United Kingdom. In 2022, India's GDP is forecast to grow 6.8%.

India has emerged from the pandemic with stronger corporate balance sheets and structural tailwinds. At 6.0-6.5% real GDP growth over the next few years, India should reach its $5 trillion target by 2026-27, just two years later than envisaged before the pandemic, and leapfrog to become the third-largest economy in the world by 2028, just behind the US and China, overtaking Japan.

India to remain the world's fastest-growing economy for years to come

	Decadal GDP growth		Current GDP growth		Current GDP size $ trillion and rank		GDP growth forecast	
	2000-2010	2010-2020	2021	2022	2022		2023	2024-2027
India	7.5%	5.2%	8.7%	6.8%	3.5	5th	6.1%	6.5%
China	10.5%	6.8%	8.1%	3.2%	18.3	2nd	4.4%	4.6%
United Kingdom	1.4%	0.8%	7.4%	3.6%	3.2	6th	0.3%	2%
United States	1.8%	1.6%	5.7%	1.6%	25.3	1st	1%	1.9%
Russia	4.8%	1.4%	4.7%	-3.4%	2.1	9th	-2.3%	0.8%
Brazil	3.7%	0.3%	4.6%	2.8%	1.9	12th	1%	2%
Korea	4.7%	2.6%	4.1%	2.6%	1.7	13th	2%	2.5%
Germany	0.9%	1.2%	2.6%	1.5%	4	4th	-0.3%	1.8%
Japan	0.6%	0.3%	1.7%	1.7%	4.3	3rd	1.6%	0.6%

Note: GDP growth data for calendar years in national currency at constant prices; 2022 GDP size are at current prices USD, IMF estimates as of Oct 2022
Source: IMF World Economic Outlook, CRISIL MI&A Research

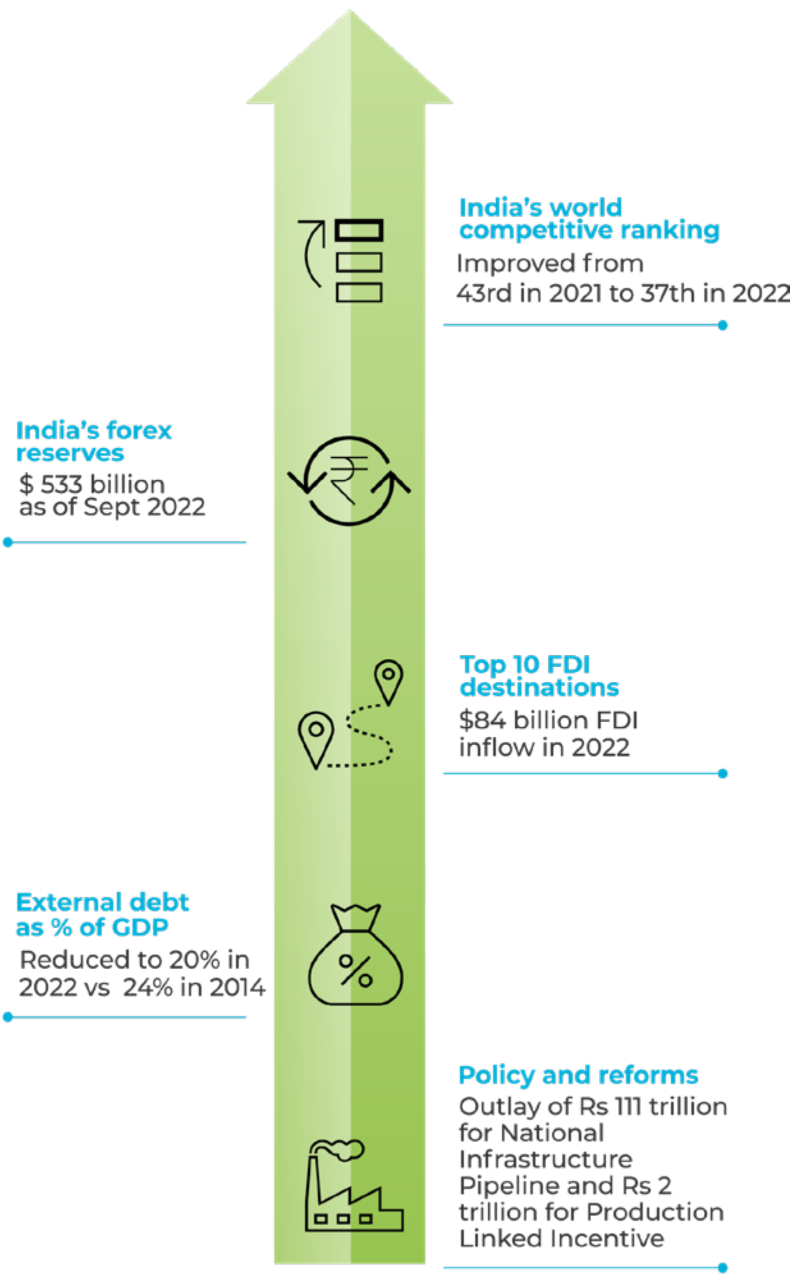
The growth enablers are hard to miss — robust domestic consumption, the government's push to infrastructure development, rising capacity utilisation rates that bode well for private capex, momentum in supply chain integration, and digitalisation across the board leading to improvement in the innovation quotient of the country, to name some.

Macro factors, too, augur well for India — improvement in ease of doing business, relative forex stability, foreign direct investment (FDI) inflows, access to external debt and its productivity, and policy and reforms, along with a stable regulatory atmosphere in general.

The sense of improvement across all these parameters gives India strong tailwinds to have concrete outcomes across its pillars of growth and reach its $5 trillion target, which will only further growth.

We shall look at the pillars of growth later in the report. But first, a look at the macro parameters.

Macro factors well-placed to support growth



Source: World Bank, IMF, Industry CRISIL MI&A Research

India's competitiveness improves due to targeted action plans

In the wake of better domestic economy prospects and business efficiency, India's position in IMD's World Competitiveness Ranking improved by 6 places to 37th in 2022 — the sharpest rise among Asian economies. The improvement rides on a slew of reforms the government has set in, specifically the scrappage of the retrospective tax law in 2021, and the resilience in the domestic economy witnessed in its post-pandemic recovery.

India is among the top-ranked in global labour markets, with high scores on workforce availability and business attitude.

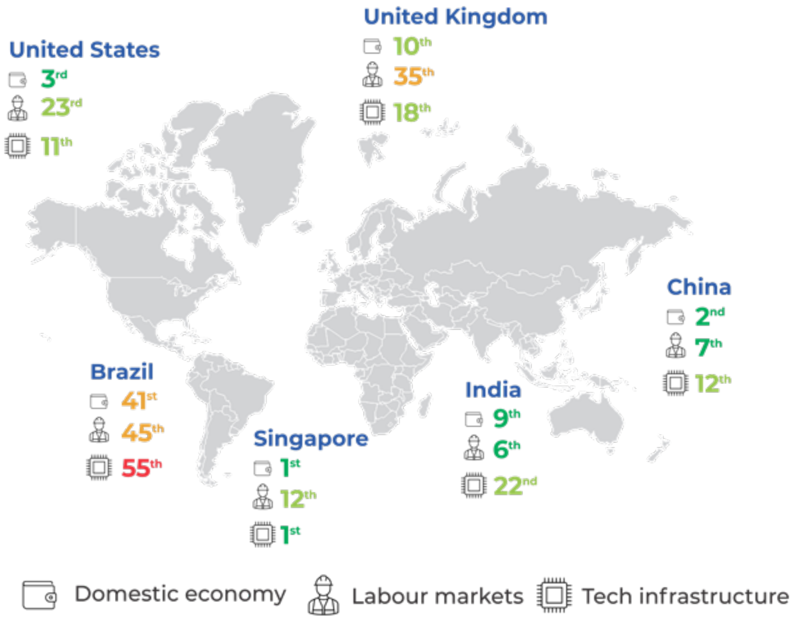
It has also leapfrogged in tech infrastructure, in harmony with its strength in environment-related technologies. To be sure, India is a driving force in the global climate change and Net-Zero movement, setting examples in scaling renewables and now green hydrogen.

Moreover, India is outpacing the world in digital payments via the successful wide-scale adoption of the Unified Payments Interface (UPI) in day-to-day transactions, where digital payments have logged a compound annual growth rate (CAGR) of 55% in the past 3 years and formed 40% of all transactions in 2021.

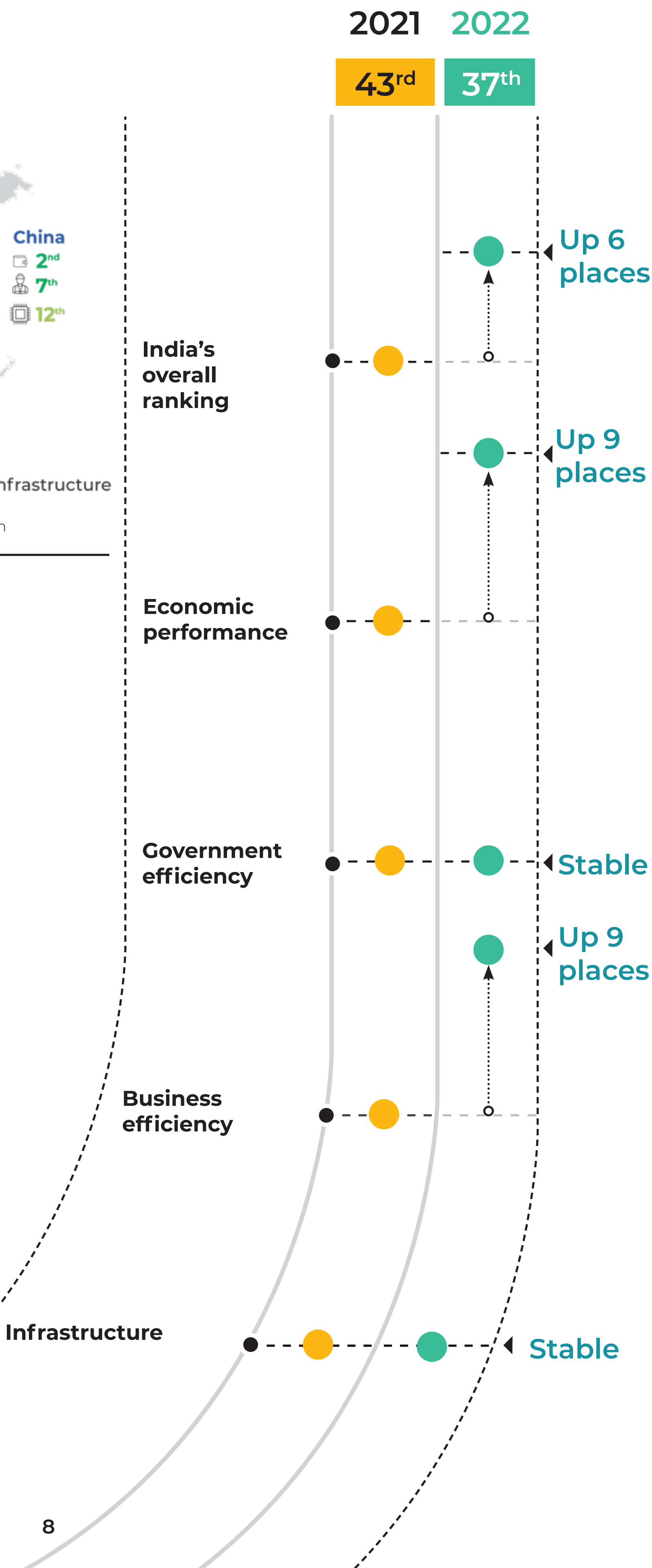
Other attractive factors for doing business are cost competitiveness, a strong domestic economy, and high education levels.

The challenges India faces include managing trade disruptions and energy security, maintaining high GDP growth post the pandemic, skill development and employment generation for lower-income groups, asset monetisation, and resource mobilisation for infrastructure development.

India moved up six places in one year; is highest among peers in labour markets



Source: IMD World Competitiveness Ranking 2022, CRISIL MI&A Research



Rupee shows relative resilience post pandemic: Lower CAD, better reserves to imports help sustain depreciation lower than key trade economies

Globally, recovery from the pandemic has been accompanied by supply-chain disruptions, ad hoc recovery curves, and volatility, triggering a commodity super cycle. India has been hit hard by this as it is a heavy importer of crude and linked commodities.

However, India's reserves have undergone substantial improvement since 2013, when the taper tantrum unfolded. As per World Bank data, India's reserves were sufficient to cover only around 6 months of imports in 2012, but this had improved to almost 10 months of imports in 2021.

Meanwhile, the reserve covers of many of India's peers have either contracted or remained unchanged, improving India's position on a relative basis.

Rupee's outperformance relative to most peers backed by improved forex reserves

	Forex reserves as months of imports		Currency depreciation			
	2012	2021	2007-2012	2013	2016-212	2022 YTD
China	19.08	11.65	3%	3%	2%	-13%
India	5.90	9.83	-6%	-11%	-2%	-10%
Indonesia	5.59	6.78	-1%	-20%	-1%	-8%
Japan	14.23	16.22	5%	-18%	0%	-22%
South Korea	5.77	7.64	-3%	1%	0%	-17%
Malaysia	6.96	5.32	2%	-7%	1%	-12%
Philippines	11.47	9.58	0%	-8%	-1%	-13%
United Kingdom	1.22	1.99	-4%	2%	2%	-15%
Vietnam	2.49	3.69	-3%	-5%	0%	-8%

Note: Reserves as months of imports: Red: 0-4, Yellow: 4-8, Light Green: 8-12, Dark Green: >12; Current Account Balance: Red: <-3.5%, Yellow: -3.5% to 0%, Light Green: 0 -3.5%, Dark Green: >3.5%; Currency Depreciation: Red: <10%, Yellow: -5% to -10%, Light Green: 0-5%, Dark Green: >0%
Source: World Bank, Bloomberg, IMF, CRISIL MI&A Research

Furthermore, the resilience of the Indian economy has been supported by a healthier current account balance position, which improved from -4.8% of the GDP in 2012 to -1.2% of the GDP in 2021. India recorded a current account deficit of 2.8% of GDP in the April - June 2022 quarter, significantly lower than what we witnessed during the taper tantrum.

The Russia-Ukraine crisis has altered trade flows, aggravating a sense of volatility and panic. High inflation linked to commodity prices has further triggered a sharp rate hike regime by key central banks of developed economies such as the US and across Europe. This, in turn, has resulted in the outflow of FII money, exerting pressure on currencies. To be sure, the rupee had depreciated only 6% from January 2022 to June 2022, but post that, the sharp interest rate hikes by the US Fed have resulted in more-than-anticipated currency depreciation. During this period, the Reserve Bank of India (RBI) has intervened with its currency reserves, thereby lowering the impact.

The internationalisation of the Indian rupee, i.e., increased use of the rupee in cross-border transactions and making it freely available to non-residents, would establish external credibility in not only the currency, but also in the economy at large.

That, coupled with a correction in commodity prices, especially crude, amid the recessionary sentiment in key consumer markets, and lower selling pressure as we reach the fag end of the sharp increases in interest rates, may cushion its deterioration in 2023 and beyond.

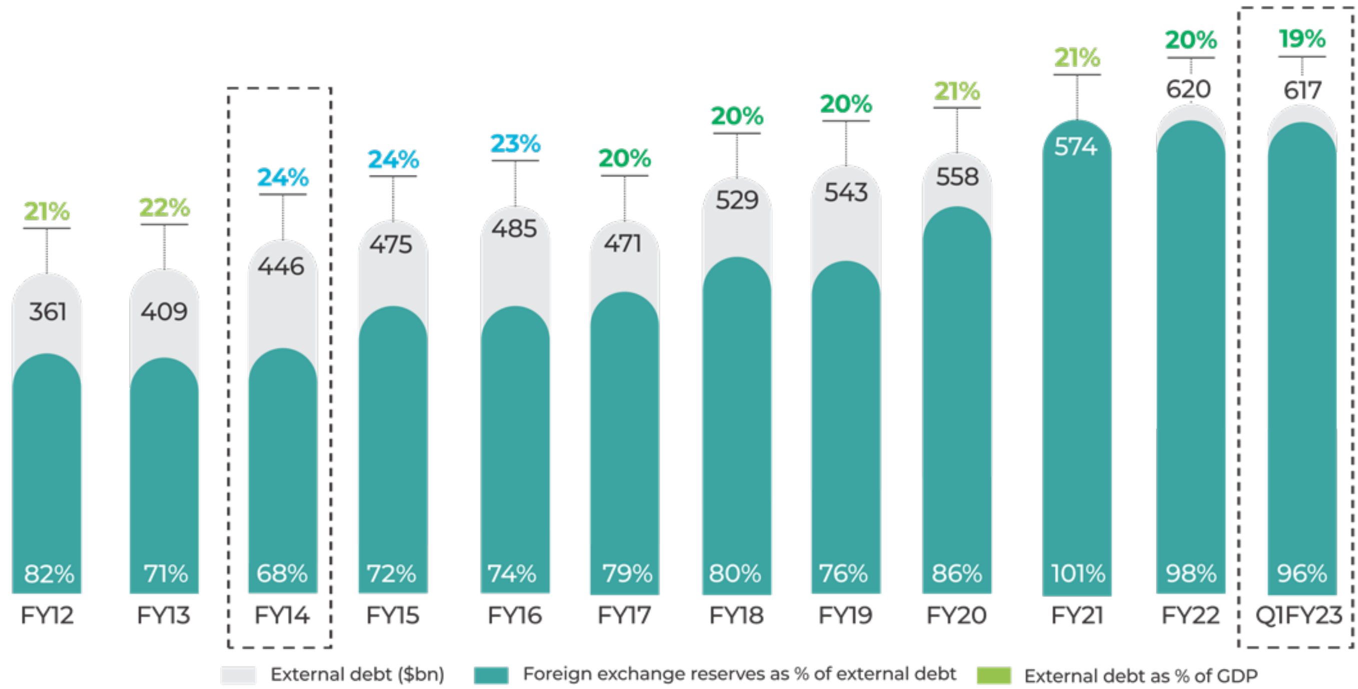
India's debt sustainability draws from forex stability, high GDP growth

As per the RBI, India's total external debt was estimated at $617 billion as of June 2022, with 55% of it denominated in US dollars, and 30% in Indian rupee.

While India's external debt in absolute terms has increased in the past decade, it has decreased as a percentage of GDP. From a peak of 24% in 2014, it dropped significantly to 20% in June 2022 and further to 19.4% in the first quarter of 2023. As per the IMF, for emerging markets and developing economies, this figure is typically around 30%.

More importantly, while India's foreign exchange reserves amounted to only 68% of the total external debt in 2014, as of the first quarter of 2023, India's foreign exchange reserves were sufficient to cover almost 96% of the external debt. This augurs well as India's high GDP growth would also need continued incremental debt support, given public funds constitute a larger proportion of infrastructure funding.

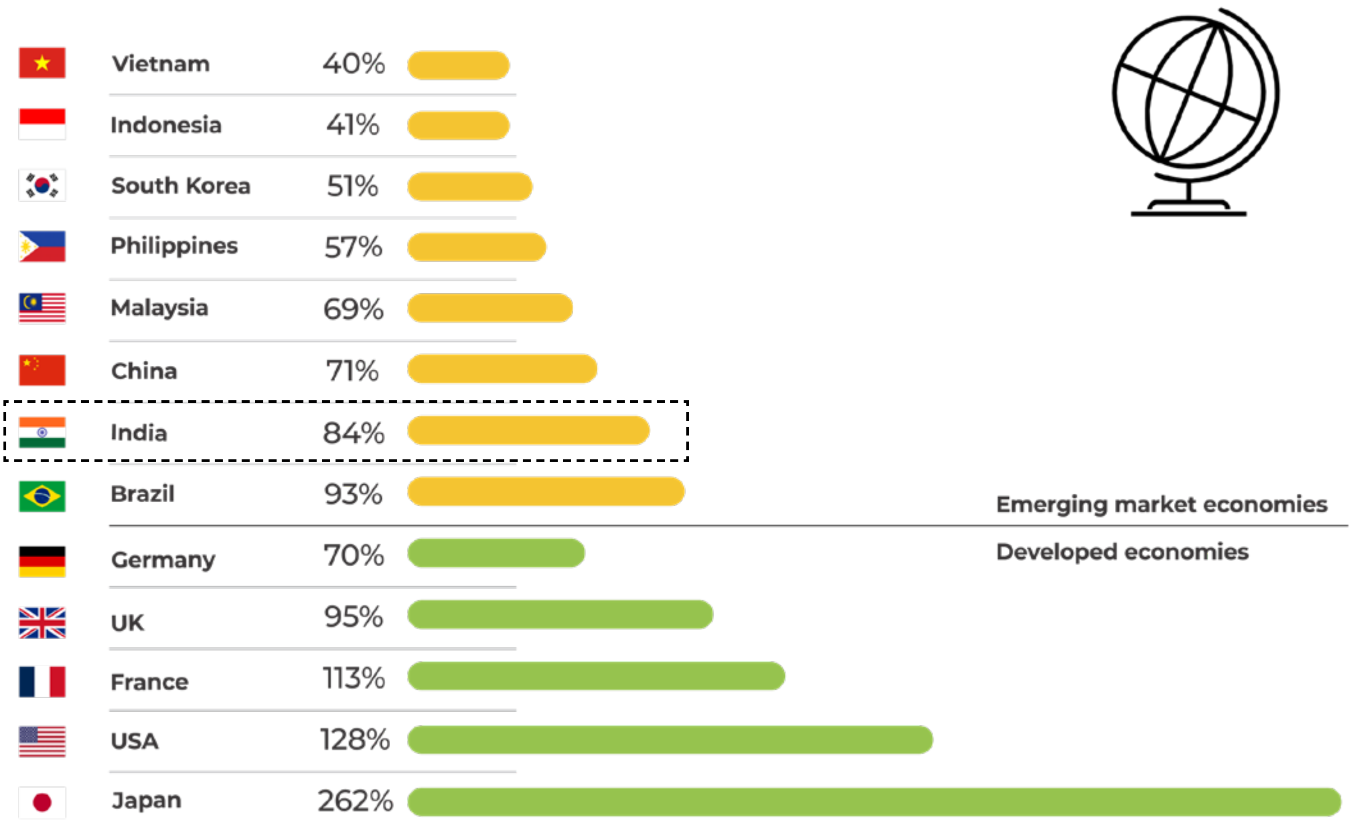
India's foreign exchange reserves can cover almost 96% of its external debt, marking a sharp improvement from the lows of fiscal 2014



Note: Data as on end of the fiscal year/quarter as applicable
Source: RBI, CRISIL MI&A Research

As of 2021, India's debt-to-GDP ratio was considerably higher than that of most of its emerging market peers, but significantly lower compared with many of its economically developed peers, some of whom have consistently sustained a high debt-to-GDP ratio to fuel growth of their domestic economies. While this ratio for India was always on the higher side, it exacerbated during Covid-19, when borrowings were increased for funding healthcare and reviving the pandemic-ravaged economy. Nonetheless, it remains well within sustainable levels.

India's debt-to-GDP ratio comparable to larger emerging market economies, and has cushions



Note: Debt-to-GDP figures for China, India and Japan are IMF estimates
Source: IMF World Economic Outlook Database October 2022, CRISIL MI&A Research

But for the pandemic-induced disruptions that prompted increased borrowing, India's rapid economic growth would facilitate servicing the existing debt and potentially improve the productivity of the debt-to-GDP ratio. In short, for every incremental GDP created in the past decade until 2020, India borrowed 1.3 times more debt. This number for instance was 3.6x for the US.

India a preferred FDI destination, but needs sustained inflows

In the past decade, growth in India's foreign direct investment (FDI) stock has been one of the fastest among its peers. In comparison, China indicates a reversal in trend in the last 5 years.

The strong potential for inflows may remain as policies support the push to manufacturing, localisation, and the integration of supply chains, and prioritise exports.

India's FDI inflows have grown on a par with global average

	Developed economies					Emerging market economies							
	United States	UK	Germany	France	Japan	China	Brazil	India	South Korea	Indonesia	Vietnam	Malaysia	Global Average
FDI Stock as of 2021 ($ billion)	13,619	2,634	1,139	978	257	2,064	593	514	263	259	193	187	
5-year CAGR %	14%	8%	7%	7%	6%	9%	7%	11%	8%	2%	11%	8%	11%
10-year CAGR %	12%	8%	1%	4%	1%	13%	-1%	9%	7%	4%	12%	5%	9%
Percentage of GDP	59%	83%	27%	33%	5%	12%	37%	16%	15%	22%	53%	50%	35%

Note: 5-year CAGR %: Red: < 8%, Yellow: 8-10%, Light green: 10-12%, Dark green: >12%; 10-year CAGR: Red: <6%, Yellow: 6-8%, Light Green: 8-10%, Dark Green: >10%; Percentage of GDP: Red: <20%, Yellow: 20-30%, Light green: 30-40%, Dark green: >45%.
Source: UNCTAD, World Bank

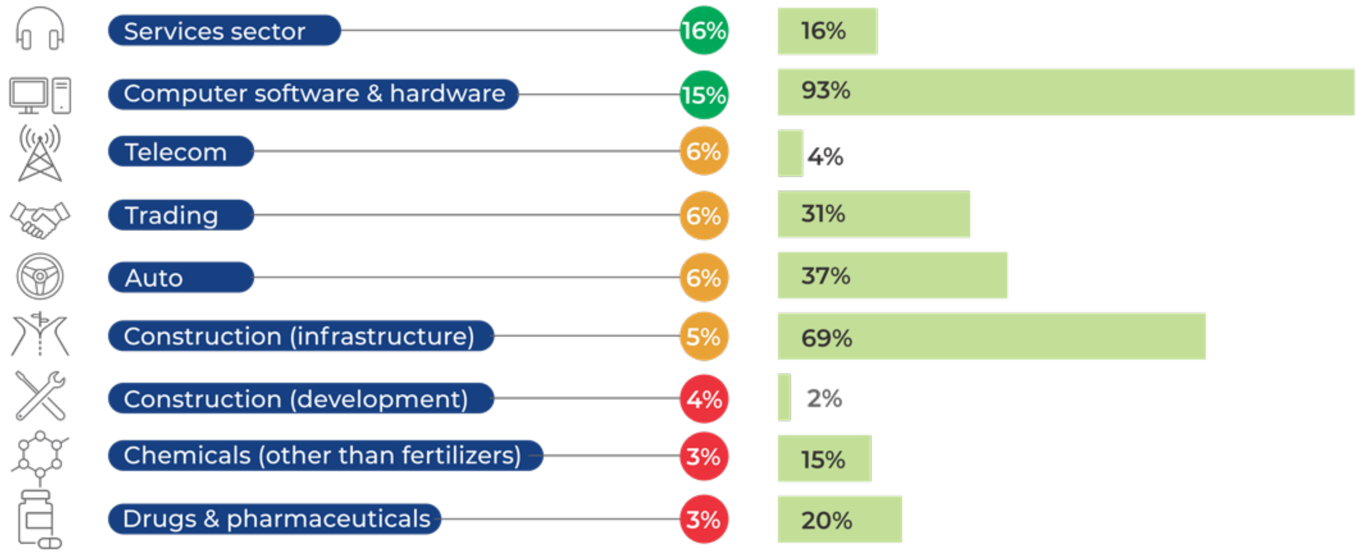
India's FDI stock has been on a constant growth trajectory, buoyed by strong macroeconomic fundamentals and favourable FDI-related policies, such as the allowance of 100% FDI in multiple sectors, the streamlining of approval processes, and the introduction of schemes such as the Production Linked Incentive (PLI) scheme.

In the decade between 2011 and 2020, the pace of growth in India's FDI stock was one of the fastest. The last 5 years of the decade were particularly fruitful as the US was the only country that materially bettered India's rate of growth in FDI stock.

Growth was relatively muted in 2021, but India still maintained its position as one of the most favoured destinations for FDI by recording an inflow of $45 billion. FDI inflows remained strong in the first half of 2022 as well, with the total FDI inflows having recorded 23% year-on-year growth.

Banking, financial services and insurance (BFSI), outsourcing, courier, telecom, auto, trading, and infrastructure construction are some of the sectors that corner the highest share of FDI investments.

FDI inflow for infrastructure construction logged stellar growth in past 2 years



Note: Share: Red: < 5%, Yellow: 5-10%, Light green: 10-15%, Dark green: >15%
Source: DPIIT, RBI, CRISIL MI&A Research

India's rising prominence as a preferred destination for FDI can be further corroborated by the fact that in 2021, 108 project finance deals were announced in the country, which was more than 5 times the 10-year average of 20. Of these 108 projects, renewables had the largest share, with 23 projects. Furthermore, as per UNCTAD, with respect to the research and development (R&D) investments in developing countries, almost half of all the projects are in India.

In addition to this, Indian companies emerged as attractive investment targets for foreign enterprises, most of whom were interested in buying minority stakes in order to gain access to the domestic market and innovative local solutions.

That said, as a percentage of GDP, India's FDI stock stands at a paltry 16%, compared with in excess of 50% for many of its peers and an average of 35% for the entire peer set.

Therefore, FDI investments in the country are far from saturated, and there is ample room for growth. Indeed, FDI investments would be crucial to drive faster growth in the economy.

India playing catch-up in policy reforms; new initiatives augur well

India has been a late bloomer in terms of key reforms, especially compared with Japan, Korea, and China. Further, other emerging economies, such as Vietnam, enforced pro-investor approaches, signed a slew of trade agreements, and attracted FDI.

In the 1960s, South Korea focussed on labour-intensive sectors to kick-start exports, offering zero import duty on raw materials. Most of the increase in China's share of global trade has occurred in the 25 years since reforms began in 1978. Vietnam's textile export growth is attributable to Free Trade Agreements (FTAs), especially with the US in 2001.

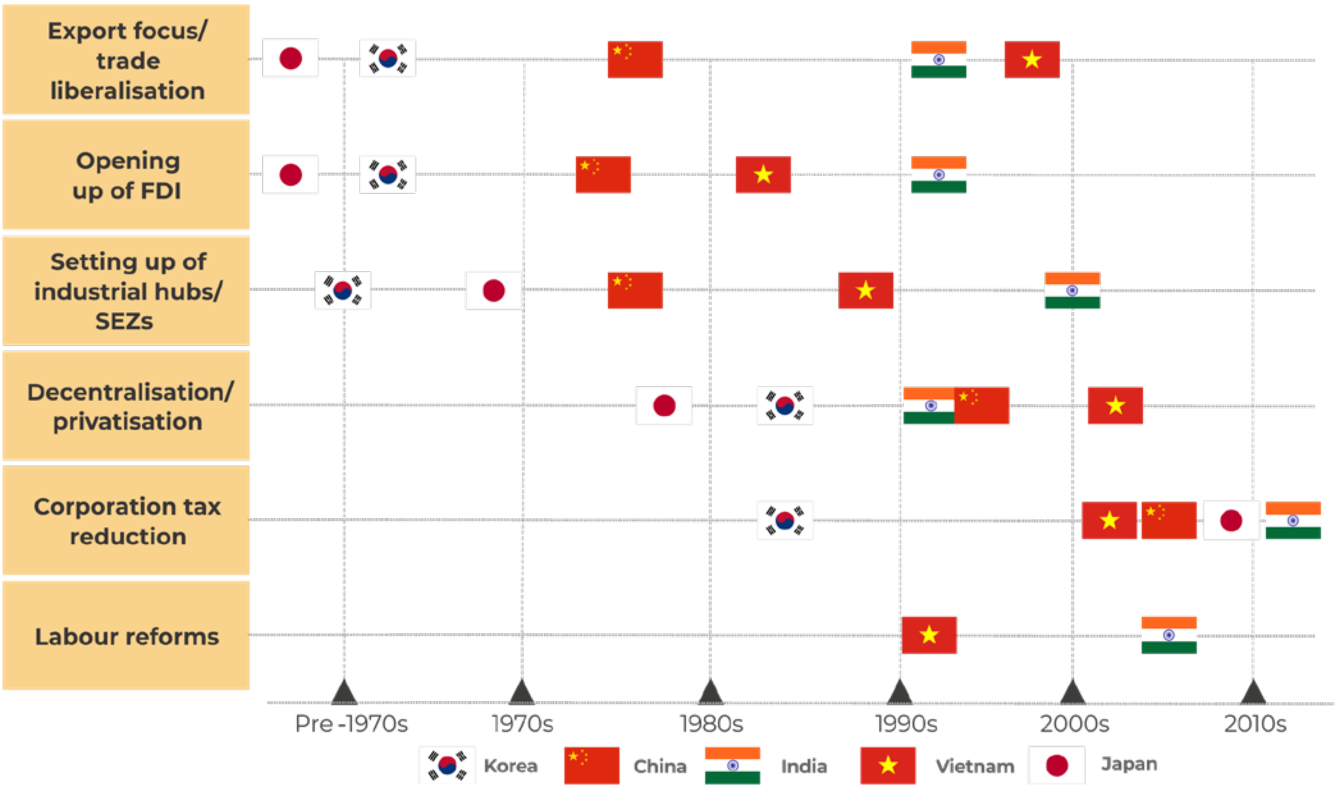
The opening up of sectors to FDI in India has been staggered. Vietnam, on the other hand, opened up most sectors to 100% FDI in the 1980s, which led to lumpy FDI inflows. This explains the FDI as a percentage of GDP being 50% on average for Vietnam, as against only 10% for India in the past two decades.

China's special economic zones (SEZs) are larger than in India and are strategically located along coasts, offering not only tax incentives but also greater independence from the centre on international trade activities. More than 60% of China's exports originate from SEZs, versus only 25-30% for India.

The enterprise laws of Vietnam (2000 and 2005) removed barriers to starting a business in the country and stopped favouring State-Owned Enterprises (SOEs) that enjoyed high tariff barriers, which reduced pressure on them to lower costs. In China too, the number of SOEs reduced to almost half between 2001 and 2004.

India's well-known LPG policy – Liberalisation, Privatisation and Globalisation – came into force only in 1991, much later than in its Asian counterparts.

First movers: Timely reforms pivotal for growth



Source: World Bank, Industry papers, CRISIL MI&A Research

Post 2014, however, there has been a material difference both in the frequency of reforms and openness to change, and a sharp focus on engagement with key stakeholders for continuous and faster amendments. FDI reforms, manufacturing and infrastructure spend linked policies, Real Estate Regulation and Development Act (RERA) coupled with urban and rural housing policies, have been all implemented over the last decade.

Some commendable differentiated ones, including the one with the government's clear focus on putting India on the global manufacturing map via the Make in India programme, have helped improve India's ease of doing business ranking and in attracting FDI. Now, sector-specific PLI schemes with an incentive outlay of Rs 2 trillion ($ 25 billion) would generate incremental revenue of Rs 35-40 trillion ($ 435-500 billion) by entailing Rs 2.5-3 trillion ($ 31-38 billion) capital expenditure across the 15 sectors.

The government's infrastructure push to complement industrial growth, also clearly visible via the 20 million urban housing for poor mission; the National Infrastructure Pipeline blueprint of Rs 111 trillion ($ 1.4 trillion) across roads, power, railways, urban infrastructure, and the development of an integrated technology-led multi-modal logistics infrastructure would put India ahead.

To add to that, the major structural overarching reforms such as the implementation of the Goods and Services Tax (GST), unifying all central and state indirect taxes, and the new labour codes have boosted India's journey towards becoming a $5 trillion economy.

Furthermore, state competitive assessments on various areas such as logistics, power cost, labour reforms, state incentive allocation to areas such as urban development – irrigation, to name a few, indicate the government's clear intention to promote rounded development across various parts of the country.

Focus and frequency of reforms have nurtured India's growth foundation

Major steps in improving India's stance

Manufacturing focused

2022 – Semiconductor Mission
Rs 760 bn over for development of semi-conductors and display manufacturing ecosystem in India

2021 – SPECS
25% on capital expenditure for the identified list of electronic goods that comprise downstream value chain of electronic products

2017 – PLI Scheme
Sales and capex-based incentives of Rs 2.0 tn over across 15 sectors for import substitution and boosting exports

2017 – National Industrial Corridor Development Programme
To promote world class manufacturing facilities and futuristic industrial cities 11 industrial corridor projects undertaken with 32 projects

2016 – Phased Manufacturing Programme
Phased increase of basic customs duty on mobiles and components to support domestic production

2014 – Make in India
Focussed on ease of doing business, increasing FDI and local sourcing norms India jumped to the 63rd position, in WB ranking

Infrastructure focused

2022 – National Logistics Policy & PM Gati Shakti
Unified logistics programme to enable integration between ministries and states with a focus on technology

2020 – National Monetisation Pipeline
Assets monetization blueprint of **Rs 1.6 tn** to recycle capital

2019 – National Infrastructure Pipeline
To develop world-class infrastructure across sectors with an aim of **Rs 111 tn** investment till 2025

2018 – Bharatmala Pariyojana
Phase-1 target of constructing 84,000 km of national highway network at an investment of **Rs 10.63 tn**

2016 – Real Estate Regulatory Authority
Led to transparency and prompt work implementation for builder and buyers of properties

2015 – Smart Cities Mission
Tech-led local area development – **Rs 980 bn** approved for developing 100 smart cities

2014 – Pradhan Mantri Awas Yojana
Affordable housing to the urban poor with a target of building **20 mn** houses

Overarching

Atmanirbhar Bharat COVID-19 relief
measures to make India self reliant – Rs 1.7 trillion stimulus package.

Labour reforms
In 2019 and 2020, 29 central labour laws, rationalised and simplified under 4 labour codes.

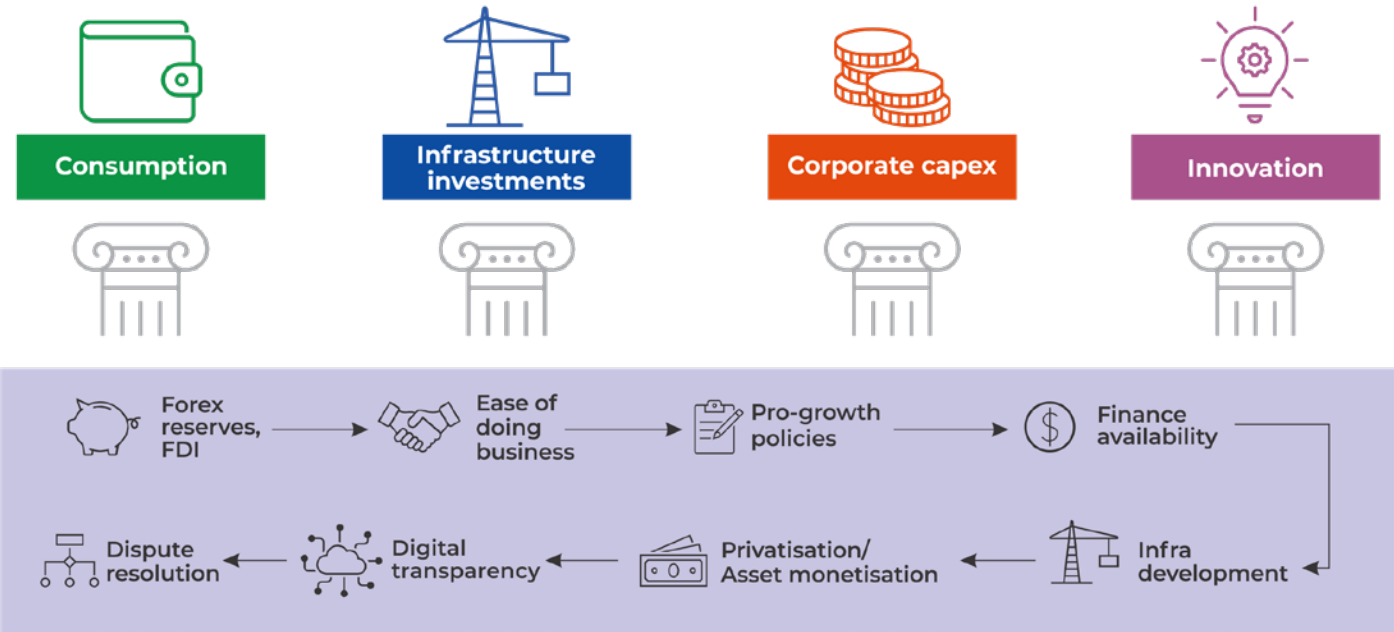
Goods & Services Tax
GST replaced and consolidated several Central and State indirect taxes, government estimates 2% GDP boost via GST implementation

Source: World Bank, Industry papers, CRISIL MI&A Research

India's pillars of growth to the $5 trillion GDP goal

India's $5 trillion GDP | **By 2026-27** | **At 6-7% growth**

Four pillars crucial to India's growth trajectory



India's target of a $5 trillion economy by 2025 has been fettered by the slowdown brought on by the Covid-19 pandemic. This now calls for real gross domestic product (GDP) to grow 10% over the next 3 years.

More realistically, India can reach the target by 2026-27, with real GDP growth of 6-7%.

Four pillars of growth are crucial for this sprint: consumption, infrastructure investments, corporate capital expenditure (capex), and innovation.

Consumption

The growth of the middle class will drive consumption in India — 140 million households will be added to the group by 2030, which, in turn, will add 55% to incremental spend.

The under-penetrated categories of air conditioners, refrigerators, cars and handheld devices will make the country lucrative for most international brands.

An evolving retail finance market, along with a robust household savings rate of 29% and average household debt of 37%, augurs well for financing-based consumption.

Sales of big-ticket items, such as houses, are weak in India. Addition of new homes would drive up consumption of linked items, a phenomenon witnessed in China over the last decade.

Innovation

India is playing a prominent role in the evolution of the digital ecosystem — digital payments now account for 40% of the transaction volume in the country.

The world is looking at the Indian model as a best-practice case study. The country has set a benchmark in e-lending, digital shopping, data centres, targeted digital advertising, and data consumption.

India is among the first to launch 5G services and an integrated payment access system.

The system is well poised to offer digital loans in innovative formats — such as peer lending, wallet spend, and incentive eligibility — with 800 million internet users and 7% digital penetration in retail.

India has 25,000-26,000 tech start-ups and over 100 unicorns. The digital revolution will boost financing-based consumption for technology innovations that could trigger efficiencies across the value chain.

Consumption

140 mn
Households added to India's middle class by 2030 would drive spends

56%
Urbanization by 2030 to lead to better consumption prospects

$310 bn
In financial savings in 2022

Rising incomes & digital India

Innovation

80%
Transactions to be digital by 2030 – Digital India

100+
Unicorns with a total valuation of $ 340 billion

$ 1 tn
India's Fintech, market size by 2030

Infrastructure investments

Infrastructure investments constituted 6.4% of GDP in 2021.

The National Infrastructure Pipeline (NIP) has a sanctioned amount of Rs 111 trillion ($1.4 trillion), of which 70% is expected to be utilised by 2025 and the rest by 2027.

The focus is on roads, railways, integration of other logistics modes via PM Gati Shakti, asset monetisation, and power-sector grid integration.

Funding of the infrastructure pipeline necessitates government access to global debt markets, forex stability, policy clarity and transparency, and inflow of foreign direct investment.

The government has introduced lower-risk bidding models, investment platforms (e.g., infrastructure investment trusts), and targeted monetisation plans to enable and attract investments in the sector.

Corporate capex

Cumulative corporate capex is projected at Rs 23-24 trillion ($290-300 billion) over the next 5 years.

This will be aided by India Inc's deleveraged balance sheets, high capacity utilisation, and the government's pro-growth policies such as the Production-Linked Incentive (PLI) scheme.

For sustained corporate capex, supply-chain integration, greater self-reliance and improved export positioning are critical.

Most of the top 100 corporates are factoring in decarbonisation in their capex plans — nearly 70% of the PLI capex is green.

Infrastructure Spends

8-9%
Infrastructure spends as a % of GDP would enable $5 trillion economy

70%
National Infrastructure Pipeline targets to be achieved by 2025

Rs 22-25 tn
To be spent toward green capex till 2030 to meet COP targets

Policy push and COP targets

Corporate Capex

Rs 4-5 tn
Per year of average corporate investments expected till 2027

2/3rd
Of companies saw debt reduce in 2021, best placed to drive capex

Rs 3.5-4 tn
Capex to be invested via the Production Linked Incentive Scheme over the next 3-4 years

The domestic economy is not immune to global headwinds, as evidenced by deepening inflationary pressures and rising uncertainty in financial markets. That said, it has outperformed several economies.

India is set to remain the fastest growing economy for the next few years, despite a looming global recession in 2023 and trimmed growth forecasts.

A concrete action plan with identified catalysts amid structural factors will drive India's growth story over the next decade. Labour reforms, dispute resolution and state level-transparency are key.

Investor confidence has improved with greater transparency and continuous reforms and improvements in the ecosystem.

They remain vital to future inflows as well.

India's consumption story: Humble beginnings to giant leaps

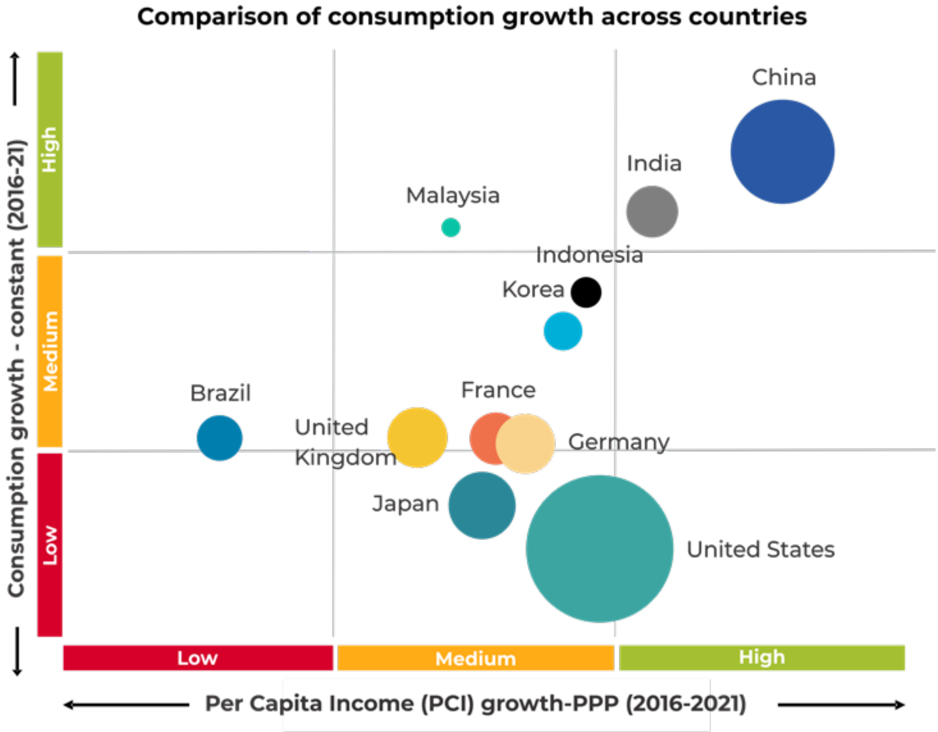
The macro context

The clue to India's structural resilience amid the Covid-19 pandemic lies in its GDP breakup. India is more an inward economy, with 60% of its growth dependent on private final consumption expenditure (PFCE). Hence, external shocks have a limited impact on India.

For comparison, PFCE is 50% for China and Japan but nearly 70% for other developed economies such as the US and the UK.

The linkage between per capita income (PCI) and PFCE is also well established across economies. With average projected growth of 6-7% annually, India may well remain the world's fastest-growing economy for a while, more than doubling its PFCE between 2022 and 2030.

Consumption growth by country: PCI drives consumption

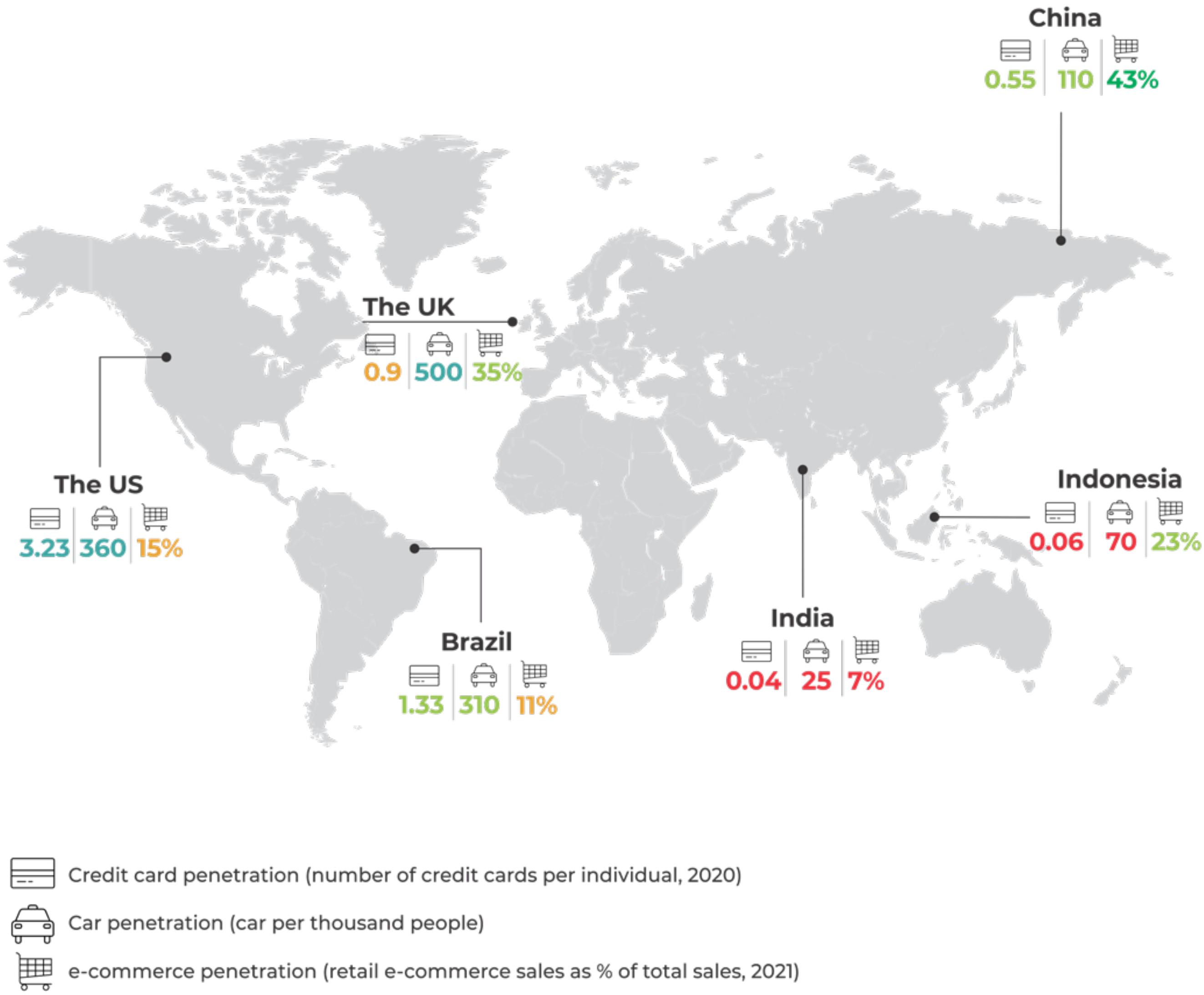


Note: For China, Japan, the US, 2020 data has been used; Bubble size indicative of consumption expenditure
Source: World Bank, CRISIL MI&A Research

India's income per capita almost doubled over the past decade to $2,500 as of 2021. The figure is now set to double again to over $5,000 by 2032, potentially driving a significant shift in consumption for a country where major consumer segments are underpenetrated despite high volumes because of its large population.

In terms of key old-economy consumption metrics such as car ownership, penetration is low at 25 cars per 1000 people in India, as against almost 500 in the UK, 360 in the US, and 110 in China. Even in new-age consumption segments such as credit cards and e-commerce, we stay under-sold.

Underpenetrated on all accounts: Credit cards, vehicles, and e-commerce

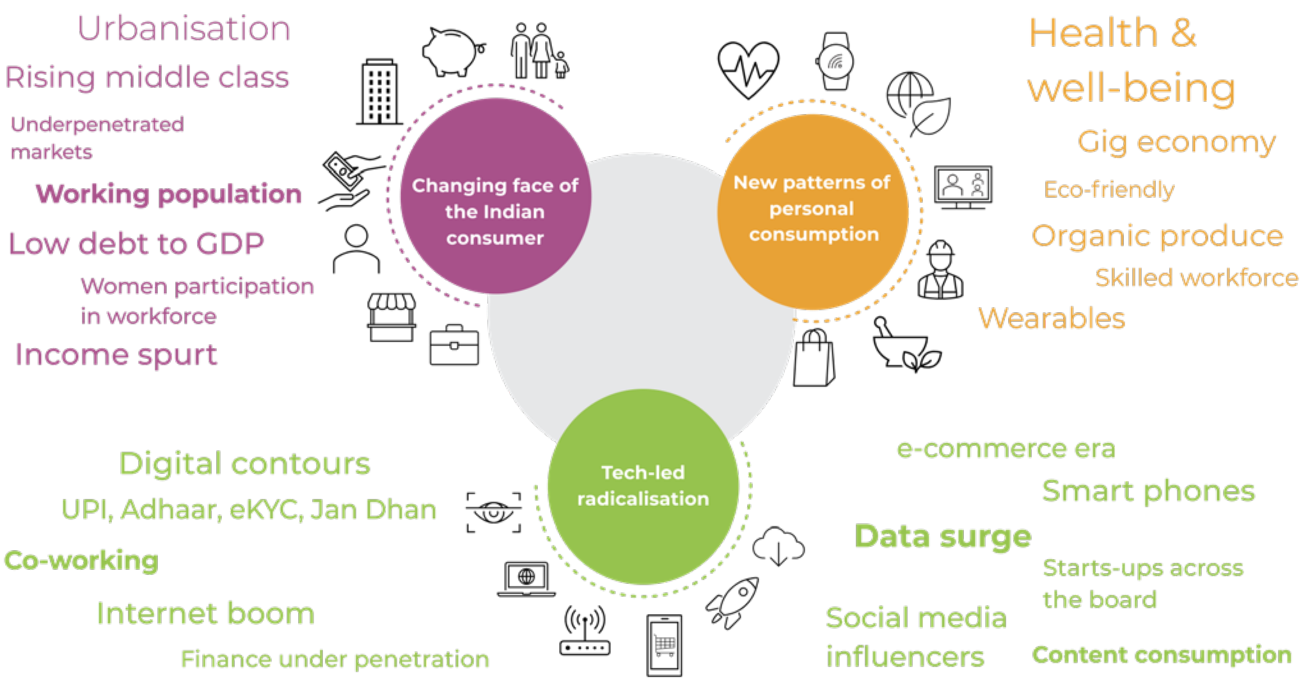


Source: World Bank, CRISIL MI&A Research

What moves the money in India?

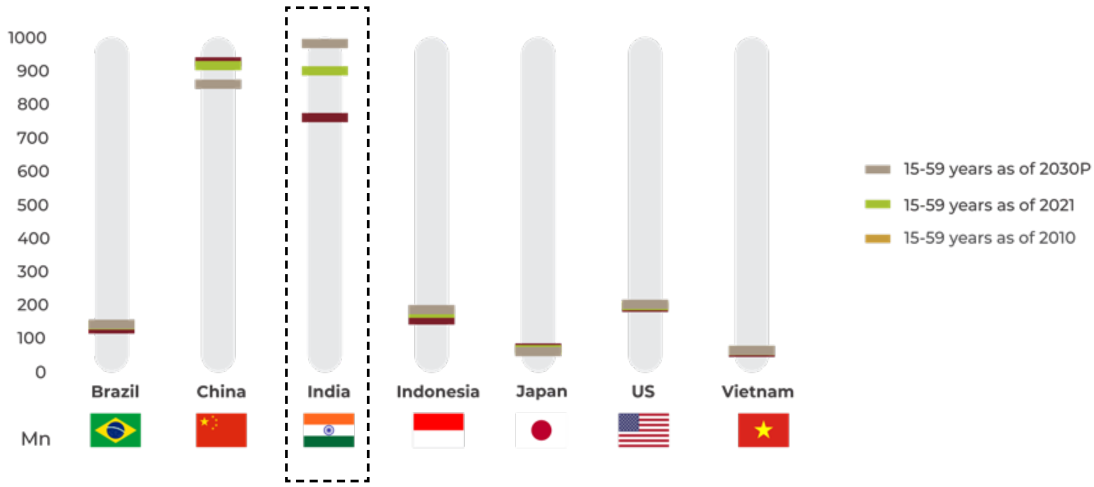
Favourable demographics with increasing labour force participation, a vibrant middle class, along with rising urbanisation and a strong savings profile, place Indian consumers at the cusp of a consumption boom. These factors, along with new consumption patterns, technological innovations and structural shifts, are set to significantly boost consumption growth.

Drivers of consumption:



#1 Changing face of Indian consumers

India will add more working age persons to the world than any other country



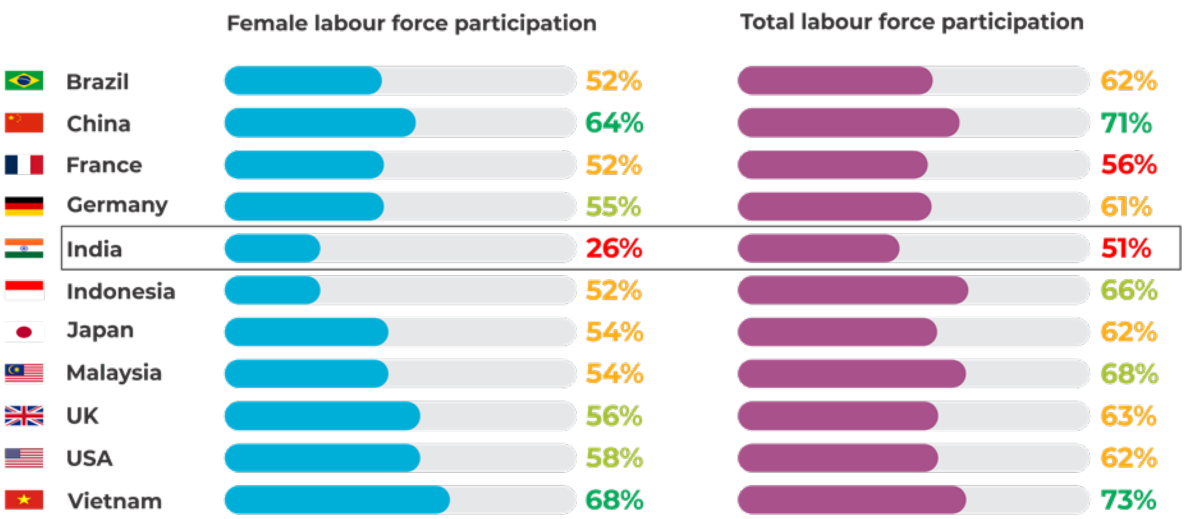
Note: Intermediate forecasts from UN have been considered
Source: United Nations, CRISIL MI&A Research

With over 982 million people in the working age bracket by 2030, India would have the youngest population globally with a dependency ratio* of just over 0.4. Notably, India's population in the working bracket could be 15% higher than China and almost 50% higher than the combined working population of the US, Japan, Brazil, Indonesia and Vietnam. Further, participation of women in the labour force in India is at 26% - among the lowest globally - indicating earnings potential remains that much higher for Indian consumers.

*Ratio of non-working population to working population

ii

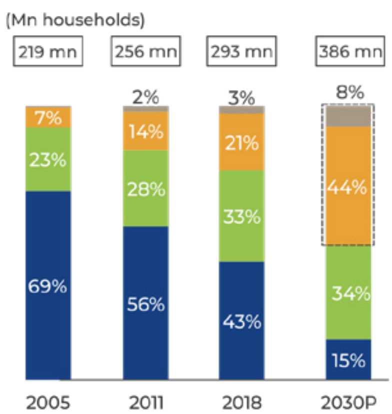
Labour force participation has headroom to grow



Note: Female labour force participation: Red: <50%, Yellow:50-55%, Light green: 55-60%, Dark green:>60% ; Total labour force participation: Red: <60%, Yellow: 60-65%, Light green: 65-70%, Dark green: >70%
Source: World Bank, CRISIL MI&A Research

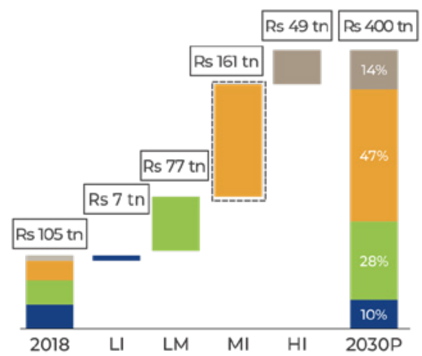
iii

Shift from bottom of the pyramid to middle class



iv

55% of incremental consumption expenditure would be driven by the middle class



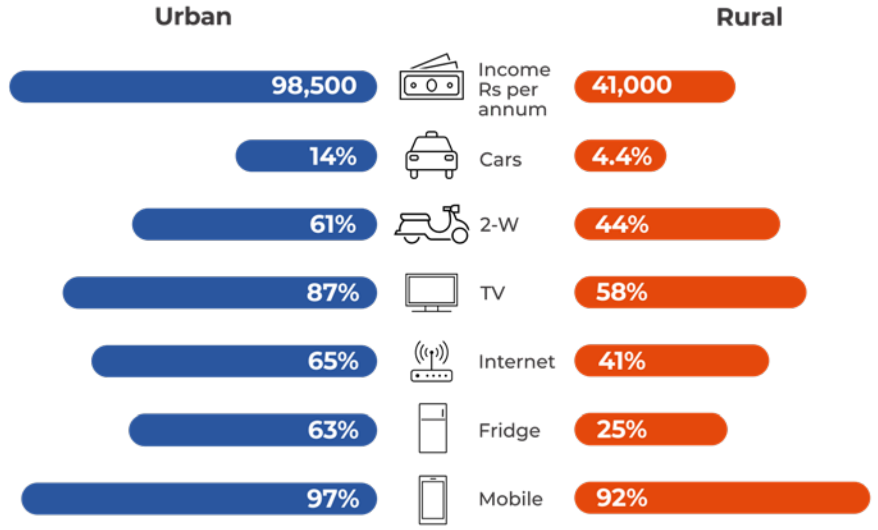
Low income: <Rs 250,000 (<$3,125)
Lower mid income: Rs 250,000-550,000 (3,125-$6,875)
Middle income: Rs 0.55-2.75 million ($6,875-$34,375)
High income: >Rs 2.75 million (>34,375)

Source: World Economic Forum, CRISIL MI&A Research

With nearly 200 million middle class households that have an average income of Rs 1.5 million ($18,750), middle income Indians are set to account for over 55% of incremental consumption expenditure by 2030. To be sure, average consumption of these households would be close to Rs 1.1 million ($13,750) per year by 2030.

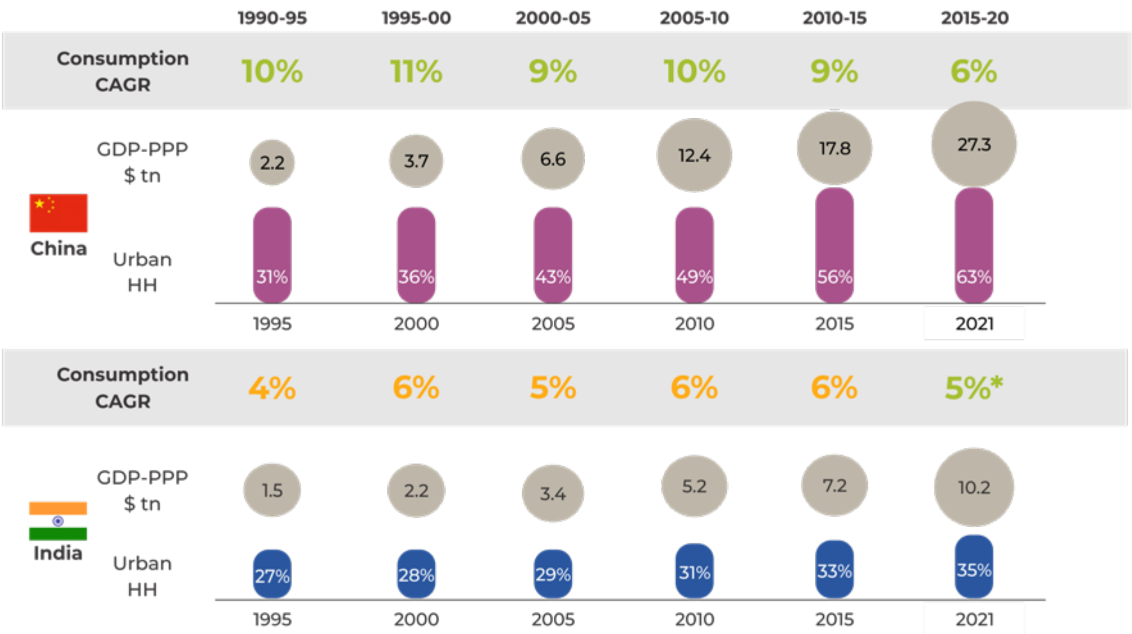
V

Rural market highly underpenetrated except in Mobiles



vi

Urbanisation drives income and, thereby, consumption prospects

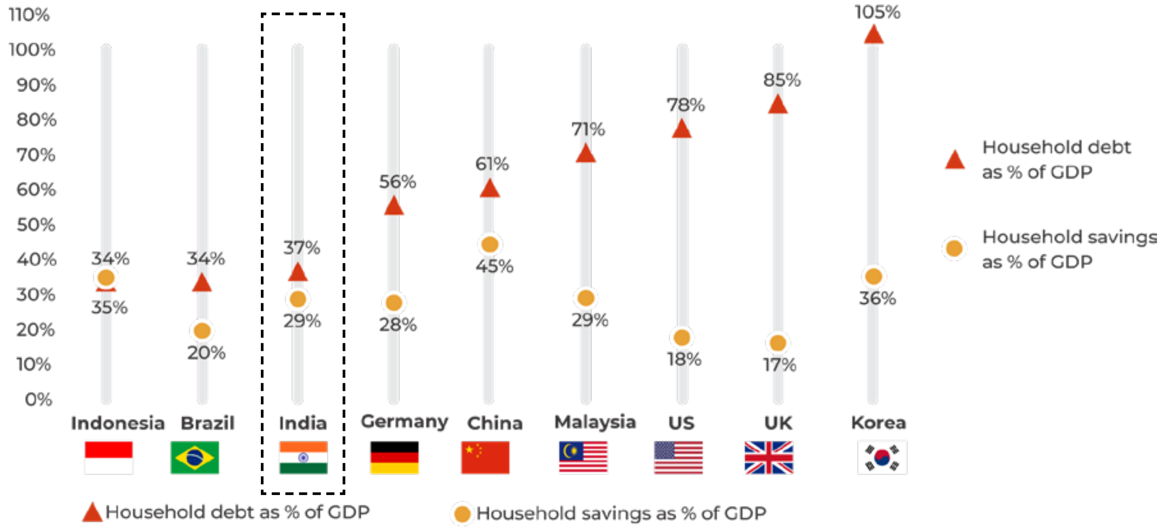


Note: India Consumption CAGR is for 2015-21; Source: NFHS-5 Survey 2019-21, World Bank, CRISIL MI&A Research

India remains a story of two halves. Incomes between the two parts of India have a variation of 2.2x on average. This, in turn, reflects in penetration levels across key segments. Penetration levels in India also remain significantly lower than China or most BRIC economies as urban incomes are almost double that of rural incomes. However, the extent of difference is much lower for basic services such as mobile penetration and data services than other hard goods. India's urban districts account for 30% of all 630 districts, 45% of jobs and 55% of wages paid, as per 'Competitiveness Roadmap for India @ 100'. With an expected urban population of 630 million, the proportion of urban districts needs to be at least 50%, indicating the need to create 125 new urban centres. Hence, planned urbanisation, a key target of the government, will trigger the next wave of sharp consumption growth.

vii

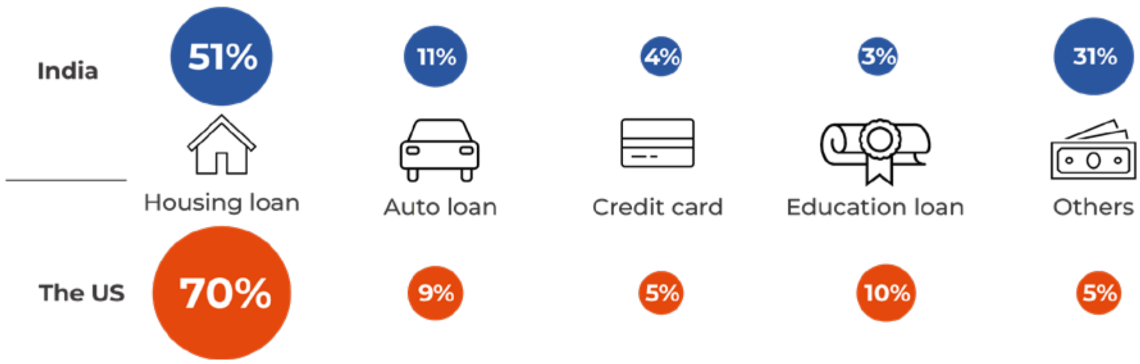
India's savings rate among the best, a low exposure to debt augurs well for consumption



Source: World Bank

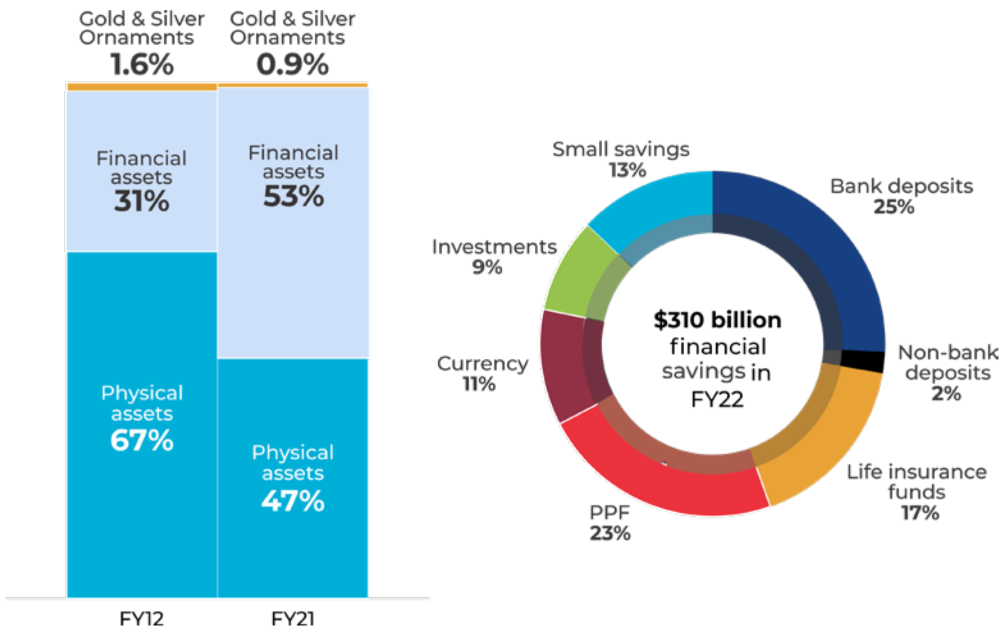
viii

Household debt splits less sticky for India



xi

Share of liquid assets rising as savings grow, spendable cash at nearly a quarter of financial savings

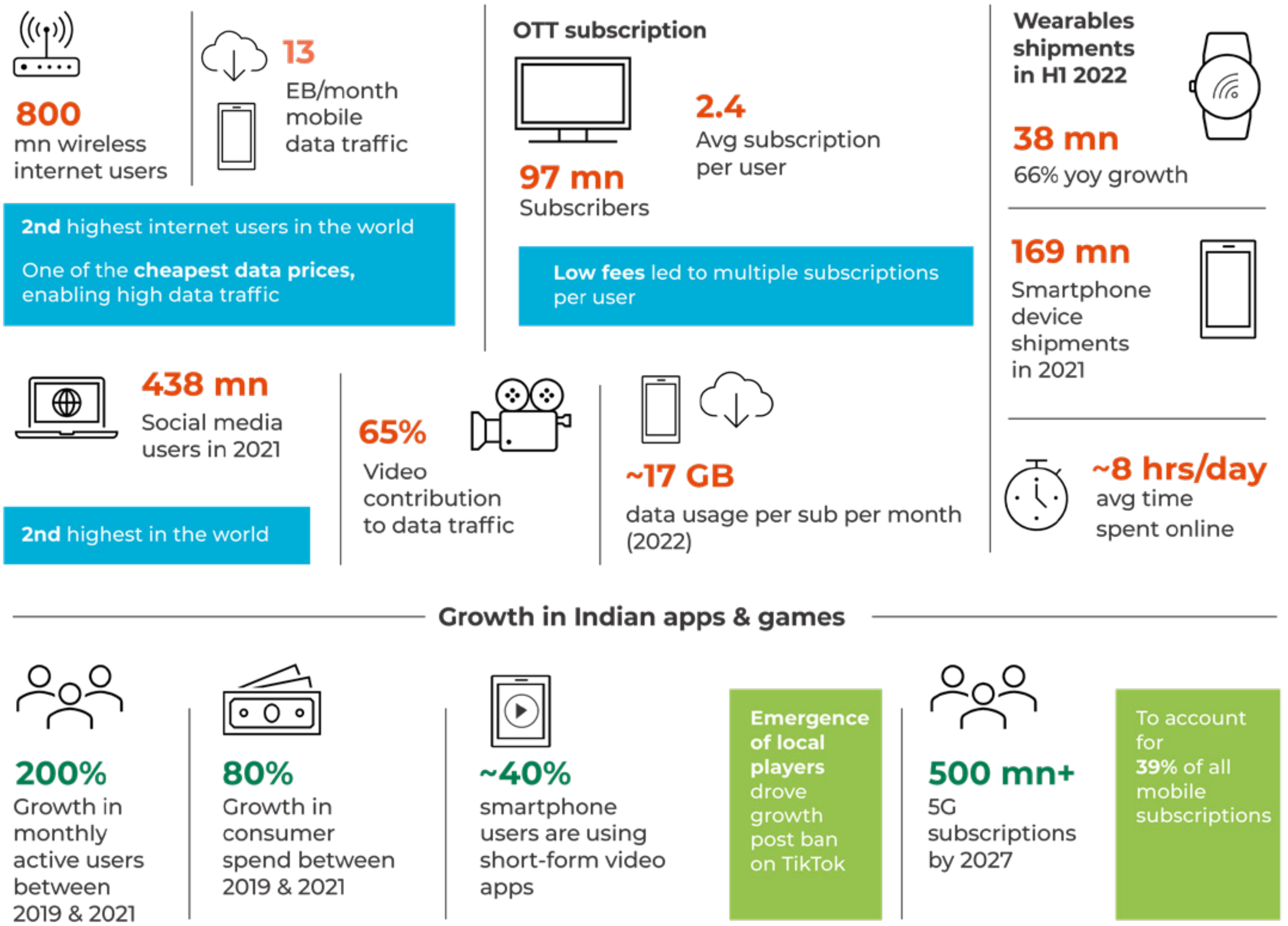


Note: Others include loan against FD, RD, Gold
Source: MOSPI, RBI, Federal Reserve, CRISIL MI&A Research

India's savings rates may be comparable with most of its Asian counter parts, but low household debt augurs well for consumption growth in the long term. Further, a lower proportion of long-tailed housing loans and a better skew towards liquid savings would also boost consumption growth.

#2 Tech-led radicalisation

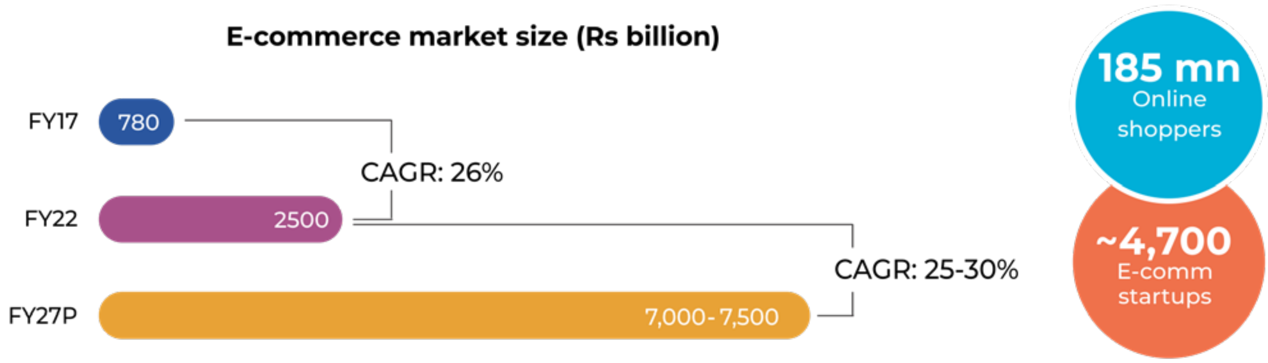
India a global leader in data consumption metrics



Note: Exabytes (1 EB = 1000 PB)
Source: Nokia MBIT Report 2022, Ericsson Mobility Report 2021 TRAI, industry, CRISIL

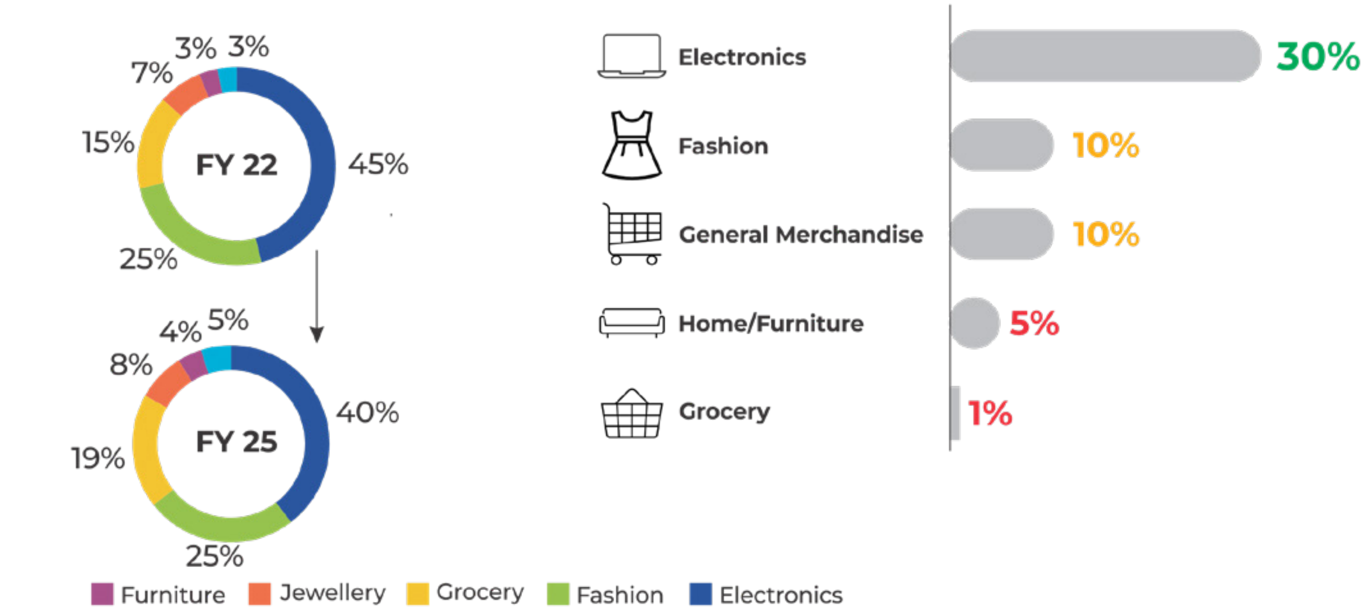
Over the years, India has transformed into one of the hotspots for data consumption as seen in its sharp growth metrics. In fact, India provides strong support globally for the technological ecosystem's evolution. Low-cost internet and data infrastructure are key drivers of this evolution. We are now leading the technology leap as one of the few countries globally to launch 5G services. Continued under penetration in application of internet services such as gaming, OTT subscribers and fees paid will propel technology-led growth in consumption as well until 2030. These micro trends also reflect in e-commerce growth that the country has been witnessing.

Indian e-commerce market to grow multi-fold



Source: Flipkart, Industry, CRISIL MI&A Research

Categories with lower penetration such as groceries to fuel growth in the coming years



Source: Flipkart, Industry, CRISIL MI&A Research
Note: % indicates penetration of e-commerce in overall retail spend in that category in value terms

The emergence of e-commerce has materially transformed the Indian consumer landscape in the last decade. The shift towards e-commerce sharply accelerated and became more pronounced during the Covid-19 pandemic amid restricted mobility. The increased convenience offered by online platforms with shorter delivery times and non-contact delivery measures has been one of the key drivers of e-commerce growth.

Other factors such as higher smartphone penetration, cheap data prices and increasing income levels have also aided this acceleration.

Even though the marked shift towards e-commerce has been seen across segments, the magnitude varies in each segment.

Digital is changing how India consumes

Source: WEF, Industry, CRISIL MI&A Research

Rapid proliferation of new business models has also boosted consumption across categories. A whopping 50,000 plus startups, of which nearly 100+ are unicorns, have disrupted incumbent businesses and supply chains. Venture capitalists alone invested nearly $40 billion in the country in 2021.

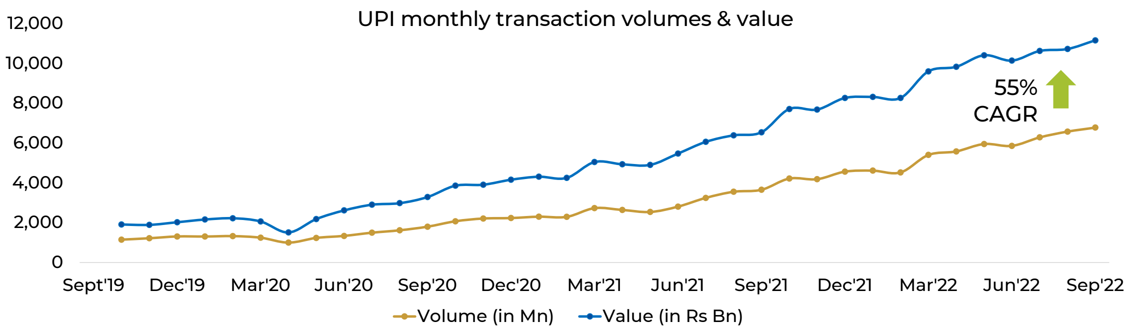
Global leader in digital payments, a tech ecosystem the world envies

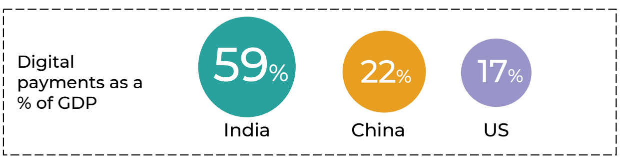
The Unified Payments Interface (UPI) has been a gamechanger for the digital payment landscape in India. Leveraging high smartphone penetration in the country, UPI became immensely successful within a short span by providing a single platform for online wallet and payment companies. Integration of mobile users, their identity via Aadhar and their bank accounts has enabled the digital payment ecosystem to prosper. India is probably the only country globally to successfully create such a vast public digital infrastructure by providing a plug-and-play opportunity at reduced entry costs.

The usage of UPI more than quadrupled (4.5x) between March 2020 and March 2022, as mobility was restricted due to the pandemic. The value of UPI transactions peaked at Rs 11,164 trillion ($) in September 2022.

The stupendous growth and popularity of the UPI system has also enabled India to become one of the digital payment hubs of the world that can clearly link digital payments data with GDP.

UPI transactions: Monthly transaction volumes and value have seen a meteoric rise

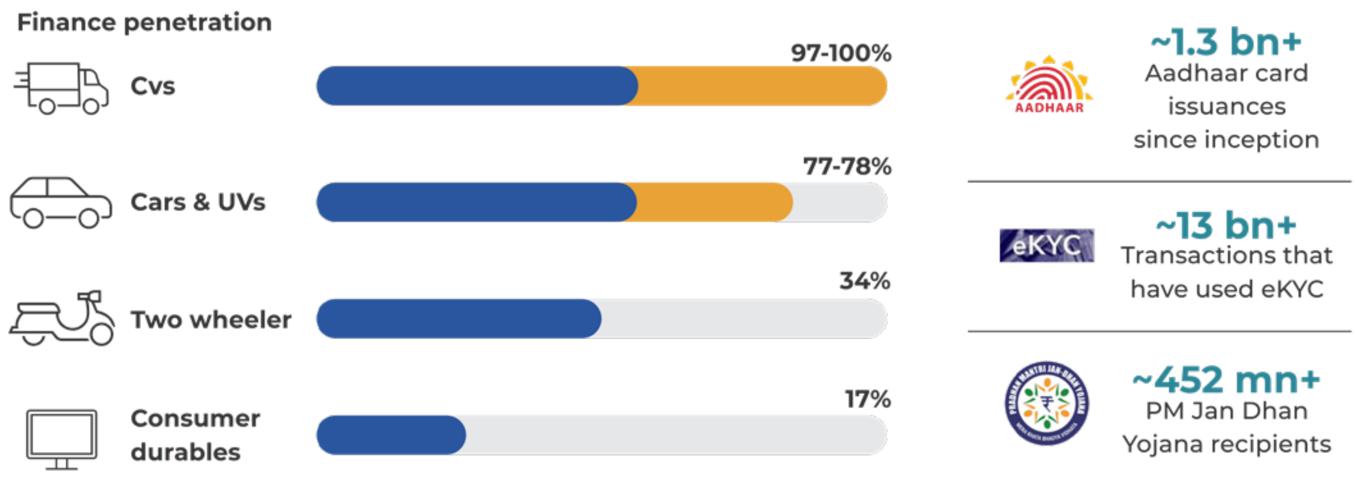




Note: India digital payment data is for UPI and wallet only
Source: NPCI, Industry, CRISIL MI&A Research

Digital payments, in turn, support consumption growth via better transparency and data record creation. Financial inclusion improves with the UPI-based online money system as lenders gain access to consumer data and differing ticket sizes. With improving confidence among lenders, newer digital lending models will proliferate in underpenetrated rural India and push consumption growth over the next decade.

Trends in key consumption categories indicate low penetration in small-ticket sizes and more rural-dominated categories



Note: Data as of March 2022; *in origination value in 2022 over 2018
Source: CRIF, Industry, CRISIL MI&A Research

Financial penetration, a measure of total credit outstanding as a percentage of asset sales, remains low for various small-ticket size categories such as consumer durables and two-wheelers. It is also low in segments with higher cash purchases and/or a higher rural share in sales. With the evolution of the digital ecosystem, financial penetration is set to grow multifold.

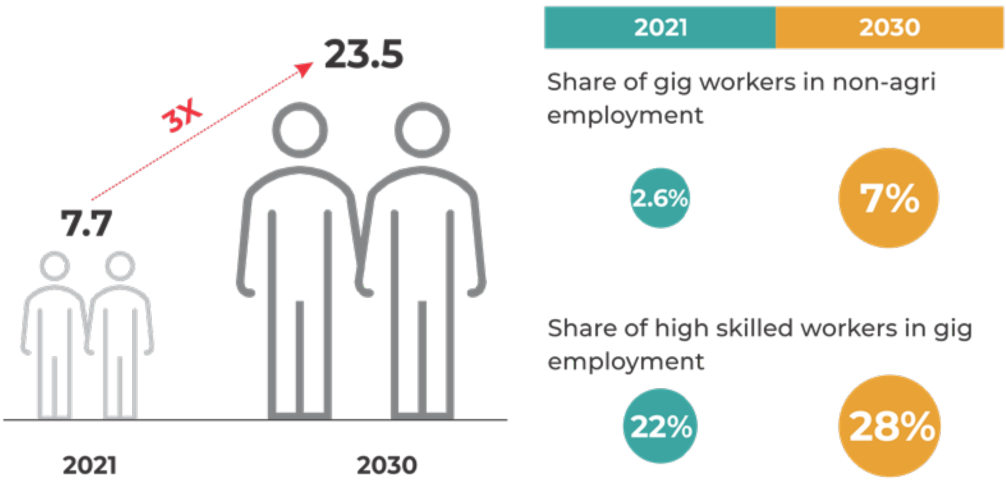
Financial inclusion, advent of digital loans sanctioned through Jan Dhan accounts and Aadhar validation, rural housing schemes will support retail consumption over the next decade. To be sure, avenues such as peer-to-peer or customer-to-customer (C2C) lending may also proliferate as data captured should support lending decisions based on risk scores of consumers. These factors are set to support India's consumption boom.

#3 New patterns of personal consumption

The consumption patterns of Indian consumers are becoming niche and unpredictable. A large proportion of incremental skilled work force now earns on an hourly basis. The flexible income is used either to generate incremental income for the existing work force or provide support to new entrants in the work force. The need of the hour is not only unique ways of tracking consumption patterns and financing potential, but also unique risk assessment methods for such consumers.

Gig employment may lead to emergence of new consumption patterns

India's gig workforce to rise 3x; almost one-third to be high skilled



Source: NITI Ayog, CRISIL MI&A Research

Further, the pandemic has led to unique consumption patterns, especially in urban areas. Wellness product sales and the rise of the organic food market indicate that high value unique products are finding increasing shelf space.

Health and well-being a new area of spend for India

Source: Industry, Mintel Survey, CRISIL MI&A Research

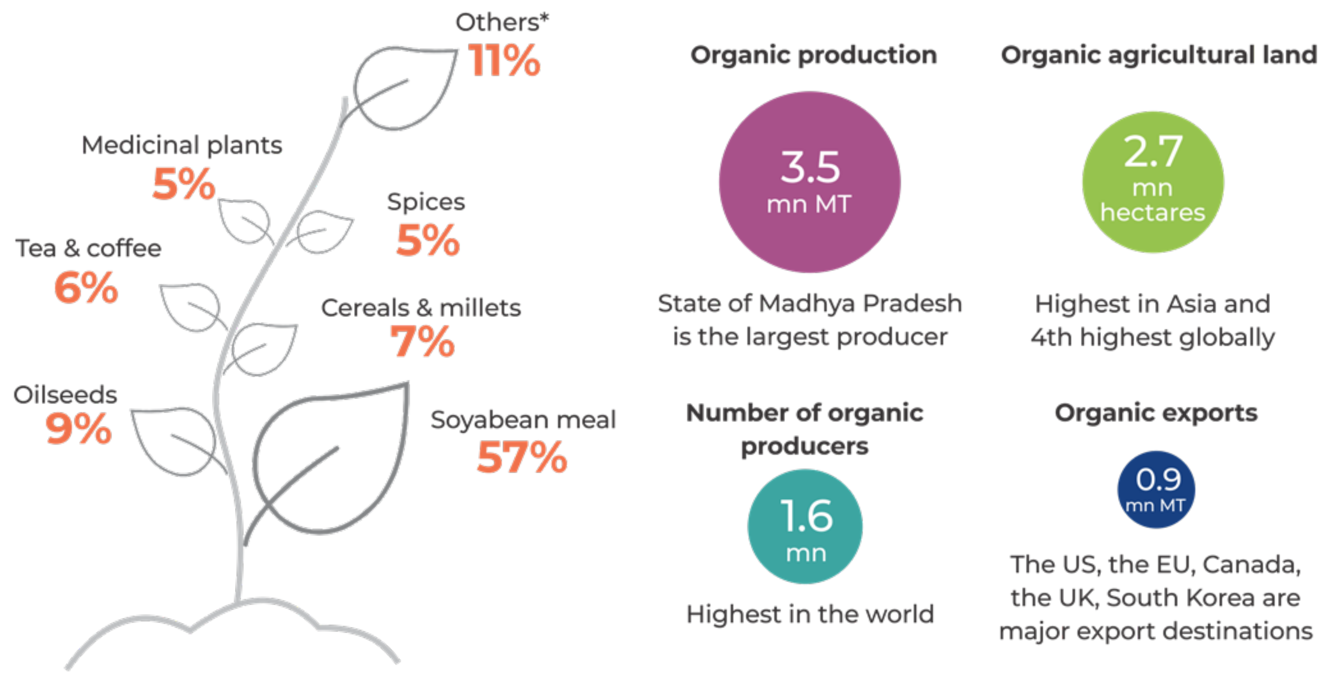
The Covid-19 pandemic enhanced the Indian consumer spend on well-being and healthcare products, especially among millennials. Naturally, increased consumer interest has resulted in companies in the space jostling for increased revenue share through unique and niche strategies related to formulation, product efficacy, packaging and marketing.

Players such as Tata Group have now invested in start-ups such as CULT that provide end-to-end health and well-being solutions. Similarly, players such as Reliance Industries are entering the diagnostics industry which is classified not under health care but more in the area of preventive medics. Conglomerates such as ITC are exploring to acquire companies in the nutria bar segment that is growing at 30% and has a market size of nearly $10 million in India.

Organic food spends on a rise too

India's organic production stands at 3.5 million MT with exports of organic produce at 0.9 million MT a year and the total realization at $1.04 billion as of 2022. Realisations of organic foods are 3-4x of normal produce and they enjoy better margins amid the presence of branded players. Growth in the domestic organic food market has been multi-fold in areas of pulses, grains and fruits.

Organic exports an opportunity for India



Source: FIBL & IFOAM – Organics International 2022, APEDA, CRISIL MI&A Research

Gearing to push the first pillar of growth

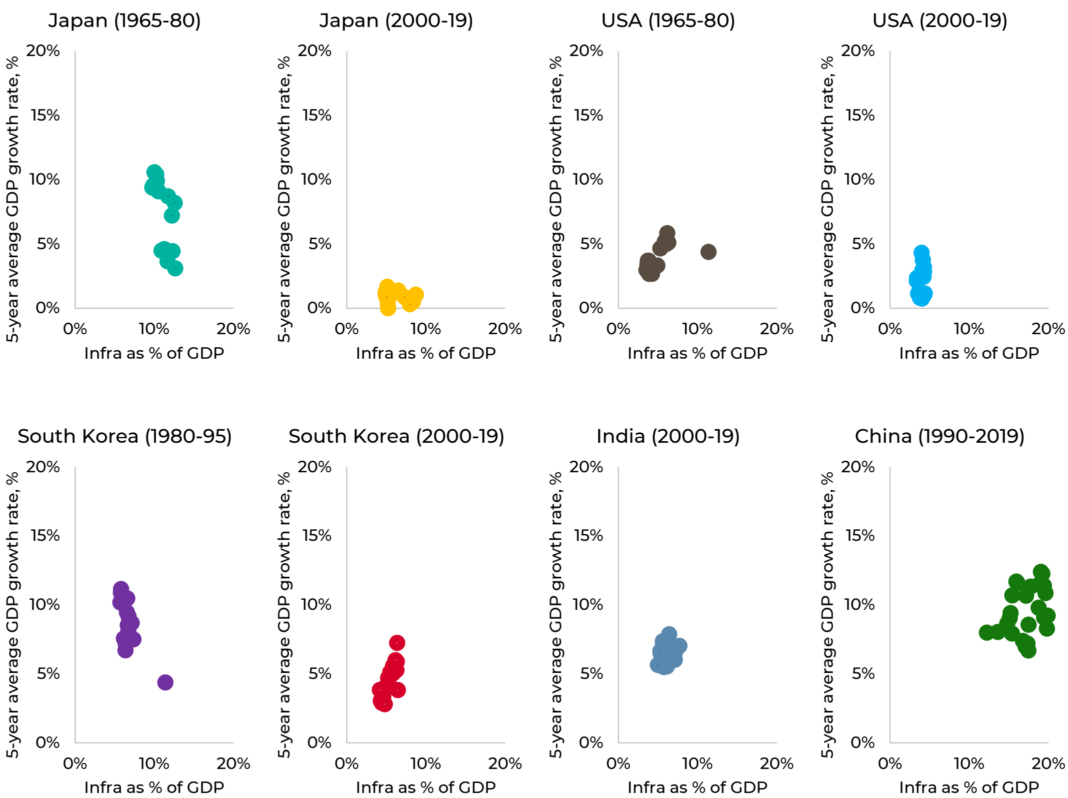
Consumer, technology and consumption trends are changing as we move from Gen X to beyond Gen Z, but what remains constant is the role that per capita income plays as consumption patterns change. The domestic consumption story revolves around how fast the country doubles its GDP. India has doubled its per capita income only every 10 years unlike China, which doubled its per capita income every five years over the last 15 years. With India achieving the milestone of a $5 trillion economy and the evolution of the new ecosystem, the country could boost its consumption growth much faster than its per capita growth.

Infrastructure investment spurs economic growth

Many studies at the national and international level show that monies spent on infrastructure development have a multiplier impact on GDP. For instance, in India, it was found that every rupee spent on infrastructure leads to a 2.5x impact on GDP in that year and 3.11x in the subsequent year. The current year impact stands at 1.7x for US, 1.5x for Japan, 1.3x for Korea and 2.2x for China.

Drawing parallels to economies during their developing years, we see that, for Japan, Korea and the United States (US), the earlier high growth periods were also accompanied by higher shares of GDP devoted to infrastructure. Infrastructure investment then slowed and its share dwindled, as economies reached maturity with lower growth rates. This establishes a strong correlation between infrastructure investment and high economic growth in the developing years.

Countries spend more on infrastructure during their developing phase



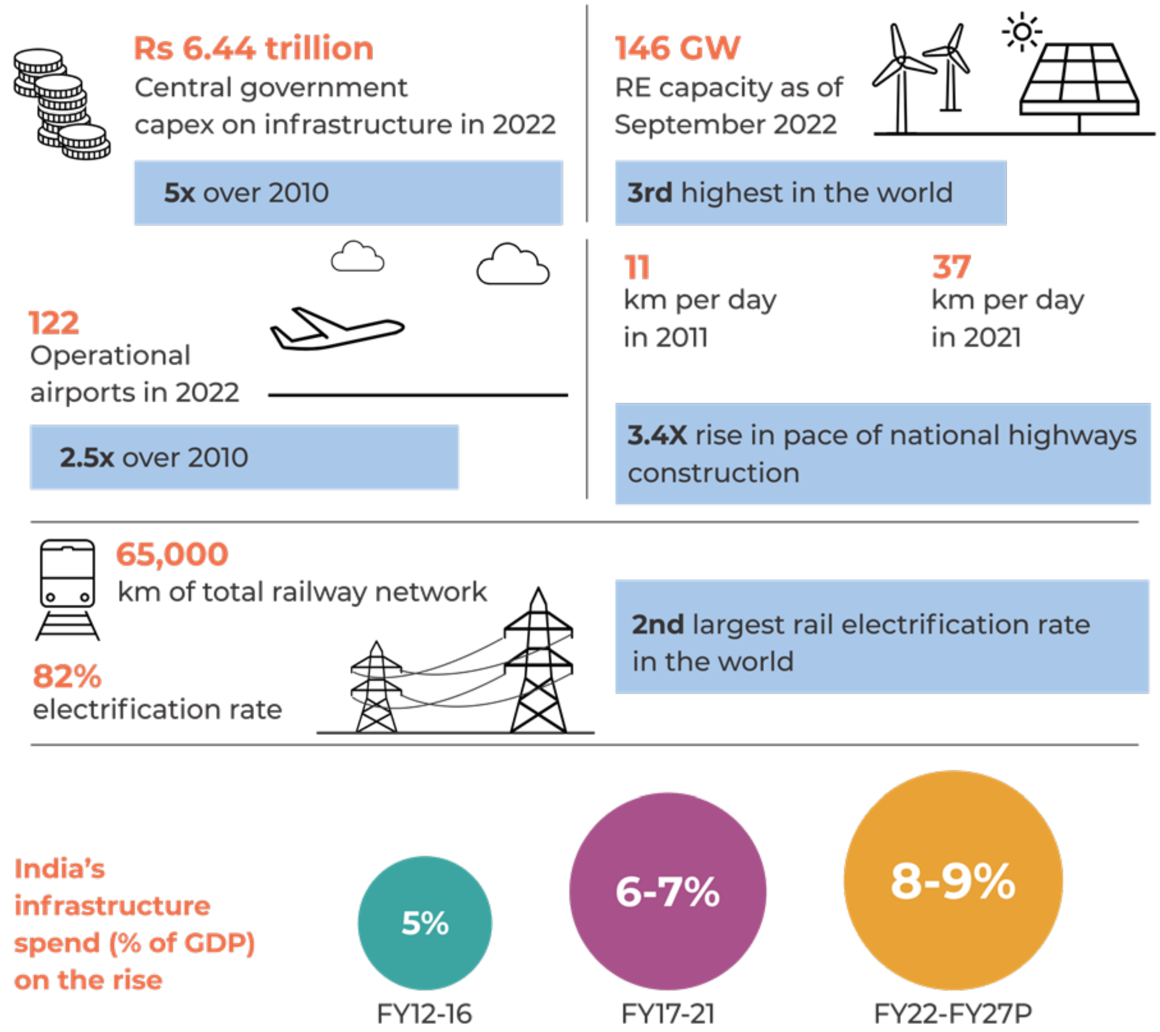
Source: AIIB, IMF, CRISILMI&A Research

Similarly, India and China continue to spend a bulk of their GDP on infrastructure in their current developing phase. For India, the number is now ramping up to 8-9% over 2022-2027 from 5-6% of GDP in 2014-2018.

Infra spends as share of GDP has sequentially improved and is likely to rise further

India's emphasis on infrastructure development is not new — road network programmes came under renewed focus with the National Highway Development Programme (NHDP) in 2001, under which the Golden Quadrilateral was built. The Dedicated Freight Corridor (DFC) in railways was conceptualised in 2006. Over the last decade, the pace of such investments has quickened, with an increase in central government spending, faster clearances linked to environment and land acquisition, and newer business models for private sector participation. Further, innovative funding mechanisms such as infrastructure investment trusts (InvITs) and real estate investment trusts (REITs), are gathering steam. Streamlining of foreign direct investment (FDI) policies in key infra segments such as solar, accompanied by a strong regulatory push, have also been steps in the right direction. Strong policy intervention to address concerns around business model risks in sectors such roads and renewables have also contributed to improving developer sentiment.

India has witnessed rapid infrastructure development in the past decade



Source: NSO, industry, CRISIL MI&A Research

The National Infrastructure Pipeline

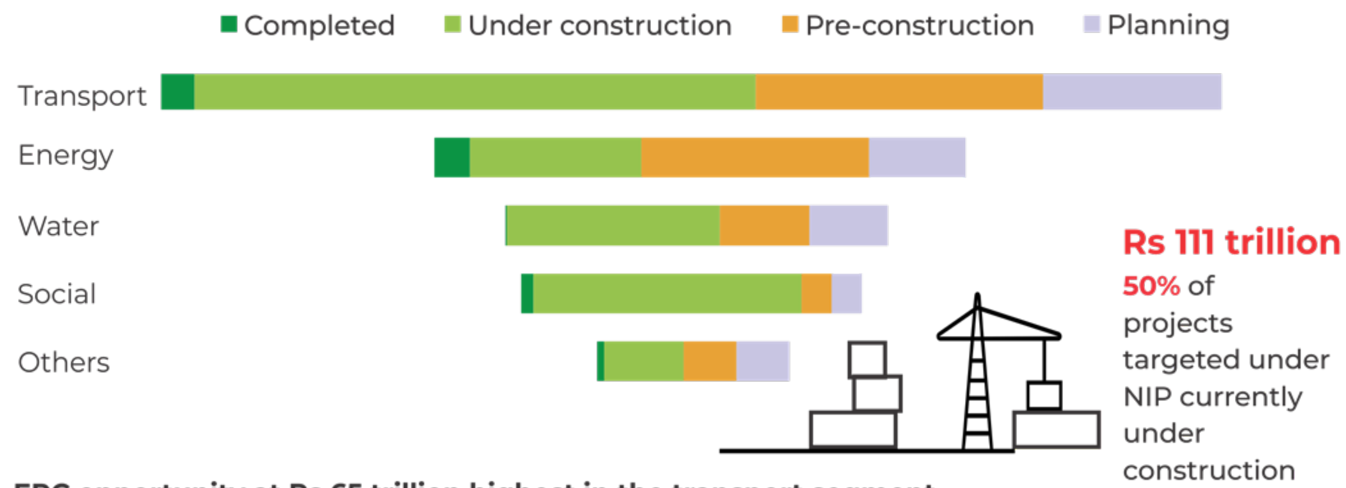
The National Infrastructure Pipeline (NIP) aims to make Rs 111 trillion ($1.4 trillion) of infrastructure investment over five years (2020 to 2025) in order to achieve the more ambitious target of making India a $5 trillion economy by 2025. With the right policy framework, the NIP goal seems attainable, albeit with a lag.

The programme addresses gaps on the supply-side to stimulate economic growth. It aims to create new and upgrade existing infrastructure, seen as key to raising India's competitiveness and boosting employment and GDP growth.

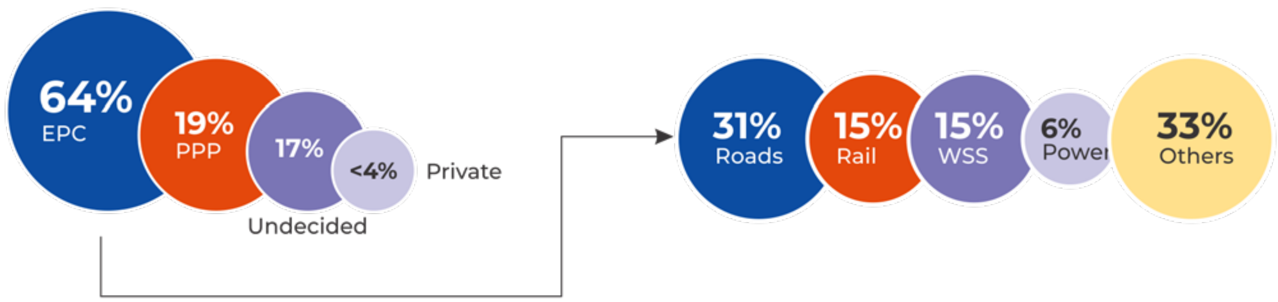
Further, focus on integrated logistics and Sustainable Development Goals intertwine infra needs with better effectiveness.

Roads, power, railways, and urban infrastructure together constitute ~81% of the total infrastructure investment in India within the NIP framework. Encumbrance is typically on public funds for infrastructure development even with NIP, as 64% of the projects are planned under the engineering, procurement and construction (EPC) mode, of which railways and roads form the bulk. The government is expected to take the lead by spending first and demonstrating able project execution.

About half of the NIP target projects are currently under construction



EPC opportunity at Rs 65 trillion highest in the transport segment

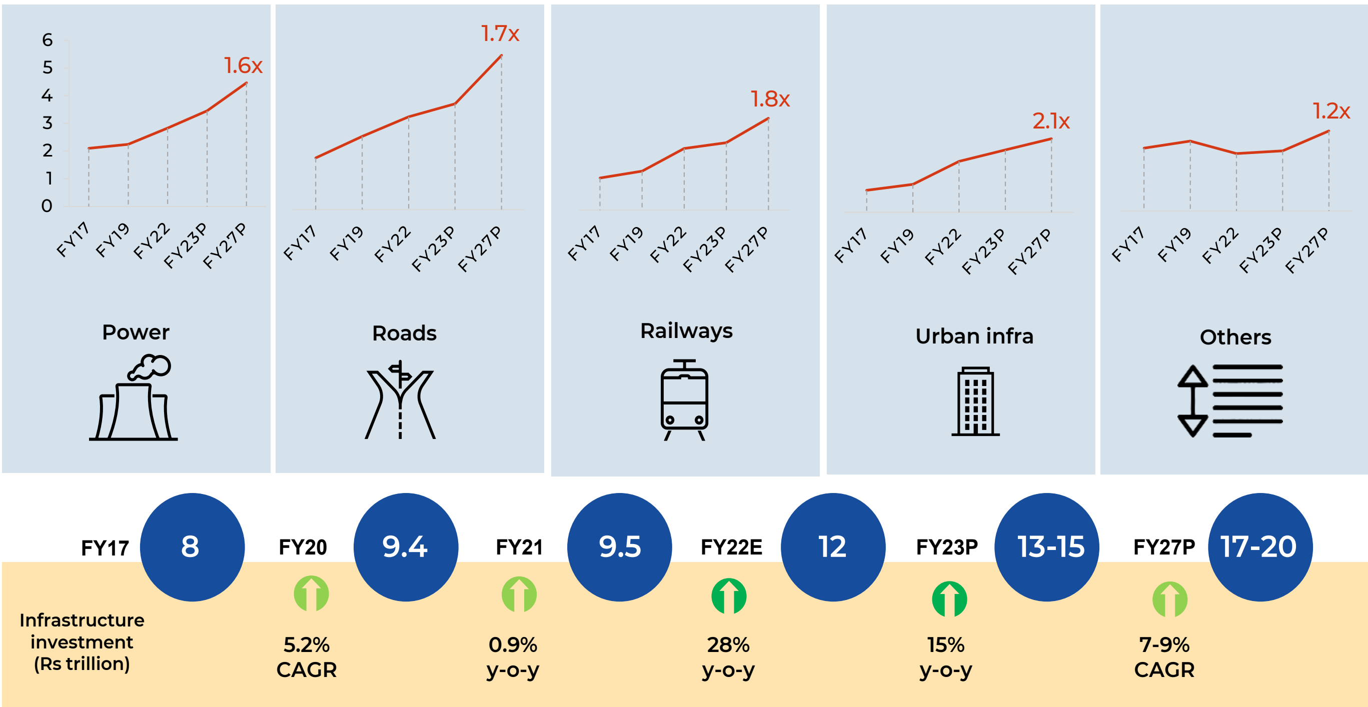


Notes: LHS: Transport includes roads, railways, metros, ports, and airports; Energy includes Thermal, Renewables etc; Water includes irrigation and sanitation; Social includes urban housing, medical and education infrastructure; Others include telecom, cold chains and industrial parks
RHS: WSS - water supply and sanitation; EPC - engineering, procurement and construction, PPP - public private partnership
Source: NIP, CRISIL MI&A Research

NIP targets and the $5 trillion GDP goal expected to be met by 2027

We expect to see NIP targets as well as the $5 trillion economy goal achieved only by 2027. Investments in traditional sectors as railways and roads are likely to almost double by then from current levels. New-age green investments will dominate power.

Infrastructure investments in India to rise to 1.5x by 2027

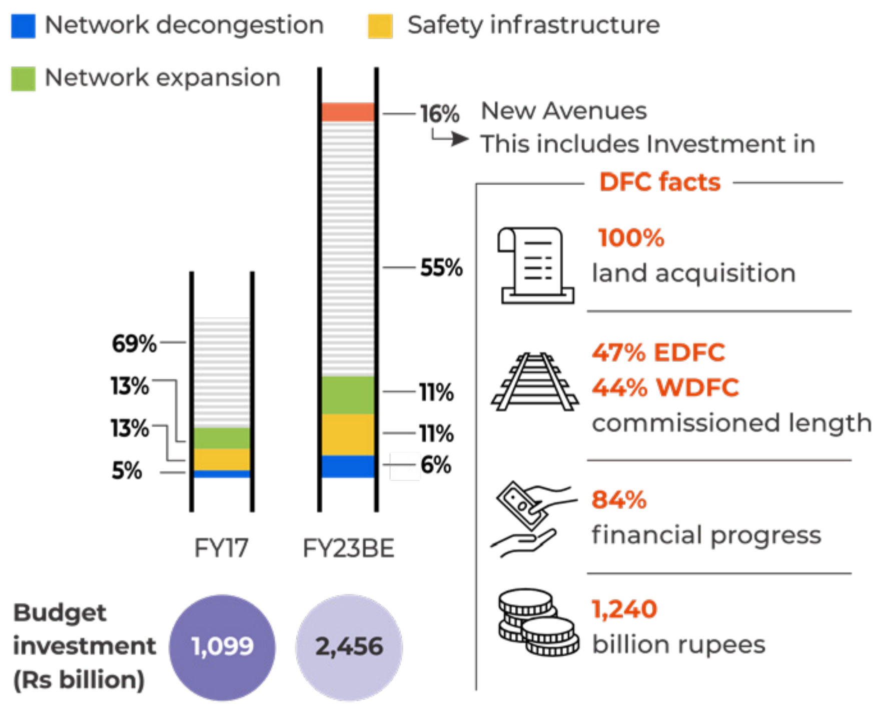


Note: (1) 'x' indicates investments ratio in FY23-27 over FY18-22 (2) Other infra includes network capex, telecom towers, irrigation, airports, warehousing, and oil & gas pipeline
Source: CRISIL MI&A Research

On the other hand, infrastructure needs of a rising urban population has only of late come into the focus of and seen a pick up in investment by the government. The enhanced need for connectivity amid urbanisation and higher incomes would support air travel, in turn bolstering airport infrastructure.

Integration of the logistics value chain across ports, warehousing, and cold chain facilities have also been recognised as key agenda items of NIP. Railways, roads, power, and ports will remain key pillars of connected integrated infrastructure.

Railways: DFCs and high-speed rail to add to pace of growth



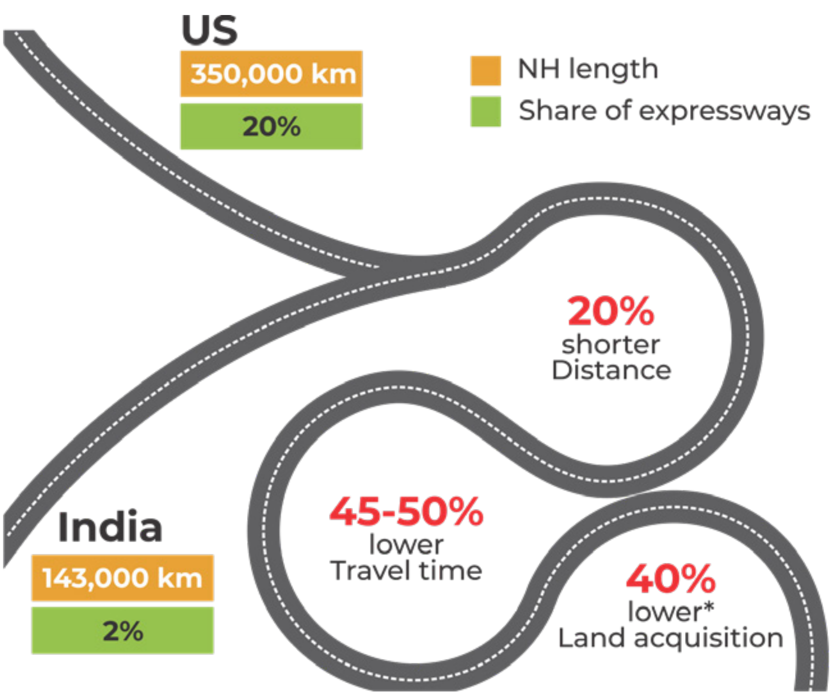
Note: Status as of April 2022
Source: DFCCIL, CRISIL MI&A Research

Investments in railways have been chugging along at a modest pace over the early part of the previous decade. They gathered pace over the past seven years, boosted by the government's focus on infrastructure coupled with newer avenues of investments opening up in railways.

These new avenues are: DFCs, high speed rail, rolling stock upgradation e.g., Vande Bharat trains, safety infra e.g., KAVACH system, and railway station redevelopment. These new avenues will complement traditional avenues of investment in railways in network decongestion, network expansion, electrification, safety related infrastructure.

Higher achievement ratios and rich cash profile will support continued high growth in spends.

Roads: Expressways to gain traction



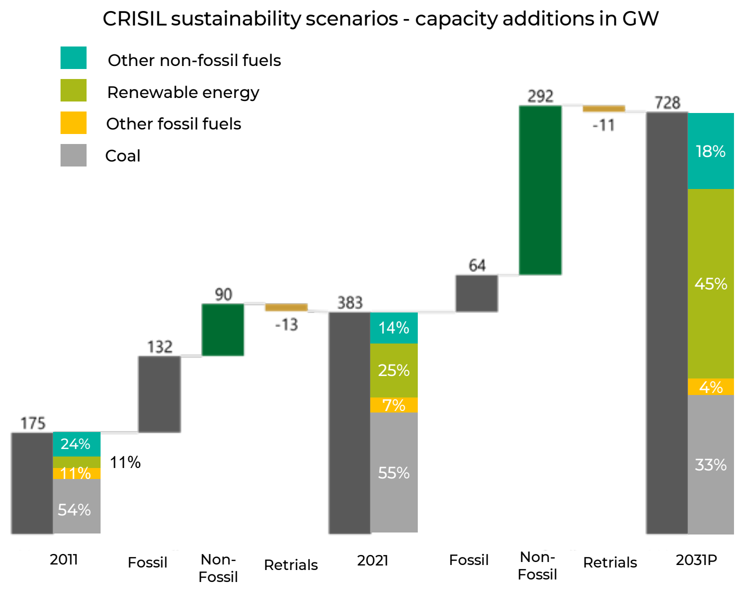
Note: *lower land acquisition costs for greenfield expressways in India
Source: NHAI, US Department of Transport, CRISIL MI&A Research

While India is only second to the US in terms of national highway (NH) length, it lags way behind in share of access-controlled expressways that have proven to be time and cost efficient.

India's flagship Bharatmala Pariyojana is aimed at rapidly scaling up its road network to 200,000 km by 2025 and increasing share of expressways to improve connectivity, enable high-speed movement of vehicles, reduce congestion and lower fuel consumption. It also aims at enhancing logistical efficiency and potentially bringing down logistics costs which are significantly higher than in the developed economies.

About 6,000 km of expressways are planned under the programme's two phases, of which half are currently under development. They also cost 3x that of a 4-lane highway, leading to higher investments, but help solve speed and safety links.

Power: Rapid transition in generation addition mix



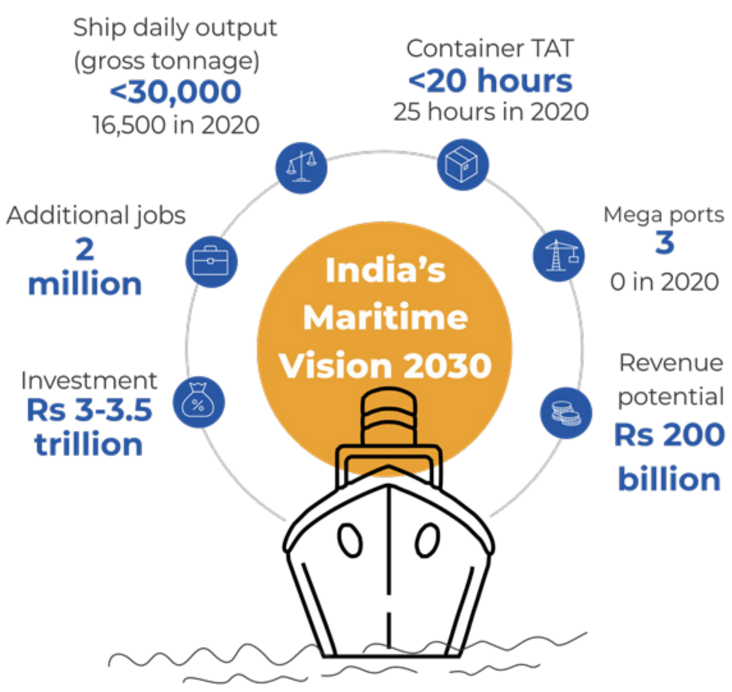
Note: P – Projected; numbers are fiscal years
Source: CEA, CRISIL MI&A Research

Traditionally, increasing power demand has led to fossil-fuel-based additions. The previous decade (2011 to 2021) saw power demand log 4.5% CAGR and an addition of 119 GW of fossil fuel capacity (net of retirals) against 90 GW of clean energy, with most of the latter coming in post 2015, with government push for renewables.

India is expected to continue seeing healthy power demand growth at 5.4% CAGR till 2032, driven by healthy macroeconomic growth.

Clean energy is expected to comprise 80% of incremental power additions, primarily from solar, hybrid and storage-led elements. This would lead to the share of renewables (ex-hydro and storage) in installed base reaching 45% by 2032, and that of overall non-fossil fuels at ~60% of the total.

Ports: focus on efficiencies and capacity augmentation



Source: Maritime India Vision 2030, CRISIL MI&A Research

Despite having a ~7,500 km coastline, India have lagged global leaders such as Singapore and Rotterdam in development of ports, owing to factors such as high costs, lengthy turnaround time, and low efficiency.

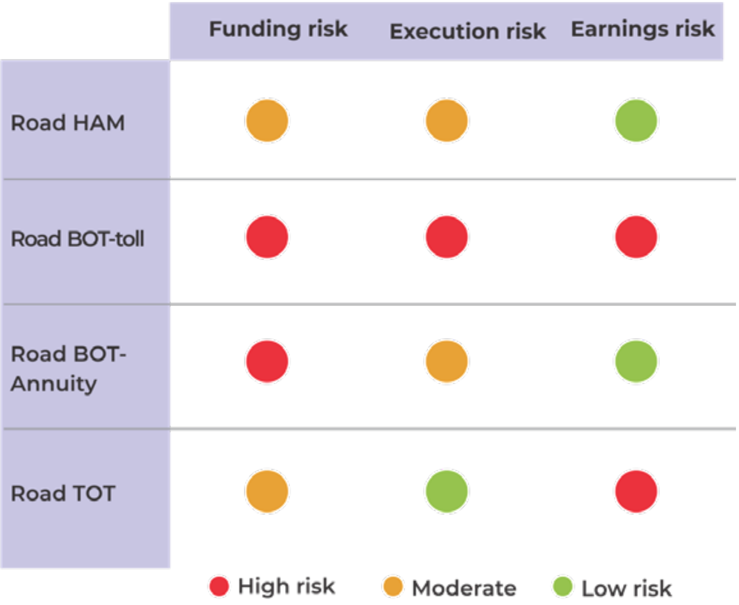
Consequently, India is now focusing on development of mega ports, capacity augmentation and infrastructure modernisation to make its ports more competitive globally.

Simultaneously, through multi-modal connectivity at ports, increased digitalisation, and streamlining of processes as per global standards, it also aims to improve logistical efficiency and unlock annual savings of Rs 100 billion ($) in logistics cost.

Apart from port-led industrialisation and creation of jobs, realisation of these targets would also help Indian exports to become more competitive.

New business models coupled with timely policy actions have given a fillip to infrastructure development in India

Newer HAM and TOT models in roads aimed at mitigating PPP risks



Source: NHAI, CRISIL MI&A Research

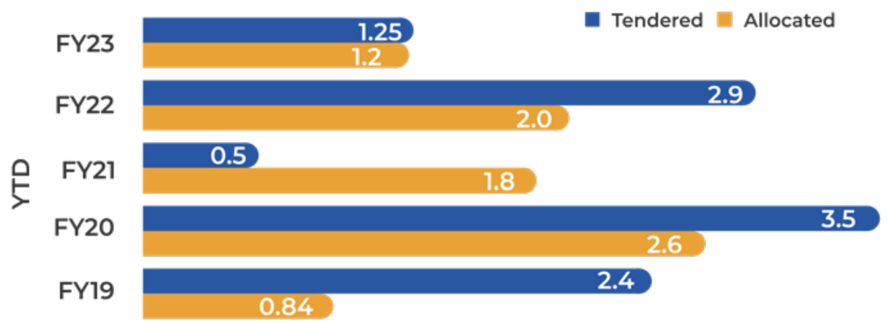
The introduction of newer PPP models such as hybrid annuity model (HAM) for construction and toll-operate-transfer (TOT) for operations & maintenance (O&M) have reduced risks that were faced by developers in the erstwhile BOT-toll model that led to delayed projects causing time and cost overruns and high bank non-performing assets (NPAs).

The HAM model's unique clauses such as 40% government contribution to funding leading to lower developer equity requirement, 80% land acquisition before start of construction, automatic descoping and delinking of land if unavailable and termination clauses, and fixed annuity payments, have prevented projects from getting stuck. This has led to 28,000 km being constructed by NHAI since the model's inception 6 years ago, a 2x increase in pace.

Similarly, TOT has enabled recycling of capital post completion of projects plus efficient O&M by the private sector given the longer gestation.

New power models - emerging business models with storage technologies to help growth

New Business models share of total tendered volume on a rise



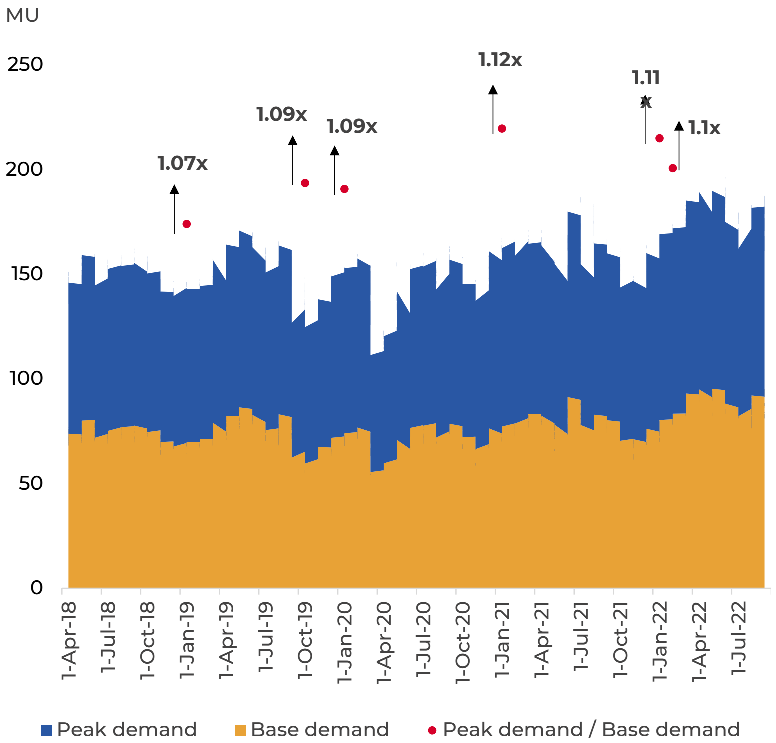
Types of new models		% in overall tender volume	Weighted Average Tariff	Lowest tariff
Mixed resource – combining two clean fuels	FY23 YTD	14	2.53	2.53
Bundled RE – RE combined with non-conventional	FY22	16	2.47	2.34
Peak Power Supply – Power during peak hours	FY20	2	2.59	2.41
	FY21	9	3.49	2.69
Round the clock – 80-90% supply guarantee	FY19	5	2.68	2.68

Source: CEA, CRISIL MI&A Research

India has a total of 146 GW of renewable energy (RE) capacity (including hydro) as of 2022. This has been supported by evolving business models consistently.

RE today accounts for ~30% of the generation mix and is set to rise to ~50% by 2030. Newer business models like hybrid are seeing traction and already account for 14% of tender volumes. Tariffs of these business models are seeing a reducing trend, driving preference Along with investments in storage infra, guidelines as a part of MCA and investments in grid infrastructure are significant enablers.

Storage: Peak power demand rising to a factor of 1.1x of base demand, creating need for 60-70 GW of storage by 2032



Source: CEA, CRISIL MI&A Research

An assessment of the relationship of base power demand with peak demand for a period of about four years (using daily data), indicates an uptrend in peak demand that is becoming a power supply challenge.

Growth seen at the end of the 4-year window (2018 and 2022), showed peak demand as a factor of base demand has grown from 1x to ~1.1x. This may seem marginal; however, in absolute terms, it amounts to 10-12 GW annual increment compared with 6-7 GW seen in previous years, and due to its instantaneous nature, it is difficult to service for power utilities immediately. Robust demand growth is expected to continue over 2023-32, leading to expectations of peak demand in the range of 340-342 GW by 2032.

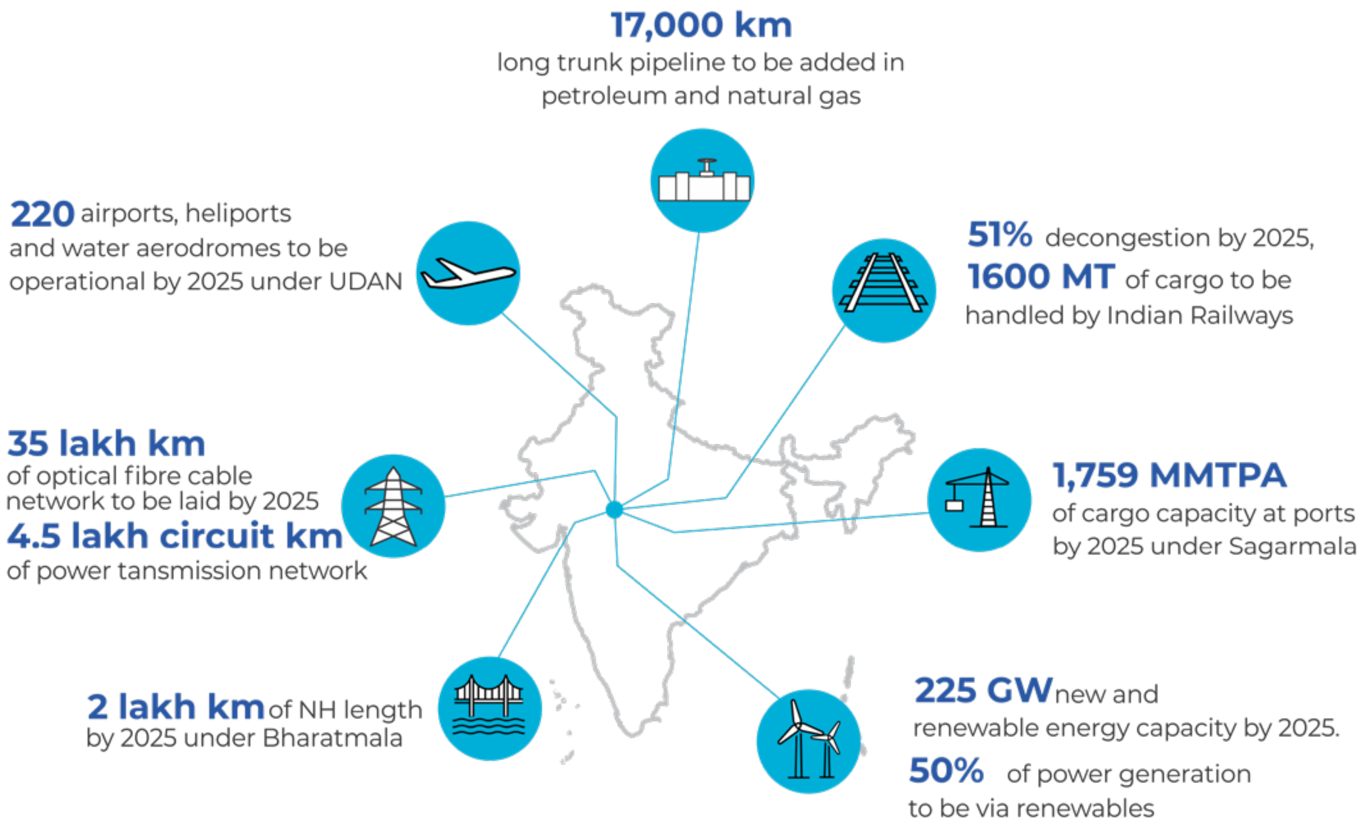
Consequently, storage capabilities of 60-70 GW would be needed by the Indian power system to address such challenges by the end of this decade. Recent tenders on storage-linked RE capacity creation and interactions with stakeholders to have a separate policy for new storage infra such as pump storage power is aiding acceptance.

Policy push also in favour of integration

PM Gati Shakti to enhance inter-modal coordination

PM Gati Shakti was launched in 2021 with the aim of providing multimodal connectivity for people, goods and services from one mode of transport to another. It integrates existing/planned initiatives and breaks silos by bringing 16 government ministries under one platform. A dynamic geographical information system (GIS) platform is used to ensure transparency in databases between all ministries and seamless co-ordination. This would, in turn, reduce time to completion of projects, and result in faster approvals such as environmental clearances, higher efficiency, and utilisation of infrastructure. It is also expected to aid in reducing logistics costs with faster connectivity using real time data and a shift towards use of alternative fuels such as LNG/methanol.

Gati Shakti subsumes existing ministry-level targets under one umbrella



Ensuring seamless multimodal connectivity	200+ GIS layers for evidence base decision making	Optimum utilisation of all infrastructure facilities	Real time information to be provided to all stakeholders through ULIP	Integration of 16 ministries under one umbrella

Source: PIB, CRISIL MI&A Research

National Logisitics Policy to focus on efficiencies

The National Logistics Policy was launched with the objective of reducing India's logistics cost to 8% from 14% of GDP, on a par with developed economies, by facilitating inter-ministerial co-ordination, enabling swift resolution of issues faced by industry participants, and consolidating all digital services related to transportation sector under a single platform called the Unified Logistics Interface Platform (ULIP). The policy is expected to streamline the process of approvals, enable access to real-time data, and ensure efficient movement of cargo. The central government's efforts have been well complemented by the state governments, which have also announced incentives to attract investments and improve the logistics system in their respective states.

	Gujarat Integrated Logistics and Logistics Park Policy, 2021	Uttar Pradesh Warehousing & Logistics Policy, 2018	Haryana Logistics Warehousing Retail Policy, 2019	Tamil Nadu Industrial Policy, 2021	Telangana State Logistics Policy, 2021-2026	Andhra Pradesh AP Logistics Policy, 2022 and AP Industrial Policy, 2020
2021 LEADS rank (increase from 2018)	1*	6 ↑ +7	2 ↑ +4	4 ↑ +1	10 ↓ -2	9 ↓ -6
Capital subsidy	✓	✗	✓	✓	✓	✓
Interest subsidy	✓	✓	✓	✓	✓	✓
Stamp duty incentives	✓	✓	✓	✓	✓	✓
Electricity duty exemption	✓	✓	✓	✓	✗	✗

*Gujarat's rank was unchanged
Source: Leads reports, CRISIL MI&A Research

India's COP goals pave path for green capex

At 3,400 million tonne CO2 equivalent, India was the third-largest polluting country in 2021, behind China and the US. While 50% of emissions are energy-linked globally, it is even higher at 57% in India.

India's 'Panchamrit' pledges at COP26 sought to enhance India's contributions towards achievement of the strengthening the global response to the threat of climate change, as agreed under the Paris Agreement.

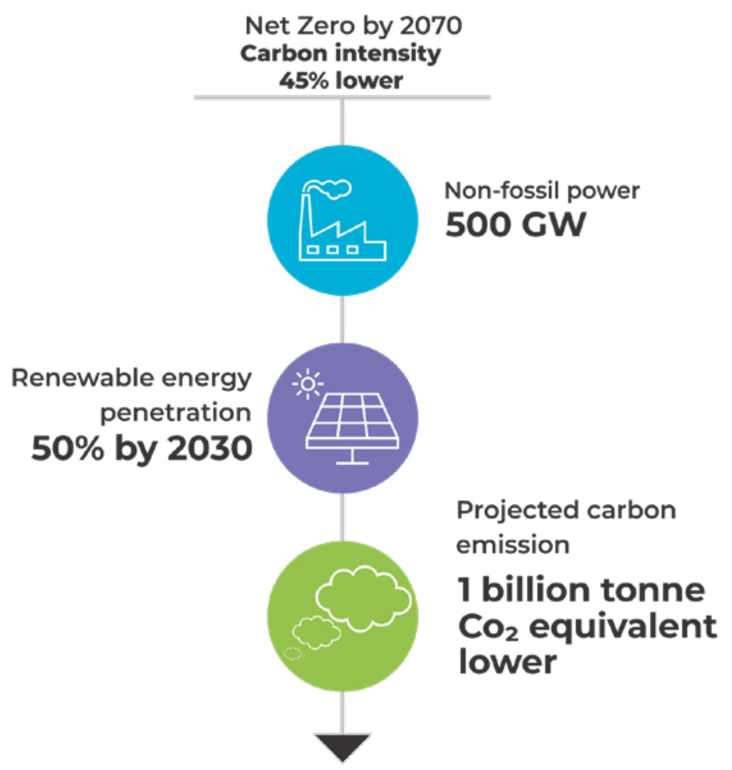
India is among 80% of the world's countries that have made Net Zero commitments. It means giving up in the next 50 years what has grown at 4x in the past 20 years. The investment to make this happen is obviously going to be high. This includes large renewable asset creation and investment in battery technologies. Beyond 2030, investments are expected to increase multifold in hydrogen, carbon capture, utilisation and storage (CCUS), pump hydro, geothermal and biomass linked technologies where India's potential remains immense but mostly untested

Further, under the recently-concluded COP27, India has submitted a detailed plan on achieving these goals, reiterating its intent to pursue climate risk. The rapid expansion of green hydrogen production, increasing electrolyser manufacturing capacity in the country, and three-fold increase in nuclear capacity by 2032 are some of the other milestones that are envisaged alongside overall development of the power sector.

Large cos may account for 75% of green investments through 2031

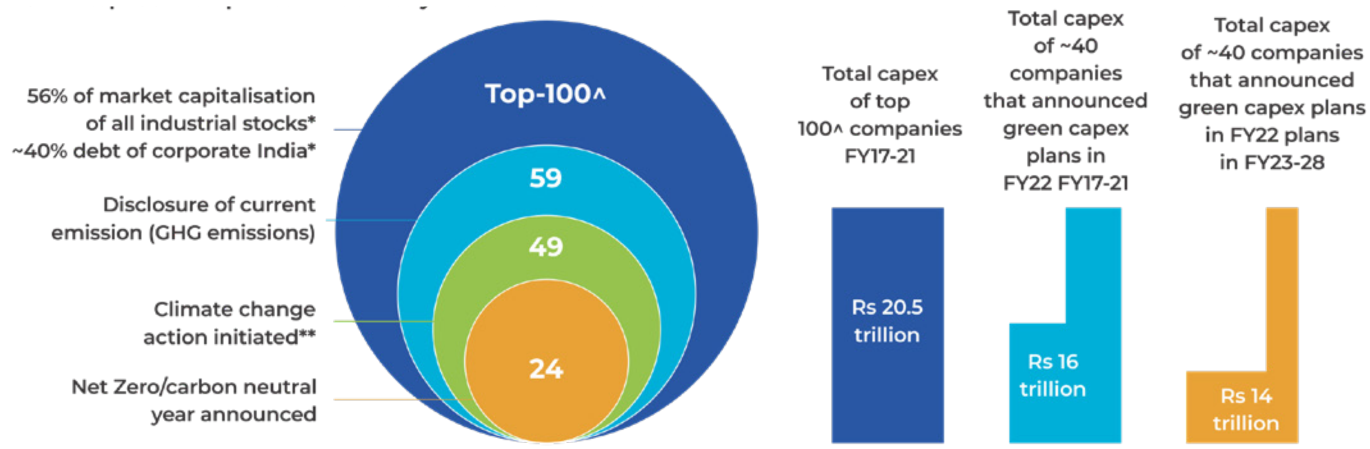
Environmental, social and governance (ESG) commitments of corporates are also contributing to emission control by the overall industrial community. An assessment of the top 100 industrial corporates indicates that nearly 40% of them have specific emission reduction commitments and ~25% have already announced their Net Zero dates much earlier than India's commitment by 2070. Renewables, hydrogen, and oil and gas are key segments under which such investments would be made.

COP goals



Source: PIB, CRISIL MI&A Research

Almost half of the top 100 companies have already initiated climate action



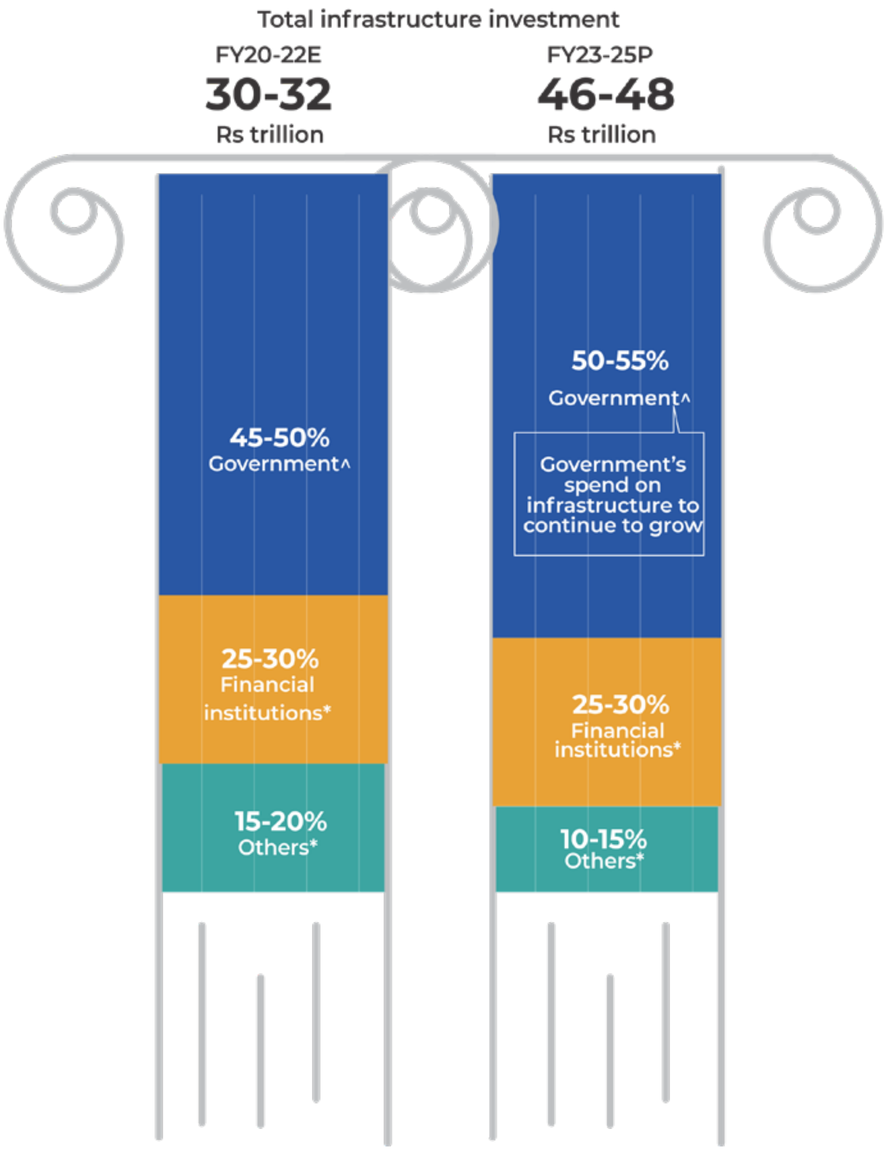
Note: ^Top 100 companies based on FY21 consolidated revenue and having exposure to polluting sectors such as power, oil and gas, chemicals, cement, steel; *Excludes key services and BFSI companies by market cap; * Includes wholesale exposure of banks/NBFCs to corporates and corporate bonds; **Emission reduction targets, Net Zero or carbon neutral year announced
Source: Quantix, CRISIL MI&A Research

Infrastructure funding: Government to lead, financial institutions to support

Infrastructure has been dominated by public funding, with private sector investments limited to telecom, airports, ports and warehousing. Skewed risk sharing between private and government entities in PPP models have led to declining participation of private funds in infrastructure, with public funds having to step in and do the heavy lifting.

Setting up of a development financial institution, viz., The National Bank of Financing Infrastructure and Development (NBFID), would help developers access finance for infrastructure projects more easily. Emergence of green bonds for renewable finance have led to Indian entities issuing ~$16.85 billion in green bonds until end-September 2022 cumulatively. However, annual funding needs to be upward of Rs 10-11 trillion ($125-137 billion) in debt. Funding avenues hence need to be widespread and easy to access.

Close to half of infrastructure funding will continue to be from state and central governments



Notes: Total infrastructure spend is incremental investment for a block of three years; ^Government includes central and state governments; * Financial institutions include contribution from banks, NBFCs, and NBFID; # includes bond markets, equity, internal accruals, FDI, multilateral/bilateral funding and asset monetisation plans by private players.
E: Estimates; P: Projected
Source: Government reports, industry, CRISIL MI&A Research

National Monetisation Pipeline to support public funding, innovative funding tools emerge

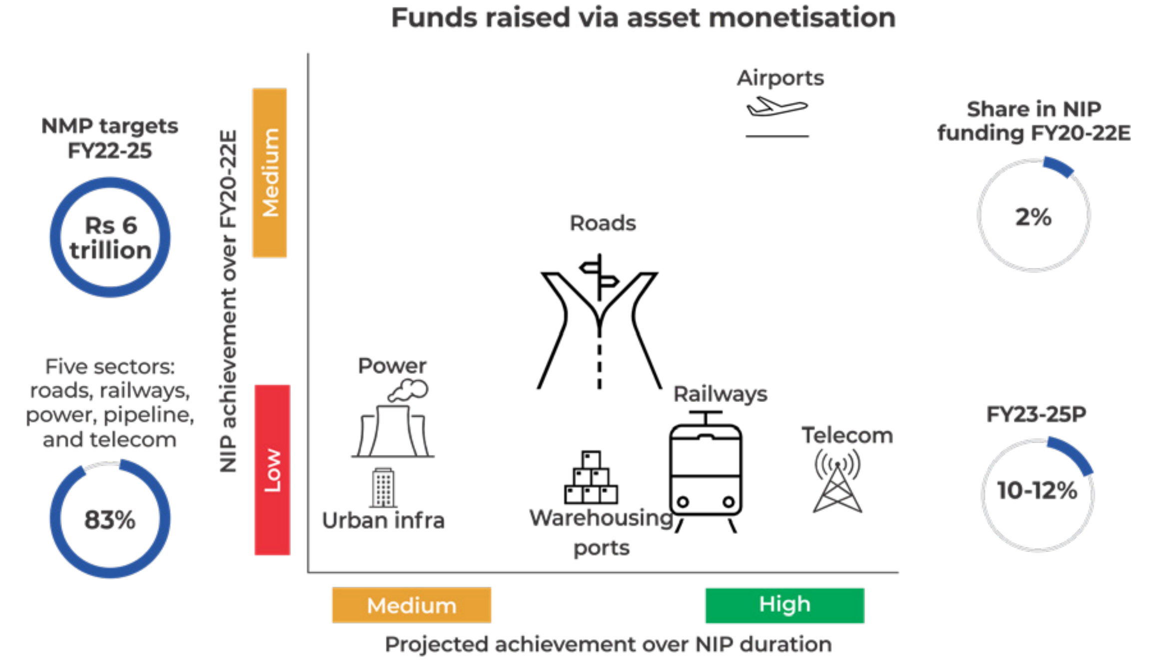
The Rs 6 trillion ($ 75 billion) asset monetisation blueprint, the National Monetisation Pipeline (NMP), was drawn up to create sources of revenue from unutilised or under-utilised public assets.

Sectors such as airports and roads have witnessed successful cases of monetisation over the past few years, while those such as power and railways are yet to catch up. For example, two phases of airport monetization have taken place, wherein a total eight airports have been monetised. The roads sector has seen some toll-operate-transfer, or TOT bids, witnessing healthy participation while others have been lacklusture, leading to their cancellation.

Airport sector is projected to continue its outperformance over the NMP duration due to the well-established PPP model, with roads following close behind.

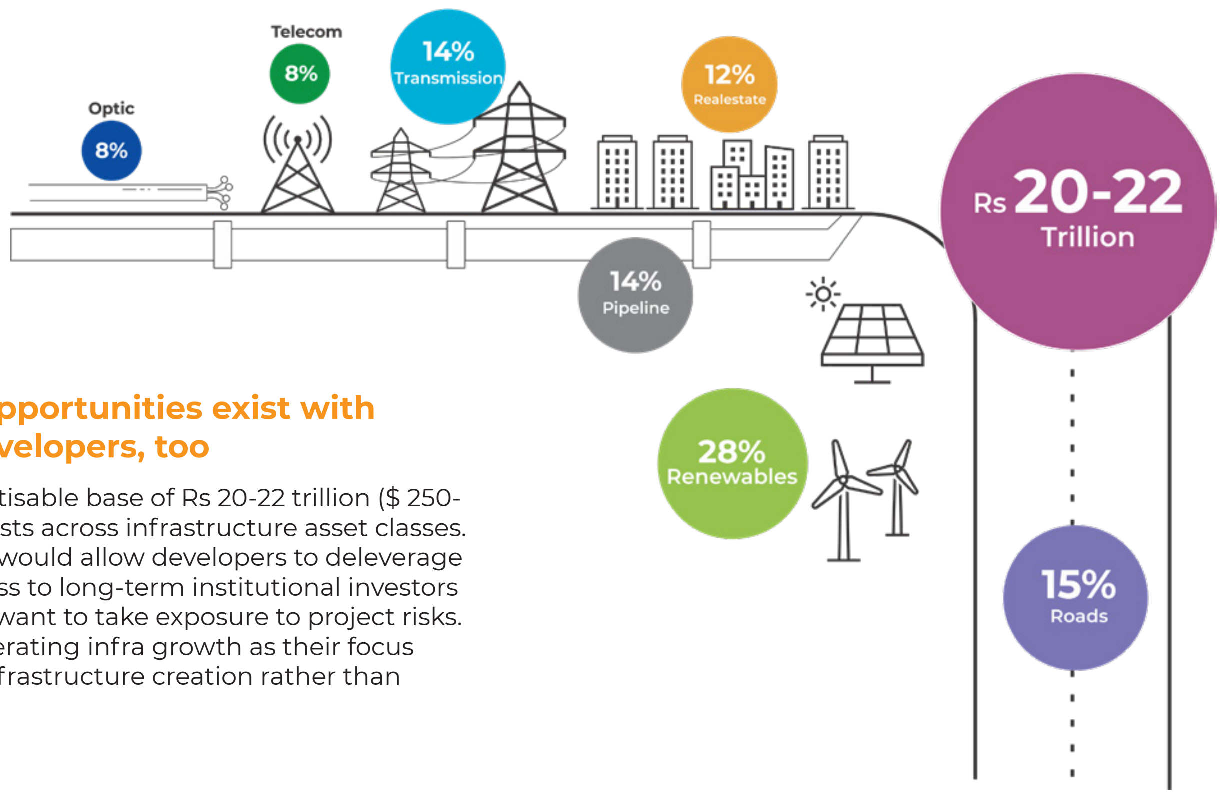
InvITs have emerged as a newer avenue for roads monetisation and has seen success by both private as well as public sponsors.

NMP targets and expectations



Note: Size of the bubble indicates percentage share of the sector in the overall NMP; Not all sectors of NMP are present in the NIP (for instance, mining);
Y-axis : High: >18%, Medium: <18%; X-axis : Low<5%, Medium : >5%;
Source: NMP document, CRISIL MI&A Research

Power and Roads form bulk of monetisable assets



Sizeable opportunities exist with private developers, too

A strong montisable base of Rs 20-22 trillion ($ 250-275 billion) exists across infrastructure asset classes. Monetisation would allow developers to deleverage and give access to long-term institutional investors that may not want to take exposure to project risks. Further accelerating infra growth as their focus remains on infrastructure creation rather than maintenance.

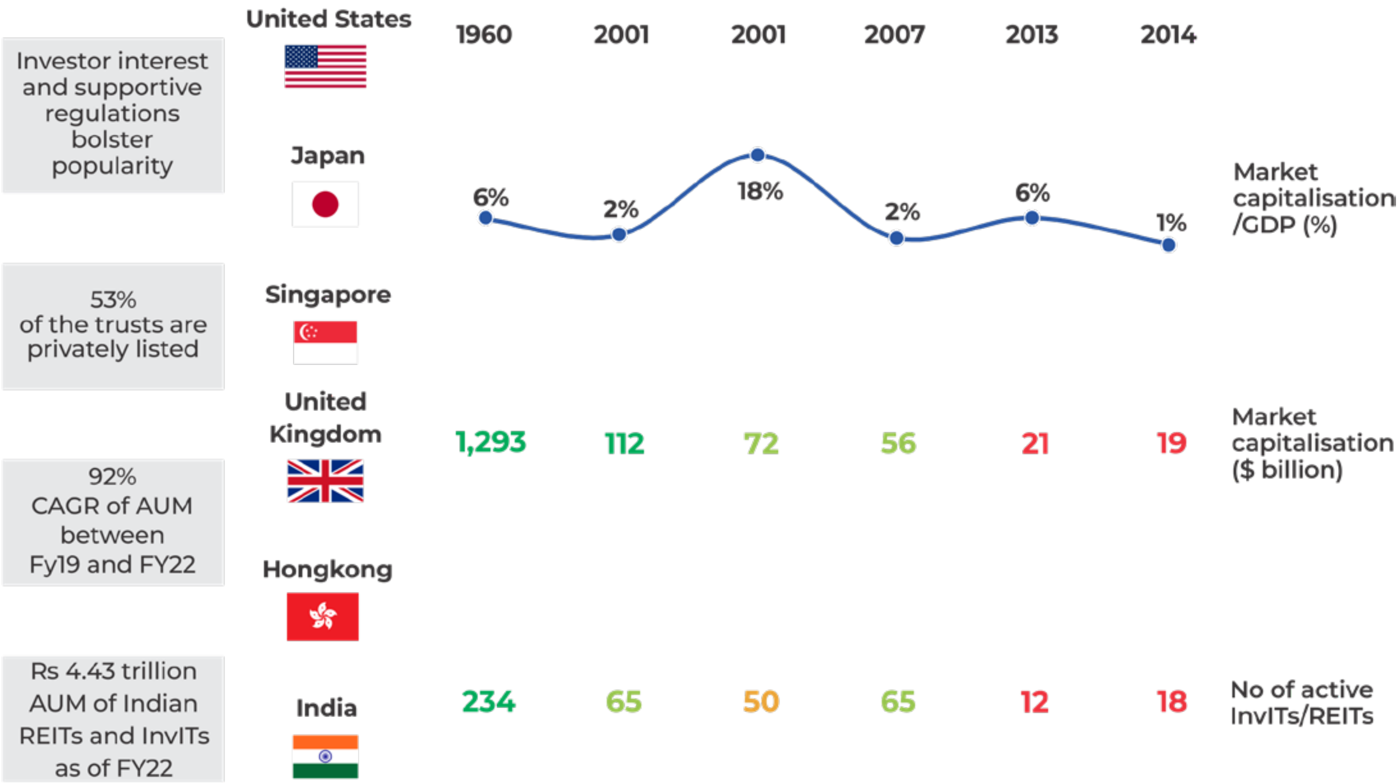
Source: Industry, CRISIL MI&A Research

InvITs and REITs: Attractive asset classes to recycle capital for both government and developers

InvITs and REITS are globally accepted investment vehicles with a long track record. Initially, in India, more passive asset classes with stable cash flows such as power transmission and toll roads were deemed amenable to the InvIT platform. Gradually, pipeline, telecom infra and renewables have also come into the fray. The government sold assets worth Rs 960 billion ($12 billion) in 2022, of which Rs 180 billion ($2.25 billion) was routed through InvITs.

InvITs and REITs can become important to India's infrastructure growth, as investor interest has increased due to attractive risk-return profiles.

InvITs and REITs at a nascent stage in India



Note: US includes only publicly-traded REITs
Source: S&P CAPIQ as of October 2022, CRISIL MI&A Research

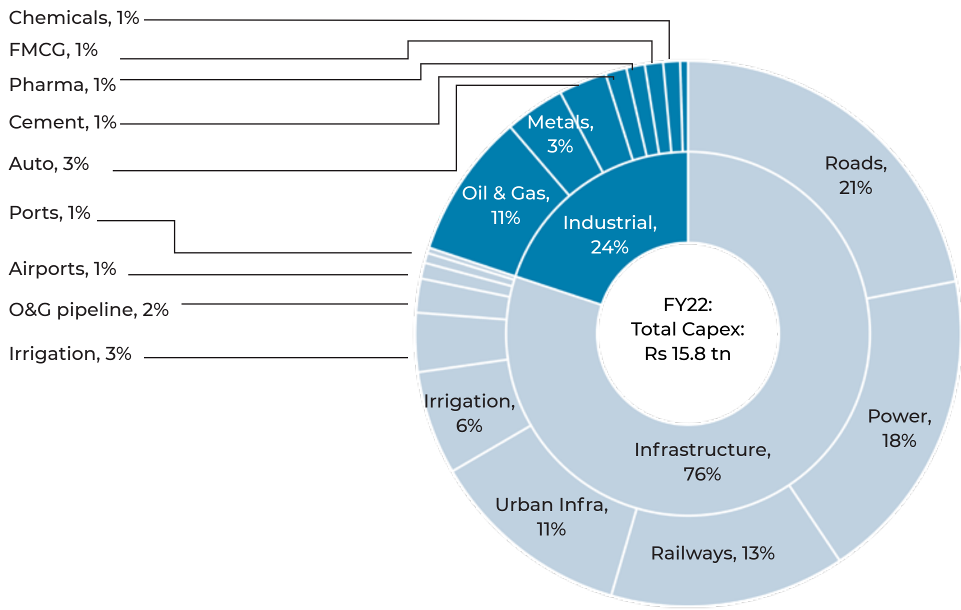
Infrastructure investments also play a critical role in triggering manufacturing competitiveness. For India, the road to sustainably higher growth and a competitive manufacturing sector must necessarily go through robust and reliable infrastructure. Successful infrastructure development can boost many sectors including steel, cement, auto and others, and help reap benefits of India's demographic dividend and potential consumption growth. Achievement of infrastructure targets could also bolster India's manufacturing share as a percentage of GDP, from stagnancy.

On the other hand, corporate growth and investments can be hampered if governments fail to close the infrastructure deficit, which some experts estimate, costs 4-5% of GDP due to inefficiencies.

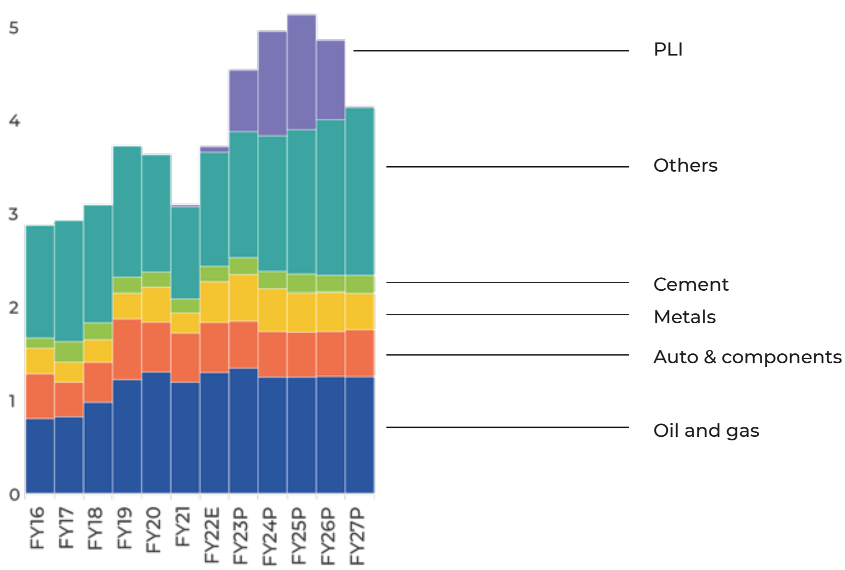
India’s industrial capex at inflection point

India’s advent into the $5 trillion economy club hinges on the third pillar — industrial capital expenditure. Stimulus measures and policy initiatives by the government such as the Production Linked Incentive (PLI) scheme will promote investments in manufacturing to reach there.

Industrial capex: small, but significant pillar of India’s growth tale



Industrial capex to rise 1.4x during FY23-27; PLI to trigger faster growth



Note: Others include chemicals, FMCG, paper, pharma, textiles, electronics, FMCD, FMIG E: Estimated; P: Projected
Source: CRISIL Quantix, Industry, CRISIL MI&A Research

Last year, industrial capex rebounded past pre-pandemic levels following recovery in commodity and traditional sectors such as metals, oil & gas, and cement. The PLI-driven impact on capex will come into play from this year onwards as most schemes have now kicked off. These investments would peak in 2025 at about Rs 5 trillion ($62.5 billion).

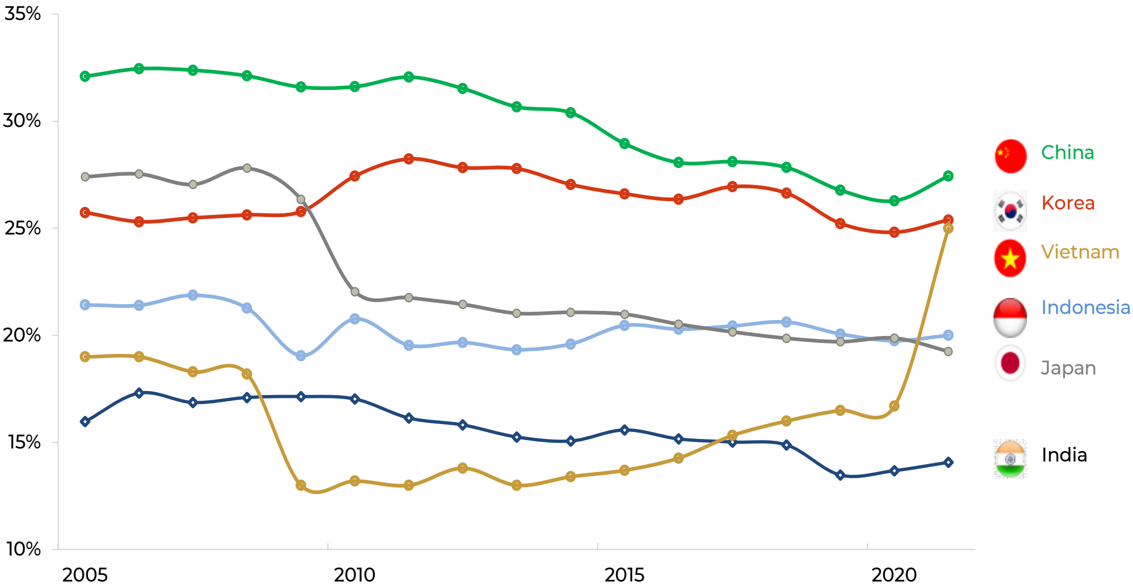
To be sure, capex between 2023 and 2027 would be 1.4x that between 2019 and 2022. This will also be supported by the fact that corporate balance sheets have been largely cleaned up, capacity utilisation has improved, exports have been rising, there are new avenues of investment such as green bonds, there is a big push to digitalisation/automation, and there is the availability of cheaper funds.

The rise in capex is largely attributable to new investment areas or focus on new technology. The PLI scheme, the China + 1 strategy of global majors, and offtake under the Make in India umbrella will finally provide a push to Indian manufacturing.

India has the potential to become a global manufacturing hub

India has significant untapped potential to become a global manufacturing hub, especially given the availability of cheap labour and other resources. Since the past two decades, India's economic growth has primarily been driven by the services sector, while agriculture did the heavy lifting prior to that. Infrastructure bottlenecks, low labour productivity in the informal sectors, and high power and logistics costs have played spoilsport, so are now the government's focus areas.

Manufacturing as a percentage of GDP lowest among Asian peers

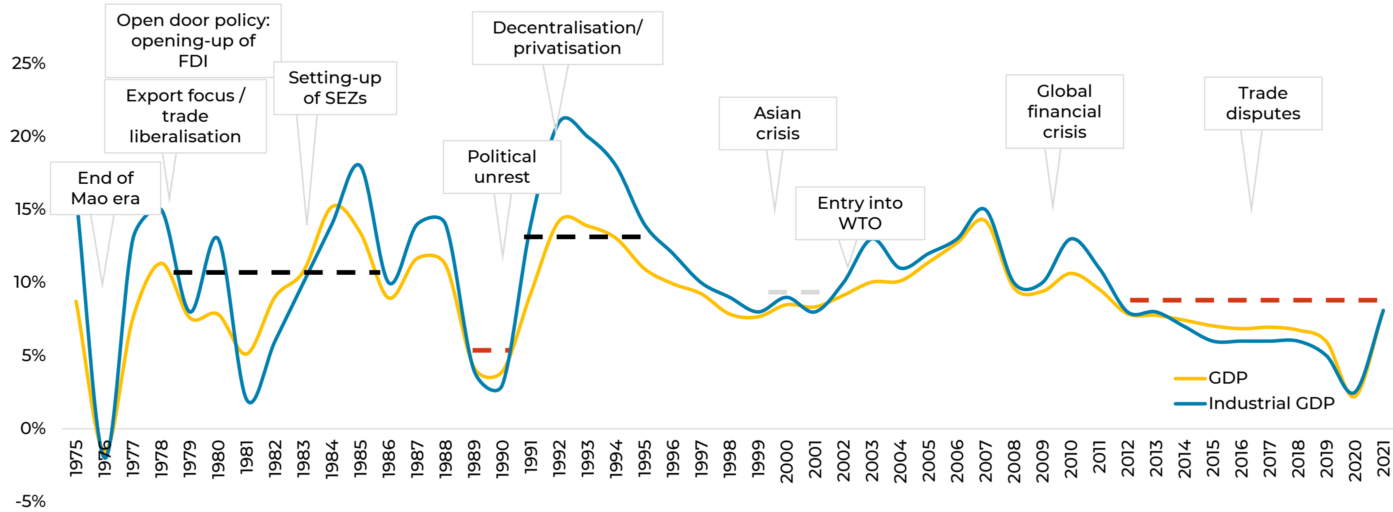


Source: World Bank, CRISIL MI&A Research

On the other hand, China has the highest share of manufacturing as a percentage of GDP and enjoys unique advantages. Initially, growth in China's manufacturing sector was propelled by policies such as trade liberalisation and the setting-up of special economic zones (SEZs). These measures proved to be immensely successful with the SEZs eventually contributing 22% to China's GDP and 60% to its exports. As a result, China's industrial GDP surged at 12% per annum on average between 1978 and 1995, outpacing overall GDP growth. China's entry into the World Trade Organisation (WTO) in 2001 massively boosted the potential of its exports and further buoyed its manufacturing sector.

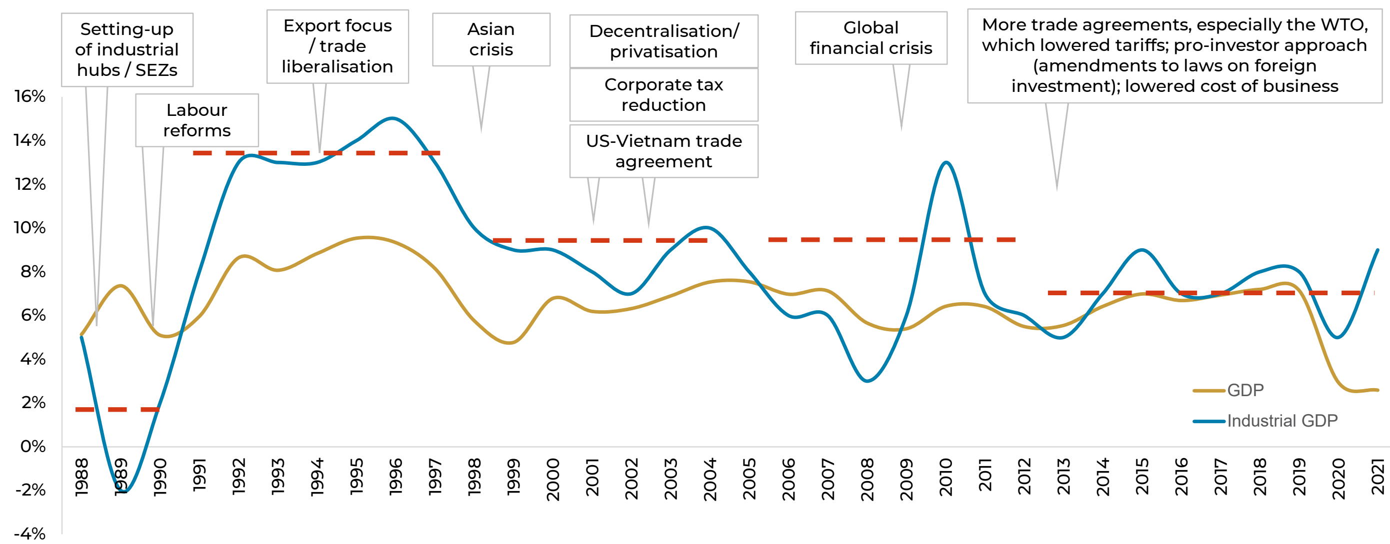
The situation has been no different for Vietnam, with the government policy push playing a critical role in ramping up the share of manufacturing.

China: Early reforms helped country's climb; recent years have witnessed a downfall



Source: World Bank, Industry papers, CRISIL MI&A Research

Vietnam: Industrialisation led by foreign investment and export-focused policies



Source: World Bank, Industry papers, CRISIL MI&A Research

Immense growth potential for India's manufacturing sector as world adopts China + 1

The Make in India scheme launched in 2014 was aimed at increasing the manufacturing sector's contribution to 25% of GDP by 2025 from 15% in 2014. However, factors such as global economic slowdown, rising protectionism and the world looking at better investment options limited its success in the early years.

Segments such as electronic products and telecom instruments have benefitted significantly from the scheme and have witnessed robust growth in their export turnover. For example, India is now the world's second-largest mobile handset manufacturer. Most of the major brands have set up plants or have sub-contracted to electronic manufacturing services (EMS) companies in India. The phased manufacturing programme (PMP) to progressively improve domestic value-addition has boded well for the sector. Moreover, PLI, the National Semiconductor Mission, SPECS, and EMC 2.0 are expected to further boost domestic production and exports.

India now a net exporter of mobile handsets; reduced import dependence on China

Rs '000 crore

	2015	2022	CAGR
Domestic mobile production	19	250	45%
Exports	1.5	35.6	56%
Imports	48.6	11.2	-19%
Imports from China	82%	60%	-23%

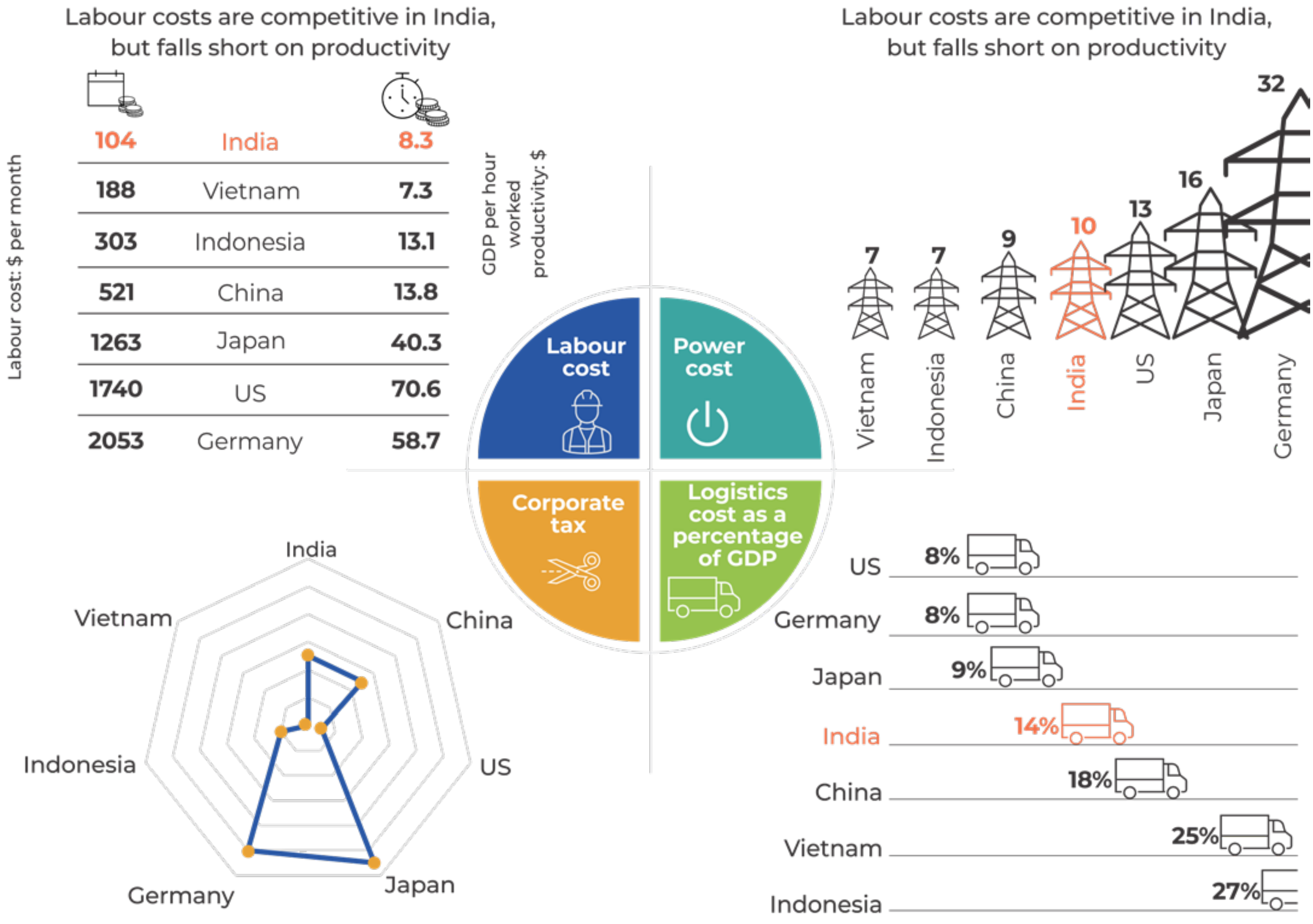
Source: MEITY, Ministry of Commerce, CRISIL MI&A Research

India's exports have charted a strong recovery after the Covid-19 pandemic with merchandise exports at a record-high of $422 billion in 2022, up more than 45% compared with 2021 and 28% compared with 2019.

Global companies have ramped up efforts to implement the China + 1 strategy of diversifying their supply chains after Covid-19-led disruptions. This provides India a second wind to emerge as a global manufacturing hub. Our medium-term prospects hinge critically on the revival of the private sector investment cycle, which has been one of the biggest impediments to structural improvement in growth for many years.

This, along with policy and regulatory reforms, have improved India's Ease of Doing Business ranking by six levels — from 43 to 37 in 2022. This was also helped by lower time to market and a reduction in processes to set up or wind up businesses. Power availability has also improved substantially, as have land availability and clearances.

Few areas may still need a push from a competitiveness perspective



Source: ILO stat, World Bank, JETRO, Globalpetrolprices.com, CRISIL MI&A Research

Production Linked Incentive Scheme (PLI) scheme a step in the right direction

The PLI scheme, positioned by the government as a game changer in making India a global manufacturing hub, is aimed at localising imports and boosting exports.

Since its introduction in March 2020, the scheme has been announced for 15 sectors involving government incentives worth Rs 1.93 trillion ($24.1 billion). Of this, 50-60% is to be spent on sectors focused on domestic manufacturing and exports, and the remainder on import localisation.

For instance, in the case of Solar PV modules and medical devices, our import dependence is as high as 80-85% of our domestic consumption. In segments such as active pharmaceutical ingredients (API), while the import bill is 30-40% of our domestic demand, China accounts for >65% of these imports.

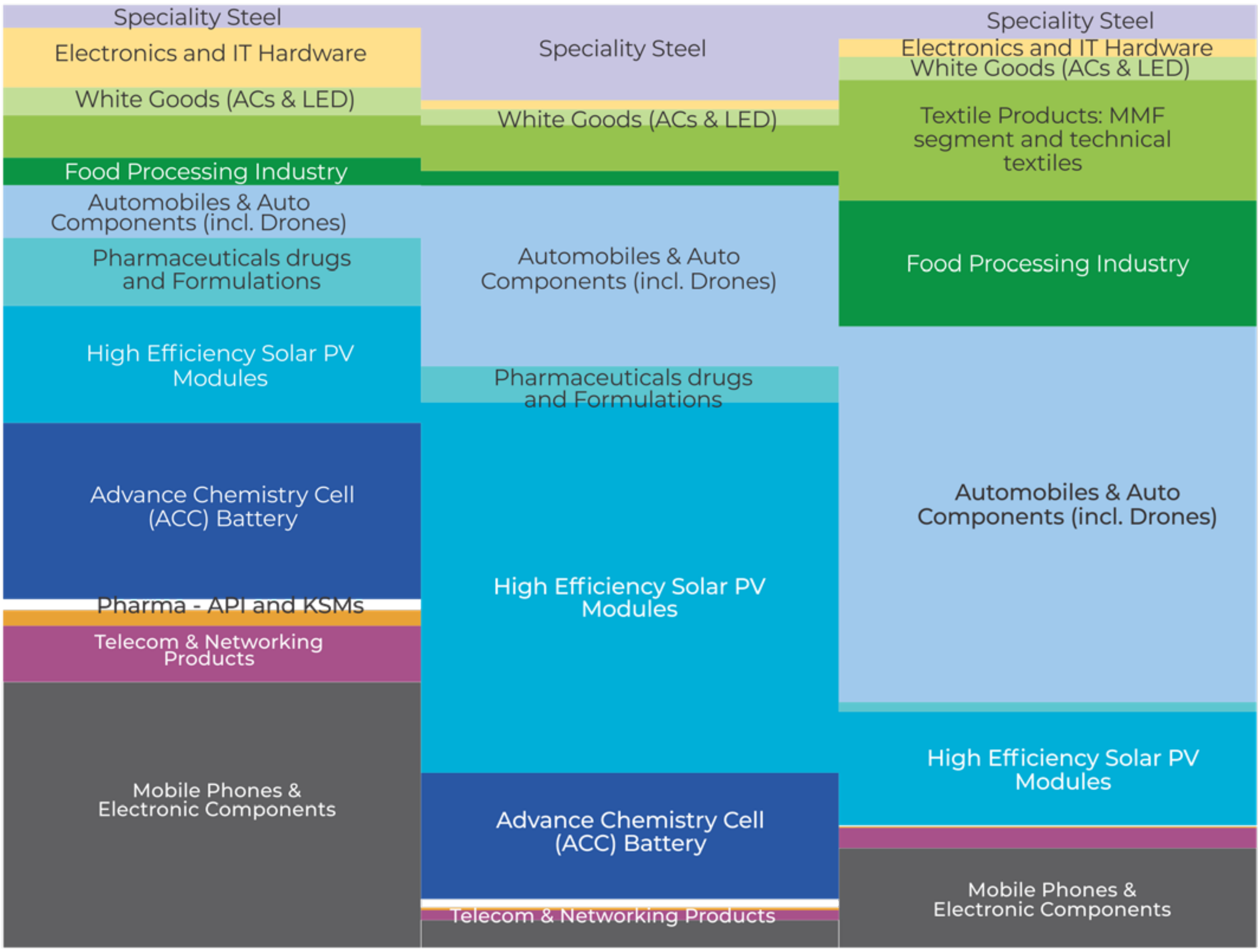
The rate of incentives offered under the PLI scheme are measured as a percentage of incremental sales over the 5-7-year scheme period, and vary from 4-6% for mobiles and white goods, and 5-20% for APIs/ key starting material to 8-18% for autos and auto-components.

#15	₹1.93 tn	₹35-40 tn	₹3.5-4 tn	70%
Sectors	Government incentives	Revenue potential	Capex potential	Green capex

50% of incremental revenue potential to be led by mobiles and ACC batteries

Capex-heavy sectors such as solar PV and autos to witness backward integration

18-19 mn potential employment generation by the scheme



Of India's non-oil import bill targeted under PLI

30-35%

Export opportunity over scheme period

₹2 tn pa

Source: Union Cabinet, PIB, Industry, CRISIL MI&A Research

The scheme will have many firsts in terms of bringing integration across supply chains, reducing import dependencies, and propelling exports. It has received interest from over 900 players across sectors, of which ~550 have received approvals so far.

All the same, industry stakeholders will keep a watch on timely payment of incentives, medium- to long-term policy push from the government, extent of value-addition emphasised in these sectors, and the ability of players to achieve these numbers for technology- and capital-intensive sectors such as battery and solar-module manufacturing amid evolving global supply-chain dynamics.

PLI scheme likely to propel incremental exports in key sectors

Sectors for PLI scheme announced	Govt. incentive (Rs bn)	PLI-driven exports potential
Mobile phones & electronic components	410	✓
Telecom & networking products	122	Import substitution
Medical devices	34	Import substitution
Pharma - API and KSMs	69	Import substitution
Advance chemistry cell (ACC) battery	181	Import substitution
High-efficiency solar PV modules	240	✓
Pharmaceuticals drugs and formulations	150	✓
Automobiles & auto components	259	Import substitution
Drones and drone components	1.2	✓
Food processing industry	109	✓
Textile products: MMF segment and technical textiles	107	✓
White goods (ACs & LED)	62	✓
IT hardware products	73	✓
Specialty steel	63	✓

Overall incremental estimated revenue for all key verticals from PLI (FY23-FY28)

~Rs 21 trillion
Incremental revenue from only export-oriented sectors

~Rs 11 trillion
Potential incremental exports for same verticals

45-50%
Share of PLI exports in exports-oriented verticals

6%
Share of PLI exports in total exports in 2021

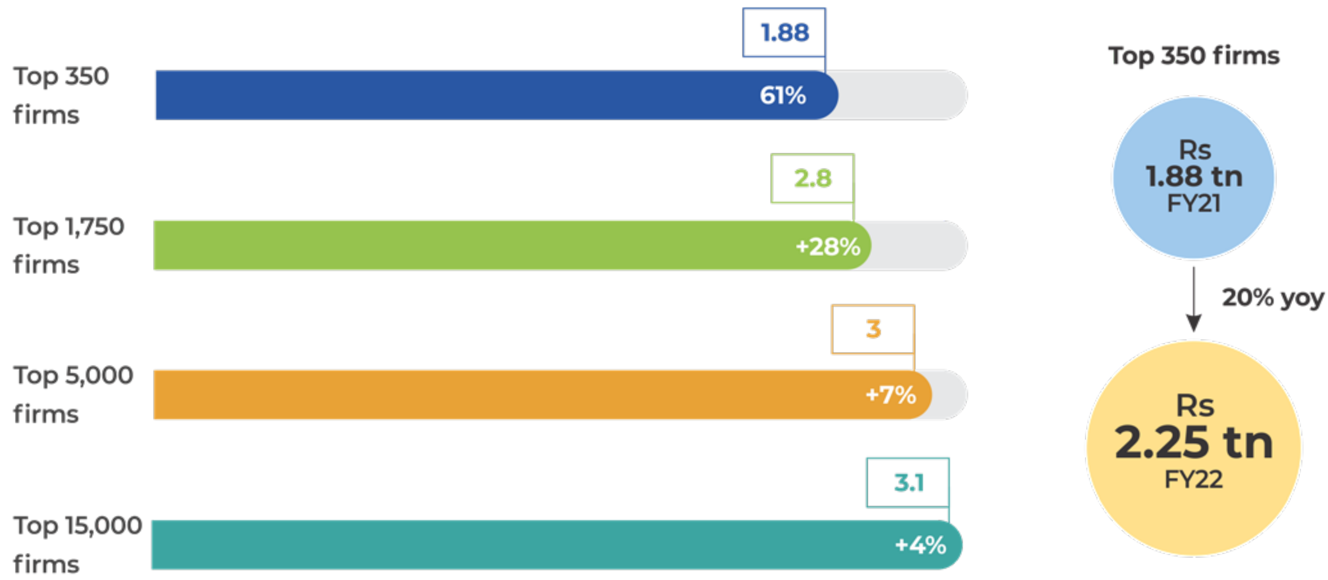
Note ^ figures are estimates as of end of PLI tenure; excludes Electronic wearables scheme worth Rs 50 bn ($625 million) as Gazette notification awaited
Source: Industry, PLI documents, CRISIL MI&A Research

Large firms spend more, would drive future investments as well

An analysis of the capex outlay by ~15,000 industrial firms indicates they spent approximately Rs 3.1 trillion ($38.75 billion) in capex in 2021, with the top 350 accounting for 61% of the capex, while the top 1,750 firms accounted for almost 90% of the capex.

Further, these top 350 firms increased their spends by 20% in 2022. This is in line with the general trend of formalisation of the economy and the larger firms becoming even larger after the impact of demonetisation, the implementation of the Goods and Services Tax (GST) regime, and the IL&FS crisis.

Top 350 firms accounted for 61% of capex last year



Source: CRISIL Quantix, CRISIL MI&A Research

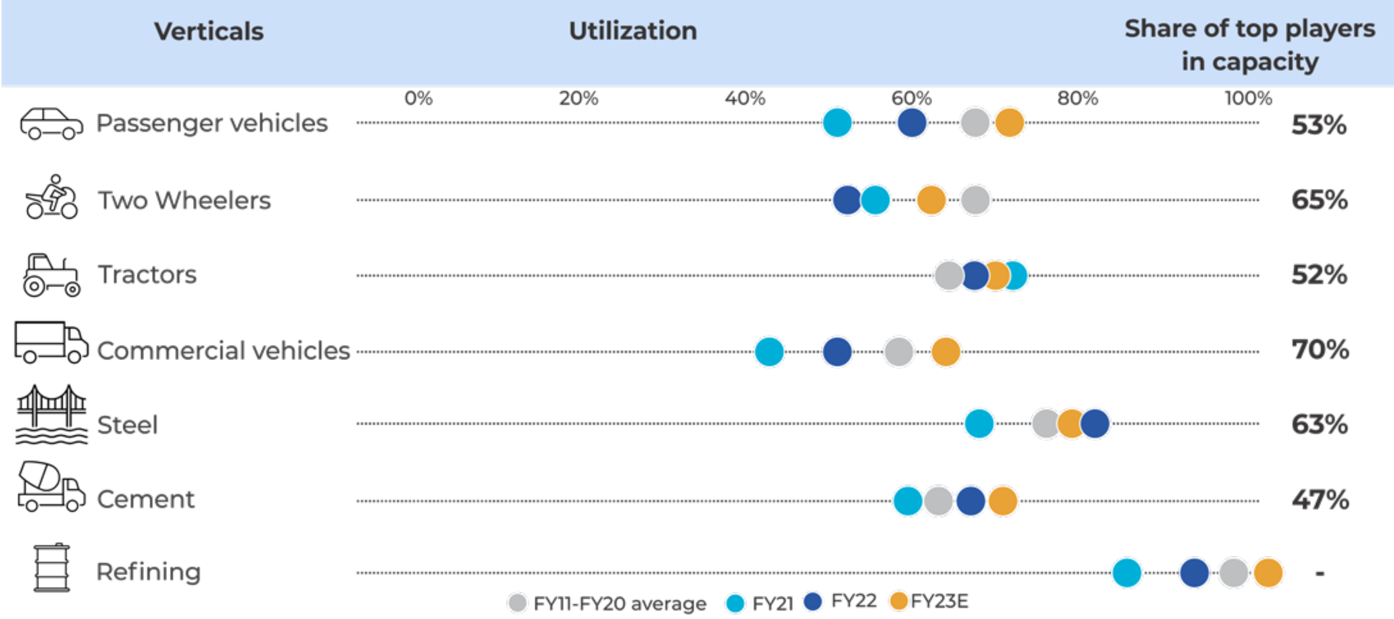
Higher utilisations to pave way for future capex

Capacity utilisations across most traditional sectors have either already surpassed their decadal average utilisation or are expected to this year as post-pandemic recovery gains pace. Large players would be at the front and centre of the capex supercycle.

In sectors such as cement, players have announced 140-150 MT of capacity addition between 2023 and 2027 amid demand, and in an effort to maintain market share. In the steel industry, 90-95% of 30-35 MT of capacity additions between 2023 and 2027 would be led by larger players.

New model launches, improved semiconductor availability, and new investments in the electric vehicles (EV) segment would aid auto capex in India.

Utilisation levels for most sectors to be higher than decadal average in 2023

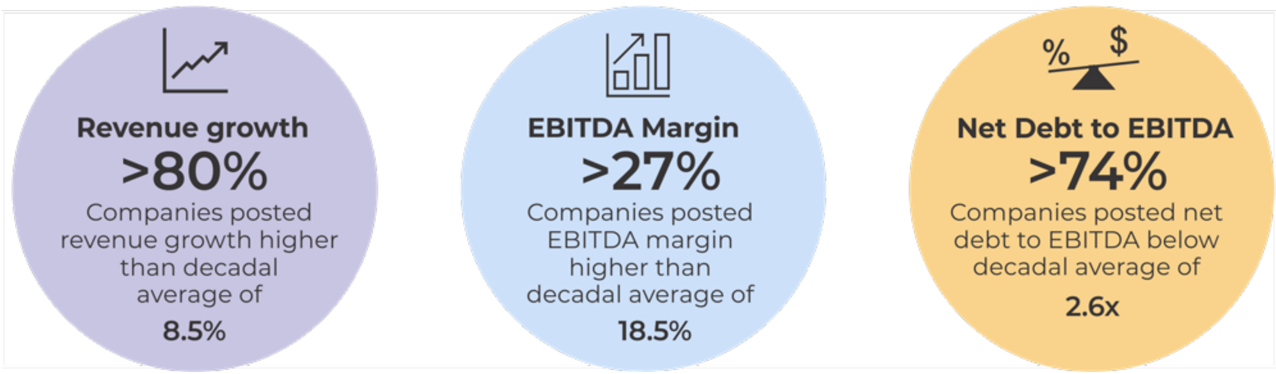


Source: Industry, CRISIL MI&A Research

India Inc's balance sheets also augur well for capex upswing

Analysis of the top 700 companies in India indicates that post the Covid-induced downturn in 2021, revenues have bounced back, with almost 80% corporates reporting growth higher than the decadal average, at a median of 28% in 2022.

Top players better-placed to take on new investments



Note: Data analysed based on the performance of ~700 companies (barring BFSI, and oil & gas)
Source: Quantix, Industry, CRISIL MI&A Research

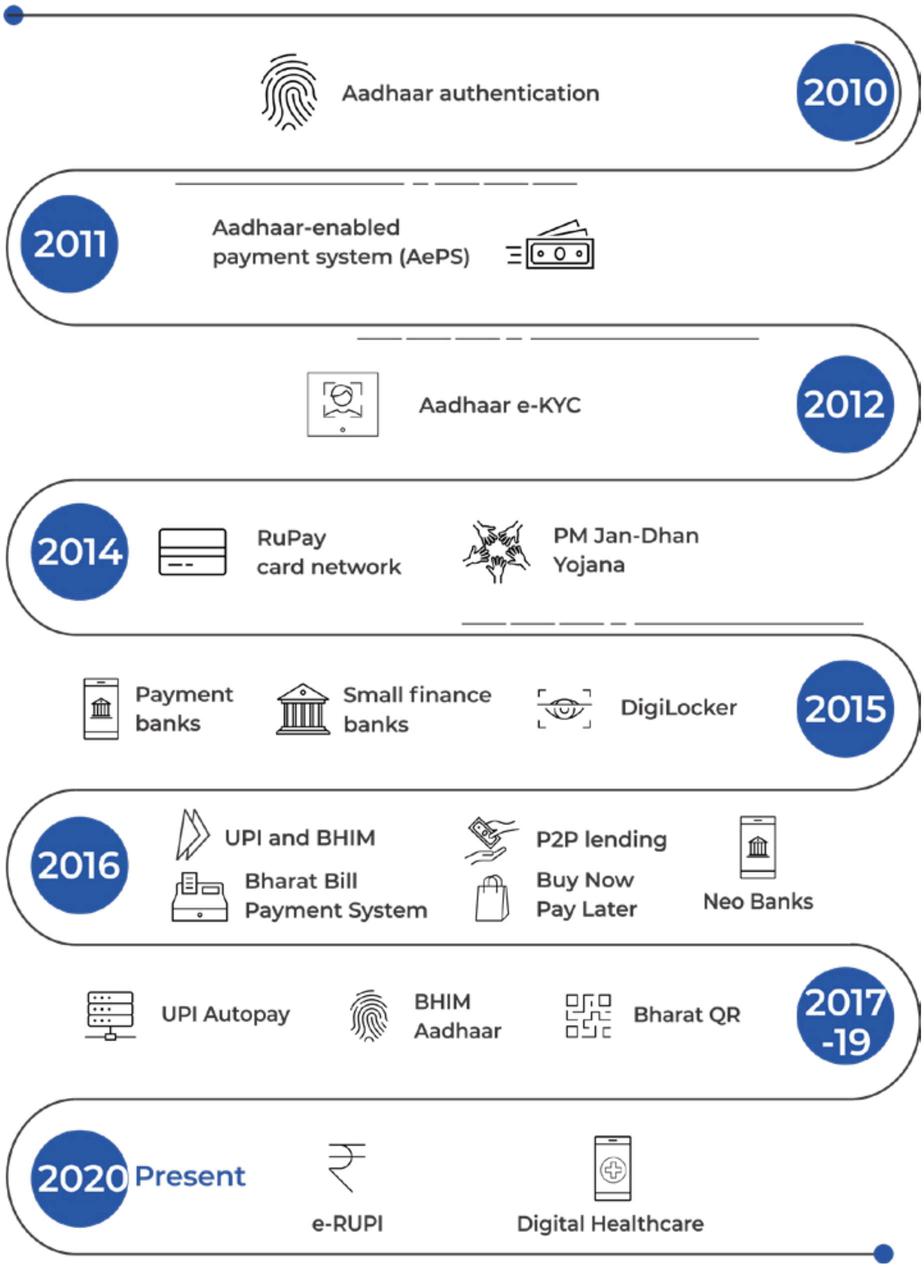
On the margin front, however, inflated commodity prices have played spoilsport, with the median declining to 12% in 2022.

Significant progress in deleveraging, amid good liquidity, has improved the balance sheet structures of corporates. Net debt to EBITDA improved manifold from the decadal average of 2.6 times to 0.73 median in 2022. Low debt on the balance sheets will create the required buffer and space to stimulate investments for the next economic upcycle.

With this, Indian companies are well-placed to position themselves ahead of the next wave of manufacturing growth. FDI growth is a good proxy to gauge the trust the global ecosystem has in India. We are all set to deliver on global expectations now.

India's digital innovation trajectory

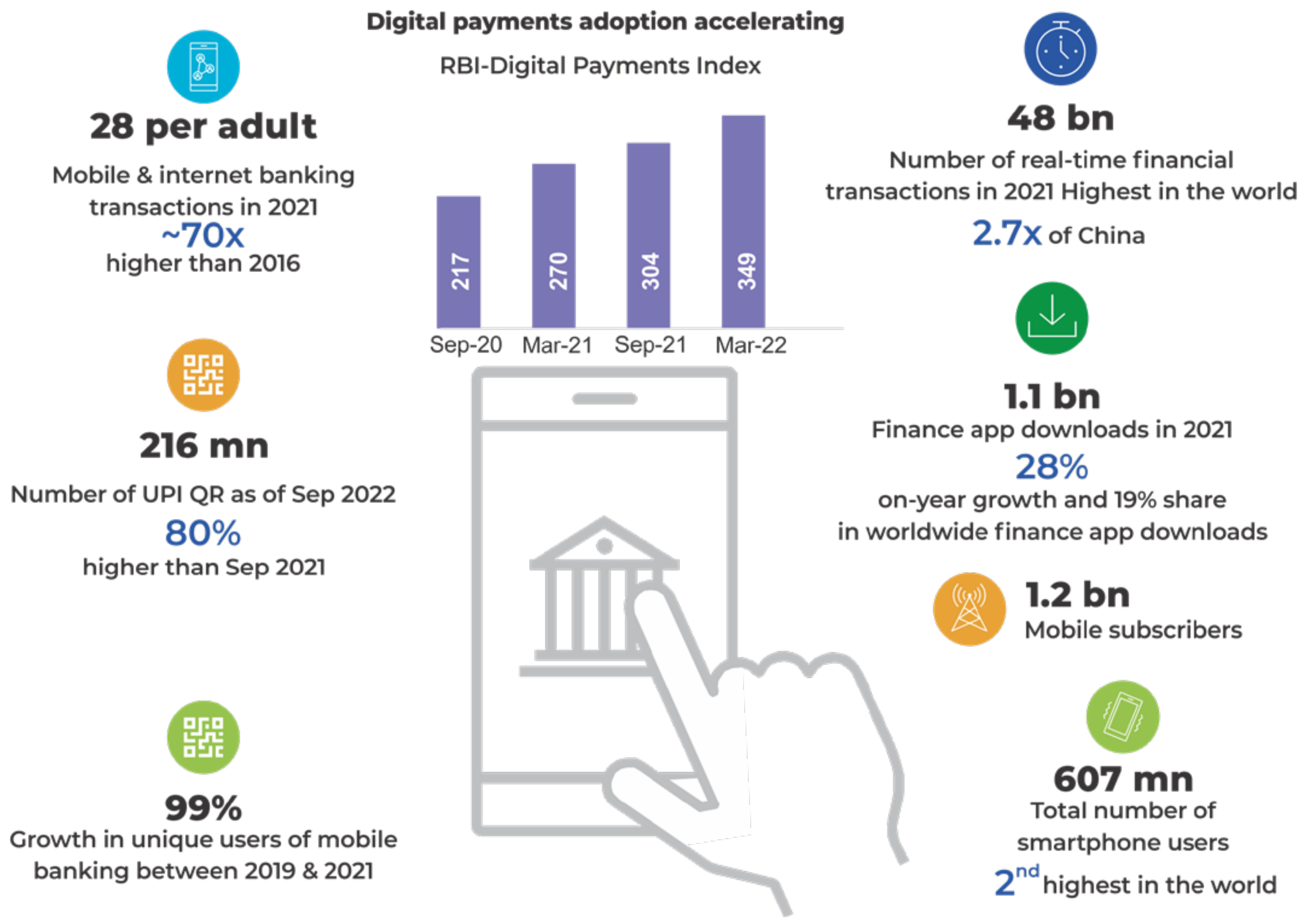
Since 2010, India has taken giant strides towards digital transformation. This has led to the creation of public ecosystems such as Aadhaar and Unified Payments Interface (UPI), ultimately lead to the formation of India Stack. A set of open Application Programming Interface (APIs) and digital public goods, India Stack forms the backbone of multiple tech-based innovations in India. While each component of the India Stack has its own significance, UPI has had a stellar growth spiral, witnessing a 55% CAGR over the last 3 years.



Source: Industry, CRISIL MI&A Research

The astounding growth in UPI was also accompanied by a broader digital payment revolution in India, which was facilitated by the immense success of Aadhaar and PM Jan Dhan Yojana Scheme (PMJDY). As of 2022, 99.9% of Indian adults had an Aadhaar number while more than 462 million beneficiaries have banked under the PMJDY scheme with the total deposits balance standing at Rs 1.73 trillion ($21.6 billion).

Increasing penetration and a large target market makes India a digital payments hotspot

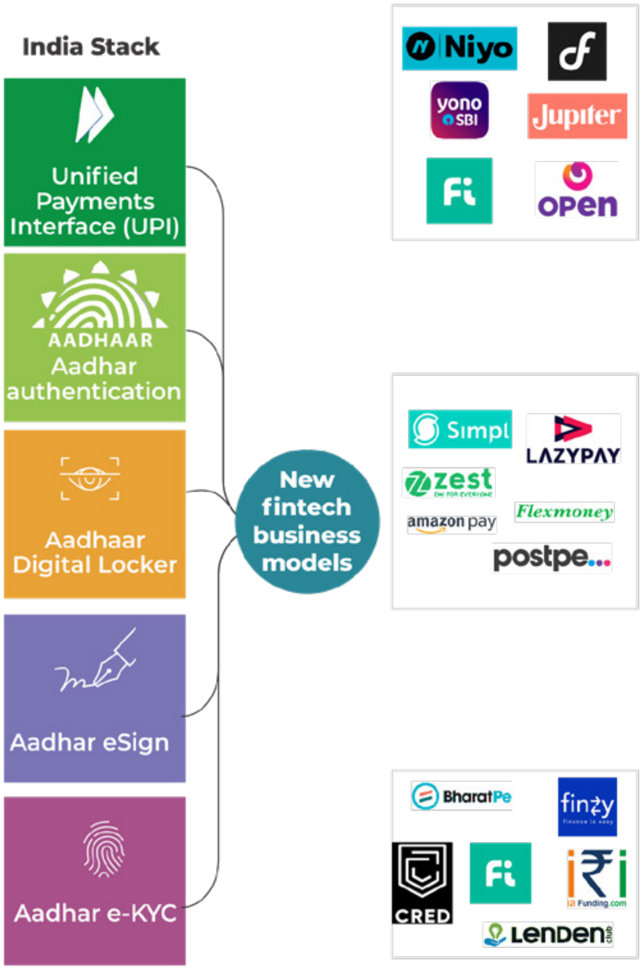


Note: RBI-Digital Payments Index measures the extent of digitization of payments in India. It has 5 broad parameters – payment enablers (25%), payment infra demand side factors (10%), payment infra supply-side factors (15%), payment performance (45%) and consumer centricity (5%)
Source: RBI, IMF, TRAI, State of Mobile 2022, ACI Worldwide, CRISIL MI&A Research

The ease of use, absence of transaction fees, and real-time money transfer were some of the major factors that drove the wide-scale adoption of UPI in an extremely short period of time. Furthermore, UPI QR codes offered a cheaper alternative to card-based POS systems, leading to merchants' preference for the former in accepting payments. The usage of UPI was further boosted during the pandemic when mobility was restricted and physical contact minimised.

Yet, since its inception, the usage of UPI had been restricted only to smartphone users. However, the Reserve Bank of India (RBI) recently launched the UPI123pay that would extend UPI's access to millions of feature phone users and further increase its adoption. Thus, the success of UPI has spurred a revolution in India's fintech landscape, also duly buttressed by other components of India Stack.

India Stack enables the emergence of new fintech business models



Neobanking

- Digital-only banking services, built on existing banking infrastructure
- Minimal paperwork, faster TAT, personalised services and cheaper than traditional banks
- SMBs are one of the biggest target markets since they are under-funded by traditional banking and are becoming increasingly digitised
- Not allowed to hold banking licences yet, so partner with traditional banks to offer services
- Immense growth potential in India due to its young tech-savvy population, rising income and high internet penetration

Buy Now Pay Later (BNPL)

- Payment option where users can pay for a purchase made today at a later date
- Unlike credit cards, even customers without a credit score and income proof can avail BNPL
- Negligible fees, and the interest levied on late payments is around 24% (48% in credit cards)
- BNPL services can improve the access to credit and increase financial inclusion
- Currently accepted at selected places, but usage in e-commerce sales, especially by millennials, has been rising sharply
- Low penetration of credit cards, favourable demographics, rapidly growing online purchases and increasing consumer spending are major tailwinds

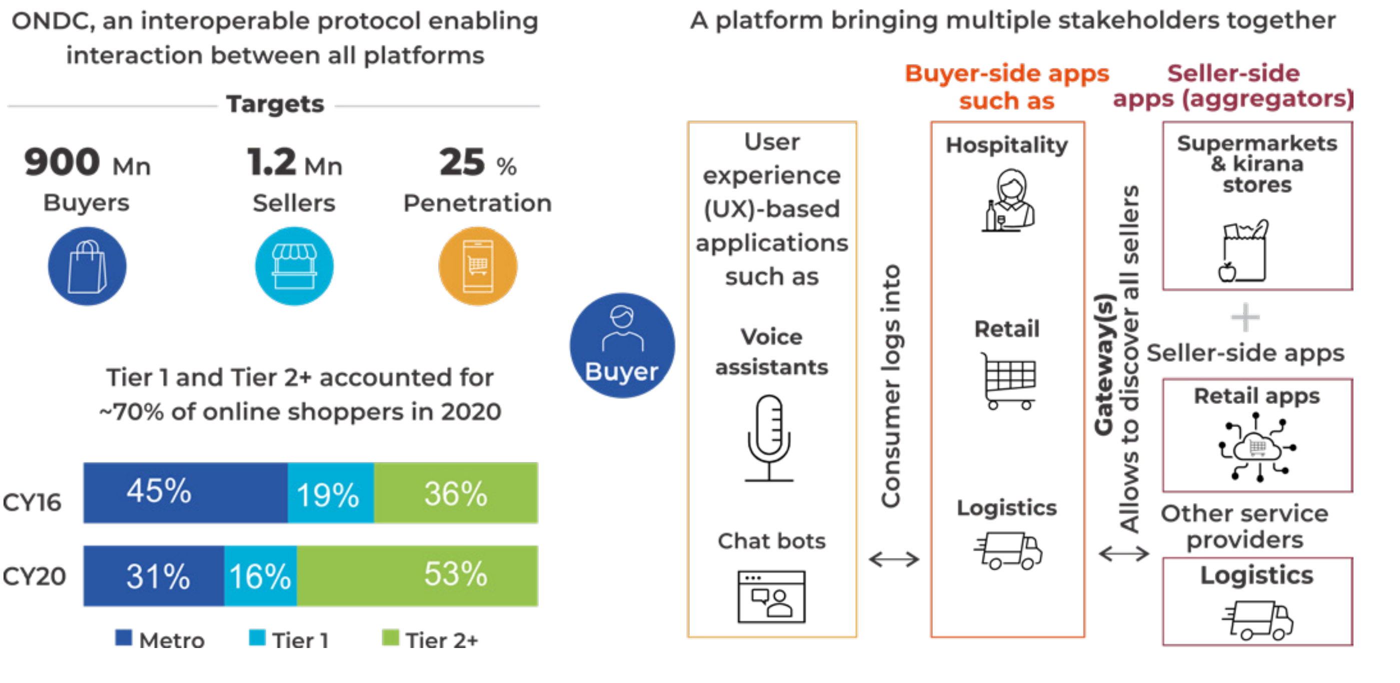
Peer-to-peer (P2P) lending

- Platforms enabling one user to borrow from another user instead of a financial institution
- Advanced technologies and algorithms used to properly map the risk profile of the borrowers
- Robust background checks performed, reducing the default risk for the lenders
- Provide credit access to the borrowers unable to obtain loans from financial institutions due to poor credit score or low income
- Borrower can potentially borrow at a rate better than offered by others through negotiations
- In exchange for its services, the P2P player levies a fee on both the parties
- The existence of a large unbanked/underbanked population presents a vast growth opportunity

Source: CRISIL MI&A Research

Inspired by the success it has tasted in payments through UPI, India is now aiming to achieve a similar feat in e-commerce through its ambitious Open Network for Digital Commerce (ONDC) project. This will yet again test India's ability to innovate in establishing digital ecosystems in new ecosystems.

ONDC: An unbiased platform for a more inclusive e-commerce ecosystem



Source: Industry, CRISIL MI&A Research

ONDC is an open protocol network that offers to integrate all digital platforms for the exchange of goods and services on to single one and aims to provide a level playing field for smaller players (SMEs) by reducing client acquisition cost for new entrants.

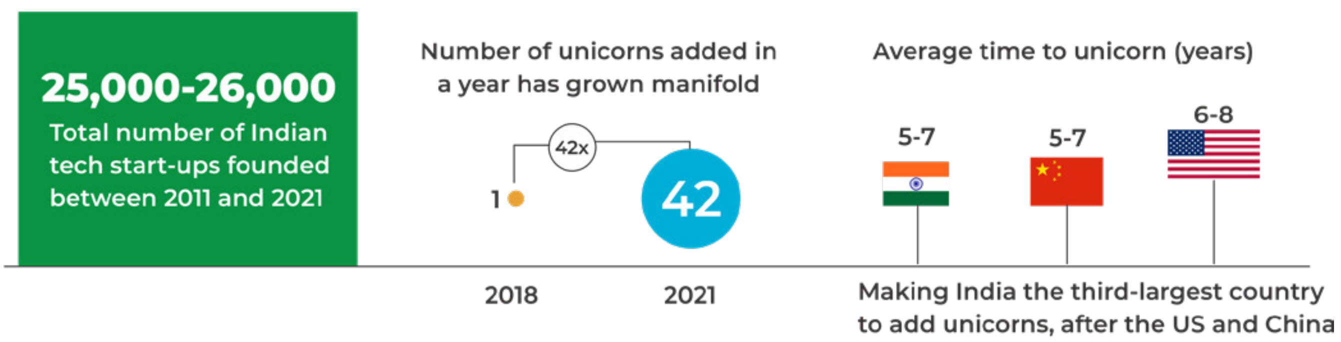
The cost of developing a logistics ecosystem for single brands outside tier 1 cities also remains a challenge. Surveys indicate that online buyers from tier 1 and 2 cities were significantly higher at ~70% in 2020. That implies the reach of large e-commerce players to smaller cities and hinterland is low, creating scope for SMEs to sell their products in these areas if given a platform such as ONDC.

The ONDC can also help buyers choose from various options integrated on the platform.

It would thus serve as a digital catalogue not only for retail products and services but also for wholesale players, no matter of what size. It is also aimed to drive logistical efficiency, by enabling delivery of products at a reduced logistics cost from the nearest possible store at the lowest price.

With ONDC, usage of e-commerce is expected to rise to 25% from 5% currently, opening up opportunities for various stakeholders.

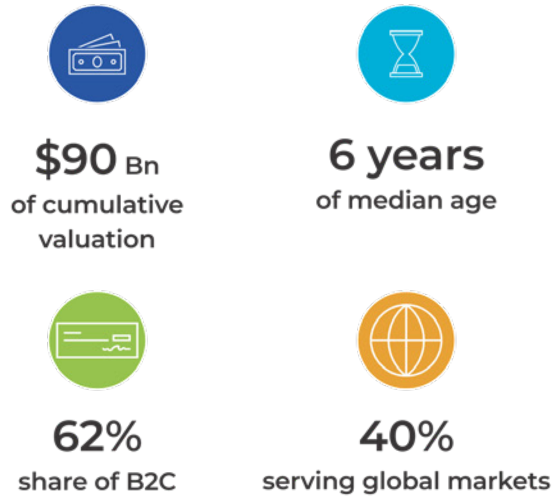
Startups and unicorns benefitting from ecosystem innovations, BFSI takes the lead



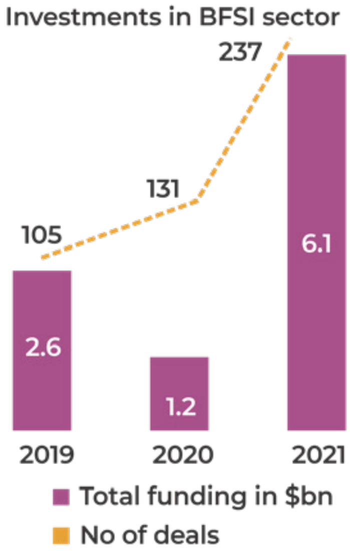
Source: NASSCOM, CRISIL MI&A Research

India's startup ecosystem has grown at a fast clip, with funding in them growing at a 49% CAGR between 2014 and 2021. India added the third largest number of unicorns in 2021, globally, bringing its unicorn count to 70 in the same year — that's one unicorn added every nine days. And in May 2022, the 100th unicorn came into being, thus creating a milestone.

Highlights of unicorns added in India in 2021



BFSI sector leading the show



13 BFSI unicorns added in 2021 – highest amongst all

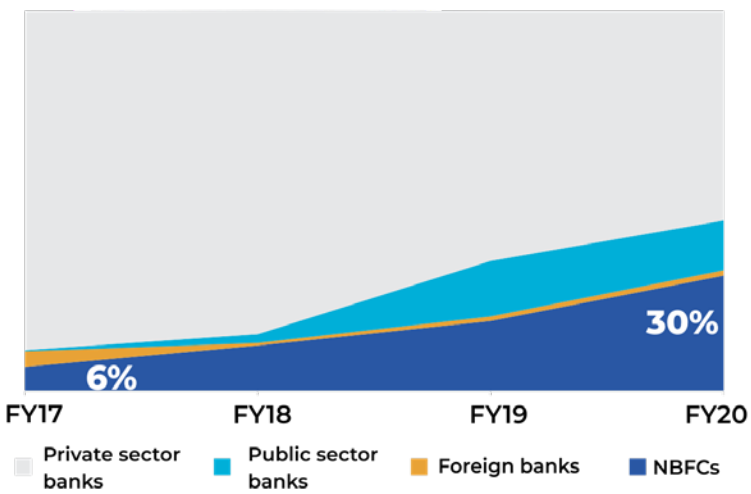
4x increase in seed and late-stage median ticket size

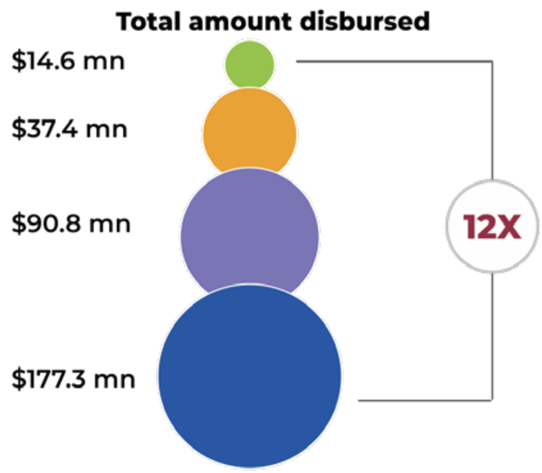
15+ $100mn+ mega rounds in 2021

Source: NASSCOM, CRISIL MI&A Research

An analysis of equity investments in 2021 shows that 25% of unicorns are in the Banking, Financial Services and Insurance (BFSI) sector. With 15 unicorns and 35 more in the pipeline, the sector recorded the highest addition among all sectors. Popular focus areas of BFSI players include neo-banking, cryptocurrency exchange, fintech, co-branding credit card offerings based on buy-now-pay-later (BNPL), and supply chain financing.

NBFCs enjoy healthy share gains amid exponential growth in digital lending





Note: FY indicates fiscal year which runs from April-March. INR/USD = 80 is used for currency conversion. Data based on RBI working group representative sample constituting 75% & 10% of the total assets of banks & NBFCs respectively as on March 31, 2020
Source: RBI working group report on digital lending, CRISIL MI&A Research

Although in its nascent stages, digital lending has emerged as one of the most sought-after fintech segments and consequently has attracted strong investment inflows. Players in this segment leverage advanced technologies such as AI and ML to perform alternative credit scoring and hence can even service the underbanked population without a proper credit history. This, combined with other factors such as less stringent documentation requirements, lower costs and quicker disbursals, has augured well for the segment's growth. While digital loans account for only a small fraction of the overall credit portfolios of banks and NBFCs, their share has been growing consistently. In 2022, the RBI also issued digital lending guidelines to safeguard borrowers from fraudulent activities. While this would increase regulatory scrutiny of the fintech segment, the increased level of borrower comfort is expected to further boost the adoption of digital lending.

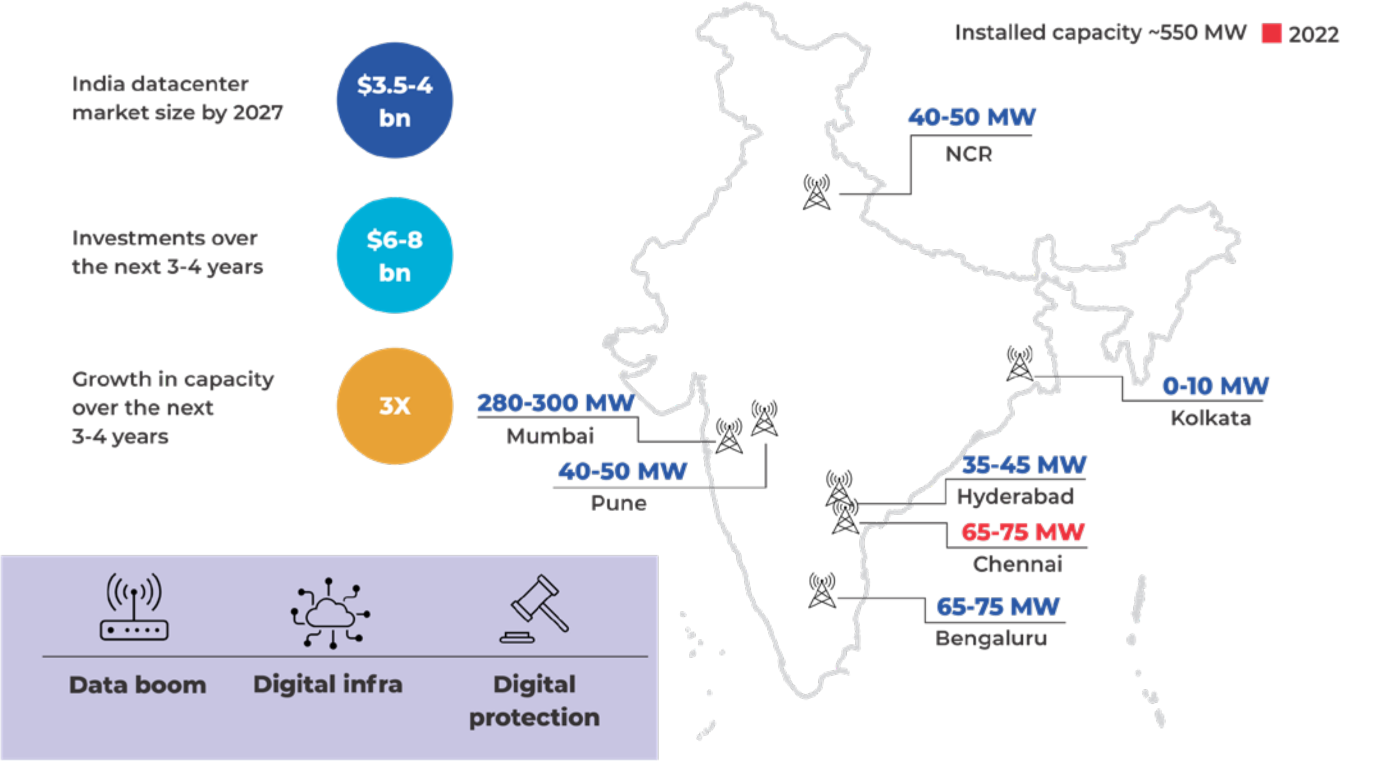
CBDC can usher in the next wave of innovation

	Nigeria	China	India
CBDC Name	eNaira	Digital Yuan (e-CNY)	RBI CBDC
Launch Date	2021	2019 (Pilot)	Planning stage
Issues	Limited knowledge of CBDC, fear of security breaches, poor internet access	Fear of privacy breaches	Limited knowledge, data breaches
Level of adoption	L M H	L M H	L M H
Future use cases	Compatibility with feature phones	Cross-border payments	Direct Benefit Transfer (government subsidies), financial inclusion, counter rising influence of cryptocurrency

Source: Industry, RBI, CRISIL MI&A Research

India is planning to launch its own central bank digital currency (CBDC), which provides certain inherent advantages such as reduced cash dependency, lower currency management costs and lower settlement risk, greater financial inclusion and reduced financial frauds. However, as seen in other countries, multiple factors limit the large scale adoption of CBDCs. Therefore, the level of adoption of India's CBDC remains a key monitorable.

With rising digitalisation, India evolves in the datacentre game



Source: Industry, Company reports, CRISIL MI&A Research

The Indian datacentre industry is at an inflection point where an accelerated data boom, rapid digital infra-adoption by companies and local data storage requirements are driving growth of the industry.

There has been a massive spurt in data and cloud usage as enterprises are embracing advanced technologies and modernising their digital infra to enhance user experience and reduce costs, coupled with the increasing use of smart devices by individuals. The launch of 5G, initiatives such as Digital India and government norms on data localisation will further add to the buzz.

Sectors such as e-commerce, BFSI, technology and media have fueled growth. The industry is expected to grow at a CAGR of ~20% over the next three to four years led by robust investments by Indian as well as global players. Real estate companies and private equity groups have also shown interest in the sector.

India has significant potential to become the datacentre hub in the Asia Pacific region on account of low power tariffs, presence of undersea cable landing stations, and high bandwidth speed.

Innovative use cases in traditional sectors can benefit from enhanced digitalisation

Other newly digitising sectors such as agriculture, healthcare, logistics, and insurance have the potential to innovate and adopt digitalisation rapidly even though they are not traditionally considered a part of the country's digital economy. In particular, IoT monitoring devices can support planting and in-season care of crops and sharing platforms can enable better utilisation of farm equipment at lower costs.

Similar to its ONDC initiative, India is working on Bima-Sugam, a centralised online platform that would contain all insurance related services such as claim settlement and new policy purchases. Digitalisation would lower the dependency on middlemen, reduce agent fees, facilitate comparison and increase insurance penetration in India.

Digitalisation can improve productivity and reshape value chains

Sectors	Use cases
Agriculture	IoT monitoring devices for crop care, sharing platforms for farm equipment (tractors)
Logistics	Telematics, platformisation, decentralised record-keeping network
Healthcare	Advanced diagnostic devices, telemedicine, pharmacy apps, health trackers

Source: Industry, CRISIL MI&A Research

The fourth pillar- Innovation in the digital and technological space has propelled India to the forefront, leveraging the synergies of its young population. The Government's active participation with the private sector in creating this digital infrastructure would enable socio-economic driven inclusive growth and maintain its stride towards its $5 trillion GDP target.

India's growing competitiveness not devoid of risks

Currency, trade, commodity prices and dependence on imports, along with cheap, consistent funding are key factors that will continue to fuel India's growth engine. While the decks on the regulatory front have been largely cleared to boost the country's competitiveness, risks remain. Hence, it is critical to stay tuned to domestic as well as global signals to ascertain the extent of impact of the key factors, and corrective measures that need to be implemented to reduce risk.

Challenges under the hood

Geopolitical issues such as the Russia-Ukraine war and trade tensions between the US and China, as well as the Covid-19 pandemic continue to buffet global trade. The subsequent supply chain disruptions and trade sanctions have started a commodity super cycle.

Indian companies have had to negotiate the fallout owing to the country's dependence on energy imports, which has widened the trade deficit. In fact, companies sourcing raw materials such as crude oil (and allied segments), natural gas, lithium, coal now fall in the high-risk zone. Also, high dependency on China for sourcing pharmaceutical intermediates, solar photovoltaic raw materials, batteries, and semiconductors and linked minerals is hindering domestic production because of the supply disruptions.

India's import dependence visible across value chains

Raw material	Import dependence	Import bill In FY22 (Rs bn)	Import as % of consumption	Geographical dependence	Geopolitical risk
Crude oil	High	9,000-9,200	**85-90%** of India's crude oil demand	Iraq (26%) Saudi Arabia (21%) US (12%)	High risk
Coking coal	High	1,000-1,200	**90-95%** of India's crude oil demand	Australia (70%)	Medium risk
Natural gas	Medium	1,000-1,200	**55-60%** of India's natural gas consumption	Qatar (44%) USA (14%) UAE (12%)	Medium risk
Bitumen	Low	7.5-8.0	**25-30%** of India's bitumen demand	UAE (72%) Oman (15%)	Medium risk

Sectors	Import dependence across value chains (Raw material — Finished goods)	Import bill In FY22 (Rs bn)	Import as % of consumption	Geographical dependence	Geopolitical risk
Automobiles and auto components	Low — Medium — Low	800-900	**20-25%** of India's auto-component requirement	China (22%) Korea (13%) Germany (12%)	Low risk
Pharmaceuticals (APIs and KSMs)	High — Medium — Low	200-250	**30-40%** of India's consumption of APIs/KSMs	China (40%) USA (8%)	Medium risk
Solar PV modules	High — High — High	200-250	**80-85%** of India's PV module demand	China (91%)	Medium risk

High dependence on imports · Medium dependence on imports · Low dependence on imports

High risk · Medium risk · Low risk · Opportunity

Source: Ministry of Commerce and Industry, Industry, CRISIL MI&A Research

Indigenisation, backward integration and substitution are the many ways in which India Inc is structurally correcting the skew.

But this is still work in progress.

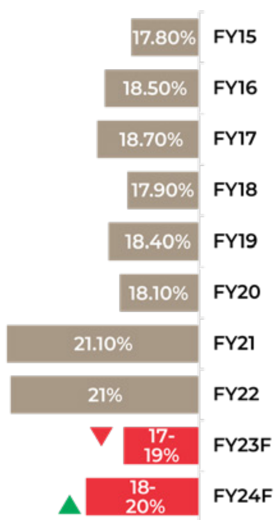
In the near term, along with soaring commodity prices is a weaking rupee. The culmination of these two factors has affected the profitability of Indian companies, which is projected to shrink 200-400 bps on-year in 2023. This is in stark contrast to 2021 and 2022, wherein margins improved considerably on-year because of cost-cutting measures.

That said, margins would still be above 2021 levels. This is because prices are expected to cool down as supply constraints ease and recessionary pressures take hold, the early signs of which are already being observed.

Recessionary pressures and easing supply constraints to moderate prices in 2023

	2016-2021 avg prices	Prices in 2022F	Prices in 2023F	Ukraine crisis	China lockdowns	Govt. trade restrictions
Crude oil ($/barrel)	58	100-105 ▲	85-90 ▼			
Natural gas ($/MMBtu)	8	30-35 ▲	15-20 ▼			
Steel iron ore (Rs/tonne) (FY23)	43,273	59,000 - 61,000 ▲	53,000 56,000 ▼			
Coking coal ($/tonne) (Australian coal)	177	300-350 ▲	200-300 ▼			
Non-coking coal ($/tonne)	43	80-90 ▲	70-80 ▼			
Aluminium (Rs/kg)	1,57,565	2,30,000 2,40,000 ▲	2,20,000 2,30,000 ▼			

Ebitda margin



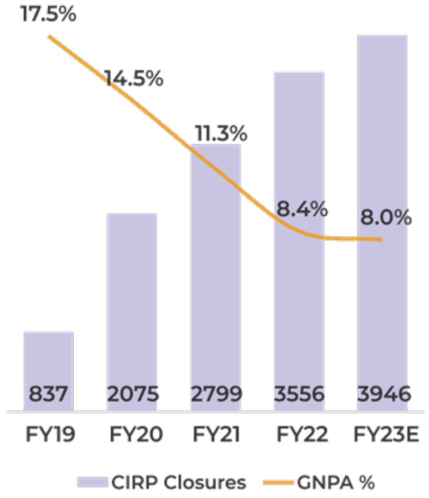
Note: Margins considered for 700 Indian companies
Source: CRISIL MI&A Research

Speedy resolution of stressed assets can improve investor confidence

Banking reforms under the Insolvency and Bankruptcy Code (IBC) have improved confidence in the lending ecosystem. The IBC has led to transparent recognition of stressed assets and provided flexibility to restructure the loans and the recovery mechanism through the National Company Law Tribunal. This is already being seen in higher Corporate Insolvency Resolution Process closures and lowering of gross non-performing assets (GNPAs) of banks, thereby strengthening their balance sheets.

Owing to potentially higher recoveries the GNPA position of banks is expected to improve further in 2023.

India's GNPA stress easing on the back of favourable measures



	Credit outstanding (Rs trillion)	GNPA % (as of March 2022)
Infrastructure	12.0	7.7%
Metals	2.8	6.5%
Textiles	2.5	9.0%
Food processing	1.7	11.2%
Engineering	1.7	12.8%
Construction	1.2	19.4%
Gems and jewellery	0.8	18.4%
Mining	0.5	12.0%
Total	**31.5**	**8.4%**

Source: CRISIL MI&A Research, Insolvency and Bankruptcy Board of India newsletter

Resolution of power sector challenges is the need of the hour

A large part of the GNPA in the banking system is because of the power sector. India's power sector has been marred with high GNPA owing to a number of structural issues, such as availability of natural gas, coal linkage, timely receipt of payments from distribution companies, etc. India's power capacity today stands at ~370 GW, of which over 10% is at various stages of being classified as distressed asset.

But the resolution process has also picked up pace and is now clearly front and centre of the government's agenda. Of the 41.5 GW under stress as of July 2022, final resolution has been achieved for nearly 23.0 GW. And the pace of resolution has also increased. This can be gauged from the fact that of the 23.0 GW, almost 7 GW were resolved in the past 20 months vis-à-vis the remainder capacities, which took a lengthy 3-5 years.

AIFs could play white knight in plugging the sizeable funding gap

Total infrastructure and industrial investment in India has been pegged at Rs 104.2 trillion ($1.3 trillion) until 2027. Hence, annually, it translates to a spend of Rs 20.8 trillion ($260.5 billion), which is almost 55% higher than the average annual investment of Rs 13.4 trillion ($167 billion) in the previous five years.

Assuming a debt-equity ratio of 2.5:1.0 because of the large outlays for infrastructure projects, CRISIL MI&A Research believes the financing requirement would be higher than the banking system's ability to fund.

While infrastructure investment trusts and real estate investment trusts will fill a large part of the gap, there is growing opportunity for other alternative investment vehicles as well because of the sheer size of investment requirement.

In fact, alternate investment funds (AIFs) – debt as well as equity – could provide the much-needed capital for India's investment needs. Currently, the country has 1,028 AIFs registered, with investments totaling Rs 3.11 trillion ($38.9 billion) as of June 2022, 8 times higher than in June 2017.

With the funds' corpuses growing exponentially, it could soon become a crucial cog driving India's investment story.

AIFs in India have grown exponentially over five years

Rs 80.6 tn
infrastructure investments
in FY23-FY27
Rs 49.6 tn in FY18-22

Rs 23.6 tn
industrial investments
in FY23-FY27
Rs 17.2 tn in FY18-FY22

Rs 150 tn
credit outstanding
as of 2024P
Rs 119 tn in 2022

Rs 6.9 tn
commitments raised
AIFs as of June 2022
7X compared with June 2017

1,028
registered AIFs in India
3X compared to 2017

Rs 3.1 tn
investments made by
AIFs as of June 2022
8X compared with June 2017

Source: Securities and Exchange Board of India, CRISIL MI&A Research

Notes

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