

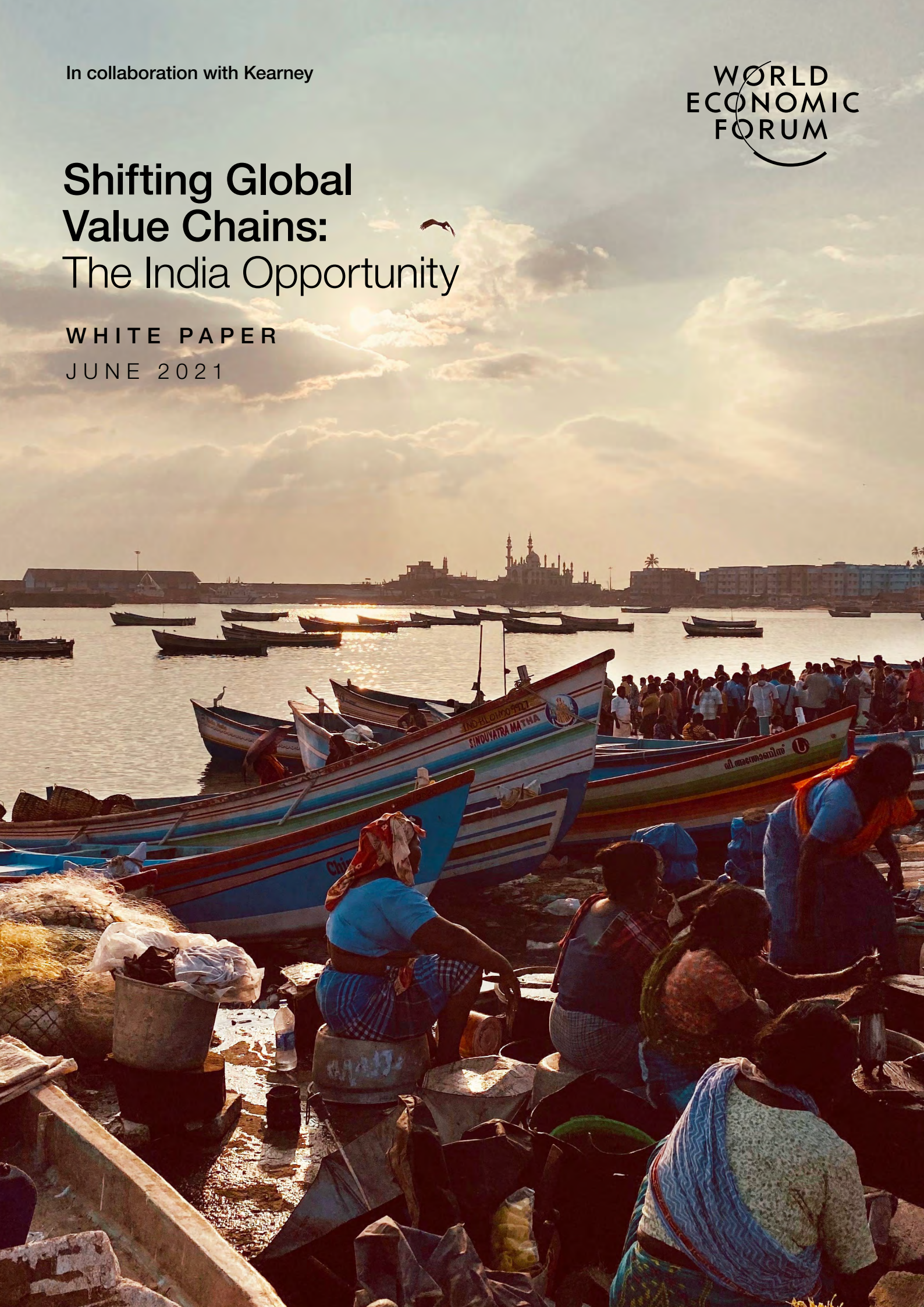
In collaboration with Kearney



Shifting Global Value Chains: The India Opportunity

WHITE PAPER

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Executive summary

A window of opportunity has opened for India to emerge as a manufacturing location of choice.

Global value chains (GVCs) are under transition. Three pre-pandemic megatrends were already driving this shift: emerging technologies; climate change and the imperative of environmental sustainability; and the reconfiguration of globalization, with COVID-19 acting as a major accelerator. As global companies adapt their manufacturing and supply chain strategies to build resilience, a window of opportunity has opened for new destinations to emerge as manufacturing locations of choice.

India is a prime candidate to capitalize on this opportunity. In its favour are the potential for significant domestic demand, its Government's drive to encourage manufacturing and a distinct demographic edge. At the same time, the country is under pressure to catalyse its manufacturing sector to create jobs for a rapidly growing working-age population, distribute economic growth more equitably and contain a burgeoning trade deficit.

In this context, increasing the share of global manufacturing could be a key foundation for socio-economic success in the coming decade. This White Paper, which reflects the views of leaders in the region, presents five possible "transformation pathways" to achieve this objective:

- 1. From the national scale to the global scale:** Committing to coordinated action by the private sector and Government of India to help build domestic manufacturing companies that can compete globally
- 2. From cost arbitrage to capability advantage:** Looking beyond cost to build competitive muscle through workforce skilling, innovation, quality and sustainability
- 3. From measured to accelerated integration in global value chains:** Increasing the pace of integration by reducing trade barriers and enabling competitive global market access for Indian manufacturers

- 4. From financial incentives to agile execution on the ground:** Building on the emerging success of the Production Linked Incentive scheme to focus on reducing the cost of compliance and establishing manufacturing capacities faster

- 5. From infrastructure inputs to infrastructure outcomes:** Focusing infrastructure development on cost savings, speed and flexibility.

These pathways offer an initial framework to help inform discussions on the role India can play in reshaping GVCs, and can contribute more than \$500 billion in annual economic impact by 2030, according to Kearney calculations and estimates in line with market assessments.

The World Economic Forum Platform for Shaping the Future of Advanced Manufacturing and Production, in collaboration with Kearney, will continue to develop this agenda in consultation with leaders from across government, business and academia, to inform strategic discussions and actions, and help accelerate the transformation of the manufacturing sector.

The \$500 billion estimate in annual economic impact is based on India's real GDP of \$2.869 trillion in 2019, a GDP forecast for 2030 of between \$8 and \$9 trillion despite the pandemic, which translates into a growth rate of approximately 10%, and the share of India's manufacturing sector to GDP of around 14-16%. With the systemic transformation pathways laid out in this paper, the manufacturing sector could outpace overall GDP growth by approximately 4%, leading to an incremental contribution opportunity of about \$500 billion from the manufacturing sector to the economy in 2030. In this scenario, the manufacturing sector's share towards India's GDP in 2030 could potentially reach 19-20%. This is in line with what other nations have achieved, such as China (27%) and Viet Nam (16%), and with other market assessments.

1

Study methodology

The World Economic Forum, in collaboration with Kearney, conducted virtual, structured interviews with multiple senior executives from a number of industries between October 2020 and January 2021 to understand the impact of the COVID-19 crisis on their businesses, their responses to the pandemic, their perspectives on

the manufacturing opportunity for India, and the imperatives for different stakeholders to make India a key manufacturing hub in shifting GVCs. This study also includes research and analysis by the Kearney and World Economic Forum team on the manufacturing opportunities and challenges in the relevant industries.



2

Shifting global value chains

The COVID-19 health crisis has accelerated three distinct pre-pandemic megatrends shifting GVCs: emerging technologies; climate change and the imperative of environmental sustainability; and the reconfiguration of globalization.

Fluctuating global trade patterns and a concerted effort to build more resilient and diversified manufacturing and supply systems have opened a new window of opportunity for emerging nations to become manufacturing locations for GVCs.

The COVID-19 pandemic has disrupted manufacturing and global supply chains, with severe consequences for society, businesses, consumers and the global economy, surfacing significant questions about the resilience of GVCs.

Prior to the health crisis, three megatrends were already affecting GVCs, as described in the 2019 White Paper, “Reshaping Global Value: Technology, Climate, Trade – Global Value Chains under Pressure”, developed in collaboration with Kearney:

- **Emerging technologies**, including product technologies and digital platforms
- **Climate change and the imperative of environmental sustainability**, including risks to supply and the threat to natural resources, the need to build more circular economies and increasing consumer awareness

- **Reconfiguration of globalization**, including slowing international trade, the gravitation of demand and supply to the south, policy uncertainty and rising trade tensions.

Individually and in combination, these trends have been reshaping how value is created and distributed along GVCs, how businesses and nations define their manufacturing strategies and how they advance sustainable development. With COVID-19 adding fuel to these changes, if developed and emerging economies – including businesses of all sizes – are to secure their place in tomorrow’s global economic system, they urgently need to understand the risks and opportunities associated with these megatrends and the resulting shifts in GVCs.

2.1 Shifting global value chains: A new opportunity for emerging economies

The combination of the COVID-19 pandemic and the influence of existing megatrends on GVCs has set in motion two distinct drivers that are creating

new opportunities for emerging nations to play a larger role in global manufacturing and supply systems:

1. Shifts in global trade

Since the 2008-2009 recession, global trade has lost steam. While increasing in absolute terms, the relative intensity of global trade exchanges has fallen. Intermediate imports as a share of world gross domestic product (GDP) dropped from 19% in 2008 to 17% in 2018,¹ while foreign direct investment (FDI) as a share of GDP fell from approximately 3.8% to just 1.2% over the same period.²

Trade tensions around the world have also escalated consistently in recent years, destabilizing commerce and production. Most recently, the ongoing trade tensions between the United States and China are a prominent example of difficulties impacting GVCs.

2. The effects of COVID-19 and a focus on supply chain resilience

The COVID-19 pandemic has sensitized corporate and government leaders to the escalating frequency of global disruptions. Within the past year, GVCs have also been affected by natural disasters, geopolitical uncertainties and massive cyberattacks, in addition to trade tensions, as mentioned above.

During the past two decades, GVCs across industries have been highly optimized for cost competitiveness, often resulting in the substantial geographic concentration of manufacturing activities.

Post-COVID-19, more corporate leaders are turning to new approaches that balance the need for **cost competitiveness** with the need for **risk competitiveness**. With resilience emerging as the watchword for global supply chains, companies are increasingly focused on dual or diversified sourcing, reducing supply chain complexity and localizing manufacturing where feasible.

What the drivers imply

The two drivers open new opportunities for emerging economies. With major players diverted by continuing trade friction, the two factors could create space for others to step in. And with manufacturing diversification high on the agenda, countries that offer alternative and competitive sources of supply could gain a material share of

global manufacturing and play a more prominent role in GVCs. The ability of emerging economies such as India to attract manufacturing investment will be directly correlated to the capabilities they develop to help companies build resilience and manage risk.



3

India in the spotlight: The opportunity and the need

Shifting GVCs have led to competition between nations to capture a larger share of global manufacturing, and India is a prime contender.

India has three primary assets in its favour: the potential for significant domestic demand, the Government's drive to encourage manufacturing and a distinct demographic edge.

India is also under pressure to catalyse its manufacturing sector to create jobs for a rapidly growing working-age population, distribute economic growth more equitably and contain a burgeoning trade deficit.

The ongoing shifts in GVCs have propelled new competition among nations to increase their share of global manufacturing. Each nation will need to develop a unique strategy based on its inherent capabilities and resources.

Over the last seven years, India has made concerted efforts to strengthen its manufacturing sector, but the COVID-19 pandemic³ has significantly impacted the economy. An extended lockdown with mass factory shutdowns during

the initial stages of the crisis helped develop the processes and infrastructure to manage the spread of the virus but suppressed economic activity, with overall GDP shrinking by 23.9% between April and June 2020.⁴ However, there were early signs of recovery, with marginal GDP growth of 0.4% during the following quarter.⁵ While a full rehabilitation might be some months away, the hope is that India's economy will be on a sharp upward trajectory in 2021 and 2022.

3.1 The opportunity for India

India's ability to emerge as a global hub for manufacturing lies in its unique combination of demand, drive and demographics.

Demand: Substantial domestic market potential

By 2030, India is expected to become the world's most populous nation and the third largest economy.⁶ The country's consumer market is projected to grow by 300% from \$1.5 trillion in 2019 to about \$6.0 trillion by 2030,⁷ with a rising middle class shaping this growth in domestic consumption. Almost 80% of Indian households will be in the middle-income bracket in 2030, up from approximately 50% in early 2019.⁸

With GDP per capita reaching \$2,100 in 2019,⁹ and (notwithstanding COVID-19 effects) further growth expected in the years ahead, India is likely to enter

a phase of accelerated growth in consumption. This will be characterized by a shift in its overall consumer spend profile, as new middle-income citizens start to include high-value discretionary items such as cars, personal computers, smartphones and beauty products in their baskets, in addition to essentials like food and apparel.

For multinational corporations, India promises a large domestic market that could be the next horizon of growth. And with it comes the potential to expand manufacturing in India – for India, and for the rest of the world.

Drive: A renewed government push on manufacturing

Driving manufacturing growth has been a priority for the Indian Government for several decades. Yet past efforts to attract relevant investment have been somewhat limited, with most FDI flowing into services and new-age technology platforms.

Recent efforts on this front have been bolder and more focused, with transformational programmes such as Make in India and Atmanirbhar Bharat (“self-reliant India”) poised to address several barriers that previously hindered the country from reaching its full potential. Specific measures include:

- **Production Linked Incentives (PLI):** Rolled out in November 2020, the PLI scheme aims to reduce India’s dependence on imports and facilitate exports by providing substantial financial incentive for eligible manufacturers¹⁰ across key sectors: automobile and auto parts, electronics, pharma, telecom, textile, food processing, white goods, ACC battery manufacturing, solar photovoltaic manufacturing and steel.
- **Labour reforms:** With a view to simplifying India’s historically complex labour laws, the Government initiated legislation to consolidate 29 discrete laws under four codes covering wages; occupational safety, health and working conditions; industrial relations; and social security.¹¹ The new framework has far-reaching benefits for industry (e.g. by replacing multiple administrative obligations with “one return, one licence and one registration”) and workers (by extending minimum wage guarantees, health benefits, social security, etc., to the country’s 400 million unorganized, gig and platform workers¹²).

- **Ease of doing business:** Between 2016 and 2020, India jumped from 130th to 63rd position on the World Bank’s Ease of Doing Business Index. The country has been one of the top 10 improvers for three consecutive years¹³ and has made notable progress in four of the index’s 10 parameters: dealing with construction permits (from a ranking of 183 in 2016 to 27 in 2020), trading across borders (from 133 to 68), resolving insolvency (from 136 to 52), and getting electricity (from 70 to 22).¹⁴

- **Infrastructure landscape transformation:** Landmark projects such as the Bharatmala road development plan have been instrumental in increasing the pace of road construction from approximately 12 km a day in 2014 to almost 30 km a day in 2019,¹⁵ the year that the Government launched the megascale National Infrastructure Pipeline (NIP) programme, committing \$1.8 trillion in capex to more than 7,500 projects between 2020 and 2025.¹⁶ The projected outlay covers multiple sectors, including transport, energy and water, which will improve infrastructure availability for manufacturers.

While it is too early to gauge how successful these efforts will be in terms of attracting investment, initial progress, coupled with investor interest in the electronics, pharmaceuticals, specialty chemicals and agrochemicals sectors, is encouraging. The road to becoming a manufacturing destination of choice is long but continued momentum in the reform agenda and a razor-sharp focus on execution could help India overcome several historic barriers.



Demographics: The population advantage

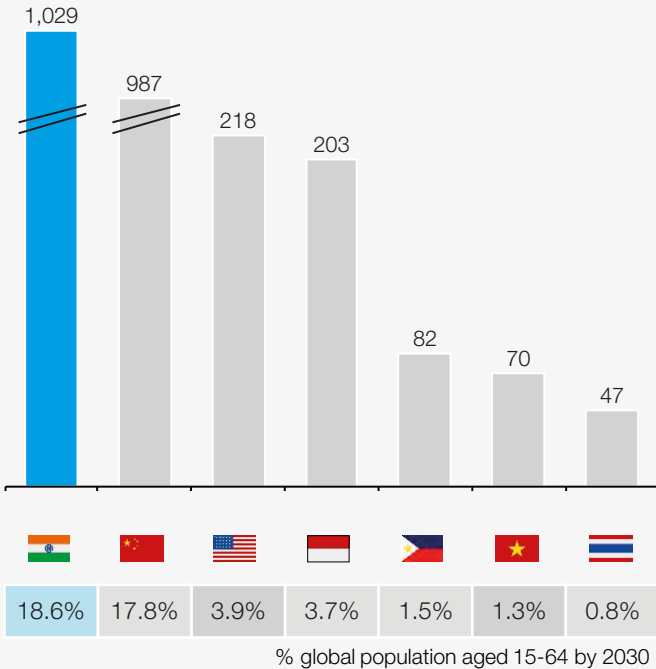
By 2030, India is projected to have the world’s most abundant labour force. Its total working-age population of almost 1.03 billion will overtake China’s 987 million and far exceed the United

States’ 218 million (Figure 1). It is also likely to have the fastest-growing working-age population for the next 30 years, with a compound annual growth rate of 0.6%.

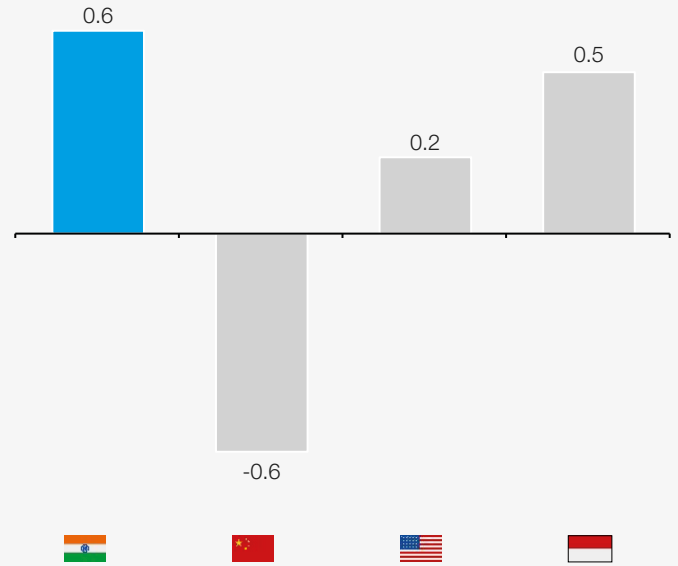
FIGURE 1 | Population forecast of 15-64 year-olds in 2030 (million) and in 2020-2050 (%), India and selected countries

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Population forecast 2030, ages 15-64 (mn)



Population growth forecast 2020-2050, ages 15-64 (%)



Source: Organisation for Economic Co-operation and Development (OECD), OECD.Stat, “Historical population data and projections (1950-2050)”; Age composition population data by age group, both sexes, medium variant model, United Nation Department of Economic and Social Affairs, World Population Prospects, 2019, <https://population.un.org/wpp/Download/Standard/Population> (accessed 26 May 2021)

In addition, the monthly wage rate (both average and minimum) in India is much lower than several other competing offshore manufacturing destinations, including China, Malaysia and other countries in the region.¹⁷

To turn this from a demographic to a manufacturing growth opportunity, the Government of India has initiated a multipronged effort to upskill the working-age population. Efforts under way include vocational

training in schools under the National Education Policy, and a host of activities under the umbrella of the National Skill Development Corporation.

These factors highlight the distinct value propositions that will position India well for a larger role in GVCs. At the same time, India has a pressing need to grow manufacturing for the socio-economic welfare of its large population.

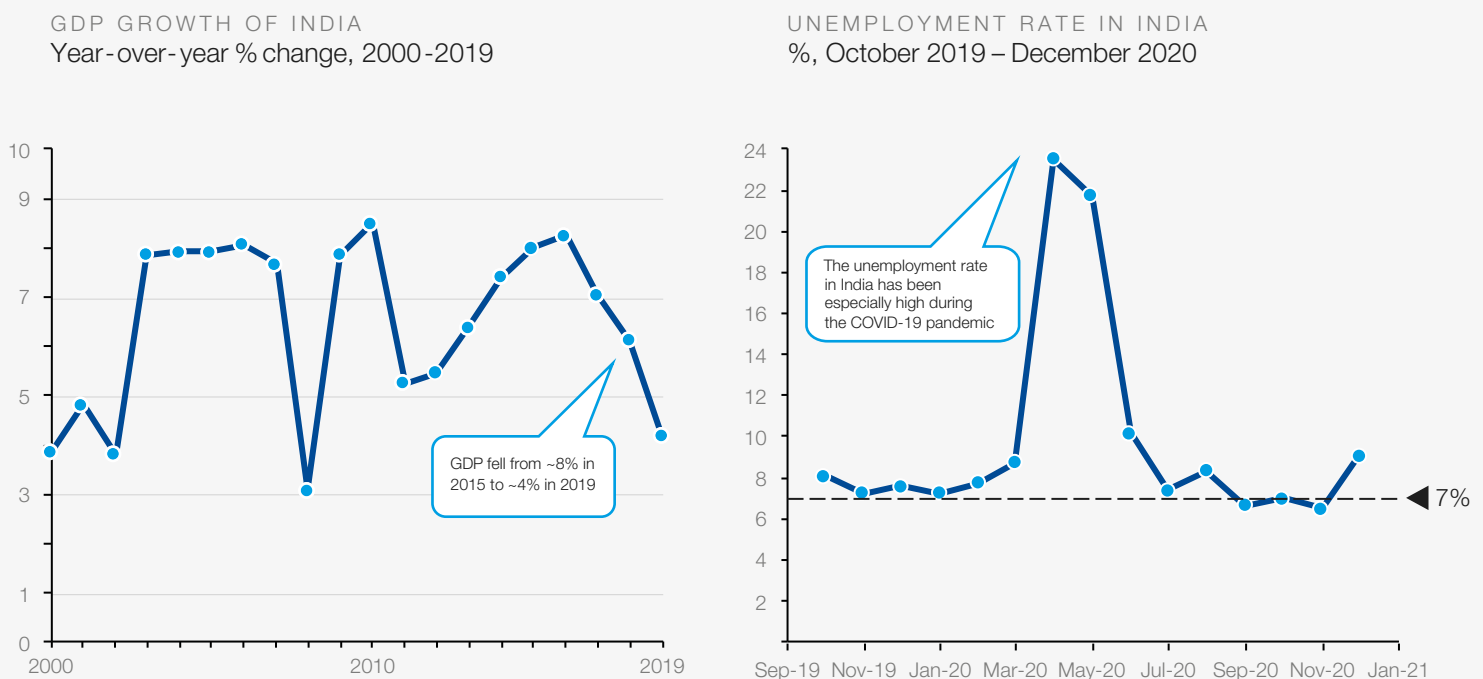
3.2 India's pressing need for manufacturing investment

India is under pressure to catalyse its manufacturing sector. Three main factors explain this situation:

- **Employment.** Annual GDP growth shrank in the country from 8% in 2015 to just over 4% in 2019 (Figure 2) and an 8% decline is projected for financial year 2020-2021 due to COVID-19, resulting in significant unemployment across the country. Throughout 2019 and early 2020, the

unemployment rate stayed consistently above 7% (Figure 2), considerably higher than the global average of 5.3%.¹⁸ According to certain estimates, India will need to generate more than 100 million new jobs by 2030 to ensure socio-political stability and economic growth.¹⁹ In this context, the manufacturing sector (along with construction) will be a key job creation engine for the economy.

FIGURE 2 GDP growth (2000-2019) and unemployment rate (October 2019 to December 2020), India (%)



Source: GDP growth in India: World Bank, "GDP growth (annual %) - India, 2000-2019, <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?end=2019&locations=IN&start=2000>; Unemployment rate in India: Centre for Monitoring Indian Economy (CMIE), "Unemployment rate in India", October 2019 to December 2020, <https://unemploymentinindia.cmie.com> (both accessed 10 May 2021)

- **Equitable growth.** Over the past 10 years, the contribution of the services industry to India's GDP has grown steadily. From 45.4% in 2011, it rose to 47.8% in 2015 and 49.9% in 2019.²⁰ Given that this sector requires skilled labour and creates opportunity for the more educated sections of society, the inherent risk is that its continuing prioritization and growth could leave those who are socially weaker and less educated behind. Moreover, increasing productivity within the Indian agriculture sector means the number of new jobs being generated here is unlikely to grow. A large

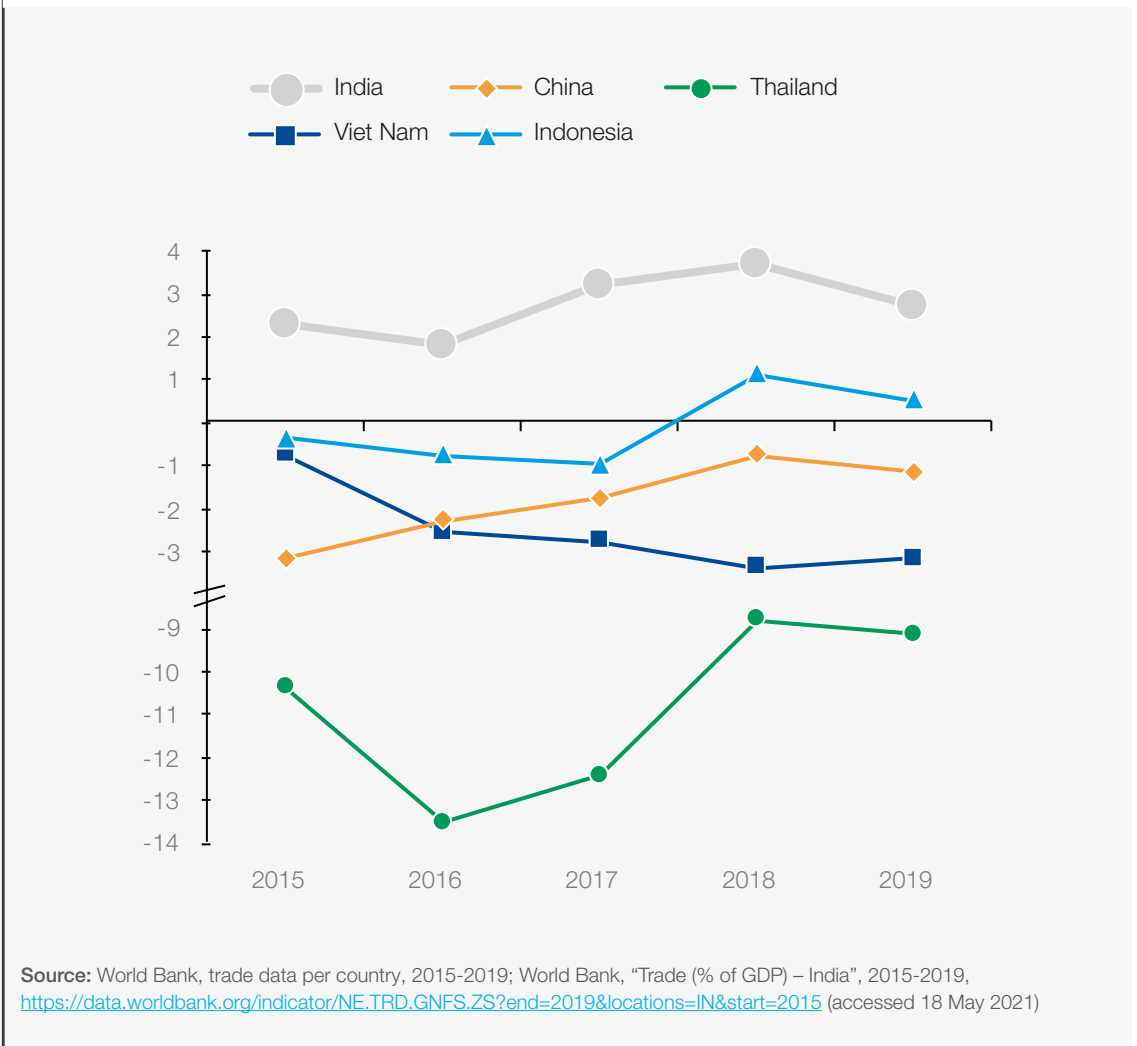
manufacturing sector could take up the slack by absorbing semi- and low-skilled workers at scale. By making a larger contribution to GDP, manufacturing could help ensure uniform growth, while increasing opportunities for low- to semi-skilled citizens to participate in the workforce.

- **The trade deficit.** Compared with other countries, India has a relatively high trade deficit (Figure 3), due to its heavy reliance on imports, including commodities such as mineral oils, and electricals and electronic machinery. Net exports

have been negative for many decades, hovering at around \$180 billion in recent years.²¹ What's more, as the economy and incomes grow, the demand for commodities is likely to increase further. On the export side, services have done

well but India's share of manufacturing has declined. Increasing the focus on manufacturing could help reduce India's reliance on imports and strengthen its exports, potentially helping to correct the deficit.

FIGURE 3 Trade deficit, India, 2015-2019 (% of GDP)



4

India's five transformation pathways

Driving success in manufacturing will be a key foundation for India's economic success in the coming decade.

Past attempts to build a home-grown manufacturing sector have met with mixed results, with notable success in sectors such as pharmaceuticals and auto components.

Five transformation pathways or shifts can help India catalyse its manufacturing sector in the coming decade: from the national scale to the global scale; from cost arbitrage to capability advantage; from measured to accelerated integration in GVCs; from financial incentives to agile execution on the ground; and from infrastructure inputs to infrastructure outcomes.

These pathways can help strengthen the Indian manufacturing sector and could collectively add more than \$500 billion in annual economic impact by 2030.

As discussed, GVCs are in flux, and India has both an opportunity and an urgent need to capitalize on the ongoing shifts. A resurgence in manufacturing, with India accomplishing both its Atmanirbhar

Bharat and Make in India objectives, will be key to create a significant portion of the more than 100 million jobs needed over the next few years.

The Indian manufacturing sector: Status quo

Since the 1990s, India has adopted a unique pathway to economic development, transitioning from an agrarian economy into a services-led country. To some extent, this has meant bypassing the manufacturing revolution that has helped build prosperity in most other comparable nations.

This is evident when viewing the share of each sector in India's GDP. While agriculture has declined sharply – from 26% in 1990 to 16% in 2019²² – and services have risen from 37% to 49% during the same period,²³ manufacturing has dropped marginally from approximately 16.5% to 13.6%²⁴ and is considerably behind several other emerging Asian markets.

In addition, India's aspiration and efforts to build an export-oriented manufacturing sector have yet to yield material success (except in select sectors, such as pharmaceuticals and auto components). The figures for 2019 show that 71% of its export basket is comprised of manufacturing exports, again lower than other comparable economies (93% in China, over 86% in Japan, 81% in the Philippines, 74% in Singapore and almost 73% in Thailand).²⁵

To secure sustainable long-term growth, India must deliver on its manufacturing potential.

Catalysing manufacturing: Where should India focus?

India's job creation and economic agenda will need every segment of its manufacturing sector to perform better. However, given the country's inherent competitiveness, resource advantages and domestic demand, a select few sectors highlighted in Table 1 are likely to generate a disproportionate impact on job creation and economic growth,

helping to jump-start India's manufacturing agenda for the 2020s.

To help unlock value and growth in each of these sectors, five potential transformation pathways have been identified.

TABLE 1 | Potential focus sectors

Manufacturing theme	Potential focus sector
Import substitution and Atmanirbhar Bharat	<ul style="list-style-type: none"> – Defence and aerospace – Electronics
Building global export hubs	<ul style="list-style-type: none"> – Pharmaceuticals and medical devices – Specialty chemicals – Apparel and footwear – Gems and jewellery – Food processing – Auto and auto components (especially with the shift to electric vehicles)

Source: Based on Kearney assessment

Catalysing India’s manufacturing sector: Five transformation pathways for success

Realizing India’s manufacturing potential will require a portfolio of focused interventions to achieve success. This paper identifies five transformation pathways that can help build a

thriving manufacturing sector. They represent a shift in focus and orientation, and new opportunities for potential public-private dialogue and action.

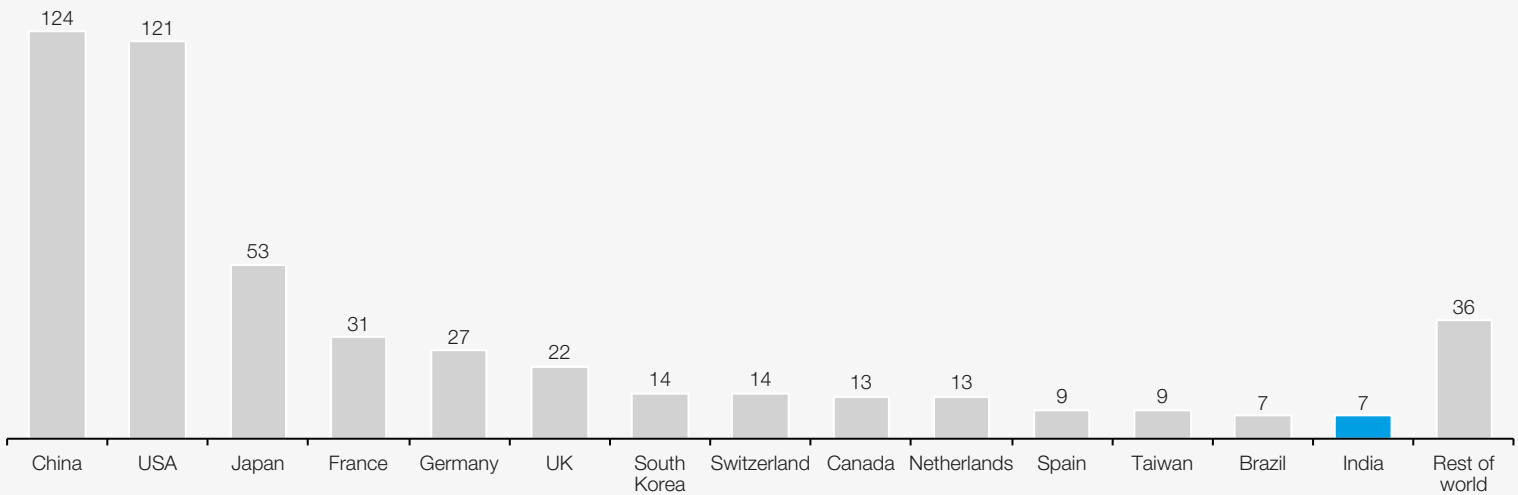
4.1 Transformation pathway 1: From the national scale to the global scale

India has traditionally placed substantial emphasis on a strong and thriving micro, small and medium enterprise (MSME) sector. Recent estimates indicate that the MSME sector contributes to approximately 30% of India’s GDP and almost 50% of exports, and employs as many as 110 million people.²⁶ It is a critical priority, given India’s substantial population, and should continue to be a thrust for future policy-making.

However, the next wave of manufacturing growth will increasingly need to be driven by large and mid-sized companies to propel global-scale

manufacturing in India and thereby create jobs on a large scale. To date, India has lacked global magnitude, indicated by its showing in the *Fortune* 500. Despite having the sixth largest manufacturing output in the world (at about 3%),²⁷ India lags 13 other nations, including smaller countries Netherlands and Switzerland, on the *Fortune* 500, with seven²⁸ large global corporates (Figure 4). This is especially true for private-sector manufacturing. Of the seven *Fortune* 500 companies in India, four are oil and gas enterprises, one is a public-sector bank and only the remaining two (Tata Motors and Rajesh Exports) are manufacturers.

FIGURE 4 | Number of Fortune 500 companies by country, 2020



Source: Qlik, Official Analytics Partner of the Fortune Global 500, "History of the Global 500", 2020, <https://qlik.fortune.com/global500> (accessed 18 May 2021)

Given the scale of job creation that India needs over the next decade, India should focus on holistic policy-making to drive entire industry ecosystems. The large and mid-sized players are better positioned to adopt economies of scale for global manufacturing, world-class quality practices, emerging industry 4.0 technologies, and global

environmental and sustainability standards. These large players can act as catalysts for creating the MSME ecosystem around them, thereby generating all-round industry ecosystem growth. Table 2 summarizes key enablers and potential opportunities for this pathway.

TABLE 2 | Pathway 1 enablers and opportunities

Enablers	Opportunities
Financing and investment	<ul style="list-style-type: none"> – Encourage foreign capital inflow (e.g. via FDIs) with a focus on technology and manufacturing knowledge transfer – Adopt a multi-year agenda to reduce the cost of financing
Clusters/economic zones/ industrial parks	<ul style="list-style-type: none"> – Fast-track the development of model coastal economic zones with strategic interventions and a clear action plan (e.g. identifying anchor investors, offering limited period incentives, enhancing the ease of doing business, offering greater flexibility in labour laws and other regulations, and streamlining approvals) – Work with state governments and other stakeholders to identify, create and promote additional clusters (including export-focused hubs)
Land and labour law reforms	<ul style="list-style-type: none"> – Leverage labour reforms to scale up operations (e.g. by boosting the workforce and introducing simpler compliance requirements) – Facilitate access to land banks for new investors

Source: World Economic Forum and Kearney

Transformation pathway example: Bangladesh

Bangladesh's drive to achieve global scale in the textile and apparel industry has helped the nation achieve significant economic benefits. Exports of ready-made garments have grown from approximately \$5 billion in 2000 to over \$30 billion in recent years.²⁹ The country is now the second largest exporter globally, after China, and ready-made garments contribute to over 80% of total exports.³⁰

Much of this growth has been enabled by the Government's focused steps to drive world-scale operations in the textile and apparel industry. Industry- and export-friendly policies have been adopted consistently and framed in consultation with wider stakeholders. Actions include an exemption on input material duties for export units, the Letter of Credit system, which offers financing facilities, bonded warehouses, a single file clearance system for exports, export processing zones and tax incentives for new facilities.

4.2 Transformation pathway 2: From cost arbitrage to capability advantage

Historic endeavours to drive manufacturing growth in India, especially for exports, have relied heavily on the country's ability to profit from buying and selling commodities in different markets. In sectors such as apparel, textiles, auto and auto components, this cost arbitrage was helped along by the availability of affordable and abundant labour that could produce low-value-added, labour-intensive manufacturing goods. With an estimated 1.38 billion people and the world's highest youth population, India continues to offer one of the largest labour pools for large-scale manufacturing. It has also benefited in select sectors due to cheaper access to such raw materials as cotton, coal and iron ore.

However, the ongoing rapid transformation within sectors and its corresponding effect on GVCs are likely to shift the axes of competition. As India sets out to create an enhanced value proposition for manufacturers, labour cost arbitrage might no longer be a viable and scalable source of differentiation. In particular, the following two factors could reduce its leverage:

1. Advanced manufacturing technologies are reshaping manufacturing economics: As noted in the 2019 White Paper, "Reshaping Global Value: Technology, Climate, Trade – Global Value Chains under Pressure": "The convergence of additive manufacturing (3D printing), artificial intelligence (AI), robotics and the internet of things (IoT) is dramatically altering the global production landscape for goods of all types, while bringing producers, consumers and the supply chain together in unprecedented ways.³¹ . . . In additive manufacturing, customization and complexity are no longer limiting cost factors. . . . Technology has already eliminated the need for a large amount of highly skilled labour and the associated surges in manufacturing costs. For example, a

fuel nozzle produced by General Electric now consists of a better-performing single part, versus the 20 finely machined and carefully assembled parts required to fabricate an earlier version. . . . These technologies will enable [manufacturers] to bring much or all of their production back to their home bases and switch to just-in-time models.³² As a result, businesses could benefit from major reductions in shipping and inventory costs; near elimination of lead time; a lower risk of intellectual property theft; increased cooperation between stakeholders; faster response to changing market dynamics; and more efficient logistical flows."³³

Cost will remain a critical source of comparative advantage for companies across sectors. However, with the advent of advanced manufacturing technologies, the role of labour in overall cost competitiveness could be diminished in several sectors. Therefore, India's next wave of manufacturing evolution cannot rely on labour cost arbitrage alone.

2. A new wave of African and Asian nations is offering low-value-added, labour-intensive manufacturing at lower cost: According to the World Bank's classification of countries by income level, India is a lower middle-income country; its gross national income (GNI) per capita in 2019 was \$2,120.³⁴ Current projections indicate that India will move into the upper middle-income group within a decade. As India's GNI per capita grows, so will labour costs, leaving it less competitive in labour-arbitrage-driven, low-value-added manufacturing activities. India's labour laws and higher employment costs have already made it relatively uncompetitive in the apparel and footwear sectors, where countries such as Bangladesh and Viet Nam have captured

a leading global share. Even as India attempts to catalyse its apparel sector, other low-cost countries, such as Cambodia and Myanmar, are emerging as prominent global garment manufacturing hubs.

Given these shifts, India's next wave of manufacturing evolution will likely be driven by its ability to combine its unique scale with a strong capability footprint in select manufacturing value chains. Table 3 summarizes key enablers and potential opportunities for this pathway.

TABLE 3 Pathway 2 enablers and opportunities

Enablers	Opportunities
A skilled workforce	<ul style="list-style-type: none"> - Refresh, revitalize and amplify the Skill India campaign - Accelerate the national adoption of online skilling platforms
R&D and innovation stimulation across industries	<ul style="list-style-type: none"> - Accelerate investment in R&D through initiatives like limited period fiscal incentives <ul style="list-style-type: none"> - Develop and execute a robust strategy for the allocation of the R&D budget (e.g. focusing on sectors like higher education) - Develop a collaborative platform where academia, research institutions and industry stakeholders can partner to work on important industry problems - Prioritize investment in sustainable capabilities, such as circularity - Set up incubation centres for innovation and start-ups, especially in tier 2 and tier 3 cities
An enabled advanced manufacturing agenda	<ul style="list-style-type: none"> - Amplify the reach of and investment in India's national Industry 4.0 Agenda (SAMARTH Udyog Bharat 4.0) - Revise the curriculum across institutions (including academic institutions as well as agencies such as the National Skills Development Corporation) to ensure personnel are future-ready and aligned to Industry 4.0 needs

Source: World Economic Forum and Kearney

Transformation pathway example: South Korea

South Korea was once a poor nation, with an economy that was primarily agricultural with little industry or natural resources. However, it has witnessed a massive growth in prosperity since 1961:

- Its GDP per capita has increased from the current equivalent of \$8,352 in 1990 to \$44,011 in 2019,³⁵ making it the 12th largest economy in the world based on GDP (2019).³⁶
- It is now classified as a high-income country and also has a high human development index score.

This transformation is attributable to careful focus and direction on a capital intensive, scientifically driven and export-oriented society. The Government has also played an important role in establishing the country's technological priorities and boosting collaboration in unique ways.³⁷

South Korea is one of the top two spenders on R&D, with approximately 4.5-5% of its GDP allocated in its pursuit.³⁸ There is also a healthy focus on developing technology for commercial scale, accounting for 60-65% of total R&D investment, while another 20-25% is devoted to application research; basic research makes up the remaining 15% of total spend.³⁹



4.3 Transformation pathway 3: From measured to accelerated integration in global value chains

Since its 1991 trade reforms, India has followed a cautious and measured path to joining GVCs. This has resulted in notable success in manufacturing sectors such as pharmaceuticals and auto and auto components, and mixed results in most other sectors. The time has now arrived for it to accelerate this integration.

In building out its Make in India and Atmanirbhar Bharat ambitions, it will be vital for India to align its foreign trade policy with its manufacturing aspirations. Driving accelerated manufacturing growth and creating manufacturing jobs will need to be critical drivers of all facets of government policy.

The following four-point agenda could help India accelerate:

- 1. Prioritize “winnable” sectors:** Across India’s manufacturing landscape, the export opportunity window varies. For a select few sectors (e.g. specialty chemicals, active pharmaceutical ingredients and electronics), it is here and now. For others, the outlook is longer: another 2-3 years for some, and longer term (4 or more years) for others, like textiles and apparel, where labour costs will be a disadvantage. Sectors that are immediately winnable should be prioritized as part of a coordinated, multifaceted action plan.
- 2. Focus on select investment corridors:** India’s decision to abstain from the Regional Comprehensive Economic Partnership, which comprises 15 member countries, has potentially

been well thought out, but the benefits of doing so will depend on its ability to sign alternative trade agreements, especially with the United States and the European Union. A comprehensive set of steps to facilitate Japanese and South Korean investment could also be beneficial.

- 3. Position for resilience:** Although the past two decades of global supply chain development have been heavily influenced by the pursuit of cost savings, recent trade tensions have highlighted the need to mitigate for risk, and the ongoing COVID-19 crisis is likely to drive a greater focus on resilience. Companies will increasingly build supply chains that can nimbly sense and pivot in response to unexpected demands and disruption. This could offer India the opportunity to craft a new value proposition for global manufacturers, and a national manufacturing and supply chain resilience plan.
- 4. Seize the moment through smart market promotion:** To grab the global manufacturing opportunity, India will need to adopt a well-orchestrated market promotion plan that aligns government ministries, industry associations, conglomerates and individual companies. A steadfast government-to-government policy approach needs to be complemented by a strong business-to-business relationship approach.

Table 4 summarizes key enablers and potential opportunities for this pathway.

TABLE 4 | Pathway 3 enablers and opportunities

Enablers	Opportunities
<p>Trade and investment agreements</p>	<ul style="list-style-type: none"> - Accelerate free trade agreements with key partners (such as the US and EU) and pursue bilateral trade agreements across the board - Review bilateral investment treaties to facilitate investment
<p>Focused market promotion</p>	<ul style="list-style-type: none"> - Build extensive government-to-government relationships to reduce non-tariff barriers on Indian exports - Design and implement tailored export strategies for top markets - Advance dedicated export promotion and market development agencies (e.g. UK Trade & Investment) - Extensively promote India's PLI scheme and position India as an attractive alternate for manufacturing diversification for key industries

Source: World Economic Forum and Kearney

Transformation pathway example: Viet Nam

Viet Nam's economy has boomed since the turn of the century, with GDP per capita increasing seven-fold from \$390 in 2000 to \$2,715 in 2019.⁴⁰ Much of this increase has also coincided with an annual growth in exports.⁴¹

Viet Nam's export strategy shows what prioritizing winnable export sectors can achieve. It has focused on areas such as electrical apparatus, electronic integrated circuits, footwear, furniture and apparel, where it could find competitive advantage.

The country has also benefited from a range of investment agreements, primarily with partners such as China, the US and the EU. In addition, it has established free trade agreements and bilateral agreements with a wide set of other countries. To facilitate smart market promotion, Viet Nam has expanded its port infrastructure to increase direct routes to the EU and US. The proximity of its northern terminals to China and improving inland transport network have also made the country an attractive transshipment destination.

4.4 Transformation pathway 4: From financial incentives to agile execution on the ground

As highlighted earlier, the Indian Government's PLI scheme is expected to help elevate India's role as an export hub and a vital component of GVCs.

This new wave of financial stimulus serves as a force multiplier to much of the foundational work that has helped India gain more than 60 places on the global Ease of Doing Business Index and earned it recognition as one of 10 economies to make the most improvement across three or more dimensions.

However, the World Economic Forum's interactions with industry leaders indicate that, despite this progress, execution on the ground continues to be the main roadblock. Among other aspects, India still needs to make headway in enforcing contracts, resolving insolvency, starting a business, registering property, paying taxes and trading across borders.

Recent estimates suggest that, between central and state regulations, as many as 1,536 acts apply to companies, generating 69,233 compliances

and around 6,000 filings.⁴² For labour alone, companies often maintain 42 different registers, with another five or six for wages. A mid-sized company will potentially deal with between 5,000 and 10,000 compliances each year, while a small firm, with one factory and up to 500 employees, must have approximately 23 licences, must abide

by more than 750 compliances and must submit roughly 120 filings a year.⁴³ This administrative maze comes with a heavy cost burden, with last-mile inspections a significant source of unpredictability and disillusionment for businesses. Table 5 summarizes key enablers and potential opportunities for this pathway.

TABLE 5 Pathway 4 enablers and opportunities

Enablers	Opportunities
<p>A streamlined and simplified compliance regime</p>	<ul style="list-style-type: none"> - Enhance inter-ministerial and inter-department collaboration (e.g. via structured cross-functional programmes to rationalize compliance requirements) - Harmonize the role of different bodies in decision-making
<p>The accelerated adoption of e-governance and e-compliance</p>	<ul style="list-style-type: none"> - Accelerate efforts to integrate multiple data platforms and enhance data-sharing activities - Increase the coverage of single-window clearance and deploy digital-first solutions - Introduce tracking mechanisms to monitor and review bottlenecks

Source: World Economic Forum and Kearney

Transformation pathway example: Indonesia

GDP growth in Indonesia has averaged approximately 5% since the early 2000s.⁴⁴ Despite this performance, the country has suffered from structural bottlenecks, as evidenced by its overall ranking (at 73) on the Ease of Doing Business Index 2020.⁴⁵

Recognizing this disadvantage, the Government decided to undertake structural reforms through its Omnibus Bill,⁴⁶ which was laid down in 2020. This piece of legislation aims to make improvements across multiple dimensions:

- Easing foreign investment and giving more freedom to direct foreign investment across businesses
- Amending corporate tax provisions and reducing tax rates to attract more investment

- Granting corporates greater flexibility to make and enact labour-related decisions
- Making it easier to hire more foreign workers.

The Omnibus Bill will directly enhance the ease of doing business in Indonesia by:

- Introducing a simplified licensing regime
- Enabling better transparency as regards firms' compliance
- Creating a land bank supervisor
- Acting as a facilitator, rather than a barrier, to private investment.

4.5 Transformation pathway 5: From infrastructure inputs to infrastructure outcomes

Robust and reliable infrastructure can act as a catalyst for manufacturing. Infrastructure development activity itself requires manufacturing effort across key input industries and sets in motion a virtuous cycle. Upgraded infrastructure helps manufacturers improve their reach, speed and efficiency as well as their access to customers, which further boosts manufacturing activity.

India's infrastructure, both transportation and utilities, has grown substantially over the past 20 years. Programmes like the NIP, if implemented effectively, have the capacity to reshape India from the ground up, advancing its manufacturing capability significantly. However, both transportation and utility infrastructure require a shift in focus from inputs to outcomes.

Transportation infrastructure

The Indian Government has made transportation networks a key priority; the past 10 years have seen substantial emphasis on comprehensive development. This commitment is reflected in a consistently high share of GDP allocated to infrastructure development, with \$30 billion assigned to road and rail transport infrastructure spend in fiscal year 2021-2022.⁴⁷

India's transportation infrastructure push can be tracked along the following dimensions: investment, capacity creation and usage. The push has been most notable on the investment dimension. India's transport infrastructure investment trajectory has seen fluctuations but continues to be well above 1-2% of GDP. In fact, the NIP aims to extend this figure to 3-4%, with transport contributing more than 40% of the total \$1.8 trillion outlay.⁴⁸ However, planned investment is not always accompanied by proportionate capacity creation or usage growth, as many projects face delays and cost overruns. While advances in road construction have been

commendable, with more than double the length of road in km being constructed per day compared to just five years ago, the progress has been relatively slower in railways, inland waterways and port construction.

India's disproportionate focus on road-led, non-bulk movement has led to speed and flexibility constraints across several industries. This can be seen all too well when considering the consistently higher budget allocation for road infrastructure development, which also indicates that waterways and bulk movement facility development is behind the curve.⁴⁹

This high dependency on roads also impacts overall logistics performance. As a result, despite significant investment, India's position on the World Bank's Logistics Performance Index (LPI) has mostly stayed fixed in the mid-40s in the last four editions.⁵⁰ India also lags other emerging manufacturing hubs in Asia on key aspects of performance.

Utility infrastructure

Utility infrastructure has also assumed heightened importance in the NIP, with an investment of \$448 billion in energy⁵¹ and \$288 billion in water and sanitation⁵² planned during the next four to five years. However, due to myriad legacy issues, the Indian manufacturing sector continues to face substantially higher challenges with utility infrastructure.

For example, regarding power supply:

- India's commercial and industrial power tariffs are 15-35% higher than comparable Asian peers like China, Indonesia, Malaysia and Viet Nam.⁵³
- India charges industrial users more than residential users, a disparity that is seldom observed in other manufacturing hubs.

- Despite high tariffs, electricity supply is often inconsistent. This results in hidden costs for manufacturers (e.g. needing to operate their own diesel generators).

Overall, this indicates an urgent need for India to shift its focus from infrastructure investments to infrastructure *outcomes* – a recurring theme in discussions with business leaders.

From a competitiveness perspective, India needs to drive its infrastructure development on cost, speed and flexibility. If it fails to make its infrastructure more competitive, India will struggle to make the breakthrough it desires in manufacturing. Table 6 summarizes key enablers and potential opportunities for this pathway.

TABLE 6 | Pathway 5 enablers and opportunities

Enablers	Opportunities
<p>A comprehensive, multimodal transportation agenda</p>	<ul style="list-style-type: none"> - Enhance the focus on non-road transport modes (inland waterways, ports, railways, etc.) while continuing to lay the groundwork for a world-class road network - Undertake a concerted, cross-stakeholder approach to accelerate stuck projects (especially those due to avoidable issues, such as payment delays) - Further reduce the turnaround time for clearances, paperwork and other administrative processes
<p>A focused reform agenda for utilities – a) Power</p>	<ul style="list-style-type: none"> - Develop a conducive commercial environment for industry (e.g. by reducing commercial and industrial tariffs, reducing cross-subsidization) - Enhance operational efficiency in distribution networks (e.g. by encouraging private participation) to ensure 24x7 power supply - Strengthen commitments to renewable energy projects
<p>A focused reform agenda for utilities – b) Water</p>	<ul style="list-style-type: none"> - Create a robust, scientific approach to water management policy with greater capacity-building - Enhance the efficiency of the water supply and invest in waste water treatment systems as a sustainable industrial water supply source - Drive stronger industry collaboration and private investment in the supply chain to enhance the knowledge base of water management systems

Source: World Economic Forum and Kearney

Transformation pathway example: China

China’s manufacturing growth has coincided with the heavy investment it has undertaken in infrastructure, balanced across transport, utilities and social requirements. This has been in the range of 25-40% of total fixed asset investment.⁵⁴

As a result, China’s infrastructure has taken massive leaps forward. In transport, the growth has been in road, rail and waterways, with highways extending

for 4.84 million km as of 2018, compared to 81,000 km in 1949.⁵⁵ China has also secured high levels of reliability in its electricity infrastructure, as well as increased access to water and sanitation.

The success of these efforts can be seen in the World Bank’s LPI. China’s overall rank in 2018 was 26, but it took 20th position in infrastructure, behind only less dense and less populated countries.⁵⁶

Conclusion

The times are like no other in recent history. Climate change, emerging technologies, global trade tensions and now COVID-19 are driving fundamental shifts in global value chains. In this evolving narrative for global manufacturing, the time is ripe for India to deliver on its manufacturing potential.

Success in manufacturing will be critical for the nation to create economic opportunities for about 100 million people who could enter its workforce in the coming decade, to distribute wealth more equitably as a society and to contain its burgeoning trade deficit. It will also have repercussions for the rest of the world. With most of the developed world's populations projected to age significantly in the coming decades, India could hold the key to the next wave of growth in global manufacturing. For corporations seeking new resilient manufacturing

destinations and attractive international markets, India could offer the perfect balance of demand potential and supply capabilities.

Capitalizing on this opportunity will require coordinated action from national, state and local government stakeholders, and from players across the full spectrum of the private sector. The five transformation pathways highlighted in this White Paper serve as an initial framework for deliberation and action in the manufacturing ecosystem. The World Economic Forum looks forward to working closely with the manufacturing community in India to continuously generate new insights, help inform discussions and strategy decisions, establish new partnerships and collaboration, and provide a platform for exchanges with the global community.



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