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CII 13TH MANUFACTURING SUMMIT 2014

# MAKE IN INDIA: TURNING VISION INTO REALITY

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# MAKE IN INDIA: TURNING VISION INTO REALITY

ARINDAM BHATTACHARYA

ARUN BRUCE

ANIRBAN MUKHERJEE

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# PREFACE

**T**HE WORLD ECONOMY IS recovering from an extended slowdown, with all the key economic groups, including the USA, Euro area and BRICS, expected to stage higher growths over the next few years. India in turn has recently witnessed the most emphatic election verdict in 3 decades, and is gearing up for growth. The overall outlook is positive, with leaders across the industry expressing confidence in this economic revival. In keeping with the theme of development, Prime Minister Mr Narendra Modi has launched the “Make in India” campaign, targeted to transform India into a manufacturing leader.

Yet the vision, while laudable, is not easy to achieve.

The world is fast changing, with a rebalancing of manufacturing weight across the developed and developing economies. China, with its rising wages and increasing cost of production, is fast losing its cost advantage. Russia too is facing challenges in maintaining its competitiveness, with rising wages, increasing factor costs, and geopolitical issues. The US and Mexico, on the other hand, are reclaiming their share of the global manufacturing pie on the back of declining factor costs and rising productivity.

India, in this competitive global environment, is starting from a position that is far from advantageous. India’s manufacturing sector, with a 15% share of overall GDP, compares poorly with peers like Malaysia, Thailand and Indonesia. India also suffers from some critical drawbacks like a lack of an enabling infrastructure, poor perception of India in terms of ease of doing business, and a lack of proven ability to compete at a global scale. At the same time India’s long term prospects remain intact, with its core strength of human resource, a strong base of entrepreneurs, and a robust and growing domestic demand.

In many ways, therefore, the stage is set for India to transform its manufacturing and seek global leadership. This report aims at playing its part by laying out the key imperatives and a framework for turning the vision into reality.

# STATE OF THE INDUSTRY: “A GREAT DAWN?”

*“It was the best of times, it was the worst of times”*

— Charles Dickens

**T**HE INDIAN MANUFACTURING SECTOR is a classic example of an industry that has had great potential, but one that has been systematically done in by political ineffectiveness, entrepreneurial myopia and sheer ignorance of what it takes to succeed. To quote the Spanish philosopher George Santayana, ‘those who cannot remember the past are condemned to repeat it’. Thus, before we set aspiration for India’s manufacturing sector, we review the sector’s past performance and the learning it has to offer.

## Story So Far: Below Par Performance

Over the last 20 years, Indian manufacturing has by and large grown at the same pace as our overall economy. Our share of global manufacturing has grown from 0.9 to 2.0 percent during this period while our GDP share has grown from 1.2 to 2.5 percent. Despite this encouraging growth, however, the relative share of manufacturing in the Indian economy has remained unchanged, dashing hopes of an economy based on manufacturing-led growth. The sector accounted for 15 percent of GDP in 1993, a rate that remains about the same today. Meanwhile, several Rapidly Developing Economies (RDEs) have increased their share

of manufacturing to above 20 percent of their GDP, in particular Thailand (34 percent in 2012), China (32 percent), Malaysia (24 percent), Indonesia (24 percent) and the Philippines (31 percent).

In India, the number of jobs in the sector has also remained low over the last twenty years, increasing only by 1.8% per year from 37 and 53 million. This contrasts with the services sector, which has increased by 6.5% per year during the same period, growing its share of India’s labour force from 22 to 31 percent and now accounting for 150 million jobs (compared to approximately 80 million in 1993).

Over the last five years, there has been a reversal of sorts to this manufacturing trend, with Indian manufacturing’s share of GDP falling from 2.2 to 2.0 percent between 2009 and 2013, even as the country’s share of global GDP grew from 2.2 to 2.5 percent over the same period (Exhibit 1.1).

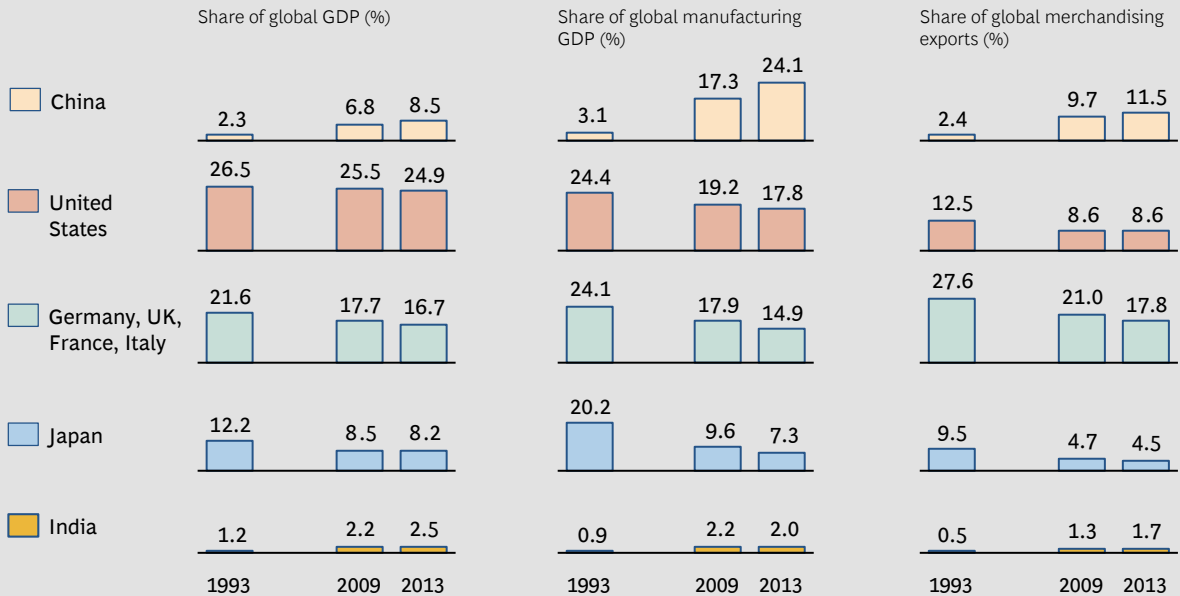
When seen against the performance of India’s peers, the situation is bleaker still. China’s share of global manufacturing increased by more than six percentage points (rising from 17.3 to 24.1 percent) during the same period, while the manufacturing share of several other countries (South Korea, Russia, Mexico, Malaysia, Thailand) has also significantly increased.

## Exhibit 1.1 | India's Position in Global Manufacturing GDP and Export Over the Last 20 Years

**India share of global GDP increased from 1.2 to 2.5% over last 20 years ...**

**... while share of global manufacturing increased from 0.9 to 2%**

**... and India's share of global merchandise export also increased from 0.5 to 1.7%**



Source: World Bank.  
Note: Based on values in current USD.

The same bleak picture characterises the Indian export sector—and exports are, the best indicator of success for any manufacturing nation. Here, India's performance has improved with its share of global merchandise exports increasing from 0.5 to 1.7 percent over the past twenty years. However, this increase remains modest compared to China's performance, where manufacturing exports have risen from 2.4 to 11.5 percent of global exports.

At the current rates of underperformance, the sector will fall well short of the target set by the National Manufacturing Policy (NMP) of 2012. While the policy set out plans for the sector to reach 25 percent of GDP and create 100 million additional jobs by 2022, the sector's contribution to GDP has fallen from 16 to 15 percent, with fewer than five million incremental jobs having been added to the economy over the past five years (Exhibit 1.2).

### Future Outlook: Great Expectations

While the historic performance of the manufacturing sector has been below par, with es-

pecially poor results over the past five years, the mood in India across the broader industrial sector has started to shift over the past six months, thanks to two factors.

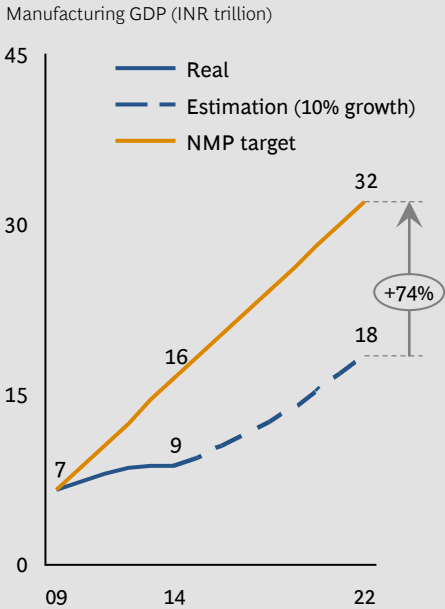
First, India's recent election outcome is widely considered to be good news for the industry.

- This year's election gave the biggest mandate to a single political party since 1984.
- Narendra Modi's popularity was highest within the business / CEO community (nearly three quarters of CEOs surveyed had expressed a preference for Mr Modi as prime minister).
- The election was contested largely on the issue of development, rather than on social or community issues.

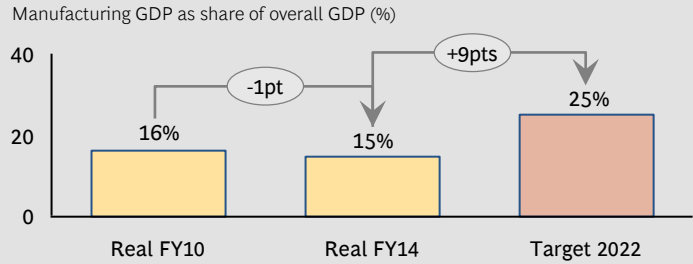
Second, the overall economic outlook across the world has been improving. Several countries, especially in the developed economies—where growth had slowed down or contracted significantly in the wake of the 2008 financial crisis—

## Exhibit 1.2 | At Current Growth Trajectory, Indian Manufacturing will Significantly Underperform NMP Plan for 2022

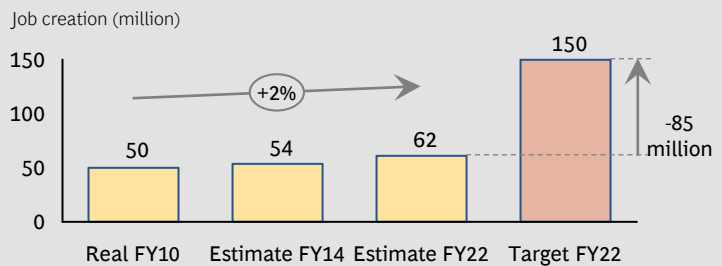
### Incremental GDP lagging behind target by 74%



### Share of manufacturing GDP progressing in opposite direction from target



### 85 million less jobs likely to be created



Sources: NMP target report, Reserve Bank of India Database on Indian Economy; Central Statistics Office; Ministry Of Statistics And Programme Implementation Oxford Economics, BCG analysis.

have started to show signs of revival. In the past year, the US, for instance, has experienced some of its strongest quarters. And although questions remain over whether Europe as a whole can return to growth, several economies within Europe have started strengthening. China's outlook has also improved (Exhibit 1.3).

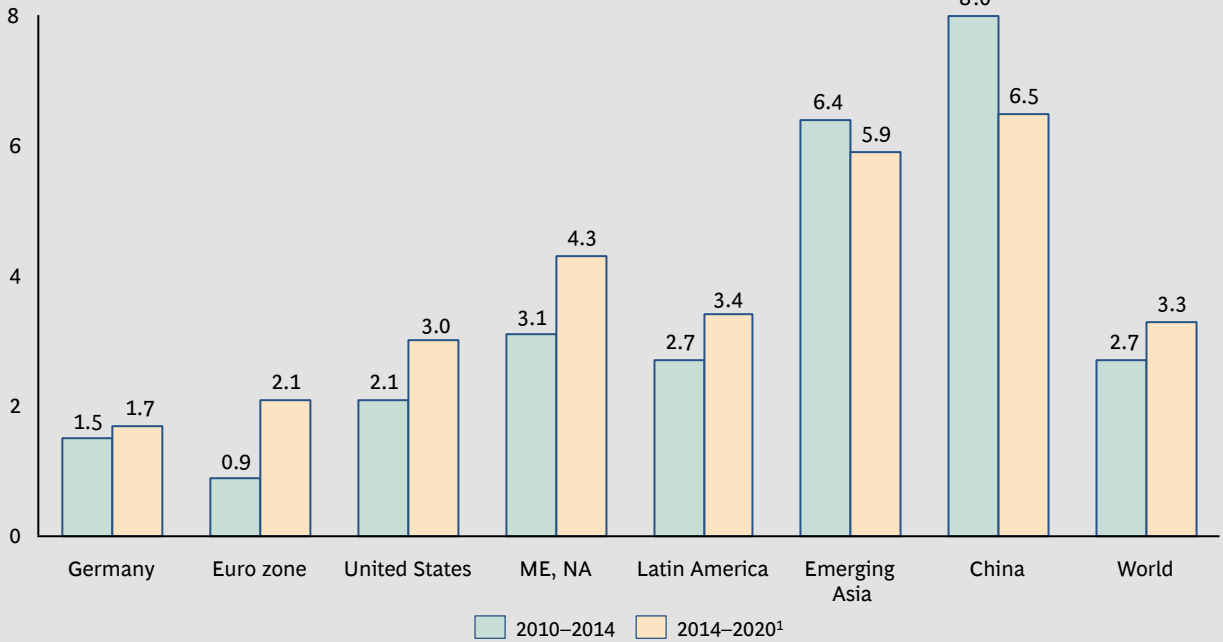
In addition to improving economic sentiment, since the beginning of July, the current government has developed a set of specific actions designed to rejuvenate manufacturing:

- Reforms have been announced to boost manufacturing growth to 10 percent per year by promoting "Make in India", an initiative aimed at creating 100 million jobs over the next decade and bringing manufacturing up to 25 percent of Indian GDP. Specifically, these include:
  - Investment to foster innovation and new technology development, including a USD 1.2 billion investment to develop smart cities and the creation of a USD 16 million development fund;
  - Actions to facilitate Foreign Direct Investment, including an increase of the FDI cap to 100 percent in railways and to 49 percent in defence and insurance;
  - Actions to foster project execution, including the reforms of approval and clearance requirements and processes, including the rolling out of an online system designed to speed up approvals for development projects that might have environmental impacts;
  - New policies to facilitate the expansion of Micro Small and Medium Enterprises (MSME) and increase the focus on innovation, including the launch of a INR 10,000 crores venture capital fund dedicated to MSMEs; and
  - Actions to enhance skills and job creation in leading manufacturing sectors, including automobiles, chemicals and textiles.
- The government has made strategic visits overseas to drive increased investment



### Exhibit 1.3 | Most Global Economies Expected to Grow Robustly Over the Next Several Years

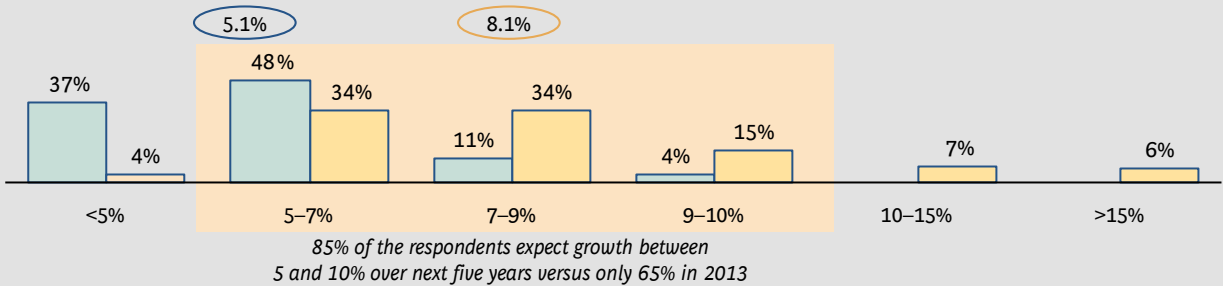
Price adjusted GDP, change over previous year (%)



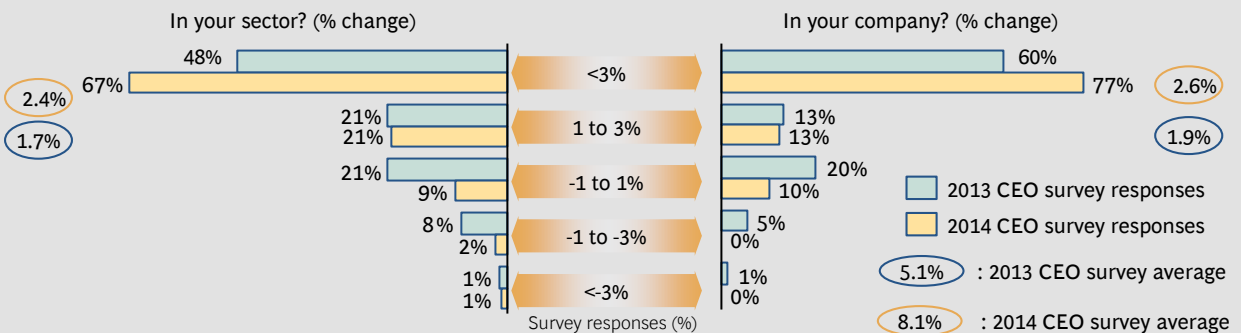
Source: Thomson Reuters datastream (IMF World Economic Outlook) / BCG analysis.  
<sup>1</sup>IMF estimate.

### Exhibit 1.4 | Increased Optimism

Given the recent announcements and the government's intent to drive manufacturing growth, how do you see the manufacturing sector growth in India over the next five years?



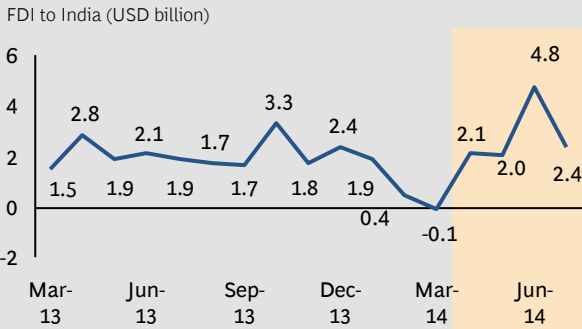
Do you see stronger growth over the next 5 years compared to last 5 years?



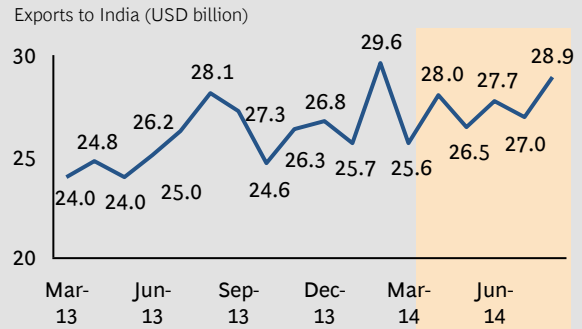
Source: CII-BCG Manufacturing Leadership Survey 2013, CII-BCG Manufacturing Leadership Survey 2014.

## Exhibit 1.5 | Green Shoots?

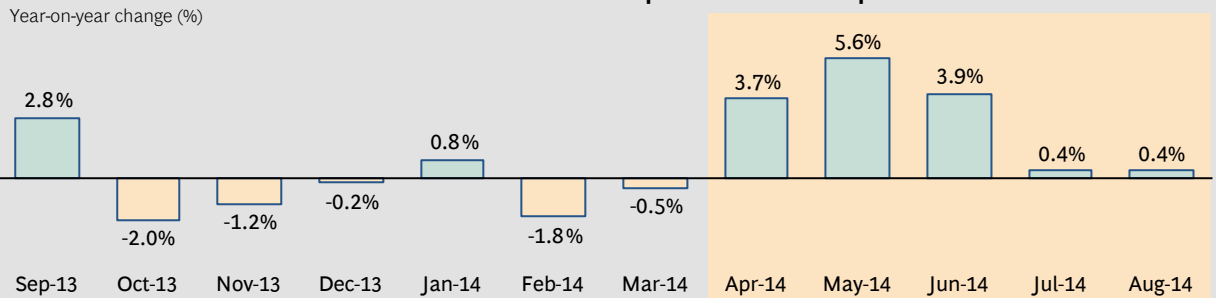
### Continuous increase of FDI since March 2014, reaching levels beyond 2013's average



### Increase in exports from India being observed since April 2014



### Continuous increase of industrial production since April 2014



Sources: Reserve Bank of India Database on Indian Economy; Central Statistics Office; BCG analysis.

(including a visit to Japan, where the government has committed to investments in India of USD 35 billion, and to the US where a US-India business body has committed to a USD 42 billion investment in India over the next two to three years).

As a result, the mood and expectations of the manufacturing industry are steadily improving. CEOs are more positive than before, as revealed through CII-BCG Manufacturing Leadership Survey 2014 (Exhibit 1.4). Markets have started to rise in expectations of improved performance in the sector, and many indices that cover manufacturing companies have started to rise in value significantly. For example, between April and October 2014, the S&P BSE Consumer Durables index has recorded growth of 45 percent and the S&P BSE Auto index growth of 10 percent.

Manufacturing performance has also started looking up in many areas. India's Index of Industrial Production (IIP) has experienced a strong run in many of the recent months, showing year-on-year growth levels of be-

tween 0.4 and 5.6 percent since April 2014. FDI has increased from USD -0.1 billion in March 2014 to USD 4.8 billion in June. Moreover, since April 2014, manufacturing exports from India have continuously exceeded export levels of 2013, with more than USD 26 billion worth of goods exported each month (Exhibit 1.5).

While optimism is certainly high, there is a long way to go before India can start to celebrate. Specifically, no major changes have been announced by the government apart from measures to increase the efficiency of government functions and the launch of a few measures aimed at increasing the ease of doing business (save the increase in FDI cap in a few key sectors). Many of the fundamental factors that have limited India's growth in the past persist. Labour reforms are still badly needed, power is in short supply and the country's infrastructure falls short of expectations.

However, with government taking encouraging first steps and the global economic mood improving, this is a time of great expectations.

# “MAKE IN INDIA”: THE GLOBAL CONTEXT

*“Whosoever desires constant success must change his conduct with the times.”*

— Niccolò Machiavelli

**T**HE GLOBAL MANUFACTURING LANDSCAPE has been evolving at a fast pace. While continuous change in wages, energy costs, productivity and currency rates are shifting the global standings on cost competitiveness, factors other than cost are becoming more and more important for companies to decide the location for sourcing and manufacturing. In this section, we take a closer look at the emerging global scenarios on cost and non-cost related factors. Some of the insights are startling and command critical implications for India as it seeks to drive its manufacturing sector to the next level.

## Winning the Cost War

Total manufactured cost is central to deciding any manufacturing location. To assess India’s performance on the dimension of cost competitiveness, we take a look at the BCG Manufacturing Cost-Competitiveness Index 2014 (Exhibit 2.1). Among the top 25 exporting countries, India has the second lowest manufacturing costs with a relative index of 100 (India taken as base), after Indonesia (index of 95). Even though manufacturing wages more than doubled in both the countries over the last decade, these increases were offset by productivity gains and currency depreciation. China, with an index of 110, is placed moderately well on cost advantage when compared to other major exporting countries.

The more important comparison is how we have fared over time. It is interesting to note that India has held steady over the years in terms of relative cost. This means that our cost increases have been dwarfed by that of many of our peers. China for instance, lost ground in cost competitiveness when compared with its performance in 2004, largely due to a dramatic increase in wages as well as increased utility prices.

The shifts in the relative manufacturing costs have resulted from a wide variety of reasons as detailed below.

### INDONESIA

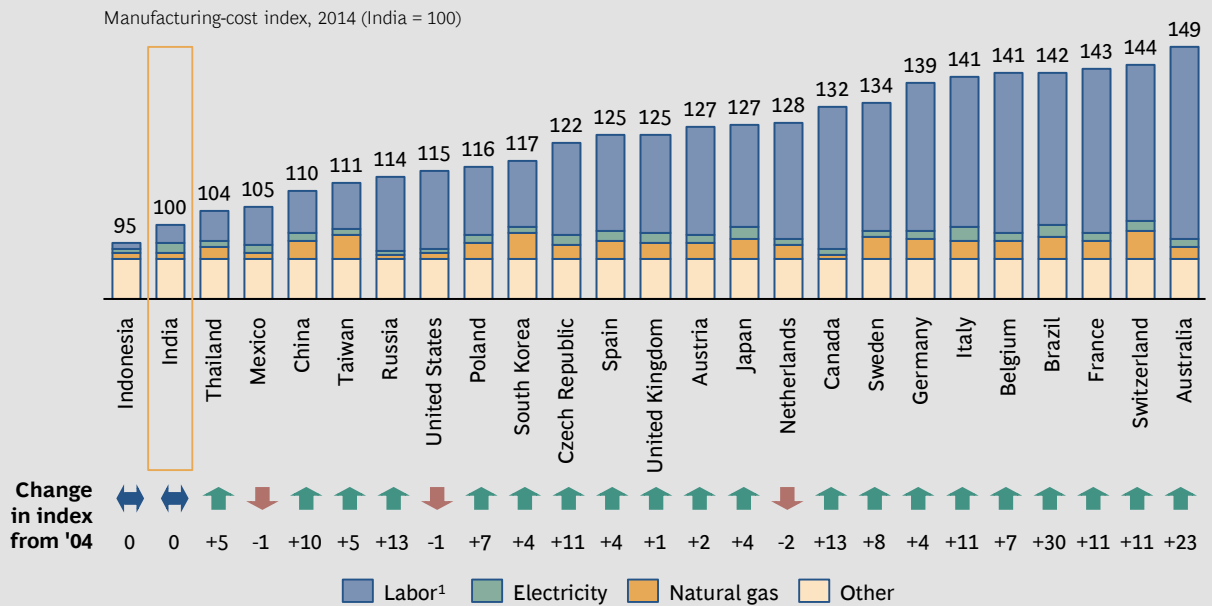
Indonesia has edged India on cost competitiveness primarily on the back of its wages and the lower cost of its natural gas. Rising factor costs in China and political uncertainty in other parts of south-east Asia including Thailand and Vietnam have further worked in Indonesia’s favour.

Several companies including General Electric, LG and Toyota have announced their plans to expand manufacturing operations in Indonesia.

### CHINA

China’s cost advantage is fast eroding and the cost to produce goods in China is now only marginally better than some of the developed countries. Its productivity-adjusted wages and natural gas costs have more than doubled in the last decade (Exhibit 2.2). Electricity costs have grown by more than 60

## Exhibit 2.1 | Dramatic Shifts Have Led to a Wide Spread in Direct Competitiveness Across the Top 25 Exporting Economies



Sources: US Economic Census; BLS; BEA; ILO; Euromonitor; EIU; BCG analysis.

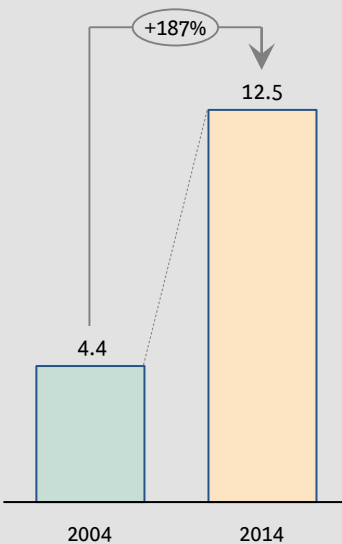
Note: No difference assumed in "other" costs (for example, raw-material inputs, machine and tool depreciation); cost structure calculated as a weighted average across all industries.

<sup>1</sup>Productivity-adjusted.

## Exhibit 2.2 | Rising Wages and Energy Costs Have Been Key Factors Weakening China's Competitiveness

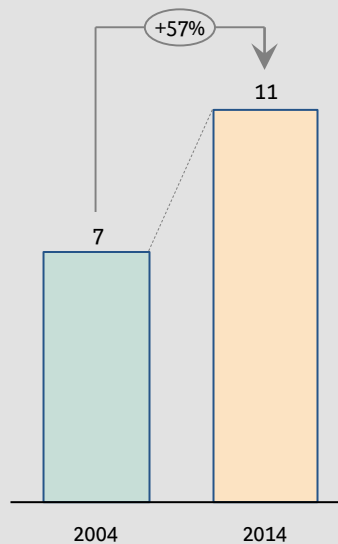
~200% increases in productivity-adjusted labor costs

Productivity-adjusted manufacturing wages (USD)



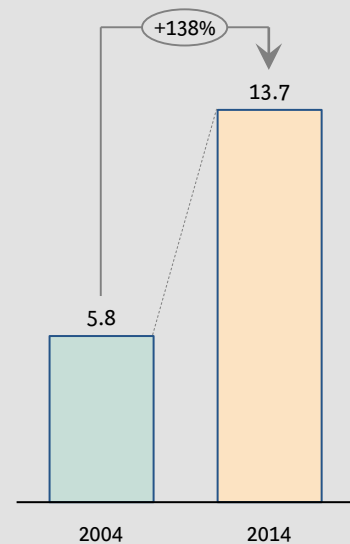
~60% increases in electricity costs

Industrial electricity cost (cents per kilowatt hour)



Natural-gas costs have more than doubled

Industrial natural-gas cost (USD per million BTUs)



Sources: US Economic Census; BLS; BEA; ILO; Euromonitor; EIU; BCG analysis.

Note: No difference assumed in "other" costs (for example, raw-material inputs, machine and tool depreciation); cost structure calculated as a weighted average across all industries.

percent. Moreover, the Chinese currency, Yuan, has appreciated by more than 10 percent in the last five years.

### **RUSSIA**

Like China, Russia's cost competitiveness has eroded over the last decade. In this period, productivity-adjusted wage rates and industrial natural-gas costs have more than tripled, while electricity costs have doubled. Costs in Russia are estimated to be at near parity with those in the US.

Political instability and tensions have further aggravated the concerns of manufacturers in Russia. Recent western sanctions in the energy sector have started to weigh on Russian manufacturing, resulting in higher fuel costs. Russian counter-sanctions on imports may further increase inflation. All these factors might result in further eroding Russia's cost competitiveness.

### **MEXICO**

Mexico has regained its status as a leading low-cost manufacturing base. The biggest factor contributing to this trend is the cost of productivity-adjusted labour costs. In 2000, labour costs in Mexico were roughly twice of that in China. In the last decade, while labour costs have quintupled for China, it has increased by only 67 percent for Mexico. In fact, productivity-adjusted labour costs in Mexico are now estimated to be 13 percent lower than those in China. If electricity and natural gas costs are also included, total costs in Mexico are 5 percent below that in China, and only 5 percent higher than India. Mexico's gas prices are tied to those in the US, which are substantially lower as compared to rest of the world. Its younger demographics and geographical proximity to the US make it even more favourable than China for US companies to source and manufacture goods.

### **THE UNITED STATES**

The US is re-emerging as a preferred manufacturing destination, thanks to many factors. The wage rates have increased by only a third of the average across the top 25 exporting countries. Moreover, other currencies within this set have strengthened over recent years with respect to the dollar—making it more expensive

to buy from them. While natural gas costs have doubled on average for top 25 countries, US has witnessed a price fall of around 25 percent due to the shale gas boom and flattening of natural gas demand. Electricity costs have also increased at a much slower pace than other countries (Exhibit 2.3).

Apart from the costs, the US' focus on innovation and technology upgrade has borne fruits. Manufacturing's share of private-sector R&D spending in 2012 was about two-third. The focus on innovation and technology has led to higher productivity, faster new product development and flexible manufacturing systems and supply chains. It should be noted that though China leads the world in manufacturing at an overall level, it is the US that tops the chart in technology-intensive manufacturing, including semiconductors and aircrafts. They have also made commendable advancement in technologies such as additive manufacturing, nanotechnology, artificial intelligence and robotics.

There is indeed a steady shift towards the US recapturing its position as a leading manufacturing driven economy. Such an evolution could spell further, and significant, challenges for India in terms of its ability to draw global manufacturing investments. If India wants to avoid this unfavourable scenario, working on both cost and non-cost structural reforms is a must.

## **Looking Beyond Cost**

While cost competitiveness is a critical criterion driving the attractiveness of a country, other factors play a key role too. Factors like infrastructure and those related to business environment, including operational ease, transparency, and access to credit carry substantial weight.

While India scores well on cost competitiveness, it is in some of these other factors that the country loses out.

When compared on the basis of some of these non-cost parameters, India ranks poorly not only with respect to the developed economies, but most of the developing economies as well (Exhibit 2.4). India's rank on ease of doing

## Exhibit 2.3 | US, With Low Energy Cost and High Productivity Gains, is Catching Up With the East on Cost

Shale gas boom and continued productivity increase has turned the tide in US' favour







| Key driver            | US change ('04 – '14) | Peers <sup>1</sup> change ('04 – '14) | US advantage  |
|-----------------------|-----------------------|---------------------------------------|---|
| Wages                 | +27%                  | +71%                                  | <ul style="list-style-type: none"> <li>Flexible workforce</li> <li>Moderate increase / Decline in wages</li> </ul>    |
| Absolute productivity | +19%                  | +27%                                  | <ul style="list-style-type: none"> <li>Continued productivity growth</li> </ul>                                       |
| Currency              | Flat                  | +7%                                   | <ul style="list-style-type: none"> <li>Strengthening of other currencies with respect to USD</li> </ul>               |
| Natural-gas cost      | -25%                  | +98%                                  | <ul style="list-style-type: none"> <li>Shale gas boom</li> <li>Flattening of natural gas demand</li> </ul>            |
| Electricity cost      | +30%                  | +75%                                  | <ul style="list-style-type: none"> <li>Deregulations and restructuring</li> <li>Technological advancements</li> </ul> |

Sources: US Economic Census; BLS; BEA; ILO; Euromonitor; EIU; BCG analysis; Press search.

Note: No difference assumed in "other" costs (for example, raw-material inputs, machine and tool depreciation); cost structure calculated as a weighted average across all industries.

<sup>1</sup> Average of top 25 countries

## Exhibit 2.4 | India is Challenged by Secondary Factors

| Country  | Direct cost relative to the India <sup>1</sup> | Overall business environment <sup>2</sup> | Ease of doing business <sup>3</sup> | Logistics performance <sup>4</sup> | Corruption perception <sup>5</sup> |
|--|--|---|-------------------------------------|------------------------------------|------------------------------------|
|  | Delta  | Rank                                      | Rank                                | Rank                               | Rank                               |
|  India    | –  | 57  | 142                                 | 54                                 | 94                                 |
|  China    | +10%   | 50  | 90                                  | 28                                 | 80                                 |
|  Germany  | +39%   | 12  | 14                                  | 1                                  | 12                                 |
|  US       | +15%   | 7   | 7                                   | 9                                  | 19                                 |
|  Japan    | +27%   | 27  | 29                                  | 10                                 | 18                                 |
|  Thailand | +4%  | 34  | 26                                  | 35                                 | 102                                |
|  |  |   | Rank not among Top 50               |                                    |                                    |

Sources: US Economic Census; BLS; BEA; ILO; Euromonitor; EIU; BCG analysis.

<sup>1</sup>Includes a selection of economies ranked from 1 to 25 on total export size.

<sup>2</sup>EIU ranking based on ten separate criteria or categories covering the political environment, the macroeconomic environment, market opportunities, policy toward free enterprise and competition, policy toward foreign investment, foreign trade and exchange controls, taxes, financing, the labor market, and infrastructure.

<sup>3</sup>World Bank ease of doing business index.

<sup>4</sup>World Bank logistics performance index.

<sup>5</sup>Transparency International 2013 corruption perception index.

business, logistics performance and corruption perception narrates a sorry tale. Administrative hassles form a key challenge in fostering greater manufacturing and industrial growth. For instance, critical delays are faced due to issues in seeking construction permits, utility connections and credit approvals. Even as India figures in the bottom half of the list of 175 countries on corruption perception, low judicial strength in India leads to significant delays in the settlement of court cases.

### Implications for ‘Make-in-India’

The implications of this ever-evolving global landscape are very important and must be factored in for the ‘Make-in-India’ aspiration to be fully realized. India, if it were to propel the growth of its manufacturing sector, would need to maintain its cost advantage in this environment of fierce competition. The competition now is not only with the developing countries but some of the developed countries as well. Maintaining the cost advantage would entail keeping a check on the increase in wages and other factor costs. This is the easiest of the tasks in front of us.

The tougher task for India is to address competitiveness in non-cost factors. To gain investor confidence and attract high FDI in the future, India would need to fix its poor infrastructure through investment in highways, ports and power plants. Radical labour reforms, simpler tax structure and easier access to formal credit mechanisms are also long awaited. Additionally, India will need to show dramatic improvement in its ease of doing business. Addressing these non-cost factors in spirit and also building a perception around these improvements in the international arena are crucial for India to succeed in future.

# SETTING THE ASPIRATION FOR “MAKE IN INDIA”

*“We are continually faced by great opportunities brilliantly disguised as insoluble problems.”*

— John W. Gardner

INDIA SET ITSELF AN aggressive target in 2012 with the NMP objective of enhancing the share of manufacturing to 25 percent of national GDP, targeting to grow manufacturing GDP to INR 25.6 trillion, and creating 100 million jobs, all within a decade. A review of the progress on the ground over the past years since the NMP, points to a need to take another look at these targets.

Even as the NMP aspired for over 10 percent year-on-year growth in manufacturing, the average manufacturing growth in the last three years has been less than three percent. This has led to the share of manufacturing in the economy being the lowest in the past 15 years. Far from witnessing a breakout growth, India’s manufacturing has actually lost ground. To still achieve the 2022 targets of the NMP, Indian manufacturing would now need to target a growth rate of close to 15 percent year-on-year (Exhibit 3.1). When viewed against the 7.3 percent CAGR achieved by the manufacturing sector in the past ten years in India, this seems aggressive at best, and is likely to be unachievable.

## Target Resetting: What is Realistic?

The CII-BCG Manufacturing Leadership Survey 2014 shows that India inc. expects an eight to ten percent growth in manufacturing on a year-on-year basis. Less than 15 percent

of business leaders expect a growth of less than seven percent (Exhibit 3.2). This is in line with the actual growth rate of successful RDEs as witnessed over the last decade. Over the last four years, top performing RDEs have been able to record growth rates above five percent across South Asian countries, Mexico and Turkey and up to 8.4 percent in China. Unfortunately, Indian manufacturing has never grown beyond ten percent at anytime in the recent past, therefore on a consistent basis, ten percent could be an aspirational target to aspire for.

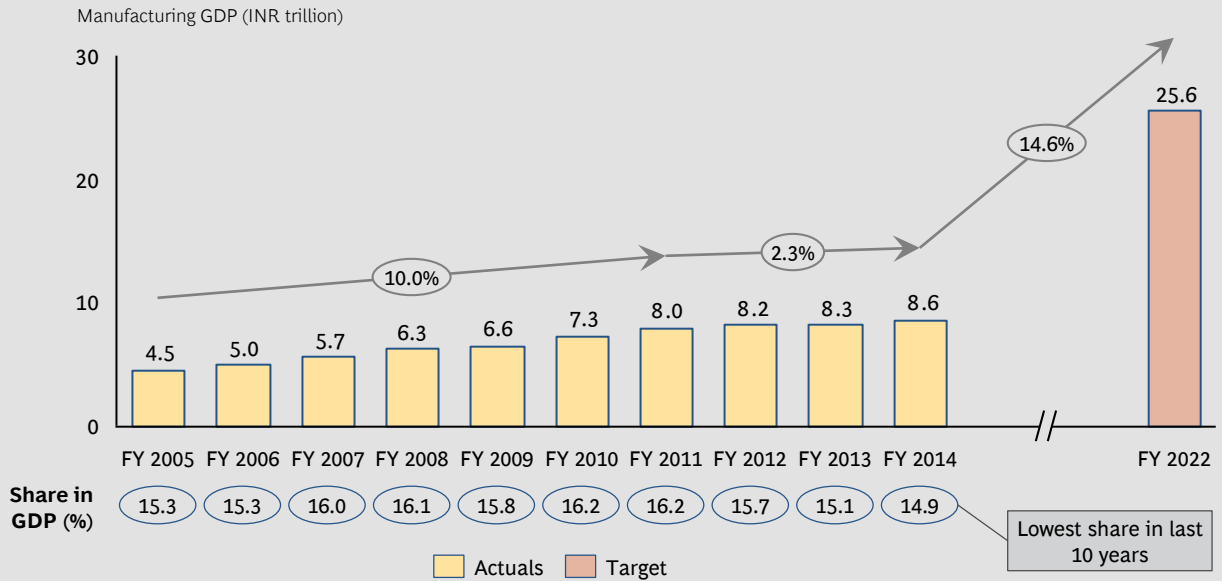
Growth at this rate would place the 2022 Manufacturing GDP at INR 17-19 trillion, as against the NMP target of 25.6. In terms of the total share of GDP, manufacturing would command a 17-18 percent share, as against the NMP target of 25 percent. Even though this growth would significantly improve India’s share of global exports, it would still remain lower than the targeted 2.5 percent. If the same growth were sustained till 2030, Indian manufacturing would be at 22 percent of GDP at INR 40 trillion. If the original plans of 11 percent growth are to be assumed, then Indian manufacturing could potentially touch 25 percent as well by 2030.

While the downward revision of the base case target may seem like a softening of aspirations, it is important to realize that a consistent 8-10 percent growth is not trivial, and achieving this target would place India among the top 3-5 manufacturing economies globally, ahead of countries like UK, Germany and possibly even Japan (Exhibit 3.3).



### Exhibit 3.1 | NMP's Ambition of 25% Share of Manufacturing in GDP Would Require ~15% Growth of Manufacturing Sector

#### Manufacturing has grown at 2.3% in last three years



Sources: Reserve Bank of India database on Indian economy; Central statistics office; BCG analysis.

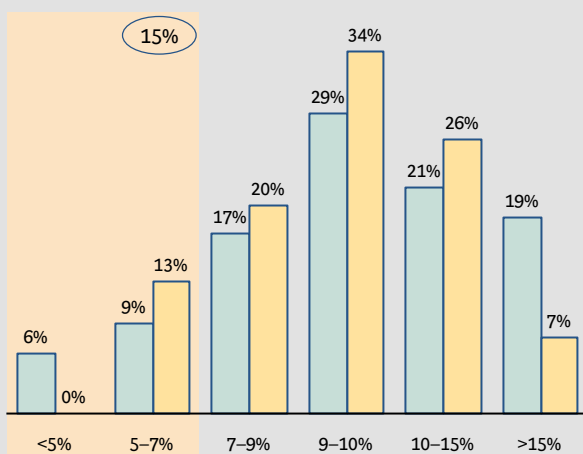
Note: Manufacturing GDP at factor cost, constant (2004–2005) prices; Data for 2010–2011 are based on second revised estimates, 2011–12 are based on first revised estimates and 2012–2013 are based on provisional estimates.

### Exhibit 3.2 | Most CEOs Expect Manufacturing Growth Rate to be 8-10%

#### Less than 15% CEOs expect aspirational growth rate of <7%

What should be the target, aspirational growth rate for manufacturing in India from now till 2020?

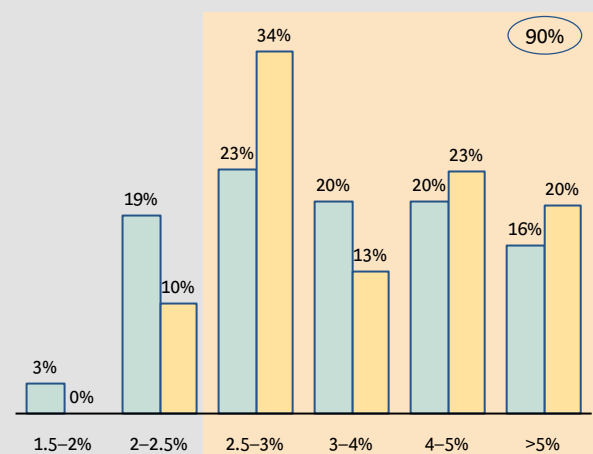
Survey responses (%)



#### India's share to increase from 1.61% of world's export to >2.5% by 2020

What would be your aspiration for India's share in world exports in 2020 (currently 1.6%)?

Survey responses (%)

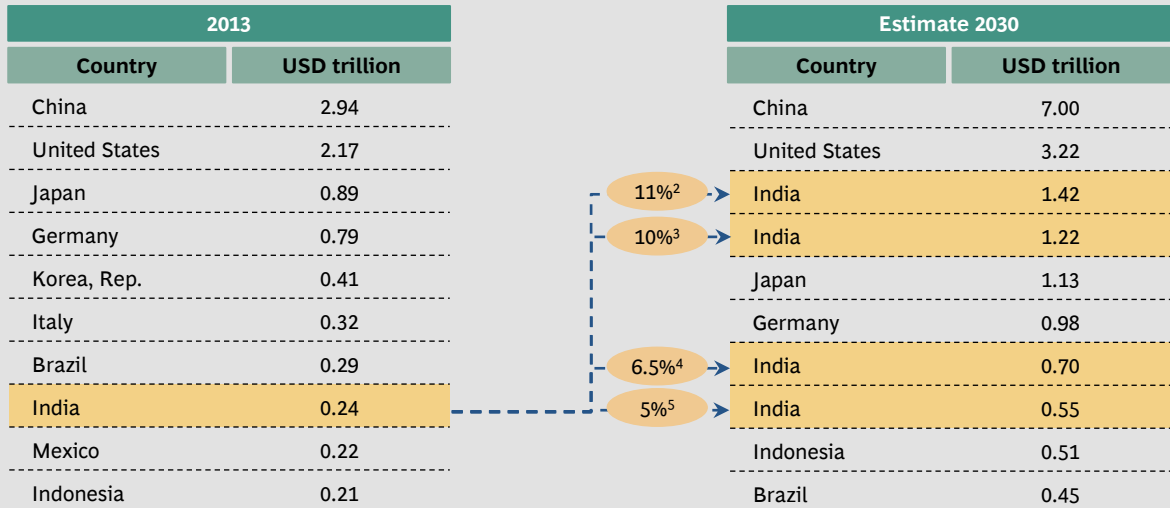


Legend: 2013 CEO survey responses (Light Blue), 2014 CEO survey responses (Yellow), xx% Share of 2014 survey respondents

Source: CII-BCG Manufacturing Leadership Survey 2013, CII-BCG Manufacturing Leadership Survey 2014.

### Exhibit 3.3 | Aspirational Growth will Make India Third to Sixth Largest Player Across the World

Comparison of manufacturing GDP<sup>1</sup> (2013–E2030)<sup>2</sup>



Source: EIU, Euromonitor, BCG analysis.

Note: <sup>1</sup>Manufacturing GDP at factor cost, constant prices (2013).

<sup>2</sup>Based on high ambitions as per original NMP.

<sup>3</sup>Based on government and India leadership growth ambition.

<sup>4</sup>Based on EIU estimation.

<sup>5</sup>Based on least ambitious scenario.

CAGR

#### EMPLOYMENT GENERATION IN MANUFACTURING

The manufacturing GDP has increased at a rate of 7.3 percent over the last ten years. The employment in Indian manufacturing has increased by less than three percent over the same period. Productivity increase has been an average of seven percent, varying from 6 to 8 percent over the last ten years.

Assuming a consistent productivity increase of five percent year-on-year, a consistent ten percent growth in manufacturing would yield an additional 60 million jobs in the sector alone by 2030 (Exhibit 3.4). Assuming a slower productivity increase at three percent (earlier assumptions of the NMP), a larger number of jobs—105 to 130 million could be created by 2030. But it should be noted that a three percent increase in productivity is highly unlikely and also not beneficial for the industry.

#### REVISED VISION

In light of the above discussions, we believe that the vision for Indian manufacturing needs to be tweaked, in line with the realities of the situation (Exhibit 3.5).

#### What Sectors Would Drive this Growth?

To identify the sectors that are likely to drive Indian manufacturing, we need to consider multiple factors:

##### Sectors that leverage India's core strengths:

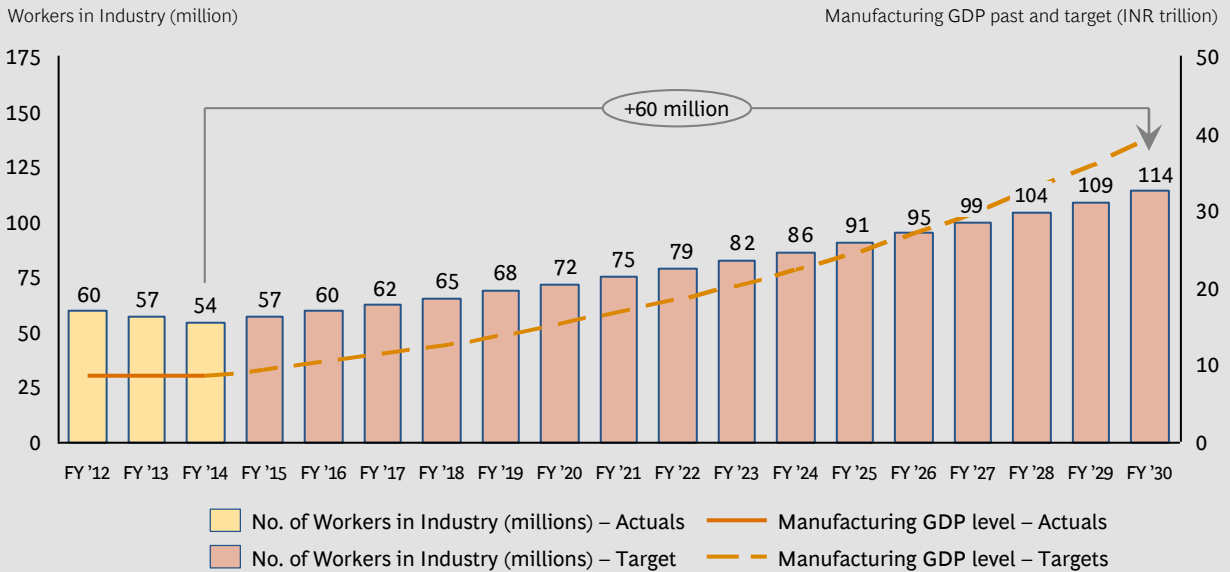
We expect availability of quality labour (cost advantage, labour availability, and engineering skills) to continue to be a core area of strength. We also expect that India's raw material could be an additional area of strength (cotton, steel, coal, downstream petrochemicals are materials where India has a potential advantage due to surplus availability over the longer term). Industries that leverage this surplus labour and availability of raw materials are likely to be significant beneficiaries over the next few years.

##### Sectors that could benefit from import substitution:

Several sectors where India has a robust domestic demand still see a lot of import happening. Electronics, aerospace are two such categories for instance. Some of these sectors are further aided by improving regulations (for example, defence). Targeting

### Exhibit 3.4 | Manufacturing Sector Growth will Create Significant Employment Generation

**~60 million additional jobs expected in manufacturing sector by 2030**



Sources: Government of India, Ministry of Labour & Employment, RBI.  
 Note: 5% productivity increase.

such sectors could provide a significant boost to Indian manufacturing activity.

#### Sectors that could benefit from global shifts:

Globally, supply chains are being constantly reformed with low-risk items continuing to be offshored (apparel, soft toys, furniture, etc.). While China has long been a beneficiary of such shifts, India with her cost advantage could potentially also take advantage of these trends.

Given the above factors, six interesting sectors are likely to play a key role in our growth going forward:

#### TEXTILES AND APPAREL

India has been among the top three textile and apparel exporting nations in the world for the last three years. This position of advantage has been driven by a slew of factors, including India's commanding position as the

### Exhibit 3.5 | Revised Vision for Indian Manufacturing Sector

**At aspirational 11% growth, share in GDP can touch 25% by 2030**  
 With a 5% productivity increase and a GDP growth rate of 7.5%

| Metric                                     | Revised vision for 2030 |
|--|-------------------------|
| Manufacturing growth rate                  | 10–11%                  |
| Share of Manufacturing in GDP              | 21.6–25%                |
| Additional jobs created in Manufacturing   | 60–78 million           |
| Share of India in Global merchandise trade | 5.2–6.1%                |

Sources: Government of India, Ministry of Labour & Employment, RBI, Press search, BCG analysis.

world's largest producer of cotton, large capacities for polyester and other synthetic fibre production, and the labour intensive nature of the sector. Given these, India is expected to continue to grow as an exporter of textiles and apparels. However, the sector has much more potential than has been tapped so far. The gap with China's exports alone is over USD 100 billion.

#### **AUTOMOBILE AND ITS COMPONENTS**

India is well positioned to consolidate and expand its position as a global auto hub. The country has all of the ingredients required. Good quality labour, availability of steel, non-ferrous metals and plastic based components all bode very well for the sector. While the recent domestic demand has been muted, the long term prospects for the sector are intact—given the current low penetration levels of cars in the Indian economy.

#### **ELECTRONICS**

Electronics is a perfect example of import-substitution driven opportunity. Even with consistent and rapidly growing domestic demand, as well as a healthy global market, India imports most of its electronics requirements. The key reason for this lack of enterprise has been under-investments in research and development and a large skill-gap both of which are vital for success in this sector. It is estimated that if the current trend continues, India would need to import electronics goods worth more than USD 300 billion over the next six years—most of which can technically be made in India, if the right fiscal structures and ecosystem are created.

#### **CHEMICALS AND CHEMICAL PRODUCTS**

The chemicals and chemical products industry achieved a podium finish last year both in the growth rate as well as in share in the Indian manufacturing GDP. Key contributors to this success story include dyes, agrochemicals and pharmaceuticals. The dream run is expected to continue in future too as strong domestic demand growth is expected for paints, textiles and adhesives due to increasing urbanization and rising disposable income.

#### **DEFENCE AND AEROSPACE**

The defence sector is expected to boom due to opening up of the sector to foreign investments along with the government's plans of higher spend in the sector in the coming decade. Manufacturing of guns, ships and tanks has already caught the attention of the private sector which is planning investments worth billions. Relaxing FDI norms in defence is already yielding results, with private companies looking to manufacture military aircrafts in India for the first time. Government initiatives are also likely to boost technology transfer and speed up product development in this sector.

The fate of the Indian aerospace sector, which has completely relied on imports in the past, is also set to change. Last year, the government announced its plan to partner with Indian and international companies to build indigenous aircraft. It also intends to expedite technology transfer by leveraging offsets in defence to build high-precision equipment and avionics for passenger aircrafts. The developments are expected to generate interest among private sector in an industry with a steady demand.

#### **FURNITURE (SELECT SEGMENTS)**

While the domestic demand for furniture is robust, a considerable part of furniture requirements are catered to by imports. Large scale factories and efficient clusters in China trump our local industry—which is fragmented. Given the natural advantages that India possesses in terms of raw material availability (steel, wood, low cost labour), the furniture industry presents an ideal opportunity to drive Indian manufacturing forward.

While the above sectors stand out from the perspective of a fit with Indian strengths and demand, India continues to have a broad based set of advantages that will continue to drive other manufacturing sectors as well. Identifying the right levers to unlock each sector's potential is crucial to realising the full potential that India has to offer.

# MAKING “MAKE IN INDIA” A REALITY

*“(And) miles to go before I sleep, And miles to go before I sleep.”*

— Robert Frost

**I**NDIAN PRIME MINISTER MR Narendra Modi’s vision of “Make in India” could not have come in at a more opportune time. The global economy is on the path to gradual, yet definitive recovery. The country has had a change of guard with a clear majority and whole-hearted support. The overall mood is one of development and progress. No wonder then, that the PM’s call to action has received an overwhelming response from both Indian and global industrialists and investors.

However, turning vision into reality is not easy. According to the CII-BCG Manufacturing Leadership Survey 2014, while 44 percent CEOs feel highly confident in the “Make in India” campaign, they also unanimously agree that such a goal would need bold and sustained measures by the both the public and private sectors.

To achieve a manufacturing led transformation, India would need to undertake a well-planned and structured approach. Even as we go about fixing the basic factors around infrastructure, the ease of doing business in this country and related government policies, there is a need to actively plan for and pursue long term goals of fostering technology and innovation. The road to global lead-

ership requires a structured approach across three levels (Exhibit 4.1):

1. Revive manufacturing;
2. Gain global competitiveness;
3. Claim global leadership.

## Revive Manufacturing

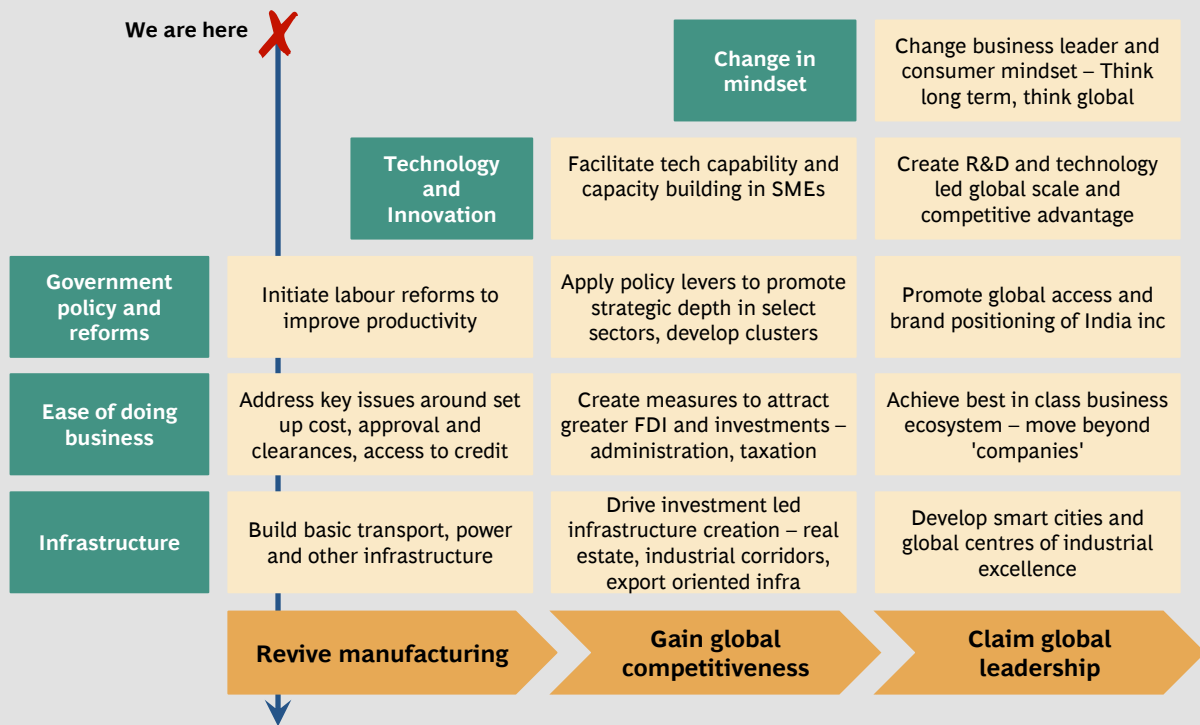
### GETTING INFRASTRUCTURE EXECUTION RIGHT

Infrastructure is the backbone of any economy, and is arguably the single most important factor that separates the leaders from the laggards. The right infrastructure not only ensures an effective supply chain and key inputs feeding into the manufacturing process, but also creates a seamless link across production hubs and end markets—both domestic and global.

Unfortunately, India lags behind in this key area. Over the past few decades, while momentous growth rates have fuelled India’s emerging economic prowess, the country has lacked the corresponding investment in infrastructure development. Today, we are left with a sorry state of transit systems and almost all pillars of infrastructure in India have been marred by under-capacity and poor execution (Exhibit 4.2).

The power sector is in an abysmal state, with widespread capacity constraints since long and

### Exhibit 4.1 | The Road to Global Leadership

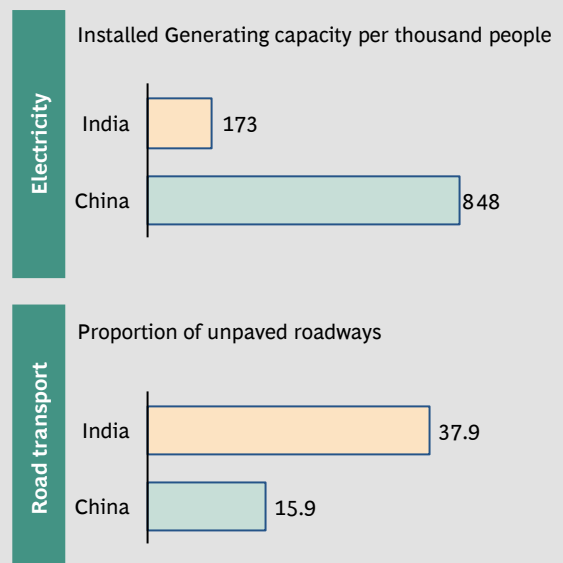


### Exhibit 4.2 | India's Infrastructure Facilities a Key Cause of Concern for Businesses

India's rank on Infrastructure has been deteriorating over the years ...

| Country      | Rank (2014-15) | Rank (2012-13) |
|--------------|----------------|----------------|
| Japan        | 6              | 11             |
| Germany      | 7              | 3              |
| US           | 12             | 15             |
| China        | 46             | 48             |
| Thailand     | 48             | 46             |
| Brazil       | 76             | 70             |
| <b>India</b> | <b>87</b>      | <b>84</b>      |

... because of severe under penetration in most of the sectors



Sources: World Economic Forum, BCG analysis

overdependence on non-renewable sources of energy. The transportation sector has been crippled by poor quality of public transport, roads and rolling stock in railways. The average operating speed of freight trains in India is around 25 km / hr, which is less than half of that in the US and Germany. Indian ports have a turnaround time which is more than twice that of China. The Indian road network is severely inadequate for supporting a burgeoning economy. The real estate sector has suffered from large delays in projects and under-investments.

### **DRIVING LABOUR REFORMS**

Employment growth during 2004-05 to 2011-12 clocked only 0.5 percent, compared to 2.8 percent during the period of 1999 to 2005. This situation will not change, unless manufacturing leaders feel more confident of hiring and increasing the size of their firms. Today, the average manufacturing leader is wary of increasing the size of his permanent workforce, because of inability / difficulty in downsizing if required, and the significant managerial effort that goes into managing government authorities or unions. As a result, the proportion of temporary and contract staff in the workforce is very high. Also, manufacturers are open to outsourcing labour-intensive operations to SME suppliers who would then suffer from lack of scale—which would hurt in the longer term.

Unless this central issue of managerial confidence in increasing workforce size is addressed, all plans for manufacturing growth will be difficult to implement. The government has started addressing this issue. For example a unified Labour Identification Number (LIN) for simplifying business regulations and securing transparency and accountability in labour inspections has been announced. The wage ceiling for Employees Provident Fund (EPF) has been increased from INR 6,500 to INR 15,000. While these are indeed welcome and much needed initiatives, still more reforms are required to truly unlock the potential of India's vast human resources.

### **EASING DOING BUSINESS**

Even after two decades of economic reforms, India has been struggling to provide the right environment and facilities for its businesses. The effort and time consumed in India for

starting a business, dealing with construction permits, gaining access to electricity, registering property, paying taxes, enforcing contracts or resolving insolvency is higher than most other countries.

A study undertaken by the World Bank on 'Ease of doing Business' reflects a similar story, where India sits at the bottom of the pile at Rank 142 (Exhibit 4.3). In addition to issues related to domestic business infrastructure, the process of getting approvals for exports in India is quite outdated and highly time consuming. The cost involved in the process is higher than even in some developed countries (Exhibit 4.4).

According to the CII-BCG Manufacturing Leadership Survey 2014, 84 percent of CEOs responded that 'significant' change would be required both in policy conceptualization and implementation to support manufacturing growth. Governments at both the centre and the states need to step up their efforts, going forward. This would involve clear industry-specific policy guidelines aligned to the needs of each sector. While the central government has initiated steps in the right direction to overcome some of these challenges, it is necessary to develop and deliver on initiatives across the board to resolve hurdles in the way of doing business in India.

## **Gain Global Competitiveness**

### **BUILDING AN EXPORT ECO-SYSTEM**

Reviving the domestic manufacturing sector to better cater to domestic demand is a critical but incomplete solution. Countries successful in manufacturing have also correspondingly boosted their share in global trade. If India wants to become a preferred manufacturing hub, the government would need to create an ecosystem for exports powered by policy reforms, investments and infrastructure.

### **DEVELOPING AN INFRASTRUCTURE WHICH SUPPORTS EXPORT GROWTH**

There is an urgent need to develop export focused infrastructure in India. Under-capacity and mismanagement in India's transit and power systems needs to be addressed. To encourage global trade, ports



### Exhibit 4.3 | Decreasing Ease of Doing Business in India

India ranks 142 among 189 countries on ease of doing business





| Country  | Rank (2015) | Rank (2014) |
|--|-------------|-------------|
|  Thailand     | 26          | 28          |
|  Mexico       | 39          | 43          |
|  China        | 90          | 93          |
|  Russia       | 62          | 64          |
|  Brazil       | 120         | 123         |
|  <b>India</b> | <b>142</b>  | <b>140</b>  |

... especially due to difficult to enforce contracts / deal with construction permits and start a business

| Topic                             | Rank (2015) | Trend in Rank 2014-15   |
|-----------------------------------|-------------|---|
| Starting a business               | 158         |    |
| Dealing with construction permits | 184         |    |
| Getting electricity               | 137         |    |
| Registering property              | 121         |    |
| Getting credit                    | 36          |    |
| Protecting minority investors     | 7           |    |
| Paying taxes                      | 156         |    |
| Trading across borders            | 126         |    |
| Enforcing contracts               | 186         |   |
| Resolving insolvency              | 137         |  |

Source: World Bank "Ease of doing business" report 2014 and 2015.

### Exhibit 4.4 | Complex and Costly Approval Process for Export Limiting "Make in India"

|                          |                                       |  |  |  |  |
|--------------------------|---------------------------------------|---|---|---|---|
| Cost to export           |                                       | USD 1,170   | USD 620   | USD 615   | USD 595   |
| Documentations to export | Bill of lading                        | ✓   | ✓   | ✓   | ✓   |
|                          | Commercial invoice                    | ✓   | ✓   | ✓   | ✓   |
|                          | Terminal handling receipts            | ✓   | ✓   | -   | ✓   |
|                          | Packing list                          | ✓   | ✓   | ✓   | -   |
|                          | Foreign exchange control form         | ✓   | ✓   | -   | -   |
|                          | Certificate of Origin                 | ✓   | -   | -   | ✓   |
|                          | Customs export declaration            | ✓   | ✓   | ✓   | ✓   |
|                          | Technical standard certificate        | ✓   | -   | -   | -   |
|                          | Inspection report                     | ✓   | -   | -   | -   |
|                          | Contract                              | -   | ✓   | -   | -   |
|                          | Station receipt                       | -   | ✓   | -   | -   |
| Time to export           | Customs clearance / technical control | 2   | 2   | 1   | 1   |
|                          | Ports and terminal handling           | 3   | 3   | 2   | 3   |
|                          | Inland transportation and handling    | 3   | 2   | 3   | 3   |

Source: World Bank "Ease of doing business".

<sup>1</sup>Includes documents preparation, customer clearance and technical control, port and terminal handling, inland transportation and handling.



would require higher capacity and streamlined processes. Their linkage to inland transportation for the seamless movement of goods also calls for an upgrade. The development of industrial corridors and smart cities would provide a stimulus to the growth of a globally competitive manufacturing sector. Policy reforms for simplification of tax regime and promotion of exports would further help boost India's share in global merchandise trade. Brand India would also need to be strengthened across the globe for an increased acceptance and preference for 'Made in India' products.

Another key area of progress for India would be the development of its SMEs to achieve and manage scale effectively. Our supply chains are over-dependent on MSMEs. The MSME sector employs over 80 million people in 36 million units, and contributes 45 percent of the manufacturing output. However our SMEs are struggling. Credit defaults are the highest for MSMEs amongst all credit classes—standing at around 5 percent of advances for the last three years.

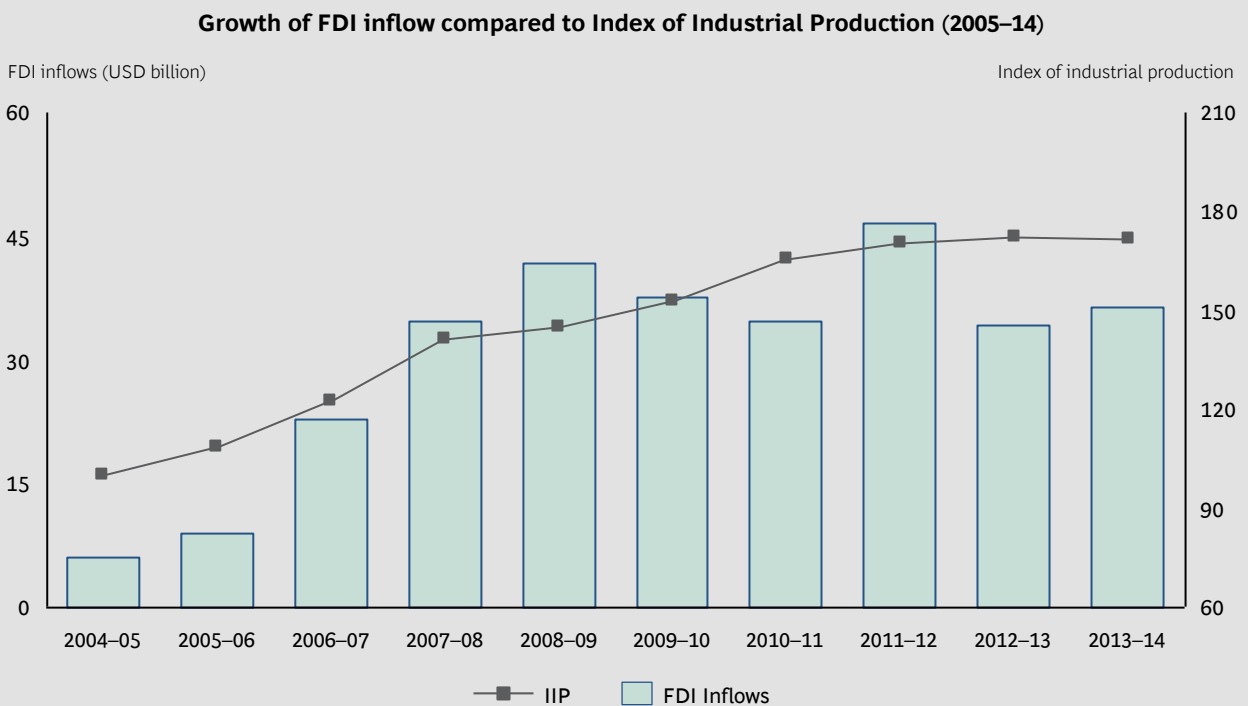
We must ensure that our SMEs become robust and vibrant to resemble the likes of German Mittelstandt which is known for its innovation. This is critical to winning in manufacturing. The path will not just involve newer policy mechanisms, but also a mindset change among the customers of the MSMEs (the larger manufacturing firms) who will have to commit to adopt and develop SMEs in their fold.

**ATTRACTING INVESTMENT**

Industrial Production growth has high correlation with FDI inflows (Exhibit 4.5). The effect of FDI on economic development ranges from productivity increase to enabling greater technology transfer.

Higher FDI inflows are central for India to transcend from 5-7 percent growth to 10-12 percent growth. India currently fares poorly on FDI when compared its global peers. On a per-capita basis, cumulative FDI equity inflows from April 2000 to April 2014 for India is just USD 183 compared to USD 2,017 and USD 1,531 for Mexico and China respectively.

**Exhibit 4.5 | Industrial Production Growth has High Correlation with FDI Inflows**



Sources: Department of Industrial Policy and Promotion; Ministry of Statistics and Program implementation.

The Indian government has already started taking steps in this direction to revive manufacturing sector growth. The recent move of the government to relax the cap on FDI in the defence and construction sector is a welcome step in this regard. Already we are witnessing early rewards. More changes like an increase in FDI cap, and the elevated investor confidence due to the new government are expected to cause FDI inflow to cross USD 30 billion in 2013-14 as against USD 24 billion in 2012-13.

### BETTING ON TECHNOLOGY AND INNOVATION

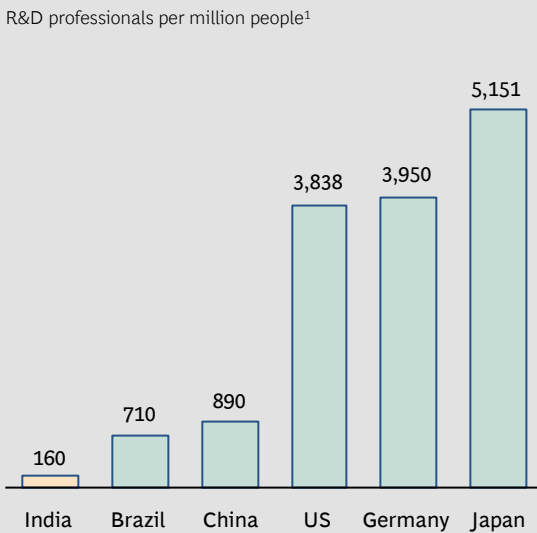
India's current standing on innovation and research is not a desirable one (Exhibit 4.6). India has one-fifth the number of researchers per million as compared to China and even lesser proportion as compared to developed countries. High-technology exports from India form less than seven percent of the total exports, while for most other countries the number is in mid-twenties. India's number of patent applications and R&D expenditure also stands nowhere close to that of the developed countries.

The US has always led other countries in embracing new technologies. To make shale gas revolution a huge success, federal programs played an active role along every phase of the innovation pipeline. From early research on diamond-studded drill bits and directional drilling to cost-sharing on demonstration projects to tax policy support, federal agencies and policies continually acted over 25 years to contribute effectively towards shale gas research and commercialisation.

China has also realised the need for innovation for sustaining its manufacturing sector growth. Chinese industries saw systematic transfer of technology after indigenisation was promoted in the country (Exhibit 4.7). China now accounts for 24 percent share in the world's high technology manufacturing compared to the US' share of 27 percent. China's largest telecommunications-equipment supplier Huawei's annual R&D expenditures rose fourteen fold in a decade to USD 5.46 billion in 2013. Moreover, there has been a drastic increase in Chinese graduates with engineering degrees. The proportion of Chinese graduates with engineering

## Exhibit 4.6 | Indian Research Infrastructure Inferior to Other Countries; As a Result India Losing in High Technology Exports

### Total R&D setup in India not at par with global benchmarks



### Share of high-technology<sup>2</sup> exports in total manufacturing exports on decline in India



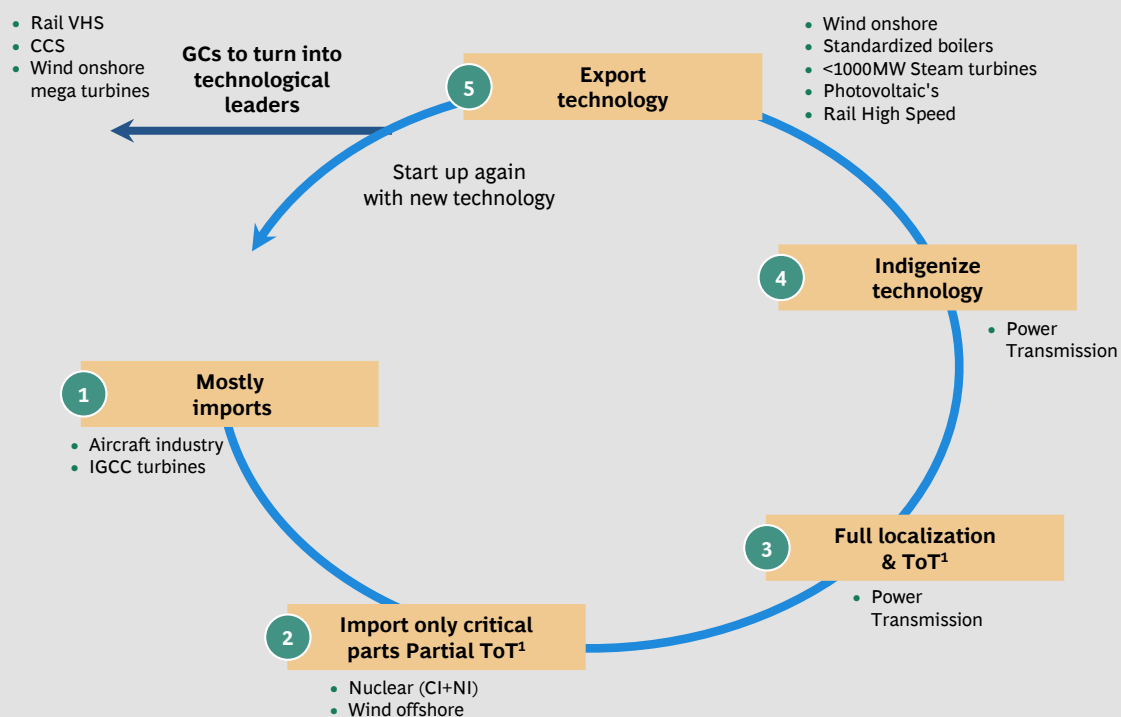
Source: The World Bank.

<sup>1</sup>R&D professionals are full time researchers in industry, academia and labs.

<sup>2</sup>Products with high R&D intensity, such as in aerospace, computers, pharmaceuticals, scientific instruments, and electrical machinery

## Exhibit 4.7 | After Localization in China, All Industries Saw Systematic Transfer of Technology

### Systematic indigenisation of technology after importation of critical parts



### Varying but shortening timing between critical parts' importation and Chinese exports

| Industry               | Technology transferred  | Stage 3: Full localization and transfer of technology   | Stage 5: Export technology  |
|------------------------|---|---|---|
| <b>Coal Power</b>      | <ul style="list-style-type: none"> <li>• Supercritical steam boiler</li> <li>• &lt;1000MW steam turbines</li> </ul>   | <ul style="list-style-type: none"> <li>• 1995</li> <li>• JV Westinghouse-SEC</li> </ul>                             | <ul style="list-style-type: none"> <li>• 2003</li> <li>• SEC to South-East Asia</li> </ul>                    |
| <b>Wind Onshore</b>    | <ul style="list-style-type: none"> <li>• 1,5MW turbine</li> </ul>   | <ul style="list-style-type: none"> <li>• 2005</li> <li>• Sinovel: ToT from Führländer</li> </ul>                    | <ul style="list-style-type: none"> <li>• 2009 Export in the USA</li> </ul>                                    |
| <b>T&amp;D Power</b>   | <ul style="list-style-type: none"> <li>• Power switchgears GIS                             <ul style="list-style-type: none"> <li>– ToTs in conventional &amp; HVDC</li> <li>UHV mostly own design</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• 1990's</li> </ul>  | <ul style="list-style-type: none"> <li>• 2009 Brazil</li> </ul>   |
| <b>Rail High Speed</b> | <ul style="list-style-type: none"> <li>• High Powered electric locomotives – 8 axles, 9600 kW</li> <li>• Electric Multiple Units Velaro I</li> </ul>  | <ul style="list-style-type: none"> <li>• 2005 CNR: ToT from Alstom</li> <li>• 2005 CSR: ToT from Siemens</li> </ul> | <ul style="list-style-type: none"> <li>• 2010 Export to Belarus</li> <li>• 2010 Export to Thailand</li> </ul> |

Sources: Press research, BCG analysis.

<sup>1</sup>Transfer of Technology

degrees stands at 31 percent for China compared to just 5 percent for the US.

## Claim Global Leadership

Once the foundation is built to revive manufacturing and competitiveness driven across key sectors, achieving global leadership will be a function of two aspects:

### **SUSTAINING AND EXPANDING COMPETITIVENESS:**

Global competitiveness once achieved needs to be expanded to more sectors to build the ecosystem in general and also be defended aggressively. China is a perfect example of a nation that first established its mark as a cheap source for labour intensive, low technology goods (for example, cotton-based base offerings in apparel), but has slowly made a mark for technology intensive, complex products as well (for example, aerospace, electronics, power equipment, etc.). This would involve continuous investment in infrastructure and technology.

### **CHANGING MINDSETS:**

India will not be able to realise her true potential in manufacturing unless there is tangible change in two specific mindsets:

**Changing the Consumer's Mindset About 'Made in India' Products.** Made-in-India products are not ranked as high as products made in international locations. The so-called 'Made in China' discount that the country suffered with has also been systematically been done away with. Addressing mindsets of Indian consumers first, and then international markets is critical to driving acceptance of Made-in-India goods.

**Moving the Entrepreneur's Mindset from Medium-term Value Creation to Long-term Visionary Transformation.** According to a global study conducted by Egon Zehnder, Indian businesses tend to think more short-term compared to their global counterparts. In such a scenario, building structures and putting processes in place take a backseat. Such a near sighted approach inevitably takes a toll on their ability to invest in R&D, innovation, capability building and other such investments with long term payoffs. Addressing this mindset and driving investments in capabilities that will have a longer-term payoff is critical to upgrading India's performance capabilities.

# REVIVE MANUFACTURING

*“The best time to plant a tree was 20 years ago.  
The second best time is now”*

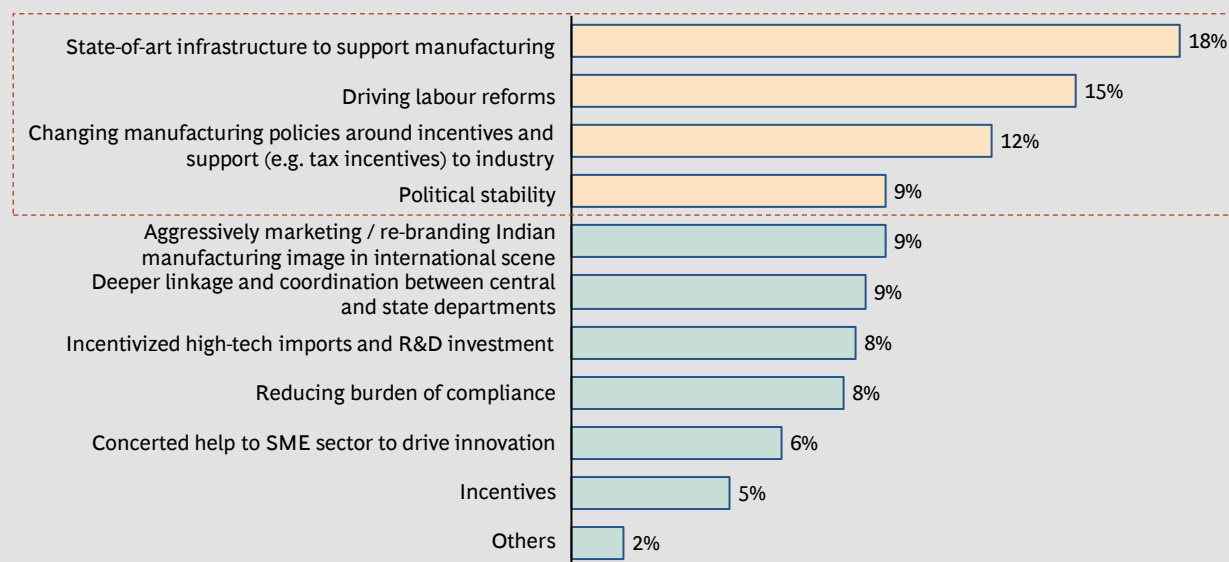
— Chinese Proverb

INDIA, WITH ITS VAST and diverse population, a sizeable and growing domestic demand, and an innate sense of enterprise, has long held the potential of evolving as a manufacturing leader. It is now time to address the fundamental hurdles that have held it back.

As a first step, India needs to revive its manufacturing activity by addressing obstacles across infrastructure, labour reforms and the ease of doing business, as detailed in Chapter four which details the overall journey to turn “Make in India” into a reality. Those three key priority themes have also emerged from the CII-BCG Manufacturing Leadership Survey 2014 towards making “Make in India” a reality (Exhibit 5.1).

**Exhibit 5.1 | Top Requirement Towards Making "Make in India" a Reality**

**What are the top requirements towards making "Make in India" a reality? (rank top 2)**



Source: CII-BCG Manufacturing Leadership Survey 2014.

Survey responses (%)

We now take a hard look at the imperatives against each of these themes, along with a specific focus on SMEs, which generate over 50 percent of manufacturing output in the country today.

## Getting Infrastructure Execution Right

The government’s agenda reveals a highly ambitious plan for Indian infrastructure, and aims at making it ‘Better than the Best’. This plan includes projects to develop freight corridors supported by better train linkages, build a bullet train network (Diamond Quadrilateral Project) and modernise port and airports (Sagar Mala project). It also includes projects to build an optical-fibre network up to the village level, ensure a basic level of infrastructure to all (home, electricity, water, toilet and access) and to conduct a national highway construction program. During the twelfth plan period, the top spending areas for infrastructure investment will remain electricity, roads and bridges, telecom and railways. However, higher spend increase is expected across the

telecom, railways, renewable energy, ports, oil and gas pipeline, storage and airport sectors (Exhibit 5.2).

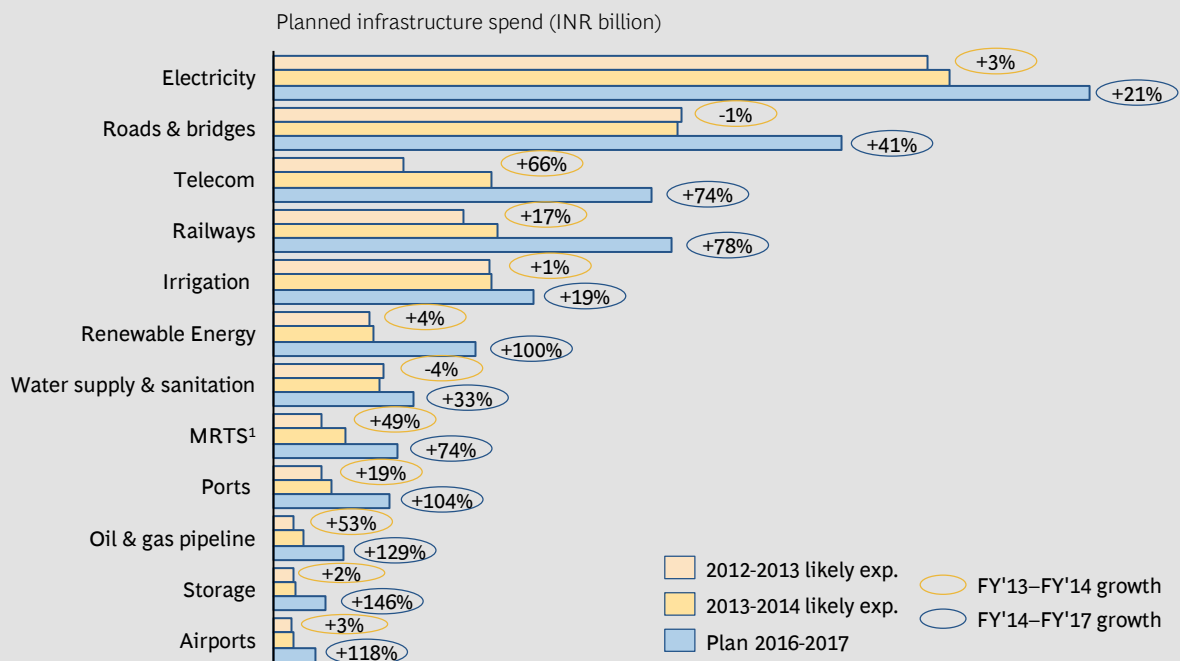
Nevertheless, the execution of planned infrastructure in a timely and high-quality manner is thoroughly lacking. A review of the past years raises the question around our ability to follow through on such plans. Indeed, India has a poor track record on the achievement of infrastructure development plans as many projects keep being shelved, and most of them run significantly behind schedule.

As of 2013, it was estimated that INR 22 trillion worth of projects were facing execution delays.

- In the road and bridge sector, Centre for Monitoring Indian Economy (CMIE) reports that “highways and road projects worth INR 1 trillion have not taken off due to problems related to land acquisition”. Moreover, only 2 out of 66 projects promoted by the National Highway Authority of India (NHAI) received environment clearance that year.

### Exhibit 5.2 | Large Spend Increase Planned in Infrastructure

More than 50% spend increased planned across all sectors except electricity, roads and bridges, irrigation and water supply and sanitation, between 2014 and 2017



Source: June 2014 High Level Committee Report on financing infrastructure.  
 Note: Includes central, states and private; INR in 2011-12 prices.  
<sup>1</sup>Mass Rapid Transit System.

- The power industry has realised less than 65 percent of the last four capacity expansion plans which spread from 1992 to 2012 (Exhibit 5.3).

Key reasons for delays and stalled projects include delays in getting necessary clearances, land acquisition issues, poor up-front planning of projects and performance management.

Therefore, even as the plans for development of infrastructure across sectors are in place, three imperatives arise for achieving success in execution, including;

1. Better planning and coordination across governmental institutions;
2. Project execution and monitoring discipline;
3. Greater participation from the private sector.

#### BETTER PLANNING AND COORDINATION ACROSS GOVERNMENTAL INSTITUTIONS

Responsibility of infrastructure creation remains fragmented across multiple government

ministries, departments and local entities.

Many projects face issues in execution due to a lack of coordination within state entities (related to land acquisition, local clearances), across states (for cross country projects like freight corridors, gas pipelines, etc.), and the central government (defense, ministry of environment and forests, etc.). A typical case in point is the inordinate delay in execution of the Delhi Aerocity, originally scheduled for completion by the commonwealth games in 2010, which languished due to coordination issues across different government entities. Coordination between these bodies is essential to ensure integrated and on-time infrastructure development.

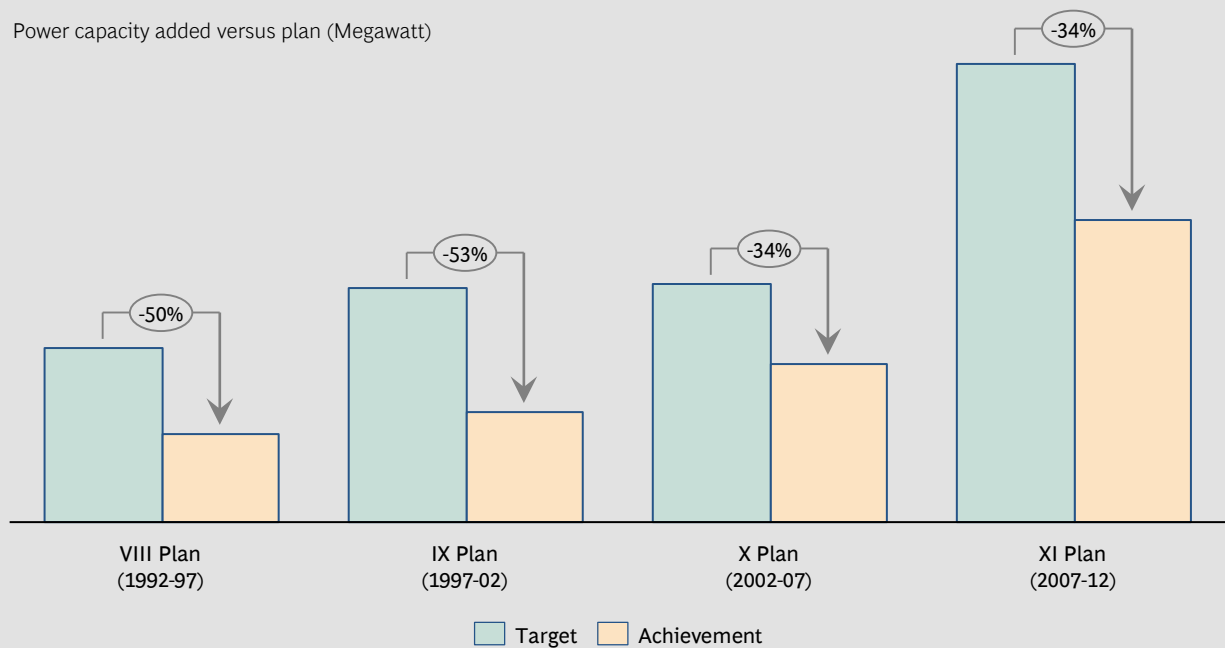
#### PROJECT EXECUTION AND MONITORING DISCIPLINE

Across government and private entities, there is a critical need to scale up overall project monitoring and tracking capabilities. Specifically, as 50 to 70 percent of investment in infrastructure development will be made by the government, public agencies will be highly involved in project execution and coordination. Those agencies will have to set new

**Exhibit 5.3 | Poor Track Record of Executing Infrastructure Development Plans – Example of Power Capacity Addition Plan**

**The power industry has realized less than 65% of the last four capacity expansion plans**

Power capacity added versus plan (Megawatt)



Sources: Planning commission, Ministry of Power, BCG analysis.

practices and processes to execute and monitor investment in order to avoid the project delays that were witnessed in the last decade.

Even as entities, like the Project Monitoring Group (PMG) have been set up at the central level to oversee project execution and resolve delays and drive coordination, a much wider multi-tiered effort is required to ensure a proactive and top down overseeing of infrastructure projects - right from concept to commissioning. Measures also need to be initiated to ensure that the right capabilities in project management are made available to the key government entities, currently a major shortcoming.

### GREATER PARTICIPATION FROM PRIVATE SECTOR

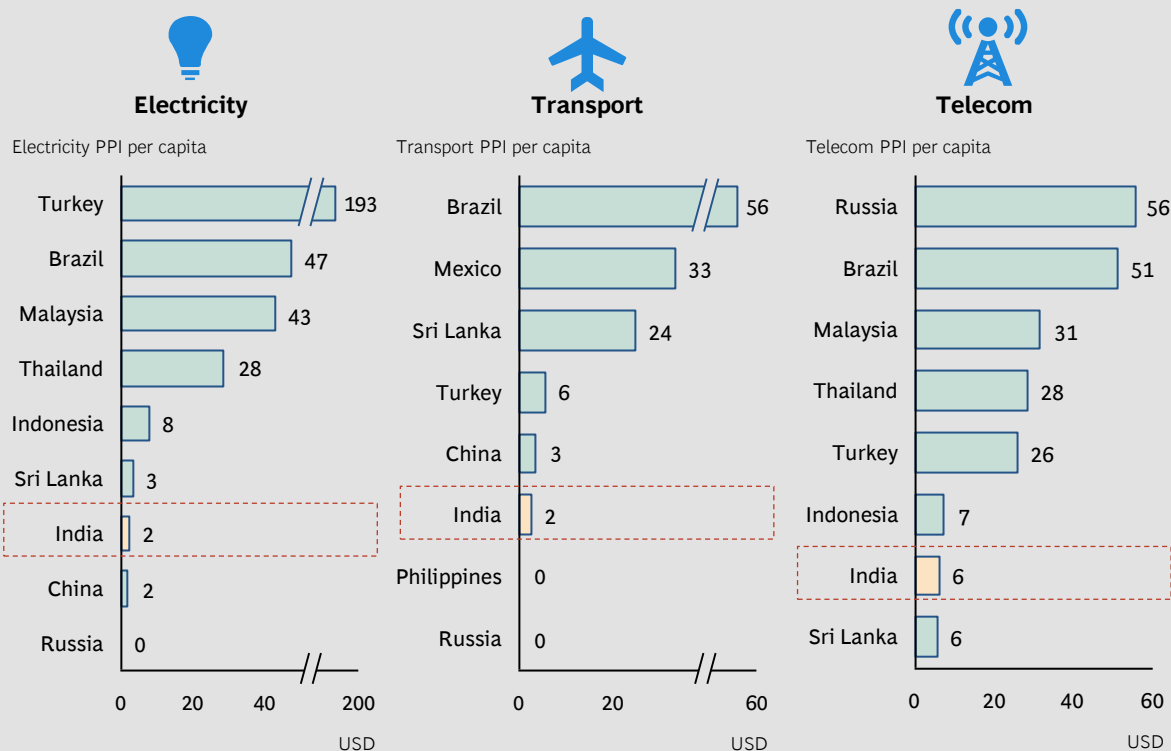
Private participation typically ensures better quality of execution. The profit focus of private entities and their advanced monitoring mechanisms typically tend to ensure better execution. However, private sector participation in India remains low. Benchmarks of peers in terms of private participation in in-

frastructure (PPI) show that private sectors role is less predominant in India than in other RDEs. For example, India per capita PPI index is one tenth that of Thailand and one twentieth that of Malaysia and Brazil in electricity projects (Exhibit 5.4).

The Twelfth Commission plan for infrastructure lays down the expectation of higher private participation in infrastructure projects. An additional investment of respectively INR 520, 480 and 300 billion are expected from private companies to finance electricity projects (i.e. budget increase of 15 percent), transport roads and bridges (i.e. budget increase of 50 percent), and projects related to ports (i.e. budget increase of 70 percent).

To effectively achieve the target investment levels from the private sector, the government needs to address key industry concerns such as access to viable long term funding, streamlining approval processes, assuring contract sanctity, addressing issues on dispute resolution, and streamlining procurement policies to ensure on schedule and in time delivery of projects.

**Exhibit 5.4 | India Lagging Behind Peers in Terms of Private Participation in Infrastructure**



Source: World Bank.  
 Note: Data as of 2013 for most countries except 2012 data used for Sri Lanka (telecom and electricity), Russia (electricity) and 2011 data used for Sri Lanka (transport).



## Driving Labour Reforms

Labour issues in India, with highly restrictive laws and time consuming procedures, stand out as a key impediment to manufacturing growth (Exhibit 5.5). Two areas of change need to be undertaken to improve the situation: improving the ease of compliance and incentivising scale.

### EASIER COMPLIANCE MECHANISMS

Compliance to the stringent and complex regulatory requirements for labour is a key cause of concern for the industry.

Acknowledging this issue, a set of reforms has been recently initiated by the government and has been well received within the industry. These reforms include measures to:

- End the ‘inspector raj’ and move towards greater IT enabled work flows with the introduction of a mandatory all-new random inspection scheme - utilizing technology to eliminate human discretion in the selection of units for inspection, and ensure the upload of inspection reports within 72 hours of inspection; and

- Simplify business regulations and fostering greater transparency and accountability within the system with the launch of a unified Labour Identification Number (LIN) used for allocating labour inspections across various agencies and bodies under the administrative control of the labour ministry. It will also enable employees to have their provident fund account portable, hassle-free and universally accessible.

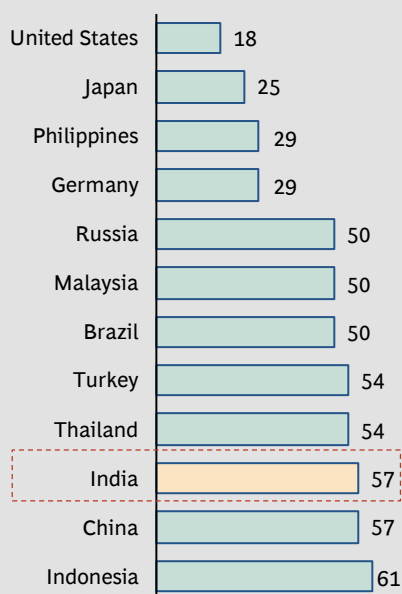
While these are welcome and much needed steps, additional reforms are still expected by industry leaders and workers, including a critical measure to streamline dispute settlements between employers and employees. Today, India has four levels of regulations prior to arbitration as compared to only one level of mediation in Indonesia and the US.

### INCENTIVISING SCALE

Indian regulations currently do not enable scaling up of the workforce by any manufacturing company. Scaling up in the same location typically attracts the attention of political unions and the industrial disputes act is

**Exhibit 5.5 | India Labour Market Risk Among the Highest Across Top Manufacturing Countries**

**Labour market risk 2014**



Risk index – out of 100 (maximum risk)

Sources: EIU Risk tracker 2014, World Bank, Ease of Doing Business 2014.

**Labour market regulation – key indicator comparison with peers**

|   | India                           | US               | China                           |
|---|---------------------------------|------------------|---------------------------------|
| Ratio if min. wage to value added per worker        | 0.63                            | 0.21             | 0.38                            |
| Premium for night work (% of hourly pay)            | 0%                              | 0%               | 39%                             |
| Paid annual leave                                   | 21                              | 0                | 6.7                             |
| 3rd party probationary period                       | 3 months                        | 3 months         | 6 months                        |
| 3rd party notification if worker is dismissed       | Yes from 1 <sup>st</sup> worker | No               | Yes from 9 <sup>th</sup> worker |
| Severance for redundancy dismissal                  | 11.4 weeks of salary            | 0 week of salary | 23 weeks of salary              |
| Unemployment protection scheme                      | No                              | Yes              | Yes                             |
| Court / court section specialised in labour dispute | Yes                             | No               | Yes                             |

considered to be rigid, and in favour of the unions. Further, laying off employees is not an easy proposition for Indian firms. Severance pay is high and unemployment protection scheme practically non-existent.

As a result of these factors, Indian entrepreneurs find it easier to hire temporary workers or outsource labour intensive activities to their suppliers. Today, only 16 percent of our workforce is regularized, with the remaining being temporary workforce or workers on the rolls of sub-scale SMEs. Another approach is to have a distributed manufacturing setup with each location having a minimal large number of labourers—solving potential labour issues, but effectively giving up any scale benefits.

Tackling these regulations head-on is critical to infusing investor confidence and incentivising scale.

### Easing Doing Business

Ease of doing business stands as a major impediment to India manufacturing growth based on World Bank’s ‘Ease of doing Business’

ranking 2014 (Chapter four) and EIU risk tracker (Exhibit 5.6).

Overall, four domains emerge from these studies as areas requiring significant change to revive domestic manufacturing:

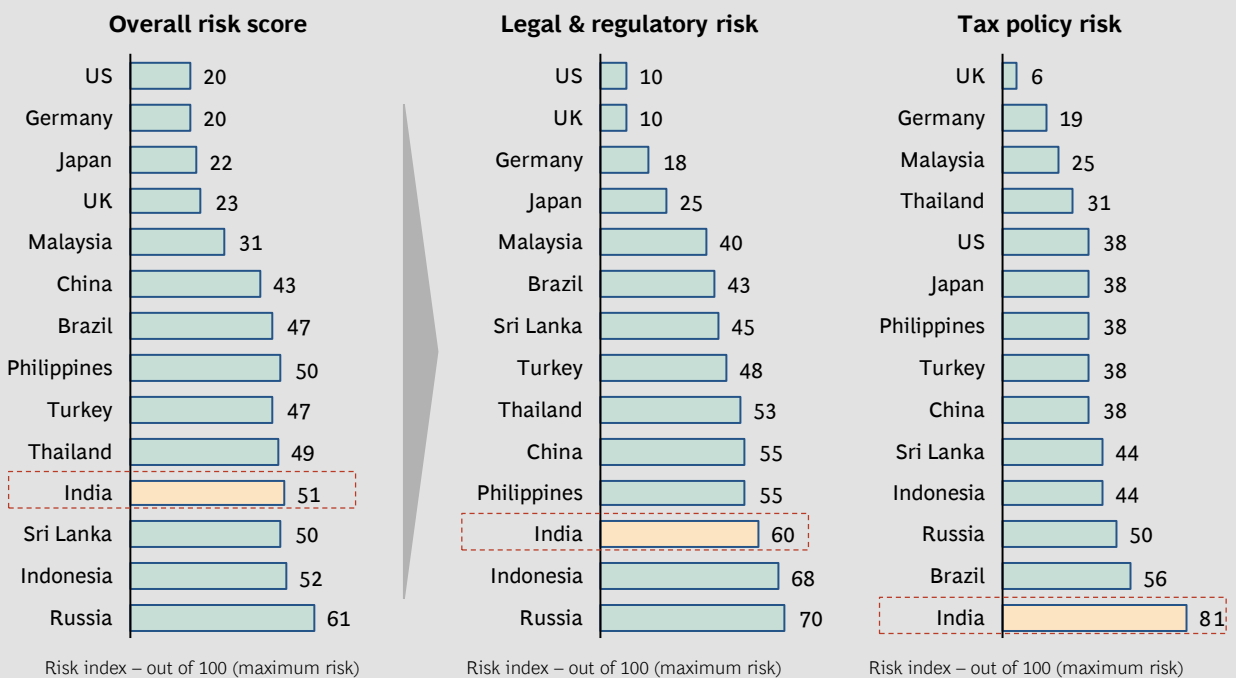
1. Financial environment, including credit access and tax regime;
2. Land acquisition;
3. Administrative environment; and
4. Legal and regulatory environment.

### FINANCIAL ENVIRONMENT

**Access to Credit.** Easy access to credit is one of the pre-requisites for business expansion.

Due to a lack of penetration and data-led approach, a sizeable credit gap exists in India for businesses, including for Micro, Small and Medium Enterprises (MSMEs). According to a study conducted by the US-based Entrepreneurial Finance Lab (EFL), a credit gap of 56 percent exists in the MSME finance sector in

**Exhibit 5.6 | Need to Improve Ease of Doing Business in India**



Source: EIU Risk tracker 2014.

India; while demand is estimated to be INR 28.03 trillion, the supply finance provided only INR 10.39 trillion, as of July 2014.

Loaning to MSMEs is described as being costly for lenders because the processing of each application requires intensive field-work and high levels of scrutiny, explaining market under-penetration. According to an EFL estimate, 92 percent of MSMEs lack access to formal sector finance. This leads to small industries resorting to take credit from individuals and unregistered organizations.

In order to bridge the data gap and facilitate broad-based access to credit, several countries (including Australia, New Zealand and Mexico) have set up modern collateral registries recording all types of secured transactions and movable assets. A key improvement area for India consists of making collateral registry in operation for both incorporated and non-incorporated entities, with an electronic indexed database (Exhibit 5.7).

Aiming at facilitating access to finance and credit for SMEs, CII is setting up an 'Online

Finance Facilitation Centre for SMEs' with the objective to provide advisory and credit facilitation support to SMEs. Moreover, INR 100 billion of venture capital fund and a nation-wide incubator are being established to encourage entrepreneurship and facilitate access to credit.

**Tax Reforms.** As revealed through the EIU risk index, India is lagging behind in terms of tax environment, with a score of 81 out of 100 (maximum score equals to maximum risk). This is more than twice the score of Malaysia, Thailand, Philippines, Turkey and China (Exhibit 5.6).

India's taxation system which has become too complex through frequent tweaks of the historical text over the past decades has been a cause of concern for manufacturers. Besides the direct and indirect tax imposed by the centre, there are a large number of duties imposed by the states. Not only does this increase the cost of manufactured goods, but it also leads to inordinate delays due to interfaces with various authorities. Going forward, all minor taxes and levies, whether at the central or state, or at the

### Exhibit 5.7 | Scorecard of Access to Credit of India Versus Best Peers—Potential for India to Improve the Strength of Enforced Legal Rights

|   | India<br>Rank 36 | Mexico<br>Rank 12 | Australia<br>Rank 4 |
|---|------------------|-------------------|---------------------|
| <b>Integrated or unified legal framework for secured transactions</b>   |                  |                   |                     |
| • That extends to the creation, publicity and enforcement of functional equivalents to security interests in movable assets | No               | Yes               | Yes                 |
| <b>Businesses can grant a non possessory security right without requiring a specific description of collateral</b>          |                  |                   |                     |
| • In a single category of movable assets  | Yes              | No                | Yes                 |
| • In substantially all of its assets  | Yes              | Yes               | Yes                 |
| <b>Security right extend to future or after-acquired assets</b>   | Yes              | No                | Yes                 |
| <b>General description of debts and obligations permitted in collateral agreements</b>                                      | Yes              | Yes               | Yes                 |
| <b>Collateral registry</b>  |                  |                   |                     |
| • In operation for both incorporated and non-incorporated entities  | No               | Yes               | Yes                 |
| • With an electronic database indexed by debtor's name  | No               | Yes               | Yes                 |
| • Notice-based in which all functional equivalents can be registered  | No               | Yes               | Yes                 |
| • In which registrations, amendments, cancellations and searches can be performed online by any interested third party      | Yes              | Yes               | Yes                 |
| <b>Secured creditors paid first</b>   |                  |                   |                     |
| • When a debtor defaults outside an insolvency procedure  | No               | No                | Yes                 |
| • When a business is liquidated   | No               | No                | Yes                 |
| <b>Secured creditors' rights protected by providing clear grounds for relief from the stay</b>                              | No               | Yes               | No                  |

Source: World Bank's 'Ease of Doing Business' report 2014.

municipality level, must be streamlined or done away with. There is also a major need to resolve differences between the centre and state on Goods and Services Tax (GST) for quick and effective implementation.

Additionally, retrospective taxation in India has faced much criticism from investors, both domestic and global. Though it is deemed legal according to the Constitution of India, it creates undue uncertainty among investors. To restore investor confidence, retrospective taxes should be avoided to the maximum extent possible. In its first budget announced in July, the Modi government has assured that retrospective tax amendments will not be undertaken to create fresh tax liabilities.

### LAND ACQUISITION

Legislation in India regarding land acquisition is being criticized for being cumbersome and causing excessive delays, leading to a crippling effect on infrastructure and industrial development. Property valuation techniques are also perceived to be flawed at the benefit of the owners. Land acquisition continues to remain the single largest cause of project delays in infrastructure, with issues ranging from a lack of clarity in land deeds, ineffective and long drawn dispute resolution methods, to wide scale public unrest linked to compensations.

Even as several measures have been initiated by the various governments to tackle the issue - including streamlining of the land acquisition process, the constitution of high powered committees and setting up of land acquisition cells across the country, the problem persists.

While the issue is undoubtedly complex and fraught with political sensitivities, the government would need to play a larger and more facilitative role across the centre, state and local bodies. It should ensure that land acquisition for key infrastructure and development projects are completed as simply and rapidly as possible in order to de-risk investors from down the line delays and potential project abortion. In addition, engaging local leaders and land owners in a collaborative manner has proven to be a successful counter way to deal with local political pressures.

### ADMINISTRATIVE ENVIRONMENT

Business registration process as a whole needs to be simplified in order to reduce delays, including those in the process of land registration. For instance, it takes 47 days to register a property in Mumbai due to the high number of procedures required as compared to only 28 days in Shanghai (World Bank, Ease of Doing Business 2014).

There is a dire need for revisiting the list of permits required for starting a new business, with the intent of consolidating such requirements, and providing a single window clearance. Wherever possible, online registration and IT-based transparent work flows should be introduced. The government has taken the right steps so far to begin simplifying these procedures, but there is still a long way to go to be at par with our peers.

### LEGAL AND REGULATORY ENVIRONMENT

The EIU risk index also underscores that India has a lot of progress to make in terms of legal and regulatory environment with a score of 60 out of 100 as compared to 10 in the US, 40 in Malaysia and 55 in China, among others (Exhibit 5.6).

**Faster Judiciary Proceedings.** Based on the World Bank's 'Ease of Doing Business' ranking, India's top challenge lies in enabling contracts enforcement (Exhibit 4.3). The time taken to get a hearing and then an award or decision in the courts and tribunals in India, is beyond the ordinary, with many instances of disputes running into years without resolution. The government should seek to:

- Set up fast track courts;
- Increase judicial strength and the number of courts; and
- Foster infrastructure enhancement in courts including automation in documentation.

# GAIN GLOBAL COMPETITIVENESS

*“Go as far as you can see, and you will see further”*

— Zig Ziglar

**E**VEN AS INDIA SEEKS to fix the basics to develop its core manufacturing capabilities and revive the sector, it is critical to keep a steady focus on achieving the next phase of growth which involves a larger share of the global manufacturing pie. It requires:

- Building an export eco-system; and
- Betting on innovation and technology.

## Building an Export Eco-System

As per the revised aspiration defined in section III, a significant part of our manufacturing growth should be achieved through an increase in our share of global exports, from 1.6 percent today to 5.2-6.1 percent by 2030. This growth will only happen if we fundamentally re-think our attractiveness in the eyes of an international investor.

Specifically, we should focus on;

- Developing an export-oriented infrastructure;
- Attracting more foreign investment through structural changes.

## DEVELOPING AN INFRASTRUCTURE WHICH SUPPORTS EXPORT GROWTH

Transport infrastructure is a key differentiator in the global arena, as delays and high cost incidences directly affect the overall cost competitiveness of a country's exports. In that regard, the transport of goods in India continues to be a key issue plaguing exports.

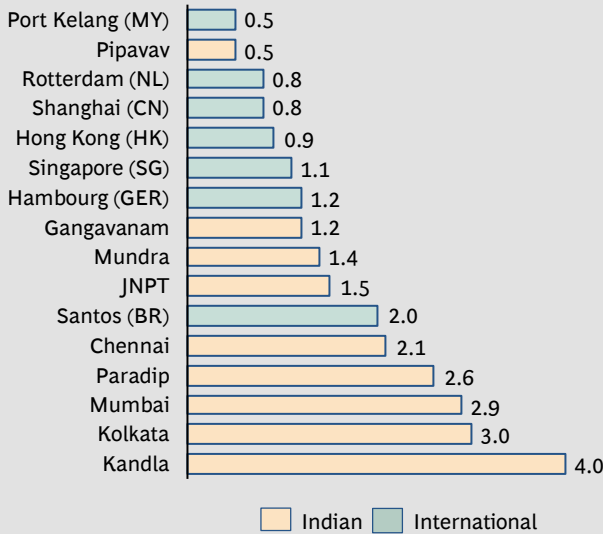
**Ports.** Indian ports play a crucial role in manufactured goods trade as 95 percent of merchandise trade (in volume) is handled by ports. However, port turnaround time, except in some private ports such as Pipavav or Mundra in Gujarat, remains a key problem. It is significantly slower than across peer ports in other developing countries; being several times higher than for ports such as China (Shanghai port) or Malaysia (Port Kelang) (Exhibit 6.1).

India also faces port capacity limitations across major Maharashtra and Gujarat ports of Kandla, Mumbai and JNPT. In addition, such issues are only expected to get worse with rising industrialization, the inability of ports to revamp themselves and their slow pace of development. For example, four port renewal and expansion projects of Essar Ports Ltd, including Paradip, Hazira, Salaya and Visakhapatnam ports, have been delayed by more than a year because of slow regulatory approvals and litigation. The de-

## Exhibit 6.1 | Higher Transportation Times Due to Poor Port and Highway Infrastructures and Roads and Railways Connectivity to Ports Impact India's Export Capabilities

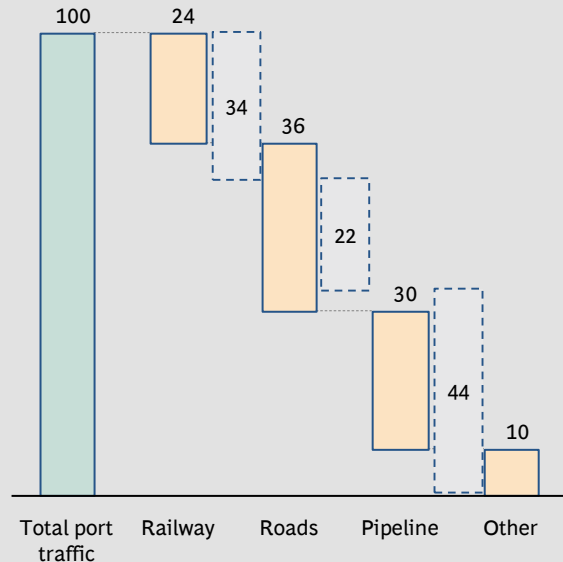
### Higher turnaround time across Indian ports compared to major international ports

Turnaround time of international and select India ports (# of days)



### Inland transportation of port goods disproportionately conducted through roads

Share as share of port traffic based on tons handled by each mode (%)



Sources: Planning commission report, Port websites, Ministry of Shipping, Edelweiss report.  
Note: Data as of year 2012.

lays have meant capacity limitations and an inability to accommodate larger vessels.

There are various plans in place to increase the capacity of federal ports from 670 million tonnes in 2010-2011 to 1,459 million tonnes by 2019-2020 and to increase the capacity of non-federal ports from 390 million tonnes to 1,670 million tonnes over the same period. It will also be vital to ensure that the expansion and development plans are executed as per plan, as any disruption in the schedule would directly impact India's trade competitiveness.

While port processes are being streamlined and capacity augmented, corresponding improvement in road and rail connectivity will be required to ensure that there are no systemic bottlenecks to capacity expansion.

**Rail and Road Connectivity to Ports.** As of today, railways in India are carrying considerably less than their optimal share of port traffic, which is made up for by road transport. They currently account for the inland haulage of only 24 percent of port cargo

while the optimal share is estimated to be 35 to 40 percent based on global standards, indicating poor rail connectivity to ports. This phenomenon is all the more true across state ports, with only eight percent of their cargo haulage being undertaken by the railways (Exhibit 6.1).

Such a model is condemned to bring more inefficiencies, as road transport brings with itself a host of externalities which adversely impact turnaround time and costs.

Overall, drastic improvement in road and railways connectivity to ports should be a top priority for improving India's export competitiveness.

**Ease of Port Administration.** As per a World Bank report on 'Ease of Doing Business', three key administrative measures have been undertaken globally to further streamline trade. These include:

- Abolishing the export and import license requirement for various types of goods,



- Improving customs administration by reducing the number of documents required to export and import general cargo products;
- Introducing or improving electronic submission and processing of documents has been the most common reform conducted to make trade across borders easier.

For instance, Myanmar has reduced exporting time by 20 percent in 2013-2014 by conducting such reforms. India should aggressively pursue related initiatives to ease the process of exports.

### ATTRACTING INVESTMENTS THROUGH STRUCTURAL CHANGES

Over the past decade, FDI has been a key source of growth for the Indian industrial production, and has a close correlation to GDP growth (Exhibit 4.5). Even so, the rate of FDI growth has been inadequate when compared to peers, and India today draws only a quarter of FDI as compared to China. Three key actions need to be initiated to improve FDI inflows into India.

**Increasing FDI Cap in More Sectors.** The current government has undertaken specific measures to relax FDI norms by increasing the FDI cap to 100 percent in railways and to 49 percent in defence and insurance. In addition to this, rules for FDI in the construction sector have been eased. A number of items in the defence list have also been deregulated and freed from licensing requirements. Given the need for investors to retain some sort of control on off-shore entities, relaxing the cap and allowing majority share-holding is a critical ingredient for attracting investment.

**Improving Regulatory Efficiency.** Based on the World Bank's 'Ease of Doing Business' indicators, greater regulatory efficiency has a positive association with FDI inflows from Organization for Economic Cooperation and Development (OECD) countries. For example, a country in which nine documents are required to export is likely to have investment inflows of around ~37 percent lower compared to a country where only seven

such documents are required. It has also been shown that a reduction in the cost of starting a business is positively correlated with an increase in FDI inflows.

India is placed at the bottom of the list at rank 126 in terms of trading across borders due to its high cost and the number of documents required for exporting. In particular, the cost of export in India is twice as high as in China (World Bank, Ease of Doing Business 2014). It is therefore critical for India to the review regulatory processes to export.

**Building Attractive Zones for FDI.** Various types of industrial zones have been created over the past few decades in order to attract foreign investment and facilitate manufacturing development.

Special Economic Zones (SEZ) were launched in the second half of the twentieth century. They enjoy highly competitive tax benefits with 100 percent income tax exemption on export income for the first five years, 50 percent for the next five years thereafter and 50 percent of the ploughed back export profit for next five years. If more than 600s SEZ had been approved for implementation, only about 170 are operating today mainly due to the lack of clarity on taxation. A high-level cell has been set up by the new government to resolve this problem.

National Investment and Manufacturing Zones (NIMZ) were created through the last MNP and benefit from the same advantages as those of SEZs. On top of that, NIMZs also offer flexible labour laws, provisions of tax incentives to SMEs, additional benefits of access to land, easier clearances, for example with relaxation on environmental regulations and more importantly a higher scale of manufacturing operations.

The new government has initiated a set of new projects to further promote FDI in defined zones;

- Industrial parks will be developed in collaboration with China in Gujarat and Maharashtra in order to facilitate Chinese investment into India. They would enjoy the same benefits as SEZs and NIMZs,

- Prime Minister Narendra Modi announced his plan to build 100 smart cities which aim at being highly attractive for investment, employing innovative technology, creating environmentally sustainable solutions, growing operational efficiencies, and improving the lives of urban citizens,
- Along with smart cities, about ten industrial corridors are in the plans to facilitate trade and attract investment in the country. Similar projects had been initiated by the previous government, such as the Delhi-Mumbai Industrial Corridor (DMIC), but most of them have faced delays due to the lack of coordination between states, difficulty in acquiring land, and other factors.

Moving forward, India's focus should be to ensure the efficient implementation of the initiated and defined industrial zones (SEZs, NIMZs and industrial parks), smart cities and industrial corridors projects by fostering greater alignment across the centre, states and local bodies, by addressing the current

impediments to project execution such as land acquisitions, and by setting up a unified planning and monitoring system.

## Betting on Innovation and Technology

Manufacturing in India has built its current footprint through skilled manpower, cost advantage and a large growing domestic market. However, it is at the basic or, at best, the intermediate level in terms of innovation and technology. There is an absence of organised and long-term technology led initiatives that could deepen India's global manufacturing footprint.

Developing innovation and technology has been identified as an important strategic step for Indian manufacturing in the twelfth year plan. Converting this plan into action requires four specific interventions.

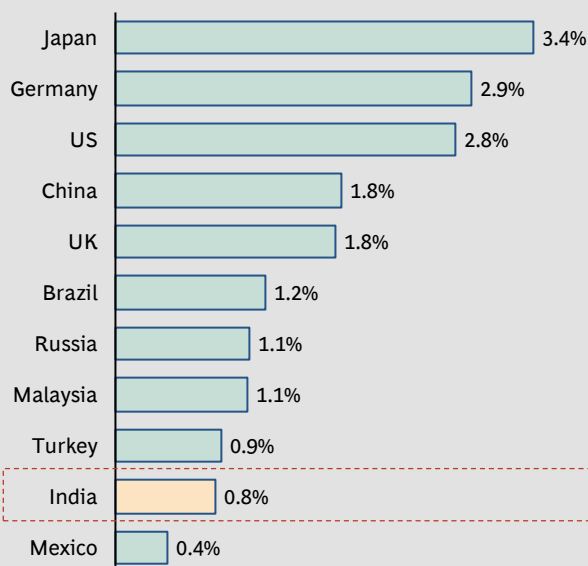
### INCREASED R&D INVESTMENT

The government and private entities need to build new competitive advantage to gain

## Exhibit 6.2 | India's Share of GDP Spent in R&D is Lower than Peers and Private Sector's Contribution is Limited

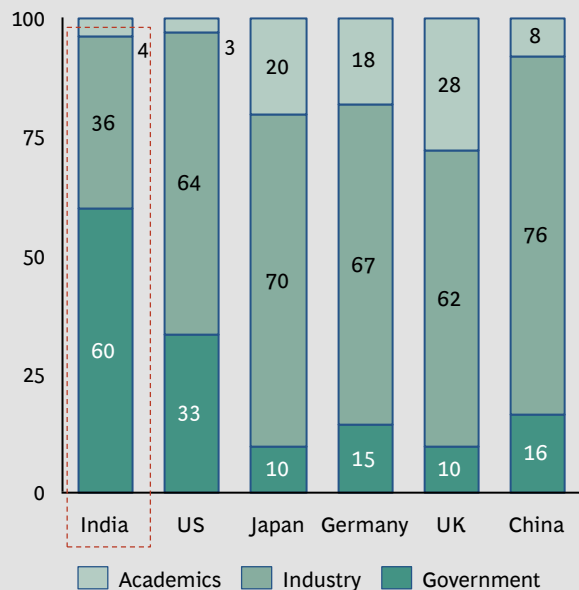
### Overall R&D spending is below international peers

R&D spend as share of country GDP (%)



### Private sector contributes to less than 40% of total R&D in India

Share of R&D spend (%)



Sources: World Bank, Batelle report on Global R&D Expenditure 2012, Eurostat by European Commission—Report on R&D expenditure, Statistical Bureau of Japan Website, National Science Foundation website, Dept. of Statistics—Singapore website; GDP values from EIU database; BCG analysis. Note: Values for R&D expenditure are at real values 2011.



ground on the international scene by significantly investing in research and development activities. In that aspect, India's performance is disappointing as the level of overall R&D spending in India as a share of the country GDP was at only 0.8 percent in 2011, as compared to 3.4 percent in Japan, 2.9 percent in the US and 1.8 percent in China (Exhibit 6.2).

Even within large manufacturing corporations, the share of turnover reinvested in R&D rarely goes beyond 1 percent, which is very low as compared to FTSE-100 manufacturers whose average R&D spend was 4.92 percent of turnover in 2012 (The Manufacturer). As a result, the private sector's contribution to the country's R&D spend is significantly lower than across top manufacturing countries with a 20 to 30 percentage points difference in the overall share.

### INCENTIVISED PATENT APPLICATION AND COMMERCIALIZATION

While there is infrastructure for research in academic institutes in India like the IITs,

IISC and others the patent filling rate is quite low compared to our global peers with nearly 9,500 patents filled in India versus around 535,000 in China and 269,000 in the US in 2011. This is driven by a combination of limited funds, the absence of industry connect, a lack of awareness on patenting and insufficient incentives around the commercialization of research.

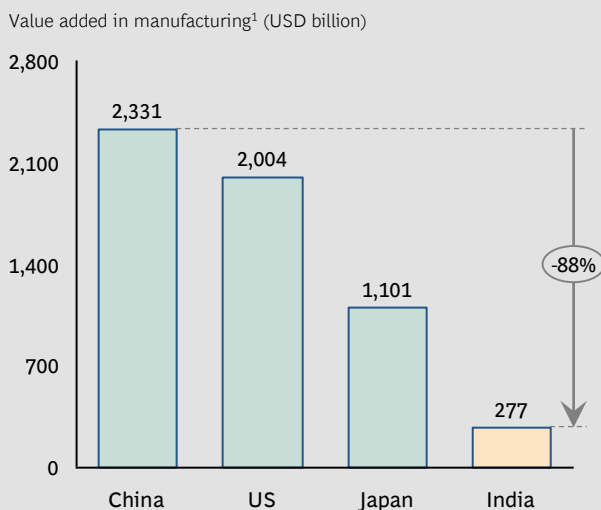
In order to facilitate patent filling, one key measure would be to revamp the patent filing process itself. The capacity at patent offices needs to be increased as around 65 percent posts for officers are currently vacant, and measures should be undertaken to incentivize patent filing, such as basing patent related incentives on the patent exploitation too, rather exclusively on its issuance.

### PRODUCT STANDARDS

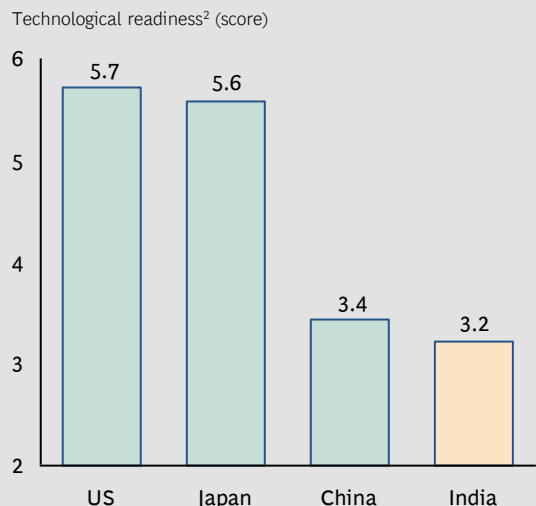
Local and international technical standards strongly determine technical product advancement in a country. They also offer additional benefits such as greater market access through higher exports and customer confidence, prod-

## Exhibit 6.3 | India's Current Position on Value Addition and Technological Advancement Poor as Compared to Global Peers

**Value addition in manufacturing<sup>1</sup> is ~12% that of China**



**Technological readiness of India is low compared to global peers**



**Sources:** High tech indicators; World Bank website; BCG analysis; The Global Competitiveness Report, WEF.

**Note:** Values taken are for FY11 for value added in manufacturing; FY14 for Technological readiness score.

<sup>1</sup>Manufacturing refers to industries belonging to ISIC divisions 15–37. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. The origin of value added is determined by the International Standard Industrial Classification (ISIC), revision 3.

<sup>2</sup>The technological readiness index measures the agility with which an economy adopts existing technologies to enhance the productivity of its industries, with specific emphasis on its capacity to fully leverage information and communication technologies (ICTs) in daily activities and production processes for increased efficiency and enabling innovation for competitiveness

uct differentiation based on quality, a reduction in dumping due to higher the higher recognition of product quality, and the promotion and diffusion of best practices in the country.

However, India is lagging behind peers in terms of product innovation with lower value addition in manufacturing and technological readiness (Exhibit 6.3). Hence, a key priority for India should be to build local standards and meet international standards whenever possible. For that purpose, three top requirements need to be addressed;

- Industry bodies' participation is required to define clear guidelines which enable manufacturing companies to match world class standards.
- Stakeholders who are participating in the definition of standards and its implementation, - including standard development organization, regulator such as the National Codex Committees and certification bodies -, require training in order to draft regulations that meet world trade organization norms.

- Global acceptance of Indian standards has to be set up by ensuring conformity of Indian standards with global norms, proposing new areas of standards where international standards do not exist and conducting lobbying in regional and international standard bodies.

Moving forward, India should also aim at building new international standards and becoming the reference in terms of product quality and innovation.

# CLAIM GLOBAL LEADERSHIP

*“Believe you can, and you are halfway there”*  
— Theodore Roosevelt

**A**CHIEVING TRUE MANUFACTURING LEADERSHIP To achieve true manufacturing leadership, India Inc. will have to make a paradigm shift in the way it conducts its business. India’s current competitive advantage, based almost entirely on its low cost manufacturing, will not be sufficient to reach such a goal. Indeed, in today’s fast changing world, relying on low-cost labour is a strategy that is not sustainable. While India works to build the basic understructure needed to support a manufacturing revival (Chapter five) and prepares to gain a larger share of global trade (Chapter six), Indian leaders—both political and corporate—will need to bring about a fundamental change in mindset if we are to target true global leadership.

Two distinct strategies must be embraced for India to achieve its long term vision of becoming a global powerhouse in manufacturing:

- Think Big: Pursuing a bold entrepreneurial vision; and
- “India Inside”: Repositioning “Brand India”.

## Think Big: Need for Visionary Entrepreneurship

Long term excellence in an industry does come not from relying on a low cost advantage and a

knack for ‘jugaad innovation’, but from improving the capability and performance of the entire industrial ecosystem. Take the Chinese textile industry for example; while China’s labour costs are twice those of India, China’s annual apparel exports of USD 165 billion dwarf India’s exports, which are only USD 16 billion. The reason China has achieved this growth is because it has prioritized the development of world-class infrastructure, investing in critical industry segments, such as large scale textile fabric manufacture even ahead of full visibility of demand.

Large manufacturing companies in India need to take the lead in moving beyond a three- to five-year planning and value creation horizon. These companies need to work to create advantage not just within their own operations but also across the whole value chain, focusing on an 8- to 10-year path to success. Specific actions that could drive this change would include, but are not limited to:

- Working strategically with suppliers that are Small and Medium-sized Enterprises (SMEs) to increase their capabilities (the chain is as strong as its weakest link) in a very fundamental and structural way;
- Putting workforce skills development ahead of the corporate interests to build a pool of qualified and world-class workers;

- Working closely with the government on regulations that strengthen the whole value chain;
- Driving R&D investments ahead of the curve, with a longer term view on the return of such investments; and
- Collaborating with world-leading peers that have strong technology and resource capabilities.

While large manufacturing companies already pursue many of these strategies, Indian SMEs also need to work towards a dramatic change in mindset. As is widely acknowledged, the key to India's manufacturing success lies in its SMEs. Contributing around 45 percent of India's manufacturing output, the SMEs form the backbone of Indian manufacturing. However, SMEs are currently plagued by a number of fundamental weaknesses, particularly their lack of orientation towards exports. This needs to change.

To draw a parallel, the 'Mittelstand', or the SME equivalent in Germany, have a number of characteristics which resonate very much with the Indian SMEs:

- Both are almost entirely family-owned.
- There are close to 4 million Mittelstand classified firms in Germany, as against 48 million SMEs in India.
- While Mittelstand companies contribute to nearly half of value added in German manufacturing, Indian SMEs are not far behind at approximately 45 percent.

However, when compared on output, stark differences emerge:

- Compared to around USD 120 billion of exports by Indian SMEs, the Mittelstand exports stand at close to USD 250 billion.
- Large numbers of Mittelstand firms occupy worldwide leadership positions in product segments such as machine tools, electrical engineering and industrial products. Meanwhile, Indian SMEs remain largely low tier suppliers.

- More than half of Mittelstand firms hold process or product patent in the global market, while less than 10 percent of Indian SMEs undertake any R&D at all.
- The contribution of SMEs in India's GDP is only 17 percent compared to the 50 percent share of German GDP enjoyed by Mittelstand firms.

An assessment of the performance of the Mittelstand reveals certain key characteristics that could offer significant lessons for Indian firms, and specifically SMEs. The Mittelstand companies have a clear focus on R&D and product excellence and embrace the philosophy of 'doing one thing really well'. Coupled with this, they take a long term view of value creation, rather than pursuing short term profit maximization. This philosophy has been the bedrock on which the German firms have built their presence as global leaders in manufacturing. The German government in turn, has actively supported the Mittelstand. Measures have included supporting start ups, creating easy access to financing, reducing bureaucracy and, most importantly, helping companies identify global opportunities and supporting them in developing the key technologies needed to compete in international markets.

India, too, should shift its focus away from short term operational goals and embrace long term value maximisation, through a targeted approach that is aimed at establishing global leadership.

## 'India Inside': Repositioning Brand India

Global consumers are becoming increasingly conscious, and even selective, about the country of origin of the goods they purchase. From the late 20th century, factors such as debates about the working conditions in some Asian production facilities, the EU-driven labeling of meat products and increasing geo-political and environmental awareness have meant that a country's image has played an increasingly important role in driving the perception of its industry.

Even looking at today's global market place, countries are closely associated with certain manufacturing capabilities: Italy for design, France for fashion, Germany for mechanical goods, Japan for electronics, Switzerland for precision and the US for entertainment among others. Such associations do much to lend credibility to produce from these countries and allowing them to charge a premium for their products.

On the other hand, adverse perceptions of a country – whether for political reasons or for the human rights or even environmental track record its companies – can negatively affect the trade positioning of its industry. For instance, given China's reputation as a low cost manufacturer, it might be harder to find a market for a Chinese luxury brand than it would be for, say, a French one. For India to successfully achieve its goal of being a global leader in manufacturing, the importance of brand positioning simply cannot be over emphasised.

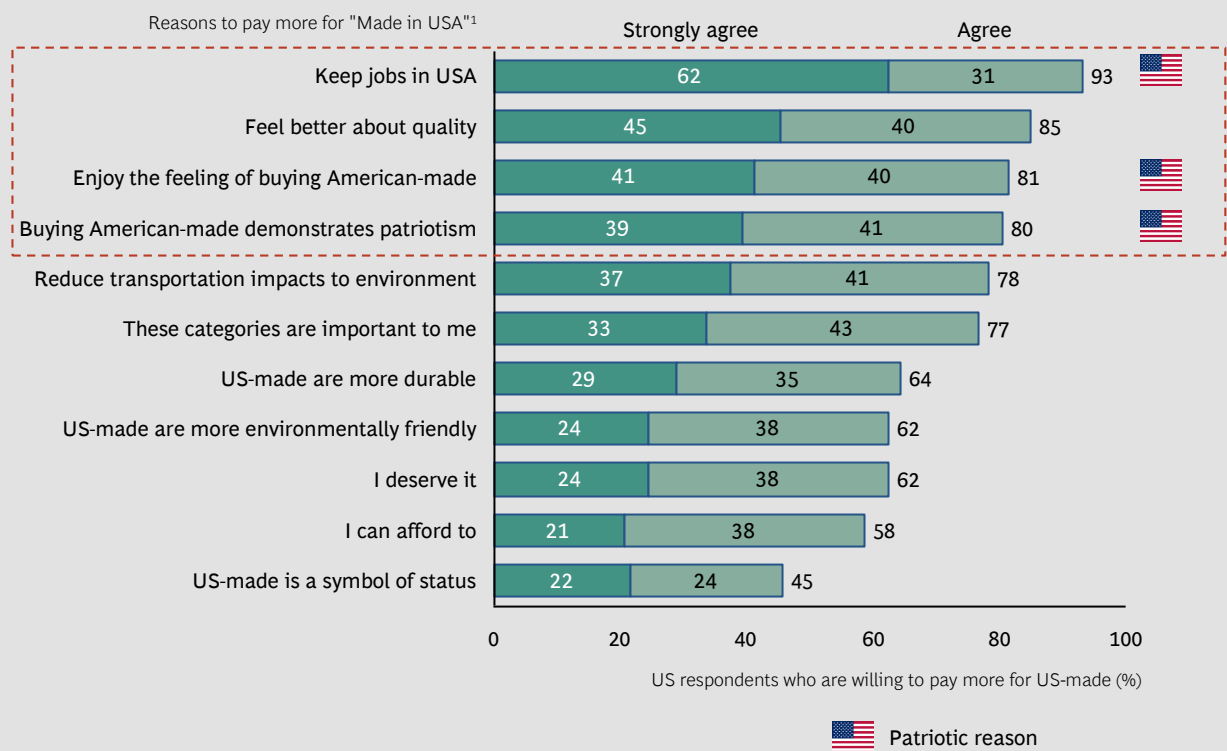
To achieve a global brand positioning, India will need to tackle the problem on two fronts:

### DOMESTIC PREFERENCE FOR 'MADE IN INDIA' PRODUCTS

BCG studies have shown that consumers in developed economies tend to have a strong preference for products manufactured in their home country. In fact, studies show that US and European consumers would be willing to pay a 50-60 percent premium for products manufactured in their own country, with most western consumers even preferring to buy domestic goods over similar and significantly less expensive Chinese goods. The key reasons cited for such a preference include patriotism, a desire to support the domestic job market, and a strong association between products manufactured in their home country and quality (Exhibit 7.1).

By contrast, consumers in developing economies, including India, continue to exhibit a preference for 'international products',

**Exhibit 7.1 | Patriotic Reasons Drive US Consumers to Pay More for 'Made in USA'; Quality a Strong Secondary Factor**



**Sources:** "Made in America, Again" Survey, September 2012 (N=5008: US=1001, China=1000, Germany=1505, France=1502).  
**Survey question:** "Think about those categories where you are willing to pay more if the product was made in USA rather than in China. Please indicate how much you agree or disagree that these statements describe why you are willing to spend more on these categories."  
<sup>1</sup>Only shown to respondents who are willing to pay more for at least one of the 10 discrete categories (N=831).

specifically those manufactured in the developed economies, rather than domestic goods. This needs to change.

As India works to transform its SMEs, entrepreneurs should be encouraged to take a longer term approach to their investments and establish an ‘Indian way’ of manufacturing, it will be critical to build greater acceptance of and pride in locally manufactured products among Indian consumers. Given the estimation that Indian consumer spending will grow threefold over the next decade, developing shoppers’ preferences for Indian goods would be critical to building robust demand for Indian manufacturing.

#### **INTERNATIONAL PREFERENCE FOR ‘MADE IN INDIA’ PRODUCTS**

India needs to dramatically revamp its brand in the international arena. Today, Indian products are seen to be of lower quality than those of many other lower-cost countries. For example, Indian engineering goods are considered to be of poorer quality than Korean goods. Revamping the brand needs to be addressed through a variety of levers.

These include:

- Defining brand India—and the ‘India difference’ in manufacturing (For example, Japan stands for lean production, Switzerland stands for precision, etc.);
- Making a sustained effort to market the brand—across key forums in the international arena (governments, industry associations, etc.);
- Supporting and publicizing the capability improvements that are being achieved (R&D investments, quality improvements, etc);
- Developing a sponsor network of international corporate leaders that have invested in and benefitted from India and that will then advocate Indian manufacturing goods among their peer networks; and
- Continuing and accelerating the improvements on factors already discussed, such as increasing the ease of doing business.

# CONCLUDING THOUGHTS

**T**HIS IS TRULY A time of great expectations for India, and this is probably the only time in recent past where our odds of driving breakout growth in manufacturing are very high. We have a strong, pro-industry government, global economy is picking up, and our core advantages are still strong and relatively unaffected from the global slowdown.

Having said that, there is a long journey ahead of us, one that starts with reviving the industry, and then achieving global competitiveness followed by claiming global leadership.

A good start has been made with the government announcing its intent and making a few small yet important changes to improve manufacturing sector. The next year is crucial to implementing the announcements well, and seizing the opportunity to make the right investments at a company level.

# FOR FURTHER READING

The Boston Consulting Group published other reports and articles on related topics that may be of interest to senior executives. Recent examples include:

**The Most Innovative Companies 2014: Breaking Through Is Hard to Do**

A report by The Boston Consulting Group, Oct 2014

**The Industrial Internet: Six Critical Questions for Equipment Suppliers**

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**Demand Forecasting: The Key to Better Supply-Chain Performance**

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**Coping with Overcapacity: Navigating Steel's Capacity Conundrum**

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**The Shifting Economics of Global Manufacturing—How Cost Competitiveness Is Changing Worldwide**

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**Automotive Value Creators Report 2014: A Comeback in the Making**

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**How 20 Years Have Transformed the Chemical Industry: The 2013 Chemical Industry Value Creators Report**

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**Creating Value for Machinery Companies Through Services**

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**Indian Manufacturing: Winning in an Era of Shocks, Swings, and Shortages**

A report by The Boston Consulting Group in association with The Confederation of Indian Industry (CII), Nov 2013



# NOTE TO THE READER

## About the Authors

Dr. Arindam Bhattacharya is Senior Partner and Managing Director of BCG India. Arun Bruce is a Partner and Director in BCG's Mumbai office. Anirban Mukherjee is a Principal in the firm's New Delhi office.

## For Further Contact

If you would like to discuss the themes and content of this report, please contact:

### BCG

#### Dr. Arindam Bhattacharya

BCG New Delhi  
+91 124 459 7093  
bhattacharya.arindam@bcg.com

#### Arun Bruce

BCG Mumbai  
+91 22 6749 7101  
bruce.arun@bcg.com

#### Anirban Mukherjee

BCG New Delhi  
+91 124 459 7408  
mukherjee.anirban@bcg.com

### CII

#### Kaushlendra Sinha

Regional Director,  
CII – Western Region  
+91 22 2493 1790 Ext 401  
kaushlendra.sinha@cii.in

#### Sangita Das

Head – Policy, Industry & Practices,  
CII – Western Region  
+91 22 2493 1790 Ext 413  
sangita.das@cii.in

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Mumbai 400 021  
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Tel: +91 22 24931790  
Fax: +91 22 24939463/ 24945831  
Mail: Confederation of Indian Industry  
Western Region  
105, Kakad Chambers  
1st floor,  
132, Dr Annie Besant Road,  
Worli,  
Mumbai – 400 018  
India

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