Accelerating growth in the Indian capital goods sector

Prepared for FICCI Capital Goods Committee

December 2016

Suvojoy Sengupta
Abhishek Agrawal
Accelerating growth in the Indian capital goods sector

Prepared for FICCI Capital Goods Committee

Suvojoy Sengupta
Abhishek Agrawal
Introduction and Foreword

The Indian capital goods sector has grown by almost 2.75 times over the last decade. Despite this growth the sector remains sub-scale. At USD 13 billion of value-add in 2015, the capital goods sector contributes only 0.6 percent to India’s GDP compared to 4.1 percent for China, 3.4 percent for Germany, and 2.8 percent for South Korea. In order of magnitude, the sector’s value-addition in China is 35 times that in India. Imports of capital goods topped USD 30 billion in 2015, a 2x jump over 10 years and contributing 8 percent to India’s total import bill. Capital goods is now the fourth largest import category after crude oil, electronics, and gold. A combination of six interrelated factors – technological depth, fresh investments, talent attraction, marketing and sales capabilities, component-supplier base, and industry-government engagement – have combined to limit growth of the sector in past.

The future growth trajectory however could be accelerated. Based on the push under the “Make in India” campaign and the trends in key end-use sectors, there are multiple growth opportunities on the horizon in India for capital goods players. This paper identifies following seven core investment areas and themes that could generate these opportunities:

1. Investments in environmental solutions e.g., emission control equipment for thermal power plants, water treatment solutions
2. Investments in logistics infrastructure e.g., increased spending on railways and metro rolling-stock, build out of port infrastructure, doubling the rate of road construction
3. Thrust on indigenization of manufacturing in aerospace and defence sector under the new Defense Procurement Procedure (DPP 2016)
4. Investments in urban infrastructure to tackle issues like waste disposal, water availability and waste water treatment, security systems.
5. Meeting India’s energy demand with thrust on renewables capacity addition and build-out/revamp of power transmission and distribution infrastructure
6. Investments in basic materials like improving coal production rate, revival of capacity additions in cement sector
7. Investments in food infrastructure with higher farm mechanization and food processing levels

The paper identifies a 13-point agenda for policymakers, Indian capital goods players, and foreign OEMs to capture this opportunity. The payoffs of doing so could be significant in terms of an estimated INR 25,000 to 30,000 crore addition to the profitability of players, an estimated INR 40,000 to 50,000 crore direct addition to the GDP, and the creation of up to 50 lakh jobs for the economy at large.

Dr. Alwyn Didar Singh
Secretary General, FICCI
Acknowledgements

On behalf of McKinsey and Company, we would like to thank the FICCI Capital Goods committee for giving us the opportunity to undertake this effort. We are especially thankful to Mr. S N Roy, Chair of the FICCI Capital Goods Committee, and other committee members for sharing perspectives that helped to refine and strengthen our conclusions.

This work drew extensively on McKinsey’s proprietary research, interactions with multiple sector players. This paper also drew on cumulative experience of various McKinsey’s practice leaders from across the globe including Rajat Gupta (Senior Partner), Ramesh Mangaleswaran (Senior Partner), Rajat Dhawan (Senior Partner), Anna Granskog (Partner), and Wolff Van Sintern (Senior Partner). We would like to acknowledge contributions from Pratik Goyal (Associate) for leading the key analytical pieces for the report.

We would also like to acknowledge the efforts and support of our communications team consisting of Natasha Wig, Fatema Nulwala, Ava Tata, and Malini Sood; and our visual aids specialist Royston Wilson.

Suvojoy Sengupta
Partner

Abhishek Agrawal
Associate Partner
Contents

1. Current state and factors inhibiting growth .................................................. 7
2. Underlying mega-trends and opportunities ..................................................... 12
3. What this could mean for Indian players and global MNCs ............................ 17
4. The pay-offs of seizing these opportunities .................................................. 19
1. Current state and factors inhibiting growth

The Indian capital goods sector has grown 2.75 times over the last decade from an output of INR 1.35 lakh crore in 2005 to an output of INR 3.7 lakh crore in 2015. Despite the growth over last decade, the sector remains sub-scale. At USD 13 billion of value-add in 2015, the capital goods sector contributes only 0.6 percent to India’s GDP compared to 4.1 percent for China, 3.4 percent for Germany, and 2.8 percent for South Korea. In order of magnitude, the sector’s value-addition in China is 35 times that in India (Exhibit 1).

Exhibit 1

<table>
<thead>
<tr>
<th>Country</th>
<th>Contribution of capital goods sector to GDP 2015, percent</th>
<th>Total value-add by capital goods sector 2015, USD billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>4.1</td>
<td>443</td>
</tr>
<tr>
<td>Germany</td>
<td>3.4</td>
<td>113</td>
</tr>
<tr>
<td>South Korea</td>
<td>2.8</td>
<td>38</td>
</tr>
<tr>
<td>Japan</td>
<td>2.6</td>
<td>109</td>
</tr>
<tr>
<td>Russia</td>
<td>1.5</td>
<td>19</td>
</tr>
<tr>
<td>India</td>
<td>0.6</td>
<td>13</td>
</tr>
</tbody>
</table>

SOURCE: IHS World Industry Service, 2016q2 release

The sector grew at only 2 percent per annum between 2010 and 2015, compared to the overall economic growth rate of 7 percent. The demand for capital goods, driven by overall economic growth, has been increasing at the rate of 10 percent per annum, pushing the imports of capital goods to USD 30 billion in 2015 - an increase of more than twice in value over a decade. Capital goods imports contribute 8 percent to India’s total import bill and constitute the fourth largest import category after crude oil, electronics, and gold.

1 Sub-sectors included for analysis in this paper includes: engines & turbines, lifting & handling equipment, agricultural machinery, machine tools, metallurgy machinery & casting, machinery for mining & construction, electrical motors & generators, electricity distribution & control equipment, railway & equipment, and aircraft & spacecraft.
2 Based on analysis on IHS World Industry Service database, 2016q2 release
3 Based on analysis on global trade data published by International Trade Centre
Finally, the depth of value-addition in India (at 22 percent of output) is much lower than in other nations (e.g., 36 percent in Germany). Many Indian players are focused on work with lower scope for value-addition like simple fabrication and assembly of parts, and have not been able to develop their own designs or technologies that could fetch them more value.

Electrical machinery contributes about INR 1.4 lakh crore to sector output with roughly 5 percent share of total production out of Asia. Among industrial machinery sub-sectors, Engines & Turbines is largest with INR 38,000 crore output followed by Agricultural machinery with INR 27,000 crore output. Both these have about 6-7 percent of share in total production in Asia. Other industrial machinery sectors like Mining & construction machinery, Lifting & handling equipment, and Machine tools are in the range of INR 7,000 crore to INR 15,000 crore and have about 1 percent share in total production from Asia. Railway rolling-stock and Aircraft are relatively small at INR 12,000 crore and INR 2,000 crore output respectively.

Exhibit 2
Comparative size of different sub-sectors in India

<table>
<thead>
<tr>
<th>Total output 2015, INR '000 crore</th>
<th>Share of total production in Asia 2015, Percent</th>
<th>Share of total global production 2015, Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical motors, generators</td>
<td>19%</td>
<td>96</td>
</tr>
<tr>
<td>Electricity distribution &amp; control equipment</td>
<td>22%</td>
<td>46</td>
</tr>
<tr>
<td>Engines &amp; turbines</td>
<td>22%</td>
<td>38</td>
</tr>
<tr>
<td>Agricultural machinery</td>
<td>17%</td>
<td>27</td>
</tr>
<tr>
<td>Mining &amp; construction machinery</td>
<td>20%</td>
<td>15</td>
</tr>
<tr>
<td>Railway equipment</td>
<td>15%</td>
<td>12</td>
</tr>
<tr>
<td>Lifting &amp; handling equipment</td>
<td>23%</td>
<td>8</td>
</tr>
<tr>
<td>Machine tools</td>
<td>20%</td>
<td>7</td>
</tr>
<tr>
<td>Aircraft &amp; space craft</td>
<td>15%</td>
<td>2</td>
</tr>
<tr>
<td>Other industrial machinery</td>
<td>24%</td>
<td>118</td>
</tr>
</tbody>
</table>

Analysis suggests that six factors have inhibited growth of the sector in the past:

1. **Technology**: Indian players have made limited investments in in-house R&D efforts. Total R&D expenditure by Indian capital goods players is close to 0.5 percent of their turnover. In comparison, capital goods players in Germany invest about 5 to 6 percent of their turnover.  

4 Based on analysis on IHS World Industry Service database, 2016q2 release
Accelerating growth in the Indian capital goods sector

turnover into R&D efforts. As a result, the majority of technologies are either imported or licensed from global OEMs where Indian players are only doing fabrication and assembly of parts.

2. **Investment**: There have been limited investments for growth by incumbents. Many players chose to diversify and invest in other businesses. The sector has attracted very few new enterprises. The high cyclicity in end-use industries (e.g., thermal power) has also deterred long-term investments. All the capital goods sectors put together attracted only 4.4 percent of total foreign direct investment (FDI) into India in the period 2000 to 2015. Total annual investment in the sector is about INR 18,000 crore and has grown at a meagre rate of 1.4 percent per annum between 2010 and 2015. At these levels, investment is 19 percent of value-addition, about half of the broader economy’s average of 36 percent.

3. **Talent**: The capital goods sector has not attracted the best technical and managerial talent and has lost out on this account to the service sectors, and even to some of the other manufacturing sectors like automotive and pharmaceuticals.

4. **Capability**: Limited Marketing & Sales capability is another limitation. Be-spoke nature of products in this sector means sales should possess a working customer process understanding and work collaboratively with engineering/production teams at the time of sales itself. There is also a need to adopt the best-in-class practices on pricing, key account management, and granular mapping of growth opportunities.

5. **Component supplier base**: Sector growth has also been setback due to lack of depth in the local high quality component supplier base. A case in point is high-end machine spindles that are still imported to meet the demand. Growth in automobile production was supported by availability of high quality component suppliers, many of which with time became an ‘export champion’ in their own right.

6. **Industry-Government engagement**: Finally, the capital goods sector has not leveraged the full potential of G2G (Government-to-Government) engagements with other countries to facilitate exports or technology transfer. Also, support from financing institutions for securing long-tenure competitive-cost financing for export projects could be a key enabler for boosting capital goods exports for international projects.

All of these six factors are intertwined. For example, lack of focus on developing strong R&D has contributed into lower overall investments into the sector, lack of vibrant component supply-chain, and ability to attract best of the talent. India would need to develop over a period of time a positive re-enforcing cycle of ‘Scale and profitability’ - ‘Commitment towards innovation and technology’ - ‘Wide market participation with a strong SME sector’ to be a world leader in this sector.

---

5. The Machinery and Equipment Industry in Germany (Issue 2016/17), published by Germany Trade & Invest (GTAI)
6. Based on analysis on IHS World Industry Service database, 2016 Q2 release
The triangle of success of the capital goods sector in Germany

With a total output of USD 315 billion and a GDP contribution of USD 113 billion, Germany’s capital goods sector clearly stands out as an exemplar of success (Exhibit 3). The success of the sector can be explained by a “triangle of success”, that is:

1. **Scale and profitability**: The sector has maintained a long-term growth rate of about 2 percent (despite increasing competition from China and Eastern European countries) and an operating margin of more than 5 percent (compared to the all-sector average margin of 2 percent). Size and profitability of the sector allows the firms to invest back in R&D efforts and stay on forefront of technological advancement. More than 75 percent of goods are exported, with share of 16.5 percent (Rank 1 in global capital goods exports).

2. **Commitment towards innovation & technology**: German capital goods firms, on average, plough back 5 to 6 percent of their revenues into research and development (R&D) activities. Total annual R&D spending of the sector is estimated at close to Euro 10 billion. Capital goods players directly employ a workforce of 43,000 R&D professionals among them.

3. **Wide market participation with a strong SME sector**: The sector is characterized by Small and Medium Enterprises. Of more than 6,200 registered capital goods companies, about 90 percent are SMEs. These firms play across the value-chain and provide a deep component supply-chain to support the OEMs. In all, the capital goods sector in Germany employs more than a one million people.

---

1 The Machinery and Equipment Industry in Germany (Issue 2016/17), published by Germany Trade & Invest (GTAI)
The adoption of appropriate policies has enabled this evolution through a public-supported R&D infrastructure (e.g., Fraunhofer Society\(^1\)), financial incentives for R&D conducted by private enterprises\(^2\), and a vocational training system for creating the skills needed by industry. Looking ahead into the future, INDUSTRIE 4.0 project, identified as one of the 10 “future projects” by the German government\(^3\) aims to enable the advancement in “cyber-physical” systems and advanced manufacturing systems.

\(^1\) Fraunhofer Society for the advancement of applied research is a partly public-funded (about 30 percent) research organization with 67 institutes across Germany. These institutes have a staff strength of more than 22,000 and work with a total annual funding of about Euro 1.9 billion.

\(^2\) Through two flagship programs: “R&D Personnel Costs Subsidies Program” and “Promotion of Research Personnel Growth Program”. It is estimated that about 40 percent of the Mittelstand firms benefited from these programs.

\(^3\) As part of its High-Tech Strategy 2020 Action Plan

---

**Exhibit 3**

**The success of capital goods sector in Germany**

- Output of USD 315 bn & GDP contribution of EUR 113 bn in 2015
- Operating margin of 5.6% in 2013\(^1\)
- Share of 16.5% (Rank 1) in global capital goods exports
- More than 6,200 registered capital goods companies
- 5-6% share of revenues ploughed
- R&D workforce of 43,000 at capital goods players
- EUR 10bn annual R&D spending
- 1 million+ employees in the German capital goods sector
- 90 percent of companies SMEs across the value-chain

\(^1\) Compared to broader economy margin of 2-2.5%.

**SOURCE:** IHS World Industry Service, 2016q2 release; Federal statistical office Germany; VDMA; German central bank; German Stifterverband

The adoption of appropriate policies has enabled this evolution through a public-supported R&D infrastructure (e.g., Fraunhofer Society\(^1\)), financial incentives for R&D conducted by private enterprises\(^2\), and a vocational training system for creating the skills needed by industry. Looking ahead into the future, INDUSTRIE 4.0 project, identified as one of the 10 “future projects” by the German government\(^3\) aims to enable the advancement in “cyber-physical” systems and advanced manufacturing systems.
2. Underlying mega-trends and opportunities

Based on the push under the “Make in India” campaign and the trends in key end-use sectors (power, mining, oil & gas, aerospace & defence manufacturing, etc.), there are multiple growth opportunities on the horizon in India for capital goods players. Seven core investment areas and themes have been identified that could help generate these opportunities:

1. Investments in environmental solutions

Both citizens and policymakers are becoming increasingly aware of the environmental impact of industry and transport. As a result, stricter norms are being imposed across sectors, e.g., leap-frogging the emission standards for automotive (going directly from BS-IV to BS-VI norms); more stringent norms for the emission of pollutants like sulphur oxides and nitrogen oxides from thermal power plants; and tightening of water consumption norms.

This could call for a new wave of capex in providing environmental-friendly solutions. For example, adopting emission control equipment (e.g., flue gas desulphurization, selective catalytic reduction) for thermal power plants to satisfy new guidelines could entail a capex of USD 15 billion over the next five years. The realization of opportunity however is contingent on allocating a funding mechanism for the additional capex.

Similarly, management of industrial water may also need investments in the output water treatment and recycle/re-use systems. The government, on its part, has budgeted a fund of USD 3 billion for the ambitious Namami Gange project, with close to 100 projects sanctioned till date with a budget of over USD 1 bn and an additional 231 entry level and medium term projects announced in July 2016.

Leap-frogging from BS-IV standards to BS-VI standards could call for an investment of about INR 25,000 crore to 30,000 crore by Indian refiners over the next five years in various packages like reformer, heater, diesel hydrosulphurization, hydrogen generation unit, and sulphur recovery unit. Developers could look at bundling these packages in form of bigger EPC packages to ensure tighter control over delivery timeline and quality.

Capturing many of these opportunities could also call for technical collaboration between foreign OEMs that have the requisite technology and Indian manufacturers that could customize the technologies as per Indian requirements.

2. Investments in logistics infrastructure

The government has stepped up spending, and increased the execution rigour for, logistics infrastructure. For example, spending on railways is expected to be upwards of USD 15 billion per annum compared to historical average spending levels of USD 5 to 6 billion. The focus
Accelerating growth in the Indian capital goods sector

of this spend will be on rolling-stock upgrade, laying of tracks, electrification, and station upgrades. Capital goods players could look for tier-1 opportunities through the setting up of coach and locomotive manufacturing facilities in collaboration with the Railways. Alternatively, they could look for tier-2 opportunities in supplying components and sub-assemblies that could be sourced by the Railways, e.g., bogie castings, locomotive underframes etc.

Similar to railways, city metro systems may see a significant build-out. 300+ km metro line is now operational in India and a further 1000+ km is under construction or consideration across various cities.11 Tier-1 manufacturers of metro cars could start leveraging India as a manufacturing hub for their global sourcing. Total production of metro cars in India could reach INR 10,000 crore to 15,000 crore per annum by 2020, providing opportunities for both tier-1 and tier-2 players.

Finally, an investment push is expected in the port sector (estimated INR 1 lakh crore investment in doubling the port capacity in the next 10 years, with the setting up of five to six new mega-ports)12 and in the road sector (the highway build-out rate increased to 16+km/day in 2015-16 compared to 12 km/day in 2014-1513). These build-outs will generate opportunities for material handling equipment and solution providers, construction equipment manufacturers, and EPC players in this space.

3. Thrust on indigenization of manufacturing in aerospace and defence sector

Under the new Defence Procurement Procedure unveiled in March 2016, Indian designed, developed and manufactured (IDDM) is the new highest-priority category wherein a minimum of 40 percent of locally designed equipment is required to be procured from domestic sources.14 This could call for the huge indigenization of future defence programs, estimated at USD 150 billion, two-thirds of which need to be made in the next eight years. India’s public sector defence manufacturing enterprises may need to outsource a significant part of their requirements to meet the demand. This could generate attractive growth opportunities for tier-2 and tier-3 vendors. However, new entrants in this segment will need to maintain a long-term perspective due to long gestation periods and rigorous pre-qualification requirements. Partnering with a global OEM looking to meet indigenization requirements may provide a faster go-to-market route here.

4. Investments in urban infrastructure

Metropolitan cities with million-plus populations are India’s engines of growth. McKinsey Global Institute estimates that by 2025, India will have 69 cities with a population of more than one million each.15 As India proceeds rapidly on the road to urbanization, it will need to make huge investments to upgrade the urban infrastructure for water management, waste management, transport, power, smart-city solutions, etc. Further, the state of the existing infrastructure in metropolitan areas also calls for massive upgradation. Only about 30 percent of waste water

---

11 http://pib.nic.in/newsite/PrintRelease.aspx?relid=150999
12 As under the Sagarmala programme of the Government of India
13 http://pib.nic.in/newsite/PrintRelease.aspx?relid=149477
14 60 percent for equipment built under license from a foreign OEM
15 India’s Ascent: Five opportunities for growth and transformation, published by McKinsey Global Institute, August 2016
generated is treated to acceptable levels.\textsuperscript{16} On the water distribution side, water loss due to old water infrastructure could be as high as 30 percent.\textsuperscript{17}

A citizen engagement survey conducted in a metropolitan area revealed transportation and mobility, water supply and sewage, and waste and sanitation as the top three concerns for urban residents. Addressing these concerns calls for innovative solutions like waste-to-energy (with an estimated 1 GW potential in India across 300 municipalities), smart water metering, desalination, etc.

The government is backing these measures with investments under the Smart City Mission and AMRUT\textsuperscript{18} with an estimated USD 15 billion funding support over next 5 years.\textsuperscript{19} Similarly, on the waste management side, INR 37,000 crore has been earmarked to fund solid waste management.\textsuperscript{20} The regulatory push of making it mandatory for distribution companies (DISCOMs) to purchase all power generated through the waste-to-energy route could also provide a boost.

5. Meeting India’s energy demand

The energy sector in India has seen “shifting bottlenecks” over the last several decades. While generation capacity was the bottleneck in the early part of the 2000s, the bottleneck shifted to coal production in the late 2000s and the early 2010s. While the generation infrastructure has caught up with demand over the last few years, and coal production has ramped up recently, the transmission and distribution infrastructure is the bottleneck at present.

On the generation side, the currently under-execution and under-planned capacity of about 40 to 50 GW by public sector utilities and the state electricity boards is likely to come online over the next five to seven years, but additions beyond that level remain uncertain. In regard to the private sector, there may not be addition of any significant new thermal capacity. On the renewables front, however, there could be unveiling of a big thrust. India could add of 80 to 100 GW of renewable energy in the period 2015 to 2025, led by solar.

This could provide growth opportunities both for engineering, procurement and construction (EPC) players in this space as well as package and component suppliers. The market is expected to adopt innovative efficiency improvement systems like tracking solutions (estimated to improve the efficiency of solar plants by 10 to 20 percent depending on the location of the plant), but their offtake may depend on the evolution of the additional cost vs. benefit equation.

On the transmission and distribution side, areas like grid upgradation and new build-out, renewable energy integration into the grid, rural electrification, and smart metering are likely to attract investments. These and related opportunities could call for an annual investment of about USD 10 billion by 2020.

\textsuperscript{16} McKinsey analysis on data of Central Pollution Control Board, India
\textsuperscript{17} McKinsey analysis for water supply for one of India’s metropolitan cities
\textsuperscript{18} Atal Mission for Rejuvenation and Urban Transformation
\textsuperscript{19} http://pib.nic.in/newsite/PrintRelease.aspx?relid=119925
\textsuperscript{20} http://pib.nic.in/newsite/PrintRelease.aspx?relid=130079
6. Investments in basic materials

To realize the power generation vision ("24x7 power") and to reduce dependence on coal imports, Coal India is moving to achieve its target of ramping up production to 1,000 MT by 2020,\(^{21}\) up from the production level of 539 MT in 2015-16.\(^{22}\) These capacity additions, and the focus on improving the grade of coal supplies, would call for newer solutions, e.g., large-scale material handling for coal, surface miners, and washery solutions. The change in the pricing pattern for coal grades means that while investments in coal washery and material handling systems may cost about INR 100/ton, they could generate a premium of INR 175/ton (improvement by one grade).

The other ‘materials-related’ trend will unfold in the cement sector. The sector, although currently in a state of over-capacity, is expected to get a boost from infrastructure investments and could add 80 to 100 MTPA (metric tonnes per annum) capacity over the next five years. Investments in cement could generate an estimated opportunity of INR 30,000 crore for cement machinery players over the next five years.\(^{23}\) The new investments are also likely to see the adoption of newer grinding technologies like high pressure grinding roll (HPGR) that provide improved power efficiency and hence result in the overall lower total cost of ownership except in cases where the moisture content of limestone is high. There could be push indigenization of critical components like gear-boxes that are currently imported by OEMs.

7. Investments in food infrastructure

Food consumption in India is estimated to grow at the rate of 5 percent per annum in the near future, which could mean the need for an increase in crop yields by 1.3 percent through 2025,\(^{24}\) and consequently raising fertilizer demand from the current 26 million tonnes of nutrients to 27 to 29 million tonnes by 2020. High prices for imported gas may continue to inhibit the domestic manufacture of fertilizers and limit the addition of significant new greenfield capacity. Increase in the consumption of complex fertilizers (usage in India is 28 percent compared to 36 percent in China and 54 percent in Israel)\(^{25}\) and customized fertilizers could drive new capacity additions in small-sized plants. About 25 to 30 such plants (with a typical capex of INR 150 to 200 crore for each plant) could come up over the next five years. There may also be a revival of a few urea manufacturing plants over the next five years.

With the saturation of the area under cultivation, the need for increasing agricultural productivity and decreasing cost could also drive the adoption of more farm mechanization equipment. Penetration of farm mechanization in India is substantially low compared to other countries (penetration in India is 0.8 HP/hectare, compared to 1.6 in Vietnam and Thailand, 4.1 in China, and greater than 7 in developed European countries). The government has allocated USD 350 million in the current five-year plan (2012 to 2017) to promote the use of machinery by farmers.\(^{26}\) This will provide opportunities for mechanized equipment manufacturers.

---

21 http://pib.nic.in/newsite/PrintRelease.aspx?relid=115635
23 Estimated based on multiplier of Rs. 300 crore machinery spend per million ton of new cement capacity
24 Working paper no. 209; ICRIER; NSSO; Census of India; IBEF
25 IFA; FAI
26 Twelfth five year plan
On the consumer side, the preference for processed and ready-to-eat food due to factors like convenience and paucity of time is increasing. The share of processed food in the consumer plate has increased by 5 percent in the first decade of the twenty-first century\textsuperscript{27}. This trend is likely to generate opportunities for food processing equipment manufacturers. For example, in food can manufacturing, three to five new plants could come up over the next five years with a total investment of USD 200 million.

\textsuperscript{27} Ministry of Food processing; APEDA reports
3. What this could mean for Indian players and global MNCs

While the underlying mega-trends offer many opportunities, there are also multiple challenges and pitfalls that players will need to watch out for. Many technologies that are successfully applied globally may require customization and localization based on the unique operating conditions in India. As an example, of about 15 waste-to-energy plants commissioned so far in India, only one is running successfully, inappropriate selection of technology being the main reason for the failure of the others.

**Policymakers**

Indian policymakers could enable growth in the capital goods sector while ensuring healthy competition and the technological deepening of the market. Specifically, policymakers could consider the following:

1. Incentivizing technology transfer between global OEMs and Indian manufacturers: The new Defence Procurement Policy aims to do this by according the highest priority to the IDDM category. Policy could promote local partnerships between global OEMs and Indian manufacturers to encourage a sustained transfer and adoption of technology locally.

2. Explore options to co-fund R&D activities to incentivize adequate spending on R&D activities by Indian capital goods players. Policy could facilitate drive research work of “practical utility” through ensuring adequate industry inputs in research topics.

3. Export support via G2G engagements with other emerging economies, and ensuring a competitive line of credit for export projects through export financing institutions could be considered.

4. MSMEs could be developed through identifying geographical clusters with shared infrastructure and R&D centres.

5. Promoting standardization of industry and sector specifications wherever possible to meet accepted international norms and benchmarks.

**Indian capital goods players**

The current situation is a “once in a lifetime” opportunity for Indian players to scale up and enter new business lines like aerospace & defence, renewable energy, and urbanization solutions (waste, water). To capture these opportunities Indian capital goods players could consider the following:

6. Proactively reaching out and forging partnerships with global OEMs for technology transfer.

7. Building product development and R&D capabilities with a long-term view: Indian players could look to target ploughing back of at least 2-3 percent of turnover into R&D activities.

8. Pursuing export opportunities, especially in other developing economies in South Asia, Southeast Asia, and Africa: While the mega-trends presented above illustrate domestic opportunities, Indian capital goods players could simultaneously pursue...
export opportunities in other developing geographies. This is essential to develop global references, build scale, and protect against cyclicality in any one end-use sector in India e.g., current slow-down in thermal power plant equipment ordering.

9. Engaging with global OEMs to develop Indian manufacturing and engineering set-ups as centres for global manufacturing and engineering (similar to the model adopted by automotive manufacturers)

Global OEMs

For global OEMs, India could be one of the few growth hotspots over the next decade, offering 8 to 10 percent growth compared to 2 to 4 percent in home markets. India could also serve as a springboard for accessing opportunities in other emerging South Asian and Southeast Asian geographies. Global OEMs could consider the following:

10. Customizing solutions to meet Indian operating conditions and price points instead of merely extending undifferentiated global offerings to the Indian market.

11. Engaging proactively with stakeholders to ensure that the cost, benefits, and risks of the adoption of new technologies are well understood by all parties.

12. Establishing partnerships with local Indian manufacturing players, an approach that could provide much easier and faster access to these growth opportunities.

13. Adopting a long-term timeframe with deep top-management commitment to the Indian market: While real progress has been made in terms of factors like availability of funding for infrastructure projects, speed of clearances, and governance in the last couple of years, some stumbling blocks like delays in land acquisition, delays in bidding, and focus on cost over technology adoption still remain. These barriers are likely to diminish over time. Our research points out that global MNCs who have stayed put in Indian markets (across sectors) realized on average 2.5x growth rate in Indian operations compared to their respective global average.

28 Based on discussions with industry players
29 Combined revenue growth rate (by revenue) of top 11 listed MNCs in India compared to growth rate of corresponding global parent company (over FY 2005 and FY 2012)
Accelerating growth in the Indian capital goods sector

4. The pay-offs of seizing these opportunities

The gross output of the Indian capital goods sector has grown at the meagre rate of 2 percent over the last five years. Capturing these growth opportunities could enable the sector to grow at the rate of 10 percent per annum, which could also be the collective ambition of players. Achieving this goal could generate an additional EBITDA of INR 25,000 to 30,000 crore for market players.

Exhibit 4

**Potential INR 25,000-30,000 crore Incremental EBITDA opportunity for capital-goods players in India through accelerating growth**

Gross output of Indian capital goods sector
INR 000 crore

This could add about INR 40,000 crore to 50,000 crore to India’s GDP. The accelerated growth could also allow import bill reduction by about USD 15-18 billion and generate additional exports of about USD 5-7 billion, in total earning the country additional forex of USD 20 – 25 billion per annum.

Most importantly from the national perspective, achieving this growth could create an estimated additional 5 lakh direct jobs and a total additional 50 lakh or so jobs, counting both indirect and induced jobs.

1 Assuming 12-15 percent EBITDA margin

SOURCE: IHS World Industry Service, 2016q2 release
The Indian capital goods sector has grown at the ‘business-as-usual’ pace in the past, hampered by issues of technology deficit, limited investment, absence of talent, lack of in-house capabilities, and insufficient industry–government engagement. However, now is the right time to embark on an accelerated path of growth because multiple underlying mega-trends are opening up a number of opportunities. We policy makers, Indian players, and foreign OEMs could come together to capture these opportunities. The payoffs of doing so could be significant in terms of an estimated INR 25,000 to 30,000 crore addition to the profitability of players, an estimated INR 40,000 to 50,000 crore direct addition to the GDP, and the creation of up to 50 lakh jobs for the economy at large.
Contacts

Suvojoy Sengupta
Partner, McKinsey & Company
Suvojoy_Sengupta@mckinsey.com

Abhishek Agrawal
Associate Partner, McKinsey & Company
Abhishek_Agrawal@mckinsey.com