Introduction

The next decade is set to be one of unprecedented change for the automotive industry as a whole, as the development of various driver assistance systems culminates in the introduction of fully autonomous vehicles. This will likely transform the driving experience with a fundamental reinterpretation of what being in a vehicle should be. Also, the entry of new players – likely from the tech industry – will further disrupt current OEMs’ position. These developments in autonomous driving and infotainment will see the industry move from its current ownership-based business model to a model where consumers have a choice of ownership and usage, viewing the car as a service, rather than a product. In this case, mobility service providers can be a driving force for change to address issues of safe, sustainable transportation.

This white paper is being written in the aftermath of the UK vote to leave the European Union. The vote is a prelude to a period of heightened uncertainty, and our forecasts throughout this paper have been revised to reflect this. During 2017 and 2018 (when we assume the United Kingdom will leave the European Union) the disruption and uncertainty are expected to be at their peak, and we have therefore reduced the outlook by 1.1 percentage points and 1.2 percentage points, respectively. The hit to production is largely determined by the direct effect on vehicles being exported to the UK and EU marketplaces, and the less immediate but equally pervasive effects of the contagion of economic slowdown in Europe into other regional economies.

The Indian automotive market is going through a successful period. In the short term, India alone has surpassed the overall Association of Southeast Asian Nations (ASEAN) region in light vehicle production. Strong domestic growth, coupled with strong potential in research and development (R&D) and cost-effective manufacturing, is expected to drive production in the country. To improve growth, the Modi government is expediting the approval of stalled infrastructure contracts. These initiatives are expected to drive growth in the short and long term. With light vehicle production in Brazil and Russia both contracting and China’s production growth slowing, India is the lone emerging market with strong expectations for light vehicle production growth during 2016. India was one of few countries to miss the global recession of 2008–09 and should remain isolated from current global effects because of its major dependence on the local market. However, with an increase in local taxes and greater global uncertainty (stemming from the Brexit vote), short-term growth could be hampered.

In the 2016 Union Budget of India (introduced in February), the government has implemented a 1.0% infrastructure tax on gasoline, compressed natural gas, and liquefied natural gas automobiles not longer than 4 metres with an engine capacity not exceeding 1.2L; a 2.5% tax on diesel automobiles not longer than 4 metres with an engine capacity not exceeding 1.5L; and a 4.0% tax on other large sedans and SUVs. Additionally, a 1.0% luxury tax on all cars priced above INR1 million is expected to hit vehicle sales.

Low interest rates and inflation will play significant roles in the short term. India is a typical middle-class market, and a high percentage of car purchases are driven by financing from banks and financial institutions. Lending rates for car loans have eased with the decrease in interest rates, but they still hover around 9.5–12.0%, which presents a challenge to prospective customers. High interest rates have curtailed the growth of the light vehicle market in recent years. However, the Reserve Bank of India has started easing interest rates, which is expected to continue in the near term.
Global models work well for OEMs, with single-vehicle development programmes combining with such elements as bundled part purchasing to reduce related costs. Still, this strategy must be executed with some flexibility for regional adaptation. In these cases, suppliers can serve as a source of local knowledge, highlighting which areas need updating to suit local tastes – modular designs can support such modifications as platform extensions, reworked suspensions, and alternative powertrains. Based on this integration, the OEM/supplier partnership can go on to include early collaborations in the development of next-generation models.

The aim of this paper is to take a look at the automotive industry both at a global level and at a country level for India. It will examine the production trends during the last five years and take a look at the next five years, drawing on IHS Automotive forecasts and research. It will then examine the automotive supply base in India, looking at both the opportunities and the key growth drivers for major suppliers in India.

Global Economic Outlook

The world economy entered 2016 at an even weaker pace than it had ended 2015, with quarterly GDP growth coming in at a dismal 1.5% in the first quarter, according to the IHS preliminary estimate. (Unless otherwise stated, all quarterly GDP growth rates reported here are based on real seasonally adjusted annualised rates, or SAAR).

Global Real GDP Percentage change (2010-2020)

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td>4.28</td>
<td>3.09</td>
<td>2.56</td>
<td>2.43</td>
<td>2.71</td>
<td>2.6</td>
<td>2.46</td>
<td>2.75</td>
<td>3.13</td>
<td>3.21</td>
<td>3.3</td>
</tr>
<tr>
<td>United States</td>
<td>2.53</td>
<td>1.6</td>
<td>2.22</td>
<td>1.49</td>
<td>2.43</td>
<td>2.43</td>
<td>1.89</td>
<td>2.44</td>
<td>2.62</td>
<td>2.3</td>
<td>2.33</td>
</tr>
<tr>
<td>Eurozone</td>
<td>2</td>
<td>1.6</td>
<td>-0.82</td>
<td>-0.24</td>
<td>1.02</td>
<td>1.58</td>
<td>1.53</td>
<td>1.11</td>
<td>1.53</td>
<td>1.5</td>
<td>1.56</td>
</tr>
<tr>
<td>Japan</td>
<td>4.74</td>
<td>-0.41</td>
<td>1.73</td>
<td>1.36</td>
<td>-0.11</td>
<td>0.6</td>
<td>0.45</td>
<td>0.65</td>
<td>0.94</td>
<td>0.65</td>
<td>0.21</td>
</tr>
<tr>
<td>China</td>
<td>10.64</td>
<td>9.48</td>
<td>7.74</td>
<td>7.68</td>
<td>7.27</td>
<td>6.93</td>
<td>6.48</td>
<td>6.2</td>
<td>6.41</td>
<td>6.44</td>
<td>6.5</td>
</tr>
<tr>
<td>India</td>
<td>10.27</td>
<td>5.57</td>
<td>5.67</td>
<td>6.63</td>
<td>7.2</td>
<td>7.55</td>
<td>7.53</td>
<td>7.4</td>
<td>7.67</td>
<td>7.83</td>
<td>7.6</td>
</tr>
</tbody>
</table>

Source: IHS Markit
The disappointing first-quarter world GDP growth was mainly due to a setback in the US economy, which grew only 0.5% during the first three months of the year. In contrast, the Eurozone’s first-quarter growth surprised everyone on the upside. Among other G7 economies, Japan and the United Kingdom came in with weaker-than-anticipated growth, while Canada will likely surprise strongly on the upside with 3.1% GDP growth in the first quarter.

Meanwhile, economic activity in many emerging markets has further deteriorated during the first six months of 2016, and an increasing number of developing economies have fallen into recession, but the outlook for some of them has started to improved recently as financial-market volatility has eased and oil and other commodity prices have stabilised.

Nevertheless, world growth should recover some of its lost ground in the second quarter and pick up further during the rest of 2016, since some of the causes of the advanced economies’ poor performance in the first quarter were transitory and in some cases already behind us (such as inventory reductions and severe weather). Furthermore, there is some risk of an upside surprise in the current quarter owing to pent-up demand built up during the last several quarters of weak household and business spending.

Taking into account these and other recent developments around the globe, the latest IHS forecast anticipates world GDP growth coming in at 2.5% during 2016 as a whole. Beyond 2016, we project GDP growth to average 3.2% per year during the medium term (2017–21), mainly because of stronger global investment and trade growth.

There is considerable downside risk to our medium-term forecast, given the possibility for fiscal and monetary policy errors as well as rising political and geopolitical risks, including the increasing influence of populist parties, China’s brinksmanship in South China Sea, disorderly mass migration, and cross-border terrorist threats.

Indian Economic Outlook

Strong headline GDP growth rides on robust consumer demand and masks continued weakness in manufacturing and investment. India’s beneficial position as a net oil importer and a strong reliance on domestic consumption helped strengthen the economy, lifting its real growth to 7.6% in fiscal year (FY) 2015/16. While commendable, India’s strong performance should not be taken for granted. Growth remains uneven, and the multiple pockets of weakness pose a risk to the outlook for FY 2016/17. Dragged down by persistent corporate-sector stress and risk aversion in the banking system, private investment remains weak. A difficult external environment – reflected in crumbling demand, weak commodity prices, and rising anti-emerging-market sentiment – has also disrupted corporate investment plans, putting the onus of reviving the investment cycle on the government. The government’s initial progress with structural reforms has allowed it to accelerate public investment in FY 2015/16, and public investment will likely remain the near-term growth driver. However, reform momentum has slowed and may face additional challenges, especially if the Bharatiya Janata Party (BJP) loses seats during several upcoming state elections.
Real GDP

Private consumption and public investment should help sustain current growth, but any strong acceleration in FY 2016/17 is unlikely. Real GDP growth accelerated to 7.9% year on year (y/y) during the January–March 2016 quarter – the last quarter (fourth quarter) of FY 2015/16. Well above our forecast, this lifted full-year growth to 7.6%. If official GDP data are to be trusted (the 2015 GDP methodology revisions have lifted India’s growth almost 2 percentage points and raised criticism about the apparent disconnect with much weaker high-frequency economic data), domestic household spending and strong manufacturing growth drove output in the fourth quarter of FY 2015/16. A reported sharp rise in discrepancies has also contributed to high headline GDP growth. Typically moderate, the discrepancies share of GDP swung from -0.3% in FY 2014/15 to an unusually high 1.9% in FY 2015/16. Without the discrepancies, India’s real GDP growth would have been only slightly above 5.0% in FY 2015/16. Still, even the optimistic official figures failed to mask growing weakness in investment and trade. Real fixed investment contracted 1.9% y/y in the fourth quarter, bringing full FY 2015/16 growth to 3.9% – down from an already weak 4.9% in FY 2014/15. With private investment struggling to pick up, the onus of reviving the investment cycle firmly remains on public spending.

Foreign Trade

The steep contraction in merchandise exports is concerning, although overall current-account dynamics remain favourable because of an even sharper drop in imports. India’s merchandise exports have been shrinking continuously since December 2014, making the current episode of exports weakness more severe than the nine-month spell during the financial crisis of 2008–09. Its geographic spread is also much wider, with weak demand registered across nearly all of India’s export markets, including Northeast and Southeast Asia, as well as South Asia and the Middle East, in addition to the US and EU markets. With only marginal, if any, improvement in demand on the horizon, it is unlikely that India’s merchandise exports will see a meaningful recovery in the coming months. Still, the country’s trade balance appears to remain on a solid footing thanks to an even steeper contraction in imports. With India being a net importer of oil, softer global oil prices are helping offset the protracted weakness in exports. On the downside, while oil prices are almost solely responsible for the import contraction, export weakness appears to be more broadly based, indicating imports may recover sooner than exports and clouding the outlook for India’s trade and current-account balance beyond 2016.
Global Automotive Overview

Light Vehicle Production

Global production is estimated to have reached 7.36 million units in May 2016, a 2.7% year-on-year (y/y) increase compared with May 2015. The full-year outlook for 2016 is largely unchanged at 91.56 million units, a marginal 166,000 units or 0.2% above the prior forecast.

Global light vehicle production by region (2011 v 2015)

<table>
<thead>
<tr>
<th>Region</th>
<th>2011</th>
<th>2015</th>
<th>CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle East/Africa</td>
<td>2.0</td>
<td>2.3</td>
<td>-3.7%</td>
</tr>
<tr>
<td>South America</td>
<td>3.0</td>
<td>4.3</td>
<td>-8.4%</td>
</tr>
<tr>
<td>South Asia</td>
<td>4.3</td>
<td>8.0</td>
<td>3.9%</td>
</tr>
<tr>
<td>Japan/Korea</td>
<td>6.9</td>
<td>13.3</td>
<td>1.5%</td>
</tr>
<tr>
<td>North America</td>
<td>12.5</td>
<td>13.1</td>
<td>7.4%</td>
</tr>
<tr>
<td>Greater China</td>
<td>17.5</td>
<td>17.6</td>
<td>8.1%</td>
</tr>
<tr>
<td>Europe</td>
<td>20.2</td>
<td>20.9</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

Source: IHS Automotive

© 2016 IHS
Production in Greater China is estimated to have grown 6.8% y/y in May to 2.06 million units, and the year-to-date (YTD) comparison now stands at 10.63 million units, 6.1% up on the same period in 2015. The full-year outlook is boosted by 174,000 units, or 0.7%, to 25.57 million units. This view includes the effects from the government’s tax cut on vehicles with engines up to 1.6L. The cuts are expected to remain in place throughout 2016; once this stimulus is removed, the growth rate is expected to fall to closer to 2.0% in 2017. The growth in SUV and MPV output continues. Commercial vehicles and standard passenger cars are more constrained, and inventory levels in these sectors are a downside pressure, although in the second half of 2016, the expectation that tax cuts will be revoked could help by pulling ahead demand later in the year. The latest inventory indicators reported by the China Automobile Dealers Association suggest stock levels have been eased by strong sales at the beginning of the second quarter, although these levels remain above the critical 50% level.

North American production levels grew 0.4% y/y in May, to 1.49 million units, and the YTD comparison now stands at 7.49 million units, 3.3% ahead of the first five months of 2015. US operations were down slightly, by 0.4% y/y to 1.01 million units in the month, and the YTD comparison now stands at 5.11 million units, a 3.5% increase through the first five months. Mexican output fell again in May, down 2.2% y/y to 279,000 units, but the country is coming off a run of high growth in the last two years, and there are interruptions at Volkswagen (VW) as a result of stop-sell actions in response to the diesel emissions scandal. Output from VW’s Puebla facility is estimated to be down 18.1% YTD. While the outlook for Canada remains constrained in the long term, the short-term picture is continuing to improve following restructuring at Chrysler, Honda, and Toyota. May output was up 9.6% y/y at 196,000 units, and the YTD comparison stands 13.8% higher at 1.02 million units.
The full-year 2016 outlook for North America remains stable at 3.7% growth as Canada stabilises, Mexico picks up in the latter half of the year, and the United States continues to respond to strong domestic demand – although evidence of growing inventory in some sectors will offset some of the early strength. This would lift output to new record levels of 18.15 million units, still nearly 10.00 million units above the trough of 2009.

MHCV Production

It was a year of contrasts in 2015. While overall global demand for trucks with a gross vehicle weight (GVW) of more than 6 tonnes, excluding buses, fell 6% to just above 2.46 million units – the second consecutive decline after the 2014 slide – this obscured sharp regional differences. Among the 11 sales regions IHS tracks, 6 saw sharp declines in truck demand, for a combined drop of nearly 355,000 units (excluding buses). The other five, meanwhile, saw gains of around 186,000 trucks, following an average increase in sales of as much as 15% per region. The gains were split, more or less evenly,
among advanced industrial countries in East Asia (Japan), North America, and Western Europe on the one hand, and emerging markets, including the Association of Southeast Asian Nations (ASEAN) and India, on the other. By contrast, the losses were located almost exclusively in the emerging world and concentrated chiefly in Brazil, China, and Russia, in each case reflecting some global trends (e.g., low oil prices), but also country-specific developments.

### Global medium and heavy commercial vehicle production by region (2011 v 2015)

<table>
<thead>
<tr>
<th>Region</th>
<th>2011</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>South America</td>
<td>109.5</td>
<td>290.0</td>
</tr>
<tr>
<td>Japan/Korea</td>
<td>294.8</td>
<td>387.8</td>
</tr>
<tr>
<td>North America</td>
<td>378.3</td>
<td>503.8</td>
</tr>
<tr>
<td>South Asia</td>
<td>475.7</td>
<td>479.9</td>
</tr>
<tr>
<td>Europe</td>
<td>577.1</td>
<td>910.2</td>
</tr>
<tr>
<td>Greater China</td>
<td>1,288.5</td>
<td>1,288.5</td>
</tr>
</tbody>
</table>

Notes: Figures in thousands of units
Source: IHS Automotive

In 2016, the stage remains set for a fairly flat year, with most markets set to extend their 2015 gains or declines. Two cases where we anticipate a trend change are China and North America. Having hit bottom in early 2015 after an emission regulation change in January 2015, China enters the new year on a slight increasing trend. For its part, the United States finished 2015 on a rather sideways trend, following a rapid rise in the early part of the year, and is headed down in 2016 compared with 2015, driven by weakness in the heavy-duty truck (Class 8) segment. Prospects for global truck sales are somewhat stronger in 2017, as China’s slow recovery continues, Western Europe remains healthy, and Brazil and Russia stabilise.

In 2015, global truck and bus production finished down slightly compared with volumes a year earlier, dropping about 6% y/y. North America, South Asia (particularly India), and Western Europe were on an increasing trajectory, but weakness in South America, China, and other areas more than offset those gains. After falling to 3.11 million units in 2014, IHS Automotive projects global truck and bus production fell further in 2015 (by 6% to 2.93 million units), similar to our expectations in our recent reports. In 2016, output is likely to be fairly flat or slightly up, at around 2.96 million units. An acceleration in production growth is possible in 2017, as trends flatten in the Americas.
Indian Automotive Overview

Light Vehicle Production

According to IHS Automotive, total light vehicle production across the South Asia region in 2010 reached 6.625 million units. The South Asia region comprises India, Thailand, Indonesia, Malaysia, Pakistan, Philippines, Vietnam – and Australia, until new vehicle production comes to an end there in 2018. Of this number, 3.246 million units were produced in India. National light vehicle sales during the same year reached 2.744 million units, with the remaining roughly 500,000 units (15.46%) largely bound for export markets.
Numbers continued to track up in the following year, with total light vehicle production during 2011 reaching 3.599 million units. National sales figures broke through the 3-million-unit barrier (3.011 million units) for the first time, and the country was hailed as the next bright spot in the global automotive industry. National and international OEMs announced new investments to take advantage of the growth potential.

The habits of the car-buying public in India are comparatively predictable, particularly in the volume market. In addition to price, features such interior space, fuel economy, and future repair costs are all critical to the final purchasing decision. Additionally, historical family purchasing patterns can dictate what brand a young, first-time buyer will select.

In tandem with these preferences, car buyers in India are historically sensitive to related legislation put in place by the national government. In 2012, the Indian government announced that it was going to cut subsidies for diesel fuel to reduce the estimated USD34 billion paid out to maintain low fuel prices. Such is the importance of predictable vehicle running costs that the underlying uncertainty related to further subsidy cuts on either diesel or petrol convinced buyers to pull out of the market, adopting a wait-and-see approach.
During 2013, national car sales fell from the 2012 high of 3.209 million units to 3.002 million units. There was a further decline in 2014, with 2.948 million units sold. Manufacturers responded by reducing production volumes: output in 2012 reached 3.802 million units, but this fell to 3.654 million units in 2013 and 3.593 million units in 2014. Despite the local downturn, exports as a portion of total output remained relatively buoyant, with almost 18% of all light vehicle production heading for international markets during 2013–14.
Since this plateau in national sales and corresponding declines in output, sales have started to rebound. In response, OEMs are ramping up finished vehicle volumes. Production in 2015 reached 3.797 million units, and 2016 forecasts show light vehicle output topping the 4-million-unit mark for the first time (4.092 million units), rising to 4.493 million units in 2017. This is being supported by an increase in national sales; 2015 sales hit 3.147 million units, and forecasts for 2016 and 2017 are set at 3.379 million units and 3.822 million units, respectively. As a percentage of total finished vehicles, exports are expected to reach 6.7% in 2017, the first time the 6.0% mark has been exceeded since 2012.

<table>
<thead>
<tr>
<th>Light vehicle Exports from India (2011-2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OEM</strong></td>
</tr>
<tr>
<td>SUZUKI</td>
</tr>
<tr>
<td>HYUNDAI</td>
</tr>
<tr>
<td>MAHINDRA &amp; MAHINDRA</td>
</tr>
<tr>
<td>TATA</td>
</tr>
<tr>
<td>HONDA</td>
</tr>
<tr>
<td>RENAULT/NISSAN</td>
</tr>
<tr>
<td>FORD</td>
</tr>
<tr>
<td>TOYOTA</td>
</tr>
<tr>
<td>VOLKSWAGEN</td>
</tr>
<tr>
<td>ASHOK LEYLAND LIMITED</td>
</tr>
<tr>
<td>FORCE MOTORS</td>
</tr>
<tr>
<td>GENERAL MOTORS</td>
</tr>
<tr>
<td>ISUZU</td>
</tr>
<tr>
<td>DAIMLER</td>
</tr>
<tr>
<td>MITSUBISHI</td>
</tr>
<tr>
<td>BMW</td>
</tr>
<tr>
<td>SAIC-GM-WULING</td>
</tr>
<tr>
<td>PIAGGIO</td>
</tr>
<tr>
<td>MITSUBISHI</td>
</tr>
<tr>
<td>EICHER MOTOR</td>
</tr>
<tr>
<td>ZOTYE</td>
</tr>
<tr>
<td>ICM</td>
</tr>
<tr>
<td>BAJAJ AUTO</td>
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<tr>
<td>MAZDA</td>
</tr>
<tr>
<td>SHIFENG</td>
</tr>
<tr>
<td>HINDUSTAN MOTORS</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
</tr>
</tbody>
</table>
Medium and Heavy Commercial Vehicle Production

Following the severe collapse in output between 2007 and 2009, production nearly doubled in 2010 and increased to 297,000 units, with all brands reaching their highest levels ever. Stabilisation in 2011 saw output advance 5% to 311,000 units, although production by Ashok Leyland fell 5%, likely the effect of inventory re-adjustments following the previous year’s hike. In line with developments on the market side, Indian truck manufacturers’ production in recent years has moved rather sideways.

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (units)</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>362</td>
<td>-0.4%</td>
</tr>
<tr>
<td>2012</td>
<td>361</td>
<td>-21.3%</td>
</tr>
<tr>
<td>2013</td>
<td>284</td>
<td>-13.4%</td>
</tr>
<tr>
<td>2014</td>
<td>246</td>
<td>28.4%</td>
</tr>
<tr>
<td>2015</td>
<td>316</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Figures in thousands of units
Source: IHS Automotive © 2016 IHS

As macroeconomic imbalances are gradually corrected through the medium term, the policy stance may become more supportive of growth. With the recent shift from the Reserve Bank of India (RBI) towards consumer prices as India’s main inflation barometer (which tends to run higher than wholesale price inflation), achieving a sustained, moderate level of inflation may require keeping policy interest rates high, particularly as inflation risks accelerate. In the meantime, the new government’s commitment to bring structural inflation down through comprehensive reforms will create a dual mandate on inflation, which would help bring structural inflation down in the medium term. As macroeconomic imbalances gradually correct, the RBI may begin relaxing monetary policy from 2016 onwards. We expect this could unlock higher year-on-year (y/y) increases in production to potentially drive output of medium-duty trucks (MDTs) and heavy-duty trucks (HDTs) to new highs by 2017.

Thereafter, we expect production growth to remain at more stable levels, with growth remaining below 5% during the forecast period, broadly following the domestic sales pattern.

As is the case for other large emerging markets such as China, the export share out of India is also still limited. In both cases, however, exports could change notably in the coming years as large brands seek a bigger presence outside their home markets. In the longer term, exports of HDTs from India could increase substantially. Volvo, Scania, and Mercedes-Benz – as well as the incumbent manufacturers, Tata and Ashok Leyland – are considering expansion, using India as a strategic production location for supplying markets in Southeast Asia. The alternative scenario, however, would be that manufacturers build factories in new markets in a greenfield operation, or – this holds particularly true for the Western European manufacturers – that they use another location in emerging markets to cater to growth regions.

The ASEAN Economic Community (AEC) started and is expected to affect India’s truck market.
Daimler India Commercial Vehicles opened a bus plant in Chennai for Mercedes-Benz and BharatBenz 9- and 16-tonne gross vehicle weight (GVW) models. Its plan is to begin exporting LHD buses to Gulf countries, and the company also started targeting exports to South America in fourth-quarter 2015. Daimler India Commercial Vehicles also plays an important role in producing Fuso-brand light and medium trucks for Mitsubishi Fuso, which is exporting Fuso-brand trucks produced in India. Daimler India Commercial Vehicles has announced that trucks from 9 to 49 tonnes will comply with BS IV emission regulations and launched a new range of buses. As Daimler Truck Asia, the sales target is 290,000 units until 2020.

The new regulation to go directly to Bharat Stage (BS) VI emission norms by 2020 was announced at the beginning of January 2016. Although it would benefit the Indian market, moving directly to BS VI will require significant technological upgrades, potentially forcing OEMs to invest more, and the move will increase vehicle prices.

**National review**

New automotive technologies are generally launched into the Indian market behind the global rollout wave. The reasoning for this is that the nation’s notoriously price-conscious buyers cannot be expected to specify such equipment at the full launch price, so OEMs wait for broader application of these products and related per-part cost reductions. Although this is the standard pattern for introducing most global technology, some features are still being developed specifically for the Indian market.

Despite the negative implications, even critical safety equipment is introduced years after being available in other countries, with customers’ unwillingness to pay for such features cited as the primary reason. As of 2016, proven safety equipment, including airbags, ABS, and EBD are standard equipment across a limited number of vehicle ranges. In April 2015, the government made ABS mandatory on new trucks with a GVW of 12 tonnes and on buses with a GVW of 5 tonnes. With almost 140,000 deaths on Indian roads in 2012, it can only be a matter of time before similar legislation is extended to new passenger car production. When this happens, suppliers ready to contribute to these part volumes, alongside such established players as TRW, Takata, Autoliv, Hyundai Mobis, and Toyoda Gosei, will be well-placed to benefit.
Owing to the some retail cost implications, most passenger cars in India feature a manual gearbox as standard equipment, with automatic transmissions considered luxury options. Still, despite the benefit of not having to work a clutch in heavy city traffic, automatic transmissions have never proven popular in India, largely because of price and the lower fuel economy compared with the manual equivalent.

In India, the automated manual transmission (AMT) is considered a workable solution, pairing low-cost automated operation with virtually no related drop in fuel economy. Maruti Suzuki, Tata, Mahindra & Mahindra, and Hyundai are all expected to introduce models with an AMT. IHS Automotive is forecasting a strong increase in overall usage, with penetration reaching a 25% compound annual growth rate (CAGR).

Reworked versions of the Indian-developed AMT could go on to be adopted by European carmakers. This reversal of the standard rollout pattern highlights that not all technology developed in the United States and Germany is suitable for all markets, and there are still product niches that can be filled by technology developed by local suppliers.

A further niche that is expected to develop into a full-blown market segment is electric vehicles (EVs). India has extended experience in the market, dating back to the launch of the REVA G-WIZ (now known as Mahindra REVA Electric Vehicles) in 1999.

There have been a series of recent government programmes intended to further support growth in the hybrid and EV sector. In 2013, the national government introduced the National Electric Mobility Mission Plan 2020 (NEMMP). This programme has a two-pronged goal: to reduce carbon fuel usage to help reduce related emissions, and to build national capability in the EV sector.

This was followed in 2015 by the introduction of the Faster Adoption and Manufacturing of Hybrid and Electric vehicles in India (FAME-India) scheme. This programme has two primary objectives: the creation of a robust supply chain to support development and production of EVs in India and government incentives for the purchase of low-emission green vehicles. In addition to a series of two-wheelers, passenger models covered by the plan include the Mahindra E-VERITO, Mahindra RIVA E2o, Maruti Suzuki Ertiga, Maruti Suzuki Ciaz SHVS, and Toyota Camry hybrid.

The push to incentivise low-emissions vehicles has been followed by temporary restrictions (based on odd-even number plates) in New Delhi, which are intended to help reduce air pollution. The expectation is that hybrid and EV powertrains will be exempt from this programme, creating further market interest. There is market demand, particularly for those companies that can offer technologies designed to improve pure EV range and performance (including temperature variations) or low-cost component options.

As part of the Smart Cities programme, which is intended to develop a series of intercity industrial corridors featuring urban enclaves offering such features as high-speed internet networks, the national government has approved a USD 4.13-billion plan to grow hybrid and EV production, with the goal of reaching 6 million units annually by 2020. This is an open opportunity for suppliers of the hardware used in hybrid and EV production.

There is also the need to expand the recharging infrastructure; Smart Cities outlines plans to have recharging stations in all urban centres and on all highways by 2027. It is critical that those companies delivering EV hardware and software work in tandem with stakeholders developing the recharging network so related hardware is not developed in a vacuum, ensuring agreed standards for charging points and vehicle/point connectivity.

Another step aimed at reducing traffic-related air pollution is the government plant to skip Bharat Stage (BS) V regulations and go immediately from BS IV to BS VI. Introduced in 2000, the BS emissions standards are based on the equivalent of Euro emissions tests. The BS IV standard was introduced across major cities in 2010 and is scheduled to be enforced nationwide in 2017. BS VI is expected to come into effect on 1 April 2020.

Despite the need to reduce vehicle emissions, this is a surprisingly short lead time for a major revision in powertrain performance. Suppliers that can deliver hardware and software for developing compliant vehicle emissions systems will have a clear advantage over those companies unable to develop such components in a suitably short timeframe.
International review

India is already a well-established part-producing hub, with exports shipped to all major automotive regions. Europe remains a primary destination for Indian-made parts. The largest single national market during fiscal year (FY) 2014–15 was Germany, which imported USD843 million in parts, up 1% year on year (y/y). Italy imported USD537 million in parts, up 8% y/y, during the same period. Marginal declines of 3% were reported in the United Kingdom and France, which imported USD610 million and USD327 million worth of parts, respectively.

The United States was the largest single market for exported Indian automotive parts, with shipments during FY 2014–15 totalling USD2.5 billion. Other key markets included Turkey (USD728 million, up 39.0% y/y), Thailand (USD379 million, up 10.1% y/y), and China (USD344 million, up 10.0% y/y). Parts were also delivered to countries in Latin America, Africa, and Oceania, which together accounted for a 15.7% share of total exports.

Indian suppliers are now preparing to expand further into the wider global automotive parts market, and these growth figures are positive reinforcement that there is demand in some key markets. However, further increases will be hard to win and difficult to maintain as incumbent suppliers in those regions fight to sustain and grow their own market share. This is further compounded by the slowdown in many previously strong markets – full-year production in Indonesia is expected to decline 1.9% during 2016 because of falling domestic and export market demand.

With this in mind, it is recommended that those national and transplant suppliers operating in India that are interested in expanding into new markets start by investigating areas where there is clear room for expansion across new car production. Such areas include Iran and Uzbekistan, although there are some limited cases where mature markets can also offer opportunities for expanded distribution.

In January 2016, a 10-year deal covering the cessation of work with nuclear material in Iran came into effect, triggering the end of most UN trade and business sanctions against the country. With this agreement in place, the antiquated Iranian automotive industry is now poised to enter a new period of growth.

PSA Peugeot-Citroën has an extended history of vehicle production in Iran, although this was brought to a close when sanctions were imposed. Almost directly after the lifting of sanctions, the French OEM and Iran Khodro, the original Iranian joint venture (JV) partner, signed a USD400,000 deal that would see the partners start production of three new PSA models at a plant near Tehran. With production set to start in early 2017, output based on this deal is expected to reach 200,000 units.

National carmaker Iran Khodro has struggled to continue production under sanctions. Recent output has been based on the same model ranges that were in production before sanctions were imposed, with the Peugeot 405 and 206 still being assembled for the local market through 2016. With those models now being phased out, IHS Automotive is forecasting that total output for the JV will increase from about 240,000 units in 2016 to more than 400,000 units in 2021.

While PSA clearly plans to leverage its historical links to the Iranian market, a series of new market entrants are expected to make investments to take advantage of future market potential. These include a series of Chinese OEMs, with Chery and Lifan having the largest forecast production, each reaching approximately 20,000 units per year by 2020. Other companies include Mazda, which has a forecast output of about 24,000 units annually by 2020. Smaller volumes will be assembled by Fiat Chrysler Automobiles’ Fiat brand and Maruti Suzuki.

These figures offer insight as to the potential for future finished vehicle production in Iran, but this is dependent on national economic performance and the strength of the economies in the surrounding region. Although an extended economic downturn has put the brakes on the national automotive market, Russia is expected to rebound strongly towards the end of this decade and into the mid-2020s. After falling to a forecast sales low of 1.43 million units in 2016, the market is expected to enter a period of continuous growth, approaching the 3-million-unit sales mark in 2025.

This should boost countries dependent on trade with Russia. In neighbouring Uzbekistan, Uzavtosanoat and General Motors (GM) own the GM Uzbekistan JV, which is split 75/25 between Uzavtosanoat and GM. Approximately 80% of all output from the Uzbek plant is exported to Russia. Should the Russian market begin to gain momentum, the plant would become a major supplier of Chevrolet vehicles, particularly in the wake of GM closing its only Russian production
plant, located in Shushary, near St. Petersburg, in 2015. GM reported that a primary issue with the Shushary location was the lack of local suppliers and the cost of importing parts. With this in mind, Russia could still offer major future opportunities for Indian suppliers, particularly those willing to invest in the country.

Despite the clear potential of emerging markets, there are still opportunities for Indian suppliers to expand activities in mature markets. Despite the currently fluid relationship between the United Kingdom and the European Union, the United Kingdom remains a key centre of regional vehicle production. In 2012, the Automotive Council and the UK government calculated that there was an opportunity to increase the UK tier-one value chain by GBP3 billion. With the continuing growth of finished vehicle output, which before the referendum vote was expected to reach 1.9 million vehicles per year by 2020, the local part shortfall value had increased to GBP6 billion.

This means a considerable gap remains between what parts are available in-country to support new vehicle production and the parts that must be sourced outside the country owing to that lack of availability (either through volume restrictions or basic lack of related operations) to meet total demand. Information regarding specific part type shortfalls in the United Kingdom is available from the Automotive Council's website at automotivecouncil.co.uk.

The national government is currently negotiating further trade agreements with other countries and blocs, including China, Australia, New Zealand, Canada, the European Union, and the Common Market for Eastern and South Africa (COMESA).

In terms of units (8% of total imports, about 163,000 units) and value (4.5% of total imports), India is the sixth-largest importer of cars into the European Union. The European Union currently imposes a 6.5% tariff on vehicles imported from India (after deduction of 3.5% general concession). India currently levies a high duty on completely built up (CBU) vehicle imports, ranging from 60% to 100% of vehicle value.

An agreement between the two areas would clearly create various opportunities for part suppliers to deliver an increased volume of parts, although the Indian government is pressing for any agreement to be reciprocal in value. Depending on its future relationship with the European Union, separate trade agreements might have to be negotiated with the United Kingdom, although it is anticipated that historical and current political ties will be taken into account by both parties.

**Legislation and government initiatives**

Government reforms in the early 1990s resulted in India switching to a predominantly market-based economy. Membership in the World Trade Organization resulted in the cancellation of mandatory part localization policies in 2000. This was followed by the removal of all restrictions on foreign investment, allowing 100% foreign direct investment (FDI). This effectively eliminated each of the following:

- Minimum investment levels
- Mandatory export requirements
- Mandatory local content requirements
- Minimum mandatory employment
- Mandatory technology or research and developing spending

According to the US International Trade Commission, between fiscal year (FY) 2005–06 and FY 2006–07, FDI in India more than tripled, from USD4.7 billion to USD15.7 billion. Supported by 100% FDI, a series of global automotive companies have moved back into the Indian market. These include GM, Ford, Hyundai, Toyota, and Honda, each of which has one or more production plants in India. Additionally, there are no limits on foreign-exchange repatriation.

The Indian government offers a series of other benefits for companies investing in national vehicle production. For example, related electronics manufacturing is eligible for a 10-year, 25% capital subsidy. Incentives are also available for those companies investing in certain regions, including Jammu and Kashmir, Himachal Pradesh, and Uttarakhand.
In 2006, the Indian government published the Automotive Mission Plan 2006–16. This targeted a total growth in industry turnover from USD34 billion to USD145 billion, supported by investment of between USD35 billion and USD40 billion. This investment, it was envisioned, would see 25 million jobs created across the wider automotive landscape, with total national GDP contribution from automotive increasing from nearly 5% to 10%. Prior to the national market downturn during 2013–14, the industry was reported to be on course to achieve these targets, but ultimately, turnover reached an estimated USD110 billion, a shortfall of about 25%.

Other government-related issues include revenues received from excise duties levied on new car sales. SIAM estimates that for every INR100 the vehicle buyer spends on a small car (shorter than 4 metres), the government collects INR58 in related taxes, including excise duty, sales tax, road tax, and service tax. For a larger vehicle, this increases to INR81.

With the combined tax burden on vehicle manufacturers, together with duties collected from new car sales, the automotive sector is one of the most taxed industries in India. This financial drag has far-reaching effects on basic business decisions, including production and research and development (R&D). Knock-on effects include a reduction in the number and volume of future revenue streams across the wider supply base.

These, though, have been countered by other duty increases imposed by the government. In early 2016, the Union Budget of India included a 1.0% infrastructure tax on gasoline, compressed natural gas, and liquefied natural gas automobiles not exceeding 4 metres and not exceeding an engine capacity of 1.2L (EVs, hybrids, and hydrogen vehicles are exempt from the infrastructure tax). A 2.5% tax was levied on diesel-powered automobiles not longer than 4 metres with an engine capacity not exceeding 1.5L. A 4.0% tax was imposed on large saloons and SUVs, and a 1.0% luxury tax was on all vehicles costing more than INR1 million.

An updated Automotive Mission Plan 2016–26 (AMP2026) has now been published. This document outlines the broad targets for the Indian automotive sector during the next decade in terms of size, national development, global footprint, technological maturity, competitiveness, and institutional structure and capabilities. AMP2026 looks to further define the evolution of the national automotive ecosystem, including the glide path of various regulations and policies covering R&D, technology, testing, manufacturing, import/export, sale, use, repair, and recycling of automotive vehicles and components.

During the period covered by AMP2026, the automotive sector is expected to quadruple in size, from USD74 billion to USD260 billion. The auto parts sector alone will expand from USD39 billion to USD122 billion. Combined, this is expected to represent in excess of 12% of national GDP. Further to the 2.5 million jobs created during the 10-year period of the previous AMP programme, AMP2026 forecasts a further 6.5 million jobs will be created across the automotive landscape. This includes employment in upstream and downstream industries, including raw materials production, banking, logistics, and the service sector.

AMP2026 will work in conjunction with the Make in India programme, launched by Prime Minister Narendra Modi in 2014. Related information describes the project as “a comprehensive and unprecedented overhaul of out-dated processes and policies... [representing] a complete change in the government’s mindset – a shift from issuing authority to business partner”. In practise, Make in India is targeting a combined increase across all national manufacturing to where the sector delivers up to 25% of national GDP by 2020.

Automotive component production is a specific, targeted part of the programme, separate from finished vehicle production. Basic goals for the industry include development of India into a mature global auto part production hub, featuring both national and international transplant companies. Availability of supporting technology will be fundamental to this, with the sector having the capability to deliver components matching global OEMs’ future strategies. These strategies include sustainable mobility, which will extend to parts for future hybrid, plug-in hybrid (PHEV), and pure EV models. To support this, there is an exemption from duty for all lithium-ion batteries used in vehicle production.

Extending R&D capability will be critical to the development and production of these technologies. This could also lead to a reduction in dependence on imported parts for national production. The Indian Department of Heavy Industries and Public Enterprises has put forward a USD200-million fund to support subsidised loans to the auto components...
industry for modernisation, covering new plants and equipment. Exporters can benefit from the duty-free replenishment certificate, which refunds duties on imported parts later exported as integral items within larger components.

These initiatives indicate increased government awareness regarding the importance of vehicle manufacturing to the national economy. Still, the same government that has developed and launched these industry support programmes continues to threaten – and in some cases pass – legislation undermining sector growth.

In May 2016, it was reported the Supreme Court had asked New Delhi police to pay an environment compensation fee of 30% (based on vehicle value) as a pre-condition to registration. Levied on models with diesel engines, it appears the charge was designed to offset higher emissions from these vehicles compared with petrol models. This was despite diesel vehicles meeting all existing government regulations.

Should this charge be affirmed, precedent will have been set that could see the charge rolled out across consumer sales of diesel-powered vehicles. Based on the sales decline for diesel models following the reduction of related fuel subsidies, a national 30% tax on diesel-powered models would effectively kill demand. This come after most major OEMs manufacturing cars in India have invested to manufacture diesel engines to take advantage of the growing market.

Supplier Outlook and Opportunities

India is now widely regarded as a major parts production hub, featuring a maturing supply chain that has the potential to deliver parts to all global regions. Offering an enticing combination of low labour rates and improving quality (with the caveat that top quality demands higher cost), tier suppliers are delivering an expanding range and quantity of parts to global OEMs, both in India and in various export markets.

According to the Automotive Component Manufacturers Association of India (ACMA), combined turnover across the Indian automotive part supply base achieved a compound annual growth rate (CAGR) of 4.6% between fiscal year (FY) 2009–10 and 2015–16. Actual turnover increased from USD30.8 billion to USD 39.0 billion.

The Indian supply chain has displayed considerable resilience in the face of recent market upheavals, including the financial downturn in Europe, North America, and parts of Asia. During the downturn, which started in 2008–09, revenues fell 11.4% to USD24.1 billion. This can be traced to a fall in global finished vehicle production in response to tightening consumer credit. Conversely, the sales decline in the Indian new vehicle market between 2013 and 2014 saw revenues fall 2.0%, from USD39.7 billion to USD35.1 billion. It is reported that up to 40% of all supply base capacity was unused during this dip in the national market.

It is clear that to achieve long-term success, Indian automotive part producers need to balance part deliveries between national and international markets in the hope that the overall performance in these regions will offset the cyclical nature of the wider automotive business. Financial figures point to a continuing push by suppliers based in India into export markets. Between FY 2009–10 and FY 2015–16, exports of Indian-produced parts recorded a CAGR of 18.0% (in FY2015–16 alone, growth stood at 10.8%), increasing from USD4.2 billion to USD10.81 billion. Forecasts published by the ACMA show Indian automotive part exports increasing to USD35–40 billion by 2020.

Such growth in export markets indicates increasing acceptance of parts produced in India, which have previously tended to be sub-standard compared with parts produced in Western markets and key Asian location such as Japan and South Korea.

Historical issues related to quality have supported a prejudice against auto parts produced in India. This could be one of the underlying reasons supporting the ACMA's claim that India-made parts account for just 1% of the global automotive supply chain. This low penetration is put forward as highlighting available room for market expansion for India-made parts, but despite improvements in overall part quality, moves to increase this percentage face considerable headwinds.

As part suppliers in India have been investing to achieve parity in terms of quality across their production methods, suppliers have been consolidating their respective positions in the key global markets. This includes China, but also other rapidly emerging nations, including the group collectively known as the MINTs: Mexico, Indonesia, Nigeria, and Turkey.
Mexico and Turkey countries now feature impressive national automotive industries. Like India and China, as transplant OEMs have started production in these markets, incumbent suppliers have also made sizeable investments to set up local operations to secure supply contracts. Indian suppliers looking to break into these markets will need to offer advantages to take business away from these incumbent companies, including quality guarantees and low landed costs. In addition, open communication channels will be required to offset the extended supply chain (if local infrastructure investment is not prerequisite to a given supply contract). Without this leverage, expansion beyond the stated 1% share of the total global parts market will not be impossible, but it will nonetheless be difficult.

Key Growth Drivers

There are a series of indicators supporting forecast increases in annual new vehicle sales figures, which are set to continue year on year (y/y) into the next decade. India has a low vehicle penetration rate compared with other countries, with just 17 passenger cars per 1,000 people. In Brazil, this figure now stands at 215 per 1,000 people, while in the United Kingdom and Germany, the penetration rate is 450 and 540 vehicles per 1,000 people, respectively.

While most vehicles are registered in the urban centres of New Delhi, Mumbai, Chennai, and Pune, it is areas outside these traditionally wealthy locations reporting the fastest growth rates in vehicle ownership. This is related to increasing personal income and related purchasing power. As of 2010, approximately 50 million people were considered to be middle class in India, or about 5% of the population. This figure is forecast to reach 200 million people by 2020 and 470 million by 2030 – by 2027, it is expected that India will be adding more people to the global middle class than China.

Energy usage across India is also indicative of a growing automotive market. India is currently the fourth-largest user of energy, behind the United States, China, and Japan – with the expectation that India will overtake Japan at some point in 2017–18. As of 2015, the country accounted for approximately 4.4% of global energy consumption. Diesel fuel continues to dominate the petroleum market, making up 40% of all consumption, while petrol (gasoline) accounts for just 12%. However, petrol is the fastest-growing segment, with y/y demand increasing approximately 10% during the past 10 years. National demand increased 11% during 2014–15 alone.

India: Top market growth factors

- Low per capita vehicle penetration
- Energy consumption increasing
- Petrol engines increasing in popularity
- New vehicle sales expected to trend up

In the opening comments of the 2014–15 annual report published by the Automotive Component Manufacturers Association of India (ACMA), Ramesh Suri, ACMA’s president, noted “the last few years have been very tough for the auto component industry in India.” The observation highlighted the disproportional effects a generally flat retail market can have on the wider automotive supplier base, curtailing revenue growth and putting pressure on cash flows and the ability to service debt.

IHS Automotive is forecasting that the Indian automotive market is now trending up after a two-year slump, and sales (supported by internal growth and finished vehicle exports) will continue to climb during the remainder of the decade. By 2020, this will see sales reach 4.978 million units based on output of 5.843 million units. The difference – approximately 860,000 units, or 14.80% of total national output – will primarily be delivered to export markets.

The picture is also positive from a global perspective. In 2010, the South Asia region produced 6.625 million light vehicles, accounting for 8.91% of total global output (74.375 million units). In 2015, the region produced 7.965 million units, which, despite an increase in overall output, still accounted for a similar 8.98% of the global output of 88.664 million units. Moving to 2020, IHS is forecasting that total light vehicle production in India will reach 10.873 million units, equating to 10.74% of global output, which will at that point hit 101.252 million units.
Through the decade, output in China and North America will grow solidly, despite a cooling of the former’s overheated economy. In 2010, the European market reached 19.026 million units (25.58% of global output) before declining precipitously as a result of the financial crisis. However, after an extended period, a market recovery continues to gain pace and (without further political upheaval) European output in 2020 is forecast to reach 23.027 million units (22.74% of global output).

The gains made by South Asia, of which India is by far the largest economy, have largely come at the expense of Japan/Korea, where the percentage of total global output will decline from 17.89% in 2010 (13.303 million units) to just 12.41% in 2020 (12.561 million units). This does not indicate a decline in output at national brands, but a diversification in manufacturing locations, with key players such as Hyundai/Kia having opened a series of assembly plants outside the home market, including in India.

Propelled by a variety of supporting factors, the South Asia region is expected to overtake Japan/Korea and assume fourth position in the table of regional light vehicle producers by the mid-2020s. This forecast is also anticipated to result in a further 2.00-percentage-point increase in total global share, to 12.70%. Stability is key to this continued growth – any decline in export market sales or uncertainty about government policy could affect the regional automotive market, with a knock-on effect on regional production.

**Innovation**

The North American market’s rebound and growth across Europe have helped support demand for parts produced in India. This pull has been welcomed by national and transplant automotive part producers, because it helped offset marginal declines in national new vehicle sales in 2013–14, which resulted in OEMs operating in India cutting finished vehicle output and related part orders.

There are mild concerns regarding the North American market’s continued strength. IHS is forecasting that after a marginal sales increase in 2017 (to roughly 21.5 million units), there will be minor annual sales declines between 2018 and 2020 before the market rebalances at about 20.5 million units per year through the early 2020s. In Europe, the fragile recovery in the new vehicle market looks set to continue. Sales should continue to trend up from approximately 19.5 million units in 2016 to slightly more than 21.0 million units in 2020. Any decline in either of these regions should be partially offset by growth across Indian new vehicle production, which in 2018 is forecast to break the 5.0-million-unit barrier – a new record.

**India: Top innovation growth factors**

- Increasing part exports to mature markets
- Increasing engine and powertrain component production
- Increasing finished vehicle export volumes in India
- More rapid growth can be achieved by having balanced range of technology pipelines
- Research and development are critical to innovation development
- OEMs will demand parts supporting vehicle differentiation

According to data published by the ACMA, engine parts produced during fiscal year (FY) 2014–15 accounted for 31% of all parts manufactured in India. Of this, exports included diesel engines and crankshafts, transmissions and related parts, drive axles, and individual internal parts. Local production further featured transmission and steering parts (19%), body and chassis (12%), suspension and braking (12%), machines and equipment (10%), and electrical components (9%).

A static North American market, combined with marginal gains in new vehicle output across Europe, should result in some limited growth opportunities for those India-based suppliers already active in those regions. The downside to this is the volume of parts produced in India by heavy industry. This narrow offering could limit the number of
potential customers. Part production in India would benefit from a more balanced market featuring a greater number of technology companies.

The issue here is that local product development paths have been dictated by the Indian market, which has resulted in a technology deficit compared with mature automotive markets. In a price-led market such as India, it is not necessarily profitable to produce parts featuring the latest technologies, since these additions would likely result in higher, less-competitive retail values.

International companies operating in India are supported by a network of research and development (R&D) sites, extending from the home market to key production areas. Most, if not all, have some R&D capability in India, but these locations are generally restricted to reviewing local production and compliance with national regulations. In all but exceptional cases, new technologies trickle into India from the home market as and when these products have achieved the required economies of scale based on sales in mature markets to support viable introductions in emerging markets.

These technology pipelines put Indian tier suppliers at a disadvantage, with fixed product portfolios not supporting the turnover necessary to finance an extended network of R&D locations for development of next-generation technologies. In addition, the global positioning of most transplant suppliers operating in India gives those companies direct access to other regional markets, where local R&D operations can determine which products are best suited (across a series of parameters) for the local product portfolio and customer tastes.

It may appear that these are insurmountable advantages, but Indian tier suppliers can leverage various advantages to improve their market opportunities. Investment in R&D is a high priority, supported by a labour pool that includes graduates from advanced technical institutions. With this in place, Indian companies have the potential to match technology packages being developed by international suppliers. If investment in R&D is not possible, then an investigation into the purchase or licensing of technology for local low-cost part production could be considered.

Savings can also be achieved across manufacturing (infrastructure, labour, energy, raw materials, etc.) to create a price advantage – a historical advantage of Indian production. In existing plants, it is critically important that the correct measurement tools are in place to collect metrics data and achieve maximum production efficiency.

Whether these technologies are developed internally or purchased from a third-party source, India-based production can offer further advantages. Based on the forecast annual increases in national finished vehicle output, economies of scale should help to reduce per-part prices. This cost/benefit would improve local approval, owing to a diminished effect on retail prices, and those same values could potentially undercut key competitors.

This strategy could be extended to a wide range of product areas. In the case of exterior lighting, as mentioned previously, innovations for India’s market could include LED lighting, with related adaptive LED lighting offered to premium OEMs operating in the country. Other areas could include advanced infotainment and premium interiors, through to parts for next-generation hybrids, plug-in hybrid electric vehicles (PHEVs), and electric vehicles (EVs). Such strategies could also help support the wider application of otherwise standard safety equipment such as airbags, ABS, electronic stability programs (ESP), possibly extending to advanced driver assistance systems (ADAS), including blind spot and lane departure warnings.

IHS Automotive is forecasting that production of car interiors, including door trim panels (card inserts), seat adjusters, seat recliners, and seat assemblies produced in India will increase. This is being underwritten by OEM demand for highly-crafted products that help support brand differentiation, together with cabin comfort, safety, and convenience. Key manufacturers operating in India include Magna and International Automotive Components (IAC), the latter opening two new in-country plants in 2014.

Achieving a price point suited to the local market is of critical importance. If buyers in India cannot be convinced to pay for these innovations, then the supply base will likely split into a two-tier system, where basic parts support assembly of vehicles for the local market and advanced systems are supplied for export models. This is already evident in such models as the Suzuki Baleno, which still features a basic DIN-mount stereo in entry-level versions for the national market, but includes a mild hybrid powertrain and infotainment screen in units shipped to export markets.
The introduction of technologies that could be incorporated into vehicles for both the local and export markets would avoid massive complications in the supply chain, with suppliers not needing dedicated capacity to produce multiple system solutions. In addition, vehicle assemblers could use standardised parts, reducing complexity across logistics, delivery, and even line-side racking. In addition, employee training would cover a considerably smaller number of alternative parts, while eliminating picking errors.

IHS is forecasting that during 2020, carmakers in India will export approximately 865,000 finished vehicles, equivalent to 14.80% of the 5.843 million units produced. By 2025, exports will have increased to approximately 975,000 units, although this will be a proportionally smaller 11.94% of the increased total output, which is forecast to reach 8.182 million units. As the number of finished vehicles destined for export markets increases, standardisation across all vehicles – both for local and export markets – becomes increasingly important.

**Investment**

Government support for 100% foreign direct investment (FDI) has prompted a flood of capital into India to support new business ventures. The US International Trade Commission reported that FDI more than tripled during FY 2005–06 and FY 2006–07 in India, from USD4.7 billion to USD15.7 billion. More recently, the United Nations Conference on Trade and Development reported that the inflow of FDI to India reached USD44.0 billion in 2015. India was ranked 10th in the world for FDI investment.

The Indian government has a series of other initiatives to support new investment. For example, there is a 15% investment allowance for manufacturing companies (both OEM and tier supplier) that spend more than USD4.17 million on infrastructure and machinery in a given year. In addition, each state in India offers additional incentives for industrial projects, with benefits that include reduced land cost and related stamp duty, reduced interest rates, and investment subsidies and tax incentives. Larger projects can achieve even greater benefit in kind.

In some instances, reduced tax rates are also available. In one case, deductions can be made equal to 30% of the additional wages paid to new workers above a total employee count of 50 workers. Looking at R&D, weighted deductions of up to 200% of total spending can be reclaimed. Depending on product types, there are also duty remission schemes for some exported components.

India: Top investment growth factors

- Series of government incentives supporting new investment
- Requirement for continued infrastructure development
- Rollout of national goods and service tax
- Need investment in recruiting and employee training programmes

Despite national and regional governments offering various incentives for business, the country requires investment in other areas. India has the second-largest national road network in the world, but only 1.7% of the 4.7-million-kilometre (km) total is motorway standard. The country further features a rail network covering more than 64,000 km, one of the largest in the world. However, years of under-investment has created a disjointed, low-speed system with a proliferation of bottlenecks. The World Economic Forum ranks India as 81 out of 141 countries in infrastructure competitiveness, while the World Bank Logistics Performance Index ranked India 54 out of 160 countries.

After years of under-investment, the current system will be ill-equipped to support what is expected to be a three-fold increase in logistics traffic by 2020. Current logistics costs are reported to be almost double that of most developed countries. To improve overall performance, the Indian government is set to roll out a series of improvement programmes, including USD150.0 billion for highways, USD140.0 billion for rail, and USD27.1 billion for ports and shipping.

Investment will be required elsewhere to further improve related logistics. There is a basic lack of connectivity between transport types, creating bottlenecks at multi-modal transportation links, while a shortage of centralised warehousing
means longer dedicated milk runs. Additionally, there is a lack of uniformity between states in terms of paperwork, slowing down interstate transport. This could be addressed by a proposed national goods and services tax (GST), but although the GST has gained wide support, such basics as the actual tax rate have yet to be decided. Each of these factors will have to be addressed by the relevant stakeholders to further improve logistics capacity and efficiency.

Anticipated growth in the logistics sector will also highlight the shortage of skilled workers needed to support the system. Increased demand from logistics service providers will create a draw on the labour market, which must be answered by more money for training new employees and the continued development of qualified personnel. In addition to infrastructure, this will mean additional investment to support training programmes, including technology and related assets.

There will likely be a shortage of skilled workers needed to support the growing national logistics infrastructure, which will also be recognised across automotive supply and manufacturing. This is balanced by an advanced education system and the increasing number of skilled and semi-skilled workers coming into the labour market, although a review of national labour laws and the elimination of unnecessary bureaucracy will help reduce related costs, including the increasing use of temporary employees.

Summary and Way Forward

Historical comparisons can be made with South Korea and Brazil because, like India, automotive part suppliers in these countries have needed to manage a variety of political, financial, and technological upheavals to reach this point. But with support from OEMs and the national government, many tier suppliers in India now stand as full-fledged players in the national market and, in some cases, Indian supply companies are already active across the global supplier landscape.

After two years of marginal declines in the new car market, suppliers will be looking to a period of forecast growth. This is primarily based on key financial data that put the South Asia region – and India particularly – as the best-performing area in terms of global growth. Should this economic forecast prove accurate, the results would be greater consumer purchasing power and a proportional increase in total national Indian sales.

Internally, the Indian government continues to retain considerable influence across national industries, including the automotive industry. The government has made a series of positive moves to support the sector, dating back to the approval of 100% foreign direct investment. More recently, the government has introduced such support programmes as Make in India and the Automotive Mission Plan 2026, which outline growth strategies for manufacturing and supply, respectively.

This is balanced by the government in New Delhi making decisions that have substantially hurt the wider automotive trade. Although costs related to national fuel subsidies are unsustainable, sharp subsidy reductions have broad effects on the new car market. The consequences of such policy changes must be taken into account at all levels before those policies are implemented.

The automotive sales downturn in 2013–14 followed a government decision to reduce fuel subsidies. In response, buyers retreated from the new car market to wait and see if there would be further legislation affecting fuel prices, with the goal of buying the diesel or petrol model which offered the cheapest motoring – highlighting one of the market’s key purchasing decisions. In many areas, India needs sweeping social changes, and these are generally brought about through sweeping legislation, but the consequences of the resulting upheaval must be taken into account.

With the government likely to continue issuing these edicts, it is important that tier suppliers plan for expansion into international markets in order to offset local business cycles. To do this, tier suppliers have a variety of options. There is the basic offering of services to potential customers, with no former relationship between the supplying and purchasing companies. On the other hand, suppliers can look to leverage existing OEM relationships in the national market to expand their reach with the same OEM around the world. Alternatively, the OEM could act as a tie-in with another group OEM operating in another region.

There are other routes: given the proliferation of natural disasters and the knock-on effects on the automotive supply
chain, companies could go so far as to offer second-stream services, where they remain on hold until the primary supplier cannot deliver for a given reason.

In addition to these options, Indian suppliers looking to expand outside the home market must produce goods that are in demand by OEMs and/or downstream tier-one companies. This requires advance knowledge of trends affecting automotive development in the wider global market, combined with the necessary investment needed to manufacture those products. Despite the prohibitive levels of capital investment – such technology usually demands automation (which in turn delivers related quality improvements and volume price benefits) – Indian suppliers can compete favourably with global brands.

The major drawback to this is the Indian national car market. With buyers more interested in low-cost motoring than new technologies, there is little incentive for those suppliers only operating in-country to produce capital-intensive parts for OEMs not interested in incorporating those across new vehicle assembly. Still, these technologies can be used in exported vehicles. Government intervention will be needed to force buyers into spending more for clean-burning cars and improved safety features, or local production of technologies will remain an export-only exercise. However, the government will likely adopt such legislation (such as mandatory airbags in 2018), which should help support the business case for new technology investments.

**Conclusions**

India stands on the verge of becoming a major force in world automotive production, on the foundation of its own low per capita vehicle ownership and rising prosperity. Original equipment manufacturers (OEMs) currently operating in-country assembly facilities will be well-placed to take advantage of this growth as the national market continues to rebound; regional markets will have to be watched closely and OEMs will need to react quickly to take advantage of markets demonstrating strengthening sales.

Suppliers will have to position themselves perfectly to maximise this market growth’s related benefits. Indian suppliers have performed well despite the challenges of incumbent transplant suppliers entering the market, particularly with supply of non-technical parts. Part quality has increased in line with expectations, and costs have been managed effectively, to the point where many Indian suppliers are the de facto supplier of a given part.

The OEM/supplier relationships formed in India could ultimately result in those companies being invited to deliver parts to support vehicle assembly outside the country – and in many cases, this has already happened. It has further been put forward that Indian OEMs such as Tata and Mahindra & Mahindra could offer a second possible route into the wider global market, much in the same way that South Korean suppliers have expanded their global reach as Hyundai and Kia have started production outside the home market.

This is not likely to happen in the case of Indian OEM brands. Production data from IHS Automotive covering Tata highlights the lack of penetration the brand is expected to have on a global scale through the late 2020s, with no production highlighted in such critical areas as North America and Europe, and only low production volumes in China. Likewise, there is little expectation that Mahindra & Mahindra (M&M) or Maruti Suzuki plan to start vehicle production outside the home market – although Maruti output in India is forecast to exceed 2 million units annually by 2028, volumes outside the country will be measured in the low thousands.

<table>
<thead>
<tr>
<th>Tata vehicle production by region 2012-2018</th>
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<tbody>
<tr>
<td><strong>Production Brand</strong></td>
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<tr>
<td>Jaguar</td>
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<td>Jaguar</td>
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<td>Land Rover</td>
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Tata vehicle production by region 2012-2018

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<th>Production Brand</th>
<th>Region</th>
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<th>2014</th>
<th>2015</th>
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Source: IHS Automotive

Mahindra & Mahindra vehicle production by region 2012-2018

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<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
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Source: IHS Automotive

With this in mind, the only opportunity for a supplier to gain access to the wider global market is through interaction with these brands' international elements; for M&M, this would be South Korea's Ssangyong, and at Tata, it is the United Kingdom's Jaguar Land Rover (JLR). While there are a limited number of instances where Indian suppliers are already working with these brands, most parts are produced and delivered from incumbent companies in close proximity to the mother plants – 55% of the parts used across the new Jaguar XE saloon are manufactured in the United Kingdom.

In most cases, this means Indian suppliers looking to set up business partnerships outside the home market without an apparent OEM/downstream supplier tie-up will have little choice but to forge a route of their own. By no means should that be considered foolhardy, however – a company that can offer a favourable mix of competitive cost; consistent quality; investment potential (infrastructure, machinery, etc., where necessary); and technological depth will likely be welcomed across the wider market.

Such companies can further stack the deck in their favour. It is critical that suppliers that have until now focused on the Indian market broaden their respective horizons and gain specific knowledge about global part parameters and the technologies/systems being applied in other global regions. Looking at the first element, manual labour must be replaced by automation when planning series part production for global customers; repeatability is now virtually synonymous with quality.

In addition, suppliers must be aware of those technologies being launched around the world and have the capability to work with that hardware and software. Examples include the various powertrain technologies, hybrids, plug-in hybrid electric vehicles (PHEVs), and electric vehicles (EVs), through to new fuel injection systems, vehicle lightweighting, aerodynamics, and cabin interiors. Companies without the technical expertise to support related programmes in their field of expertise will face considerable market headwinds.

A typical route to gaining such experience would be to introduce such technologies in the home market before rolling them out to a wider audience, effectively using local customers as a proving ground for innovation. It is unfortunate that, in most cases, India does not lend itself to such trials, since customers are largely unwilling to pay for these features. This is highlighted by the launch of the automated manual transmission on the Suzuki Celerio – a clear case of cost winning out over the improved function of a normal automatic transmission.

An ideal scenario would see Indian buyers turn a corner and become more interested in vehicle safety, comfort, and performance. Clearly, cost will be the deciding factor across the market, but without that natural growth in technology acceptance, the production of vehicles for the national market and international/export markets will develop into a two-tier purchasing programme. In addition to increased cost and complexity, managing an unnecessarily complex assembly mix will likely result in waste, picking errors, end-of-line re-work, and, ultimately, vehicle recalls.
It appears the Indian government will have to play a key role in pushing the industry forward through related legislation promoting new powertrain technology; this is particularly critical if customers will not pay for what they do not need and carmakers are not interested in producing vehicles customers will not buy. In light of increasing urban populations, it is vital that the government addresses related air pollution; this will only be done through the adoption of green technologies – and these will need to become mandatory (as with Bharat Stage VI, airbags, etc.), not optional.

Finally, there must be a commitment to having a sufficiently long lead time to implement these new technologies into the new model cycle, at which point the system must be allowed to stabilise before another round of game-changing technology is introduced. There is much discussion in Western markets about the market disruption being caused by a continuous stream of new technologies splintering the automotive market and confusing customers. This can be avoided with clear and concise mid-to-long-term goals, which will help with customer acceptance and related investment planning.
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