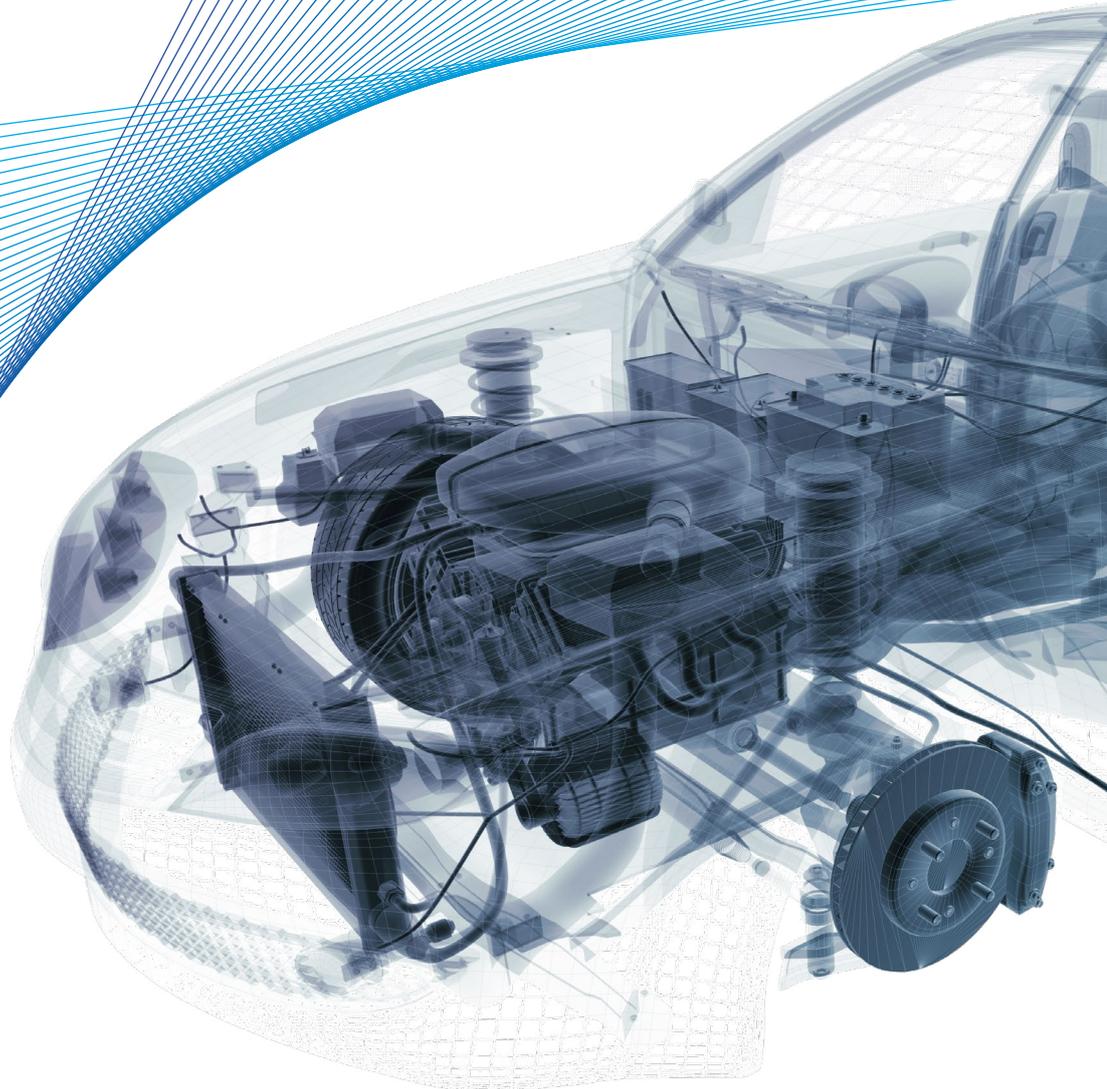


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Embracing the discontinuities in India's auto component industry



September 2019

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Prepared for the 59th annual conference organized by the Automotive Component Manufacturers Association of India (ACMA)

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Executive summary

The robust growth of the automotive components industry (over 9 percent per annum) between FY 2009 and FY 2019 has been disrupted by a slowdown in automobile sales over the past several months. Concerns about the future of the industry are foremost among all stakeholders.

How can auto component manufacturers best manage the ongoing slowdown? This report touches on some actions that could help.

While the industry did not fully anticipate the current discontinuity¹, it can anticipate and prepare for six impending discontinuities which form the focus of this report. Besides proposing strategic imperatives for auto component manufacturers in the emerging landscape, the report also outlines what other stakeholders (the government, industry bodies and original equipment manufacturers, or OEMs) can do to support auto component manufacturers in the future.

India's auto components landscape

India is seen as a global sourcing hub of auto components for major OEMs and Tier 1 suppliers. Ninety of the world's top 100 auto component suppliers have a presence in India, and the country has also cut down its dependence on imports with high levels of localization—all factors that position the auto component industry for growth.

Despite these positives, the liquidity crunch crippling non-banking financial companies (NBFCs), the rising acquisition cost for vehicles and weakened consumer sentiment have hit growth. It can be hoped that recently announced government measures², the onset of the festive season, and pre-buying in the run-up to the BS VI enforcement in April 2020 will offer some respite for automotive and component manufacturers. Macroeconomic indicators such as growth in GDP, private consumption and rising urbanization³ also inspire confidence for the future growth of the sector.

Besides anticipating relief from these quarters, auto component manufacturers could also address the downturn in the following ways:

- Optimizing parts complexity and modularizing products
- Enhancing quality—aiming for zero defects and higher yields
- Optimizing their portfolio
- Developing optimal inventory control and building transparency
- Revisiting the organization structure to enhance efficiency

Beyond overcoming the current slowdown, auto component manufacturers could also anticipate and prepare for six discontinuities on the horizon:

1. The accelerated enforcement of emission and safety standards could make the world a level playing field for Indian auto component manufacturers.
2. The government and private sector thrust on electrification is likely to ramp up sales of electric vehicles (EVs), with varying outcomes for different players.
3. The continued growth of shared mobility could see the emergence of a new customer segment—fleet aggregators and owners.

1 A discontinuity is a trend or occurrence that disrupts the curve and creates a step change in input and output operations

2 These include allowing 30 percent depreciation on vehicles purchased up to 31 March 2020; <https://economictimes.indiatimes.com/industry/auto/auto-news/govt-announces-new-measures-to-boost-demand-in-auto-sector/articleshow/70806412.cms?from=mdr>

3 International Monetary Fund; Reserve Bank of India; Economist Intelligence Unit

4. The growing demand for connected vehicles as a “must have” might change the composition of vehicles, with electronics and software (rather than mechanical components) dominating the mix.
5. The global consolidation of auto OEMs could drive demand up or down for component manufacturers, lead to greater standardization and enable access to new markets in the footsteps of these OEMs.
6. The digital and analytics–related transformation of core areas of business could unlock EBITDA growth.

Imperatives for auto component manufacturers to succeed

With these discontinuities shaping the future, five focus areas emerge as relevant for auto component manufacturers:

- Rethinking the product strategy by de-risking the portfolio
- Adopting a non-conventional sales approach by investing to serve the customer of the future
- Managing organizational and cultural change to ensure a focus on mapping talent to value and a startup mindset
- Forging technology partnerships to build capabilities for faster product development
- Embracing a digital transformation by creating a digital roadmap and taskforce.

How stakeholders can support auto component manufacturers

To manage the slowdown and embrace discontinuities in India’s automotive component industry, it is critical that key stakeholders such as the government, industry bodies and OEMs co-create and collaborate on the way forward.

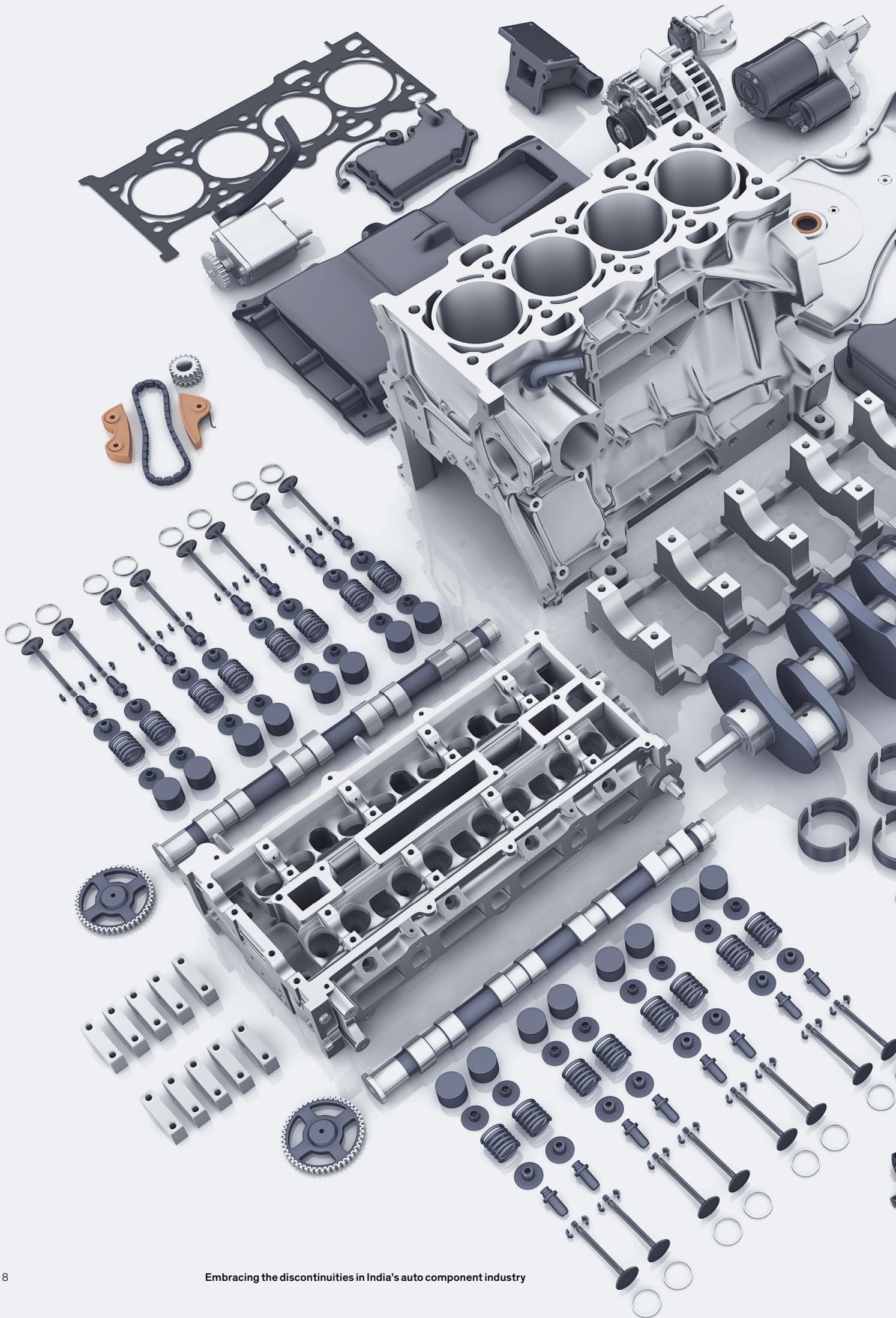
The government could continue to encourage EV manufacturing and adoption, appoint trade representatives at consulates to facilitate exports and incentivize companies to set up operations in India.

Industry bodies could contribute by:

- Working with Export Promotion Councils to identify target markets for exports
- Facilitating a cooperative supply chain in high-potential export markets
- Setting up incubation centres in metropolitan zones to promote innovation related to automation, connectivity, electric power and the shared-mobility economy (ACES)
- Conducting training and knowledge sessions on the impact of digital interventions

Some anchor actions for OEMs could include investing and collaborating with Tier 1 and Tier 2 component manufacturers, helping with rightsizing and upskilling or reskilling talent for them and building knowledge partnerships to embed digital capabilities in the organization.

The discontinuities on the horizon could turn into opportunities for auto component manufacturers depending on their course of action. As the industry passes through the current slowdown, concerted actions across all stakeholders could create a unified push for a robust and thriving automotive industry in India.



1. India's auto components landscape

The automobile industry has been witnessing a sales slowdown over the past several months. While the automotive components industry doubled its turnover and tripled export value over the last decade⁴, the recent dip in sales has fuelled concern for the future. The government has announced some measures to boost demand⁵, besides which the onset of the festive season and pre-buying in the run-up to the BS VI enforcement in April 2020 could help to increase vehicle sales again. In conjunction, auto component manufacturers could take concerted action to overcome some of the challenges caused by the slowdown.

The growth story so far

The auto component industry grew robustly over the past decade (Exhibit 1). Turnover grew at more than 9 percent per annum between FY 2009 and FY 2019, going from USD 24 bn to USD 57 bn. Exports contributed heavily to growth in this period—rising at around 12 percent per annum to triple from USD 5 bn to USD 15 bn⁶.

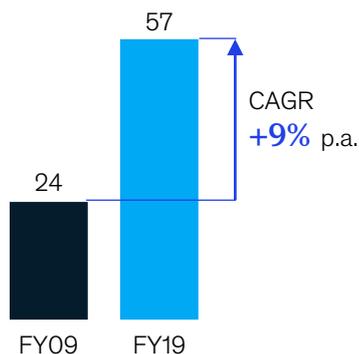
Of the top 100 auto component suppliers in the world, 90 have a presence in India, creating a robust supplier ecosystem. The country is seen as a global sourcing hub for auto components for major OEMs and various Tier 1 suppliers⁷. India has also reduced its dependence on imports, achieving high levels of localization—for example, it attained 90 percent localization for passenger vehicles. Although these achievements should position the sector optimally for continual growth, the recent dip in vehicle sales has disrupted the industry.

Exhibit 1

India's auto component industry has grown over the past decade

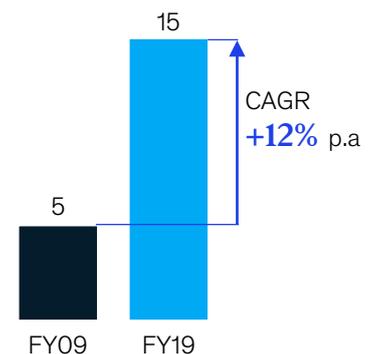
Industry turnover has grown at a robust pace...

USD bn



... with a stronger growth in exports

USD bn



Contribution of exports to annual turnover

21% 26%

Source: Automotive Component Manufacturers Association; India Brand Equity Fund

⁴ Automotive Component Manufacturers Association

⁵ These include allowing 30 percent depreciation on vehicles purchased up to 31 March 2020; <https://economictimes.indiatimes.com/industry/auto/auto-news/govt-announces-new-measures-to-boost-demand-in-auto-sector/articleshow/70806412.cms?from=mdr>

⁶ Automotive Component Manufacturers Association

⁷ Automotive Component Manufacturers Association; India Brand Equity Fund

Managing the ongoing slowdown

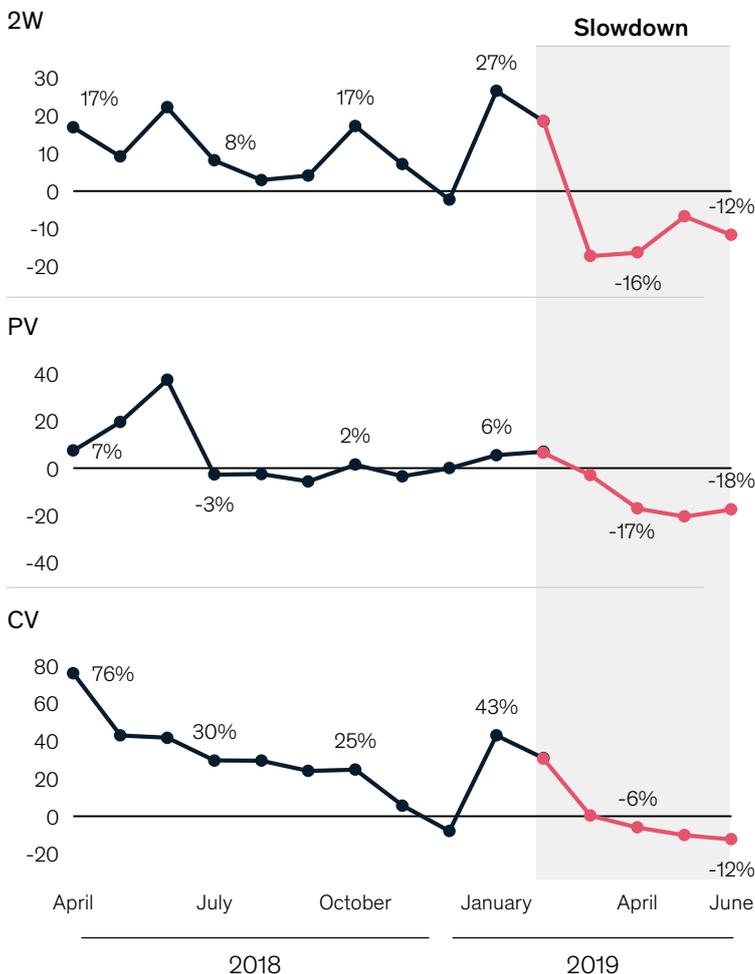
Starting in Q3 of FY 2019, sales across vehicle segments slowed down, and sharply dipped from January 2019 onwards (Exhibit 2). For example, two-wheeler sales (the biggest annual contributor to vehicle sales) saw year-on-year growth rate decline to minus 12 percent in June 2019⁸. Three reasons underlie this faltering sales performance⁹:

- The liquidity crunch for non-banking financial companies (NBFCs) limited their power to lend to dealers and consumers. NBFC auto loans dropped 69 percent in Q4 of FY 2019 compared to Q4 of FY 2018. High levels of non-performing assets (NPAs) and shrinking funds have been creating a tough environment for NBFCs over the past year—NPAs as a percentage of gross advances rose from 5.3 percent in FY 2018 to 6.6 percent in FY 2019, while NBFC bond issuance nearly halved from USD 230 mn in November 2018 to USD 120 mn in May 2019. NBFCs have around USD 16 bn of debt maturing in the near future, severely constraining their usual lending ability.¹⁰

Exhibit 2

Automotive sales have slowed down in recent months

A slowdown has affected all major vehicle segments ...



... driven by three factors

1 NBFC liquidity crunch

NBFC NPA increased from **5.3% to 6.6%** between FY 2018 and FY 2019

Bond issuance down to **US 120 mn** in May 2019 from **US 230 mn** in November 2018

2 Higher acquisition cost

3-year & 5-year upfront insurance premium for 4W & 2W led to prices rose by **1-2% & 4-8%** respectively

Increased finance cost and raw material prices led to a **6-7%** rise in price

Transition from BS IV to BS VI could add another **5-6%** to price

3 Weaker consumer sentiment

Outlook on increased spending down to **69%** in May 2019 from **83%** year before

Lending rates up from **9.4% in April 2018 to 9.7% in March 2019**

Household debt up from **2.4% in FY 2017 to 4% in FY 2018¹**

Job confidence index down from **62%** in September 2018 to **55%** in March 2019

1 Financial liability as a % of disposable income

Source: Society of Indian Automobile Manufacturers, Reserve Bank of India, Thomson Reuters & Ipsos Primary Consumer Sentiment Index: Employment Confidence Sub-Index, expert interviews, press search

8 Society of Indian Automobile Manufacturers

9 Reserve Bank of India, Thomson Reuters and Ipsos Primary Consumer Sentiment Index: Employment Confidence Sub-Index

10 Bloomberg, press search

- The increased acquisition cost of vehicles is deterring buyers. The price of a vehicle is the biggest deciding factor in a purchase, especially for entry-level vehicles. The price figure is rising because of an increase in raw material prices and finance costs and the mandatory multi-year insurance premium that consumers must pay upfront. The planned leap from BS IV to BS VI in April 2020 is also expected to further push up acquisition cost by 5 to 6 percent.
- Weakened consumer sentiment is slowing down purchases. There was a 14 percent drop in Indian consumer sentiment towards increased spending between May 2018 and May 2019. Household debt rose from 2.4 percent in FY 2017 to 4 percent in FY 2018; job confidence dropped from 62 percent in September 2018 to 55 percent in March 2019; and lending rates went up from 8.4 percent in April 2018 to 8.7 percent in April 2019.

While these factors have hurt vehicle sales in the present, the long-term growth story for the automotive industry could remain intact (Exhibit 3). Several macroeconomic indicators such as growth in GDP, private consumption and rising urbanization inspire confidence that sales performance could improve again¹¹. The penetration of two-wheelers and passenger vehicles, for example, is expected to go up by 1.4x and 1.6x respectively by 2025¹².

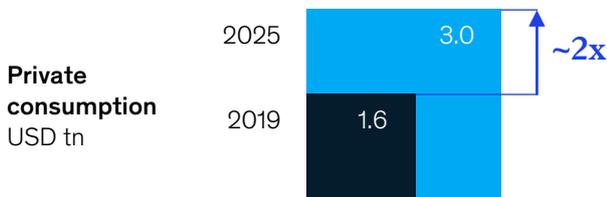
Exhibit 3

Despite the current slowdown, the long-term growth story for the Indian auto sector looks intact

A favourable outlook for macroeconomic indicators...

Nominal GDP
USD

~5 trillion
GDP growth by ~2x between 2019 and 2025



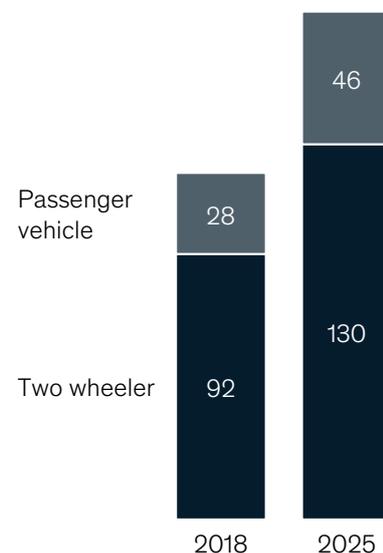
Rapid urbanization
%

~38%
Urbanization by 2025 from 34% in 2018



... Is likely to have a positive impact on auto sales in the long run

Vehicle penetration is expected to rise (vehicles/1,000 people)



Source: International Monetary Fund, Economist Intelligence Unit, IHS Markit, press search

¹¹ International Monetary Fund; Reserve Bank of India; Economist Intelligence Unit

¹² Economist Intelligence Unit; IHS Markit

While these could be silver linings up ahead, auto component manufacturers could proactively make the best of the current difficult situation by undertaking a set of concerted actions (Exhibit 4).

Exhibit 4

Addressing the downturn requires a coordinated set of actions in the near short term along with strategic moves in the long term

Optimize parts **complexity** and **modularize products**

Leverage the current slowdown and OEM consolidation trend to reassess the design of key components and develop modular parts:

- Conduct a product-mapping exercise to identify major components that can be modified
- Develop modular solutions for priority components; take help from stakeholders (e.g., OEMs)

Enhance quality – aim for zero defects and higher yields

Build quality into **operations, management and people systems:**

- Operations: Select suppliers based on quality; standardize shop floor tools due to rapid design changes; use RFID-based tracking
- Management: Measure both preventive and occurrence metrics
- People: Ensure quality standards are understood and rewarded

Optimize portfolio – look at the tail end

Rationalize portfolio to ensure a **maximum of 10-15% revenue from a single product, channel or geography**

Develop **optimal inventory control & build transparency**

Develop internal models (leveraging analytics) to **plan production and control inventory**, instead of depending on OEM forecasts, for **example:**

- Develop applications to track inventory movement between OEMs, vendors and Tier 2 suppliers
- Use analytics-based demand forecasting and Sales & Ops planning

Revisit the organization structure to find efficiencies

Build a cross functional task force to **conduct value stream mapping** (e.g., span of control for supervisory manpower):

- Identify critical roles with disproportionate impact and invest in them
- Assess roles and job descriptions to eliminate overlaps
- In case of overlaps, reallocate talent to departments with talent shortage for improved utilization during slowdown
- Conduct benchmarking to identify right balance for talent allocation (e.g., ratio of white and blue collar employees)

Enabling cross-cutting themes like Digital and Analytics and a ‘transformation mindset’ across the organization is critical for success

Impending discontinuities that could shape the auto component industry

A “discontinuity” is a disruption to the curve that causes a step change in input and output operations. The ongoing slowdown has created a discontinuity that the industry had not fully anticipated, and for which it was not prepared. Looking ahead, six possible discontinuities on the horizon could change the way the industry operates:

- Accelerated enforcement of emission and safety standards
- Intensified electrification due to government and private sector thrust on investment
- Continued growth in shared mobility
- Growing demand for connected vehicles
- Global consolidation of auto original equipment manufacturers (OEMs)
- Transformation of core areas of business using digital and analytics

Discontinuity 1: Accelerated enforcement of emission and safety standards

With regulatory updates coming up, India’s emission standards will match global markets. The leap from BS IV to BS VI (corresponding to Euro VI) standards, will rapidly push down the acceptable emission limits for NO_x and CO₂. The Corporate Average Fuel Efficiency (CAFE) regulations have already been enforcing fuel efficiency by clamping down on CO₂ emissions and mandating that acceptable CO₂ limits should be 13 percent lower than 2017 levels by 2022¹³.

India also aspires to have the world’s most stringent safety norms by 2023. Since 2016, the government has announced various steps to accelerate the adoption of safety features in vehicles. Some examples could be pre-installed Fire Detection and Alarm Systems (FDAS) and Fire Detection and Suppression Systems (FDSS) in buses. Goods and passenger vehicles have implemented Electronic Stability Control Systems (ESCS) and Brake Assist Systems¹⁴.

The implementation of BS VI would make the world a level playing field for Indian auto component manufacturers—the addressable export market with Euro V and VI compatible parts will expand beyond the borders by about 7x for passenger vehicles and about 4x for commercial vehicles, translating into 70mn to 80mn new vehicles. China, Japan, Canada, USA and Mexico could immediately be in play¹⁵.

Discontinuity 2: Electrification to intensify with government and private sector impetus

The government and private-sector thrust on investing to electrify vehicles could boost electric vehicle (EV) sales (Exhibit 5). An already favourable tax regime for EVs recently became even more supportive—GST for EVs was slashed from 12 percent (a fraction of the 28 to 43 percent tax on other vehicles) to 5 percent¹⁶. With IT deductions to the tune of INR 1.5 lakh, price differential between ICE and EVs could reduce to ~INR 85,000¹⁷. The government has earmarked around INR 8,956 cr for EV subsidies and infrastructure over the next three years. It will also invest more than INR 1,000 cr in charging infrastructure to facilitate the adoption of EVs¹⁸. Consistent with this push is the private sector’s heavy (and growing) investment to promote EVs—the INR 250 cr to 300 cr of investments announced in 2018 and around INR 400 crore in 2019¹⁹.

13 <https://www.thehindubusinessline.com/opinion/columns/slate/all-you-wanted-to-know-about-cafe-regulations/article28022174.ece>; discussed in greater detail later in this chapter

14 <https://www.businesstoday.in/sectors/auto/india-to-have-most-stringent-car-safety-norms-by-2023/story/282898.html>

15 IHS Markit

16 <https://www.livemint.com/news/india/gst-council-slashes-tax-rates-on-electric-vehicles-chargers-1564212195059.html>

17 Estimated based on the on-road price for a vehicle in Delhi and typical down payment of 10 percent on a car loan with a tenure of 5 years and interest at 10 percent per annum

18 https://www.business-standard.com/article/economy-policy/budget-2019-boost-for-evs-evokes-mixed-reactions-from-auto-industry-119070700841_1.html

19 VCC Edge database

Electrification to intensify with the impetus from government and private sector investments

India to witness a strong electrification trend ...

% of new vehicle sales, 2030¹

	BAU scenario	Optimistic scenario
 2W	18-20%	54-56%
 LCV	18-20%	55-57%
 PV	8-10%	20-22%



... driven by government impetus...



Budgetary support

~INR 8,596 crore outlay as demand incentive until 2022



Favourable tax

7% GST reduction and INR 1.5 lakh IT deduction to reduce price differential between ICE and EVs by ~INR 80-85K² & ³



Support infra

INR 1,000+ crore investment in charging infra by FY2022



... and private sector investments⁴

Announced PE investments, INR crore



1 Two scenarios – Business as usual vs Optimistic scenario

2 Pre GST reduction and IT benefit, the delta between the top and base models of a compact sedan was ~INR 350K; post benefit, the delta reduced to INR 264.5K

3 Assumptions: Delhi on-road price; loan details: down payment 10%, interest 10%, tenure 5 years

4 Includes investment by PEs/VCS

Source: Expert interviews; VCC Edge

Such a concerted financial thrust could encourage EV sales. For example, the percentage of EVs in new two-wheeler sales could reach 18 to 20 percent in the business-as-usual scenario, or 54 to 56 percent in an optimistic scenario²⁰.

This thrust on electrification is likely to impact the auto components sector in various ways and to a differing extent.

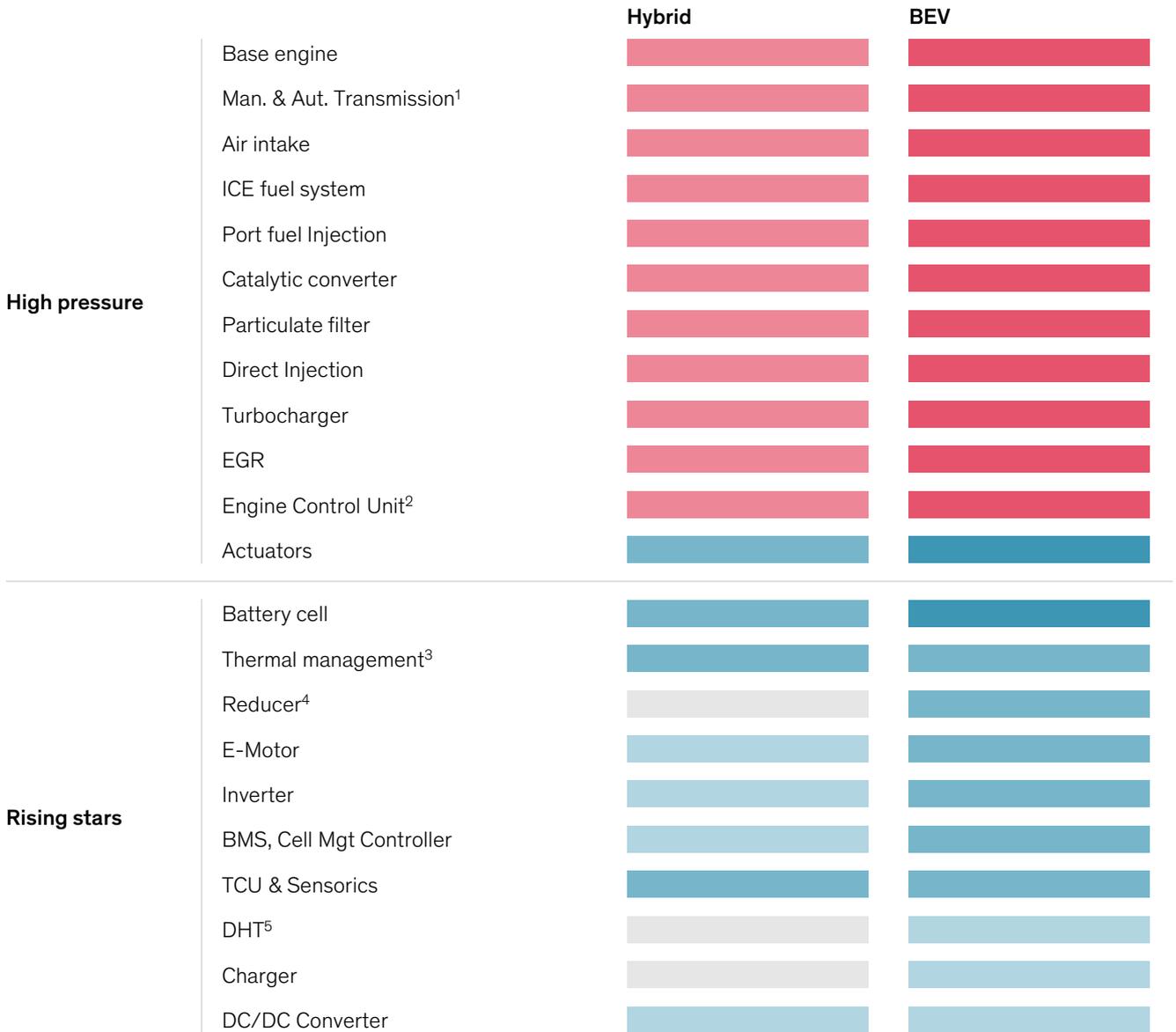
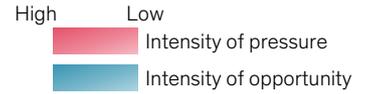
It could hurt the forging and casting industry which is involved in making the roughly 2,000 moving parts of present-day vehicles. EVs will have only about 20 such parts, possibly making most others redundant (around 40 percent of the total value of powertrain components)²¹. The future of these components could vary depending on whether hybrid vehicles or EVs predominate, which means that incumbent manufacturers will need to orchestrate their play across two component categories: “high pressure” components—those phased out in the new scenario, and “rising stars”—those that could newly gain importance (Exhibit 6).

20 Based on interactions with 600+ stakeholders across 8 cities in India (FGD and In-depth interview). The objective was to capture insights on consumer behaviour in connection to vehicle ownership and adoption of electric vehicles. Used TCO analysis to calculate the switch rate across vehicle types (Hatch, Small sedan, Sedan, c-SUV, SUV, MUV).

21 McKinsey Center for Future Mobility

E-mobility will affect the future of key components

Key components to be impacted by e-mobility



1 Excl. TCU & Sensorics

2 Including all engine control units: aftertreatment, injection, fuel system, PDCU, EHC

3 Thermal management is assigned assuming ICE combustion thermal management for comparable ICE motor and determining additional cost for remaining thermal mgmt.

4 The function of the reducer is equivalent to a conventional transmission

5 Dedicated Hybrid Transmission

Source: McKinsey Center for Future Mobility

It could create a new opportunity for exports. While both EVs and conventional technologies are expected to coexist in domestic and global markets, production capacity for conventional “high-pressure” components may fall globally. Indian auto component manufacturers could use this opportunity for a cost-driven, mass-market play—capitalizing on economies of scale to penetrate global markets.

The “rising star” components, however, present the most promising opportunity if EVs penetrate deeper. But this might require suppliers to commit substantial investments to technology – either gain in-house expertise or co-develop through partnerships.

EVs are expected to only nominally impact the demand for electricity. If the adoption of EVs plays out as expected, e-mobility will constitute less than 0.25 percent of total electricity demand by 2025, and less than 1 percent by 2030. Even if the optimistic scenario for the adoption of e-mobility were to prevail, calculations suggest that the industry would still corner less than 1.5 percent of total demand by 2030 (Exhibit 7). However, auto component manufacturers will need to carefully plan around the availability and sourcing of critical battery materials like lithium, nickel and cobalt. While lithium production will likely be in surplus by 2025, nickel and cobalt are expected to see supply shortages. Nearly 40 percent of nickel comes from three countries alone—Indonesia, the Philippines and Canada, and global demand for this metal is expected to fall short by about 233 kilotons. Cobalt supply disruptions are also a major threat, given that the volatile Democratic Republic of Congo holds about 50 percent of global reserves.

Exhibit 7

E-mobility will only nominally impact electricity demand but will require careful planning for battery materials

Estimate

Power demand for e-mobility ^{1,2}		2025	2030
		Business-as-usual scenario	0.1 – 0.25%
	Optimistic scenario	0.3 – 0.6%	1.25 – 1.5%

Material	2025 (kilotons)		Surplus/ Deficit	Source country
	Demand	Supply		
Lithium (LCE)	859	1,192	+333	 Bolivia (38%)  Chile (32%)  China (19%)
Nickel	2,702	2,469	-233	 Indonesia (19%)  Philippines (11%)  Canada (10%)
Cobalt	286	231	-55	 DRC (Copper based) (~50%)  Australia (Nickel based) (~15%)

Apart from materials, deep localization of relevant electricals & electronics components necessary

1 Electricity demand because of EVs as a percentage share of Gross Electricity Generation in India in FY18

2 Estimates based on power demand of overall parc were calculated using sales data and forecasts from IHS Markit (adjusted for scrappage); electric vehicle penetration calculated using the methodology explained in Exhibit 5

Source: IHS Markit, McKinsey Basic Materials Institute, McKinsey Center for Future Mobility

EVs could also prompt a shift in the material composition of vehicles—lightweighting requirements for efficient EVs would mean a greater proportion of plastics and aluminium than seen in petrol and diesel vehicles (Exhibit 8). To optimize battery performance, the focus could shift to using performance materials in battery packs, e.g., polyphenylene ether (PPE), polycarbonates (PC) and unsaturated polyester (UP)—that do not have high temperature requirements, and phasing out polyamide (PA) and polyphthalamide (PPA).

Auto manufacturers' value chains are beginning to see mega-shifts, and auto component suppliers might need to evolve to remain relevant. Changing capabilities and forward or backward integration are becoming more common. With EVs requiring far fewer moving parts compared to petrol and diesel vehicles, Tier 1 and 2 component manufacturers are beginning to forward-integrate. They are building direct relationships with OEMs in India and overseas to supply critical EV components. One such example is the e-motor from a former Tier 2 auto component manufacturer, who is now directly supplying to OEMs.

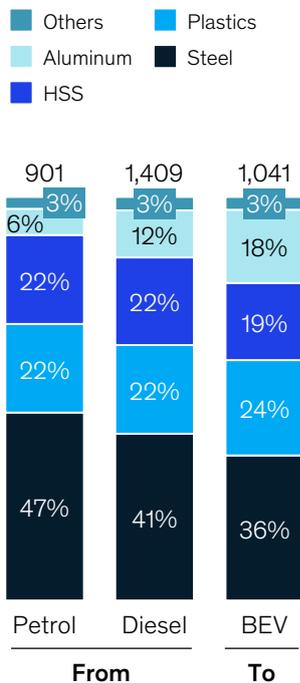
Tier 1 manufacturers are now able to produce many EV components in-house and are being called “Tier 0.5” suppliers—midway between traditional OEMs and Tier 1 auto components manufacturers. One instance of these mega shifts is how a leading transmission systems supplier has now started making the “e-chassis”.

Exhibit 8

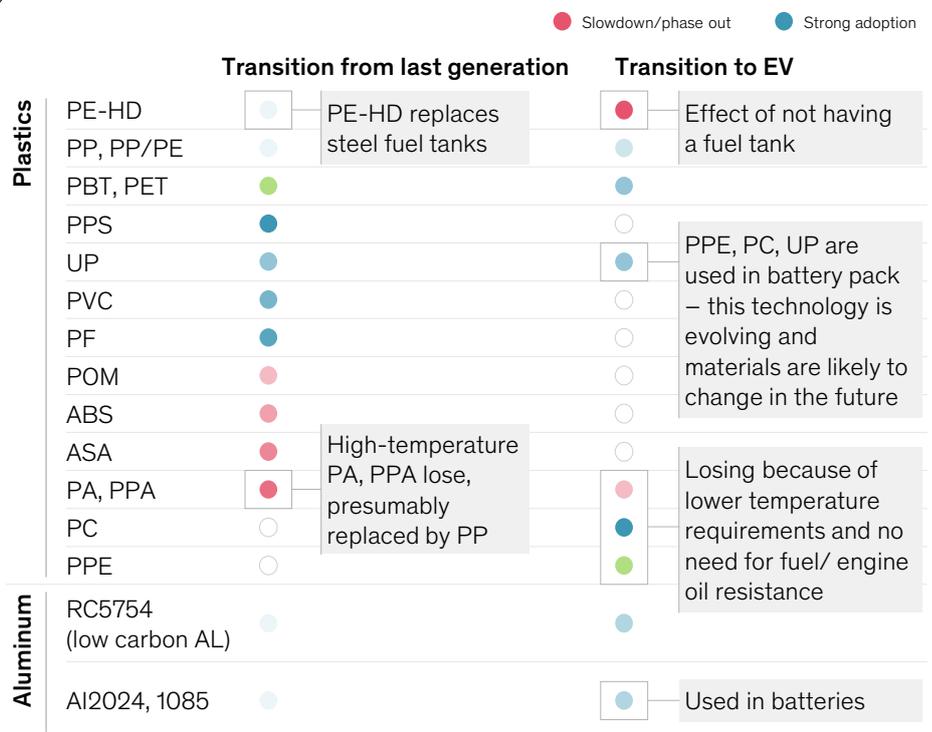
Lightweighting requirements could increase the share of plastics and aluminum in auto components

Greater adoption of plastics and aluminum¹ ...

Weight in kg



... and increased use of performance materials



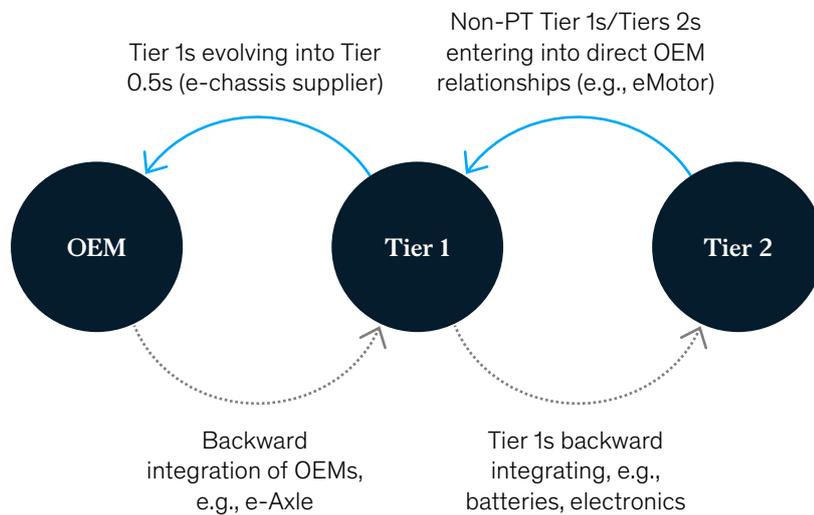
¹ Results based on a teardown analysis of 17 models available in the US market, including EVs and ICEs (HSS data still in process); excludes powertrain

Source: A2Mac1, expert interviews, analyst reports

Several former OEMs have begun to backward-integrate, and are manufacturing smaller components like the e-axle, while some former Tier 1 players are now manufacturing batteries and electronics components. The intense disruption caused by EVs is driving even former non-auto players into direct competition with incumbent suppliers and OEMs (Exhibit 9).

Exhibit 9

Mega shifts in the value chain play across OEMs, Tier 1 and Tier 2 suppliers



Source: McKinsey Center for Future Mobility

Discontinuity 3: Continued growth of shared mobility

Changing customer preferences will spur the continued growth of shared mobility, resulting in a new customer segment for automobile manufacturers.

As fuel prices spike and traffic woes multiply, the appeal of vehicle sharing grows. Millennials in particular seem quite willing to use shared transport²², with over 40 percent preferring not to own a car. This customer segment has led to a spike in the demand for taxis and rented two-wheelers. The number of daily taxi rides in India has been steadily growing over the last few years and is expected to grow at 18 percent per annum, hitting 11 mn by 2025²³.

As such demand intensifies, automobile manufacturers could gradually develop products for a newly emerging customer segment—fleet aggregators and owners. Sales to taxi fleets are expected to have a growing share in overall vehicle sales, from 10 percent in 2015 to 13 percent in 2020, reflecting the gradual drop in individual buyers²⁴.

Such a trend could create new revenue pools for the global automotive industry (Exhibit 10). In 2016, two sources of revenue—aftermarket (24 percent) and vehicle sales (76 percent) made up USD 3,500 bn. By 2030, the industry could earn around USD 6,700 bn from four revenue pools—the new ones being data-enabled services (a small share of 4 percent), and shared mobility (at a sizeable 20 percent).

²² Millennials in Motion: Changing Travel Habits of Young People, October 2014, a MoPIRG report; IHS Market data; Morgan Stanley report

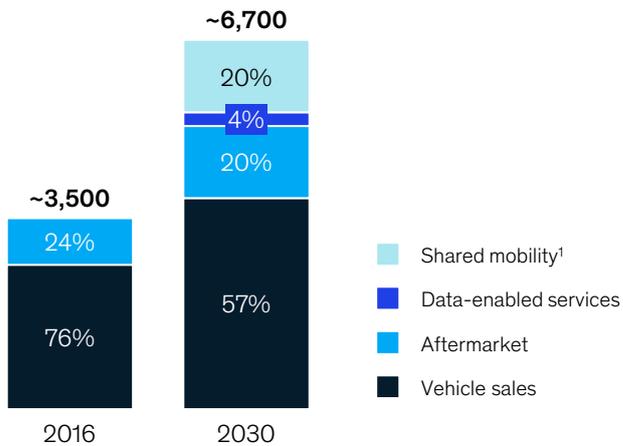
²³ <https://economictimes.indiatimes.com/small-biz/startups/newsbuzz/uber-ola-enter-slow-lane-in-2018/articleshow/65927443.cms?from=mdr>; <https://www.livemint.com/Companies/bjNzZDHC025e00Zjh3oklJ/Ola-Uber-see-rides-rise-fourfold-in-2016-report.html>

²⁴ Calculation based on IHS data for vehicle sales numbers in India, SIAM data for historical vehicle sales for taxis, and How shared mobility will change the automotive industry, a McKinsey article (2017), accessed at <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/how-shared-mobility-will-change-the-automotive-industry>

Shared mobility will create new revenue pools for auto component suppliers

Global revenue pool for automotive industry

USD bn



¹ Value pool captured by cab aggregators

Source: McKinsey Center of Future Mobility

Auto component manufacturers could venture into new areas to capture these revenue pools with changed business models:

- **Data-enabled services in partnership with software or analytics solution providers:** These could include driving-behaviour analysis and predictive maintenance for vehicle management or real-time vehicle tracking for driving assistance.
- **Larger aftermarket in partnership with third-party service providers or cab aggregators:** Auto component suppliers could offer extended part warranty plans or a vehicle servicing platform for fleet vehicles, reaching out directly to fleet owners as a new customer segment.
- **Vehicle design and sales in partnership with cab aggregators:** Auto component suppliers could design platforms or develop new parts specifically for fleet vehicles, such as building a more complex chassis or powertrain rather than restricting themselves to small parts.

Discontinuity 4: Growing demand for connected vehicles as a “must have” instead of “also have”

Car composition is changing to meet the growing demand for “connected vehicles”—with electronics and software content growing in the mix. At least 40 percent of respondents to a global survey were willing to switch to a connected car OEM in 2018, compared to just 20 percent in 2014²⁵. Consequently, electronics and software content in cars globally has grown from 28 percent in 2010 to 33 percent in 2016. OEMs in India have started to see these features as a major differentiating factor, and a number of connected features (five on average in 2015 versus 33 in 2019) characterize newly-launched Segment B cars alone, such as remote links, geo-fence alerts, automated emergency services and more. Electronics and software content could make up more than half of a car by 2030, pushing down the purely mechanical components to 41 percent (Exhibit 11).

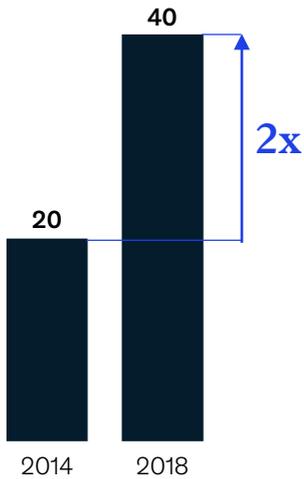
²⁵ Annual ACES Consumer Survey, reported on <https://www.mckinsey.com/industries/automotive-and-assembly/our-insights/profiling-tomorrows-trendsetting-car-buyers>

Growth of connected vehicles will significantly increase electronics and software content in vehicles

Increased demand for connectivity features¹...

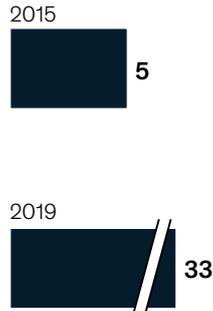
% respondents saying "yes"

Willingness to switch to a connected car OEM



...has led to more connected features in new launches/variants...

Number of connected features in segment B cars²

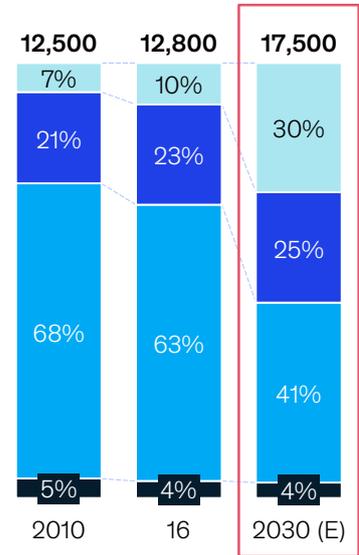


- Bluetooth
- Navigation
- Voice commands
- Car play
- Aux/USB
- e-SIM (5G Ready)
- Remote link (e.g., engine or AC start-stop)
- Geo-fence alert
- Automated emergency services
- Blind spot



... leading to a growth in electronics & software in vehicles³

■ Software⁴
■ Mechanical
 ■ Mech. & Elec. integration
 Estimates



¹ Global survey

² Number of connected features in segment A also increasing from 3 to 7, number of connected features in segment B (Premium hatchback) has increased from 5 to 8

³ Base case, at point of vehicle shipment. D-segment ("mid-size"/"entry-level luxury" vehicle, e.g., Ford Fusion, VW Passat, Mercedes C-Class). Not all software content can be monetized

⁴ Includes software integration costs

⁵ Includes EV battery

Source: Strategy Analytics, Bank of America "Who Makes the Car?". UBS Bolt Teardown Report, expert interviews, company websites, Zigwheels, Car Dekho

Globally, connectivity in cars is one of the largest categories of investment, worth around USD 40.7 bn (second only to the USD 56.2 bn invested in e-hailing)²⁶. Global component manufacturers are staying on top of this opportunity by building both software and hardware capabilities, and Indian counterparts could do that too (Exhibit 12).

They could play a software system integrator role to be part of a global software market that might double between 2017 and 2022. They could also manage hardware integration and merger platforms, such as a cockpit domain controller. Differentiating themselves in this way could be a critical value addition as increasingly sophisticated vehicles prompt exponential growth in the number of electronic control units (ECUs) in one car. Estimates suggest that a standard internal combustion (ICE) engine vehicle could see ECUs growing 2x to 4x in the next five or six years, with the accelerated adoption of safety and ADAS features. In EVs, ECUs might grow 7x, with the shift to an e-powertrain over and above safety and ADAS features²⁷.

²⁶Connectivity refers to infotainment, human-machine interface, audio-visual recognition and telematics (including traffic management systems)

²⁷Expert interviews

Connectivity could significantly impact the business model of auto component suppliers

Connectivity is one of the largest categories of investment globally¹...

...global component suppliers are capturing the opportunity by developing capabilities for both – software and hardware

Cluster USD bn	Disclosed investment since 2010, Deal size	Role	Trend	Implication for the supplier
E-Hailing	 56.2	SW System integrator role	Globally, ~2x increase in the size of software market between 2017-22	Increase in revenue for Tier 1s as they continue playing system integrator role
Connectivity ²	 40.7			
Semi	 38.1			
ADAS	 29.0			
EV/Charging infra	 19.0	HW systems merger management (e.g., ECUs³)	In India alone, the total number of ECUs in a car is expected to go up by ~2x-7x ⁴ in the next 5-6 years	Rise in complexity of hardware integration Capabilities to merge the HW systems will be a key differentiator (e.g., cockpit domain controller)
AV software & mapping	 14.4			
Batteries	 14.3			
Backend security & cloud	 9.0			
Total	 97 123 220			
# Transactions	1,724	30		

<1 bn
 >1 bn

1 Includes 1,183 companies; using selected keywords and sample startups, we were able to identify a set of similar companies according to text similarity algorithms (similarity to companies business description) used by the Competitive Landscape Analytics team

2 Connectivity includes infotainment, human machine interface (HMI), Audio-Visual recognition and telematics (incl. traffic management systems)

3 Electronic Control Unit includes: Engine Control Module (ECM), Powertrain Control Module (PCM), Transmission Control Module (TCM), Brake Control Module (BCM), Body Control Module (BCM) and Suspension Control Module (SCM)

4 Range based on powertrain type. Currently, a standard ICE vehicle has 2-5 ECUs. ICE to see 2x-4x rise with the accelerated adoption of safety and ADAS features. EV will see up to 7x rise due to e-powertrain, safety and ADAS features

Source: SILA; CapitalIQ; Pitchbook; Expert interviews; McKinsey Center of Future Mobility

Discontinuity 5: Global consolidation of auto OEMs

OEMs worldwide are starting to collaborate and consolidate to tap their mutual strengths and access a range of opportunities. Partnerships are common in the industry, especially to co-develop new technologies for shared and autonomous mobility, establish manufacturing facilities in strategic locations and jointly develop traditional and modern mobility products. For example, in the last two years, over nine of the top 20 global OEMs have partnered with each other to develop EVs or related components. Similarly, four of the top 20 OEMs are working together on autonomous vehicles. In comparison, only a handful of them have collaborated for ICE vehicles.

This trend of consolidation offers three distinct advantages for auto OEMs:

- Access to new markets: Regulations and market dynamics in some key markets mandate having a local partner for market entry. These partnerships allow new entrants and offer them local market knowledge and resources, while in turn bringing global brands to the local market.
- New technology development for modern mobility: Auto OEMs can now tap expertise across the value chain, conduct joint research and form new entities to develop and strengthen their expertise in ACES (autonomous vehicles, connected vehicles, electric vehicles and shared mobility).
- Cost and resource optimization: Optimizing resources in markets with a low market share can reduce overhead costs.

This trend could have a significant impact on auto component manufacturers in the following ways:

- Each auto component manufacturer could see demand sharply drop or rise as OEMs consolidate
- As the consolidated OEMs start manufacturing more vehicles on a common platform, there would be greater component standardization
- Access to new markets where OEMs export—component manufacturers can follow to pursue original equipment and aftermarket opportunities

Discontinuity 6: Transformation of core areas of business using Digital and Analytics

The use of Digital and Analytics (DnA) is starting to change automotive organizations across the value chain. While most automotive companies have lagged behind on the digital revolution, they are gradually catching up, especially as early adopters see the upside of their investment in digital transformations. From more than 40 percent saved on procurement costs to nearly a 50 percent cut in machine downtime, the benefits of digital are being clearly seen and felt by organizations.

Automotive companies could improve EBITDA by 6 to 8 percent if they deploy digital levers across the value chain (Exhibit 13).

These discontinuities and their implications result in five imperatives for auto component manufacturers.

Deploying digital levers across the industry value chain could improve EBITDA by 6–9%

Several digital & analytics use cases across the value chain...



5-10%
reduction in procurement spend

Procurement

- e-Auction
- Transaction automations
- Digital supplier governance



10-15%
improvement in throughput

Manufacturing operations

- Robotic Process Automation
- Process control through advance analytics tools
- Digital performance management



40-50%
reduction in inventory

Supply chain and logistics

- Route optimization
- Network design and control tower
- Analytics-based S&OP planning



10-30%
reduction in design costs

Design costs

- Customer cocreation/open innovation
- Data-driven design to value



20-30%
improvement in sales force productivity

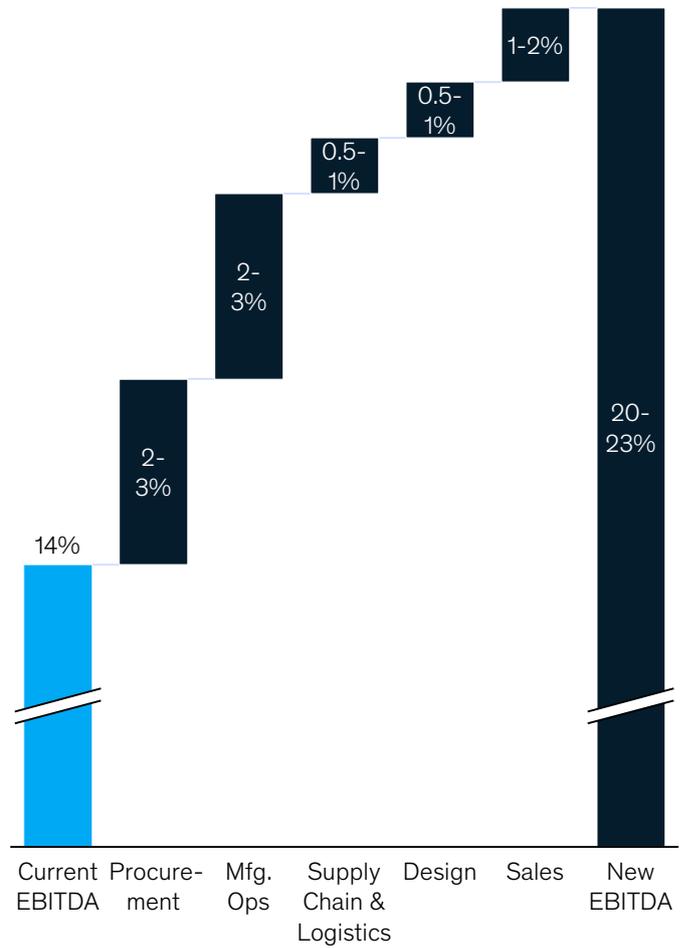
Sales

- Online aftermarket sales
- Digital sales factory
- Digital CRM tool



... can help improve EBITDA by 6-8%

Illustrative



Based on global examples



2. Imperatives for auto component manufacturers to succeed

To stay competitive in the face of discontinuities shaping the industry, auto component manufacturers could consider five strategic imperatives across product strategy, sales approach, organizational culture, capability building initiatives and digital strategy.

Rethinking the product strategy

Apart from a small play in the auto components aftermarket, and exports to global Tier 1 and 2 players, auto component manufacturers have rarely diversified. The ongoing slowdown has necessitated a rethink on product strategy.

As auto component manufacturers think about new or modified products, it is critical to ensure that no single geography, customer segment or channel contributes over 10 to 15 percent of revenue. This could help to avoid the risk of a disruption wiping out a massive revenue stream²⁸.

Auto component manufacturers could de-risk their portfolio by diversifying across the channel. They could expand their play among non-automotive customers like cab aggregators, develop deep localization for relevant electrical & electronics components and further expand into after-market and exports. They could also cope with disruptive trends by conducting periodic product strategy exercises.

Adopting a non-conventional sales approach

Auto component manufacturers could boost sales volumes by following a hunter/farmer approach—with dedicated teams for managing sales and key accounts. While the business development team can focus on building new relationships and improving customer experience, the sales team can focus on managing sales targets.

Around 25 percent of future revenue share could come from non-traditional sources. Auto component manufacturers could thus invest in the customer of the future. They could become direct service providers to fleet and rental companies by meeting service requests on a subscription basis. They might open new revenue streams by utilizing big data which can be collected through connected components, like those with sensors and actuators, revealing insights that could be monetized as services such as preventive maintenance and performance maximization. They could also create customized solutions for the top three to five EV manufacturers as per their requirements, integrating innovation in the sales process. Given these opportunities fall in uncharted territory for conventionally setup sales team it is imperative for an organization to invest in building relevant capabilities.

Managing organizational and cultural change

While the need for change may be widely acknowledged, having a dedicated team to manage organizational change can lead to lasting impact. A transformation office can help move an organization swiftly from mindshare to action-share and prepare it for the upcoming discontinuities.

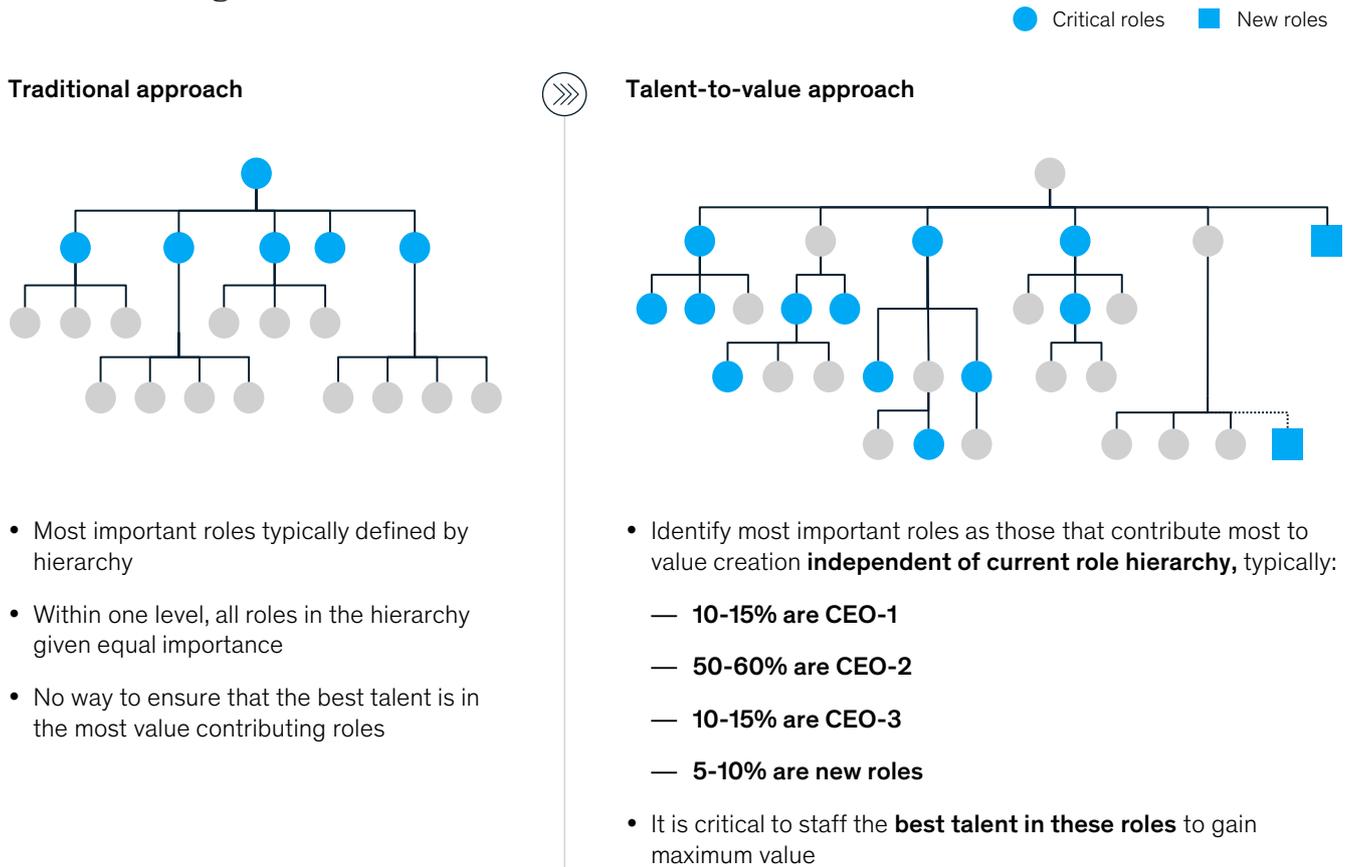
²⁸Expert interviews

Organizations could link “talent to value” and identify growth leaders to get the best people into the most important roles, and identify overlaps in responsibility to gain the best from its people (Exhibit 14). Typically, this would involve identifying the top 10 to 20 roles that contribute 80 percent of EBITDA²⁹.

Auto component manufacturers could benefit from developing a startup mindset and creating teams that accelerate innovation in an agile manner. Small startup-like teams can speed up decision making, and creatively problem-solve on an organization’s most intractable challenges.

Exhibit 14

The talent-to-value approach can help unlock value from existing and new roles across levels in an organization



Forging partnerships to build capabilities

Since time to market is critical in a rapidly transforming innovation landscape, auto component manufacturers could identify technology partnerships for faster product development. Partnerships can help anticipate trends early on and enable companies to make timely investments. A good partner can help prioritize the development of EV products and acquire the capability to deliver a carefully crafted EV portfolio.

In addition, some companies might speed up market access by cross-leveraging sales and distribution, and supply chains across new geographies.

²⁹Expert interviews

Embracing a digital transformation

Digital is a core capability for success in the auto components space. Auto component manufacturers with CXO-level leaders who understand digital are likely to embrace their digital strategy far more impactfully.

They could develop a digital roadmap by conducting “hackathons” over two to three months. These are events in which a cross-functional team of programmers, graphic designers, interface designers, project managers and members of the operations, marketing and customer experience teams come together to problem-solve and identify the top “use cases” and their development blueprint.

Strong leadership intent on digital can cascade down the organization, with a taskforce that could help identify digital use-cases to pursue. Roles of the future like the “Digital Explorer” in small companies and the “Chief Digital Officer” for large companies, could lead the charge in digital transformations.



3. How the government, industry bodies and OEMs can support the industry

To manage the slowdown and embrace discontinuities in India's automotive component industry, it is critical that key stakeholders such as the government, industry bodies and OEMs co-create and collaborate on the way forward. Here are a few actions these stakeholders could consider to help the industry prepare for its next phase of growth.

Anchor actions for the government

The government could provide a solid foundation for auto component manufacturers to take these discontinuities in their stride. It could do so in the following ways:

- **Continuing to encourage EV manufacturing and adoption:**
 - **Developing a practical EV roadmap for the industry, with clear milestones:** The government is already promoting EVs through demand incentives such as FAME 2. Further incentivizing Make in India for EV components could promote greater localization. This could help capture value across the automotive component manufacturing value chain, instead of solely importing and assembling components.
 - **Encouraging adoption with a robust ecosystem:** Emphasizing the development of necessary infrastructure such as charging stations could promote greater EV adoption. The government could be the first to set up such infrastructure, and private players and customers are likely to follow suit as the perceived benefits of EVs (cost, efficiency, environment-friendliness, etc.) start becoming more tangible.
- **Appointing trade representatives at consulates to facilitate exports:** This could be a vital bridge between Indian component manufacturers and OEMs in key export markets. Businesses can consult with these trade representatives for help with the setup, administration and marketing of their locally manufactured products.
- **Incentivizing companies that are seeking new sites to set up in India:** The government could welcome companies relocating their operations in light of changing trade relations between large economies such as China and the US.

Anchor actions for industry bodies

Bodies that govern and support the automotive component industry in India could offer support by:

- **Working with Export Promotion Councils (EPCs) to identify target markets for exports:** The implementation of BS VI will empower Indian auto component manufacturers to operate in global markets on an equal footing with other players. To help them find a conducive business environment in new markets, industry bodies could work with EPCs to leverage bilateral or multilateral trade relationships (e.g., free trade agreements). Such a partnership could help develop a winning export strategy while targeting such markets.

- **Facilitating a cooperative supply chain in high-potential export markets:** Increasingly, companies across industries are seeing merit in developing a collaborative supply chain by partnering with peers. This reduces risks and costs, and makes it easier to expand into newer markets.
Industry bodies in India could work with multiple automotive component manufacturers to enable cooperative supply chains, especially in the area of warehouse management. Such guidance could help these players enter and flourish in high-potential export markets.
- **Setting up incubation centres in metropolitan zones to promote ACES-related innovation:** The future of automotive innovation is expected to hinge on the ACES trends—Autonomous vehicles, Connectivity, Electric vehicles and Shared Mobility. To win in such a disruptive environment, it is critical for players in the automotive components industry to adopt and innovate across each of these technologies.
Industry bodies in India could help by facilitating the setting up of dedicated incubation centres in key metropolitan zones such as Delhi, Mumbai, Chennai and Bengaluru. Such support could promote a startup culture while encouraging businesses to work on technologies that could lead to maximum disruption in the industry.
- **Conducting training and knowledge sessions on the impact of digital interventions:** Industry bodies could anchor initiatives to help businesses better prepare for digital transformations and evolve the mindset necessary for successful implementation. Such initiatives could include learning programs to create awareness of global best practices and to train talent.

Anchor actions for OEMs

OEMs in India could support automotive component manufacturers by:

- **Investing in and collaborating with Tier 1 and Tier 2 suppliers:** OEMs and automotive component manufacturers could jointly invest in R&D and frugal innovation, share any potential near-term risks that might come with such innovation, and jointly test the feasibility of their products. This could be a valuable form of support during the current slowdown.
- **Assisting in rightsizing and upskilling or reskilling talent** for Tier 1 and Tier 2 component manufacturers: OEMs could create a joint program with their Tier 1 suppliers to share best practices. This could enable them to map value streams and identify overlaps. It would also help spot critical roles that require upskilling or reskilling in preparation for the future.
- **Building knowledge partnerships to embed digital capabilities:** When the BS VI norms were first announced, OEMs and automotive component businesses worked together to understand the implications and collaboratively build capabilities. Replicating such knowledge partnerships in India could help businesses, especially in Tier 2 and Tier 3 cities, to understand how best to embed digital capabilities across the value chain and embrace the disruption that could soon impact the industry.

The automotive industry in India is quite dynamic, especially with discontinuities constantly shaping and reshaping the landscape. Auto component manufacturers could turn each of these discontinuities to their advantage by exploring the various avenues discussed here. This could keep them on the path to success in India and globally.

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