

**ACMA**

Automotive Component Manufacturers  
Association of India



# **Living With Volatility- Survival, Revival & Growth**

**61<sup>st</sup> ANNUAL SESSION**

**26<sup>th</sup> August, 2021**

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**COMPENDIUM OF PAPERS**



*Automotive Component Manufacturers Association of India*

**61<sup>st</sup> Annual Session**  
**Living With Volatility -**  
**Survival, Revival & Growth**

**Compendium of Paper**

26<sup>th</sup> August 2021

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An S&P Global Company

F R O S T & S U L L I V A N



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# 61<sup>st</sup> Annual Session

## Living With Volatility - Survival, Revival & Growth

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**Introductory Note:  
Living with Volatility -  
Survival, Revival and Growth**

# **Introductory Note: The Indian Automotive Industry: On path to recovery yet with Volatility Living with Volatility - Survival, Revival & Growth**

## **A Year of Volatility: with sharp peaks and deep troughs**

Financial Year (FY) 2020-2021 was one of the toughest years in the history of the automobile industry in India. India was affected by the Covid-19 pandemic in the closing month of the financial year 2019-20. A sluggish economy, the NBFC crisis, revised axle norms, uncertainty related to shift to BS6 and a cyclical downturn in several segments resulted in a slowing demand in the Indian automotive markets. Covid-19 further worsened the demand situation with lockdowns impacting supply chains and transportation. With the rural economy relatively unscathed, and benefiting from a 2nd consecutive good monsoon, the tractor segment was an exceptional outperformer, growing 20% year on year.

## **Second Half of FY2021 saw a V-shaped recovery**

While first half of the year suffered the full impact of the pandemic, demand started zooming in the last two quarters for other segments as well indicating a V-shaped recovery. The passenger vehicle segment outperformed in second half of FY2021. Full year passenger vehicle sales saw a decline of mere 2% over the previous financial year. Preference for personal mobility over shared & public transport as well as new model launches by OEMs contributed to this rapid revival. The other segments – two wheelers at -13% and commercial vehicles- goods carrier segment at -15% decline year on year continued their downturn. The passenger carrier segment of the commercial vehicle market was the worst performer with a 75% decline in domestic sales.

## **FY2022 on the path to recovery overcoming the effects of 2nd Wave of Covid 19**

While the last financial quarter of the year was about to start on a rapid recovery path, the markets were stuck by the severe second wave of the pandemic. The demand is expected to see sharp recovery starting Q2, FY 2022 with the upcoming festive season which could mark the beginning of a full revival. Supply side challenges – particularly the global semiconductor shortage that is expected to remain through the rest of this financial year – will moderate the recovery process.

The following factors are expected to shape the recovery of the automotive industry in the next 18-24 months

### **Growth drivers:**

- Economic & market revival expected to start by Q3, FY2022; accommodative monetary stance by RBI to continue. This will ensure high liquidity in the market.
- New product launches planned from Q2, FY2022 onwards will drive interest from buyers and spur demand

- Preference for personal modes of mobility expected to continue. Behavioural changes expected to last long after the pandemic is over
- Increase in launch/ revival of infrastructure projects post lockdowns expected to start the upswing in the commercial vehicle market

**Growth inhibitors:**

- Continuing semiconductor chip shortage may lead to supply chain bottlenecks and long waiting periods on popular vehicle models
- Rising commodity prices (steel, copper, aluminium, rare earth metals etc) could lead to higher cost pressures for vehicle manufacturers
- Continuing stress on financial sector, lower savings rates, distress in the unorganized sector could lead to delayed revival
- Possible delay in vaccinations, 3rd wave of Covid-19 and delayed peaks in rural India may lead to delay in restart and revival
- Continued work from home, delay in restart of schools, colleges and offices could delay recovery of the passenger segment of commercial vehicles

**In a Dynamic regulatory environment Indian market is expected to see healthy growth up to 2030**

Government policies and regulations are expected to play a key role in shaping the demand over the short and mid-term. Regulations on safety, fuel efficiency and emission norms (BS-6 II, RDE, CAFÉ 2022), vehicle scrappage policy, PLI schemes in both automotive manufacturing and ACC batteries, FAME II (extension) and other schemes related to exports (RoDTEP) is adding to the uncertainty in the market.

According to PwC estimates, the automotive industry is expected to return to a healthy growth path by FY2022 and continue the growth trajectory in the coming decade. The passenger vehicle market is expected to reach annual sales around 5.7 Million units and the two-wheeler market, the 30 Mn milestone by 2030. The commercial vehicle market including the 3-wheeler segment is expected to cross Annual domestic sales of 1.9 Million units during this period. The tractor market which holds a strong latent potential is expected to reach annual sales of 1.5 Million units by the end of the decade.

**Pandemic accelerated adoption of new business models**

The financial year 2020-21, in many ways, has also been a year of new learnings. Consumer lifestyles and mobility preferences have been altered, some of them permanently. The mobility ecosystem will see a rapid change in the coming years – in personal as well as commercial mobility. Big technology is expected to strengthen its position in the industry; electronics and software will capture increasing share of the value pools in the coming years. New value chains are now opening – especially in the emerging electric vehicle space offering new opportunities for growth and diversification for traditional players and incumbents in the industry. New operating models, increasing digitalization & digitization, direct-to-consumer channels, higher levels of automation, big data, AI/ML, cloud computing, digital twins, IoT and other Industry 4.0



technologies are changing the way the industry designs, develops and delivers products to the market.

Volatility is the 'new normal': Shaped by Regulations, New business models, and Supply chain disruptions

The convergence of stricter regulations, new business models and supply chain disruption is expected to result in continued volatility. Automotive component companies will have to accept and live with this volatility which is likely to continue well after the pandemic. In fact, Volatility is expected to be the 'new normal'

ACMA-PwC Study on Best practices in “Living with Volatility: Survival, Revival and Growth”

ACMA - PwC conducted a joint study to understand best practices on how Indian automotive industry is learning to live with volatility. In the past we have seen cycles of demand growth and troughs in distinct years. Going forward PwC expects the three states of Survival, Revival and Growth to co-exist in different parts of the industry value chain at the same time. Our study evaluates some of the best practices that leading companies in the Automotive supplier community are adopting to survive, revive and be ready for future growth.

### **Automotive component suppliers will need to transform to Live with volatility**

Automotive suppliers will need to change their operating model to be agile, flexible and customer focused to succeed in this environment. The study shows that companies with robust financial management capabilities, focus on growing value added per employee and strong alliances with suppliers and customers will emerge successful.

Attracting and retaining top talent, building, and nurturing a core leadership and separating ownership from company management were some of the other best practices that will help companies thrive in volatility.

The years that lie ahead are exciting but also full of challenges. The automotive industry is expected to undergo a major transformation in the coming decade. It is imperative for the incumbent players to seize the initiative, innovate, collaborate, and capitalize on the big changes that are now underway. It is time to embrace the change and accelerate into the new future.

# Outlook on Indian Economy and Automobile Industry

*by*

**CRISIL**

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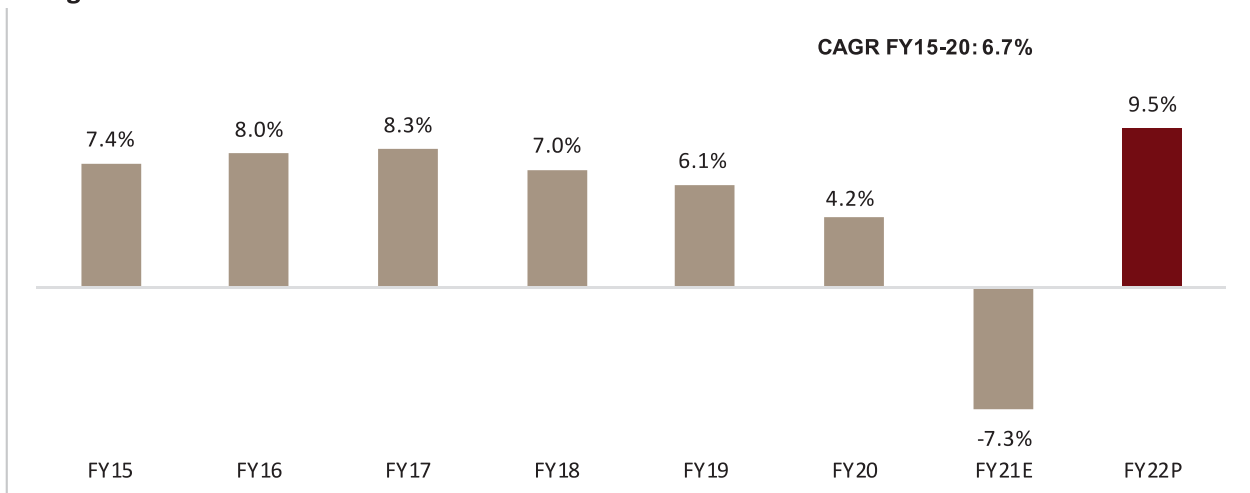
- Economy
- Automobile industry
- Passenger vehicles
- Commercial vehicles
- Two-wheelers
- Tractors

## Economy

### Real GDP growth

Indian economy recorded a robust 6.7% CAGR over fiscal 2015 to 2020 period driven by rising consumer aspirations, rapid urbanization, government’s focus on infrastructure investment and growth of domestic manufacturing sector. The economic growth was supported by benign crude oil prices, softer interest rates and lower current account deficit. Indian government also undertook key reforms and initiatives such as implementation goods and services tax, Insolvency and Bankruptcy Code (IBC), make in India program, financial inclusion initiatives, gradual opening of sectors such as retail, e-commerce, defense, railways, and insurance for foreign direct investments (FDI). FDI into India grew from 45.1 billion USD in fiscal 2015 to 73.5 billion USD in fiscal 2020. Growth over fiscal 2015 to 2020 was however impacted due to demonetisation, NBFC crisis, GST implementation and slower global economic growth. Over fiscal 2015 to 2020 India’s economic growth was led by services followed by industrial sector.

### GDP growth review and outlook



Note: E - Estimated and P - Projected

Source: National Statistics Office (NSO), IMF, CRISIL Research estimates

Fiscal 2020 was volatile for the global economy. The first three quarters were ensnared by trade protectionist policies and disputes among major trading partners, volatile commodity and energy prices, and economic uncertainty arising from the Brexit. Hopes for broad-based recovery in the fourth quarter were dashed by the Covid-19 pandemic, which has infected more than 127 million people in more than 200 countries (as of March 29, 2021) and counting, leading to considerable human suffering and economic disruption.

Growing restrictions on the movement of people and lockdowns in the affected countries led to demand, supply and liquidity shocks, that resulted in major financial losses and bankruptcies of several players in different industries. India saw one of the world’s most stringent lockdowns from March 2020. As lockdowns were gradually lifted, economic activity saw a revival in second half of fiscal 2021. After a steep contraction in the first half of the fiscal, owing to the rising number of Covid-19 cases, GDP growth is estimated to have moved into positive territory towards the end of the last fiscal. Supported by normal and largely well-distributed monsoon, and healthy sowing and ground-water situation agricultural GDP is estimated to have grown by 3% on-year. On contrary, manufacturing and services GDP shrunk on account of restrictions in activity and people movement especially during first of the fiscal.

India was showing some signs of recovery following a slew of fiscal/monetary measures before the pandemic stuck. These measures are however expected to support India’s economic recovery in fiscal 2022. The pace of recovery expected has been disrupted on account of the second pandemic wave that impacted India during the first quarter of the current fiscal. CRISIL foresees GDP growth rebounding to 9.5% in fiscal 2022 over a low base of fiscal 2021 supported by government’s vaccination drive, focus on infrastructure spends, global economic recovery and rising consumer confidence.

### Macroeconomic outlook for fiscal 2022

Macro variables	FY20	FY21	FY22P	Rationale for outlook
GDP (% , y-o-y)	4.0%	-7.3%	9.5%	<p>The budget’s focus on pushing capex despite a tight fiscal situation provides optimism and creates conditions for higher growth. Given that the focus is on an investment-push rather than consumption, the full-impact of these spends on growth will be seen in the near term via multiplier effects and over time through enhancement of productive capacity.</p> <p>Growth in fiscal 2022 will mainly be driven by a very weak base and some rub-off from rising global growth-tide effect, control of the covid-19 case spread, and the vaccinations rollout that will boost confidence and support stronger recovery</p> <p>Third Covid wave and limited availability of vaccination in India however could potentially derail promising recovery as governments are likely to respond with series of localised lockdown as a measure to control the pandemic outbreak. Subdued economic activity is likely to also further dampen consumption sentiments hurting the economic recovery. In such a scenario, there could be a considerable downside risk to base economic forecast.</p>

Macro variables	FY20	FY21	FY22P	Rationale for outlook
Consumer price index-linked (CPI) inflation (% , y-o-y)	4.8%	6.2%	5.8%	High food prices in some categories and rising commodity prices suggest inflationary pressures would ease only gradually. The demand push from the budget could also keep core inflation sticky.
10-year government security yield (% , March-end)	6.2%	6.2%	6.5%	Gross market borrowing, which jumped to a record high of Rupees 12.8 trillion in FY 21, will only slightly moderate to Rupees 12.06 trillion in FY 22. Supply pressures will have a bearing on yields once the RBI starts unwinding its ultra-accommodative stance.
CAD/GDP (%)	-0.9%	1.8%	-1.2%	While export recovery has been uneven and depends on the covid-19 trajectory in major economies, imports are expected to see consistent recovery on account of continued improvement in domestic demand. Rising crude oil prices will also fuel import growth.
Rs/\$ (March, average)	74.4	74.0	75.0	Rising crude prices and recovery in import demand will put downward pressure on the rupee.

Note: P- Projected

Source: Reserve Bank of India (RBI), NSO, CRISIL Research

## Risks to growth

- **Below par monsoons:** Domestically, one major risk could be sub-normal monsoon this calendar year. The past two years have seen good rains and chances that they are normal this year too are uncertain because only once in the past 20 years has India seen more than two consecutive normal monsoon years. A monsoon failure can directly shave up to ~50 basis points (bps) off from the fiscal 2022 GDP growth forecast.
- **Covid-19 cases increasing:** India seemed to have got Covid-19 cases under control, with the number of cases declining post September 2020. However, since the end of February 2021, India has witnessed 2<sup>nd</sup> wave of Covid-19 with the surge in infection cases, leading to state governments taking steps to control the spread including imposing curfews and localised lockdowns resulting in loss of economic output. During the 2<sup>nd</sup> wave of Covid, total daily active cases had crossed 400 thousand mark for the first time in the first week of May. During last week of July, daily active cases have dropped sharply below 50 thousand cases. Growth outlook for the fiscal 2022 will further see a downward pressure if India faces a severe third wave of Covid during the fiscal. In case the spread of Covid-19 increases drastically like in the 2<sup>nd</sup> wave and the concerned authorities put in place more stringent measures to control the same, it can have a debilitating impact on economic activity and thereby growth going forward. Availability of vaccine and pace of vaccination

will be a key monitorable; issues pertaining to availability of vaccine is likely to hinder and delay economic recovery.

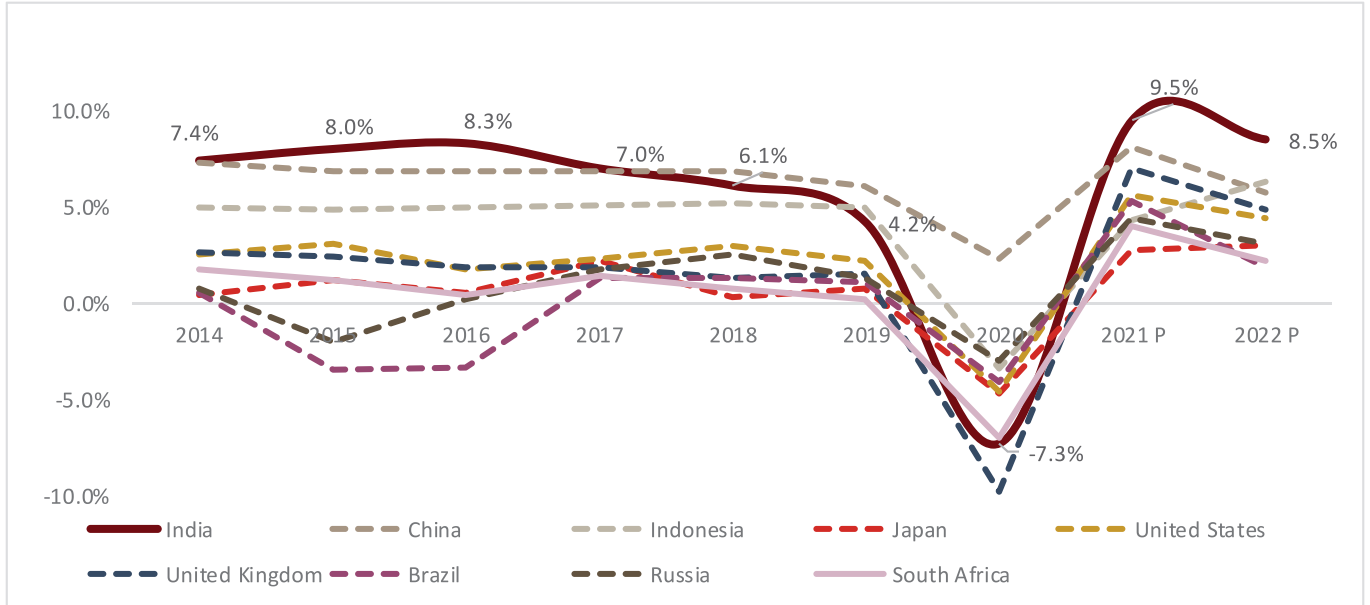
- **Geopolitical developments:** External developments, most importantly the US-China trade war, have proved to significantly impact global GDP growth as well as export earnings and capital flows to emerging markets such as India. While there is some respite with the signing of Phase 1 of the US-China trade deal, several issues remain unresolved. Any re-escalation of tensions could again work adversely. Geopolitical developments in the Middle East could also disrupt crude oil supply and prices, likely hurting a wide range of domestic macroeconomic parameters, including current account deficit, inflation and GDP growth.
- **Persistent stress in financial sector:** This has been one of the major drags on GDP growth this fiscal. Gross Non- Performing Assets (GNPA) have risen by 60 bps over fiscal 2020, to 8.8% in fiscal 2021. GNPA are further expected to inch up by 170 bps in fiscal 2022 driven by delinquencies in MSME and retail segments. Liquidity issues faced by NBFCs and risk aversion hampered credit growth as well as transmission of monetary policy easing. Easing of constraints in the financial system – a key monitorable – is critical for pick-up in growth.

### **India's GDP will still grow faster than the world's**

India was one of the fastest-growing economies in the world with annual growth of around 6.7% between 2014 and 2019. Over the past four fiscals, India's macroeconomic situation has gradually strengthened: the twin deficits (current account and fiscal) have been narrowing and the growth-inflation mix has improved, and durably so. Both fiscal and monetary policies are more prudent, focusing on raising the quality and not just the rate of growth. The government has adopted an inflation-targeting framework that provides an institutional mechanism for inflation control, while modernising central banking. Fiscal policy has managed to stay mildly growth-focused, while managing a gradual reduction in the deficit. The upshot is that India's macroeconomic variables are a lot more stable, and with sufficiently large reserves, the economy is resilient to any global disruptions today, than it was during the Taper Tantrum of 2013.

Rapid urbanisation, rising consumer aspirations and increasing digitisation, coupled with government support in the form of reforms and policies, are expected to support long term growth. As per IMF's forecasts India (as per World Economic Outlook – July 2021 update) is likely to emerge as the fastest growing countries among major global economies over 2021 and 2022 period.

**India is one of the fastest-growing major economies (GDP growth, % on-year)**



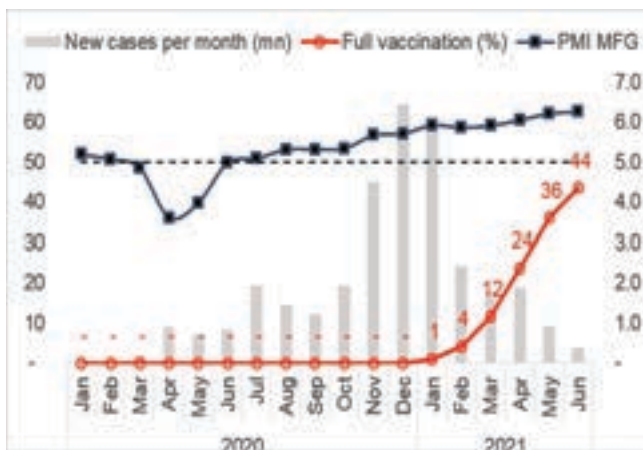
Note: GDP growth is based on constant prices, P: Projected

Source: IMF (World Economic Outlook – July 2021 update), CRISIL Research

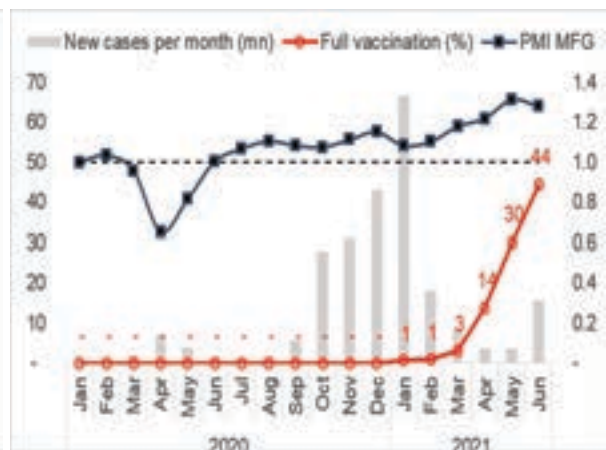
**Economic activity catching up faster in countries where >40% population is fully vaccinated**

Listed below are major countries for which CRISIL has computed a relation between the per cent of population fully vaccinated and PMI manufacturing. As seen below, countries with >40% population fully vaccinated have witnessed faster and sustainable improvement in PMI manufacturing, thus leading to improved economic activities whereas countries lower vaccination progress have not been able to sustain the momentum in PMI manufacturing

**USA**

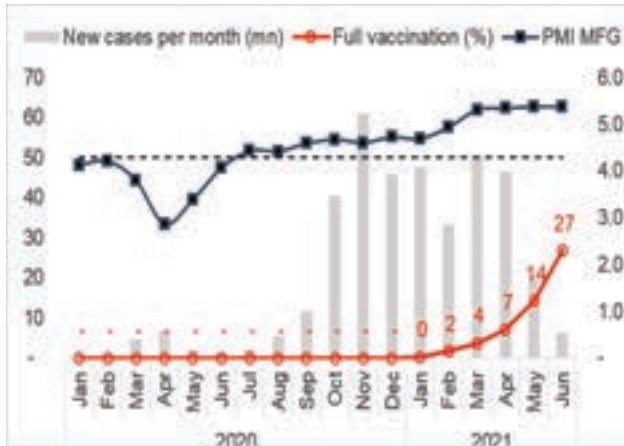


**UK**

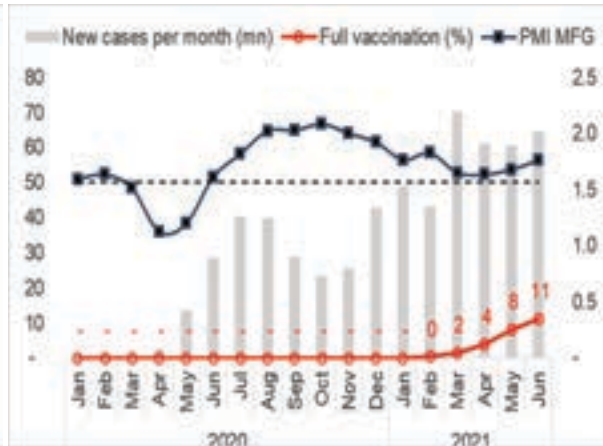




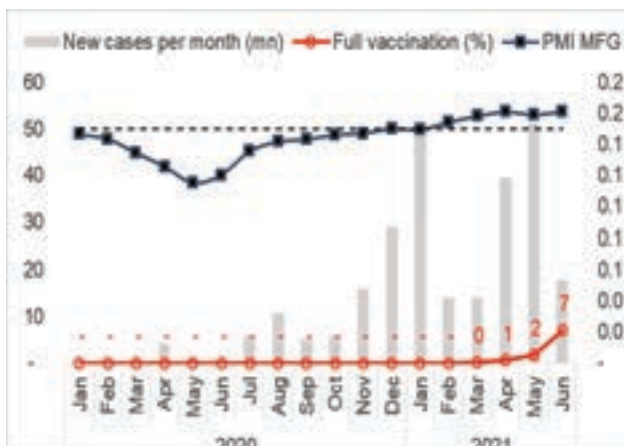
## EU



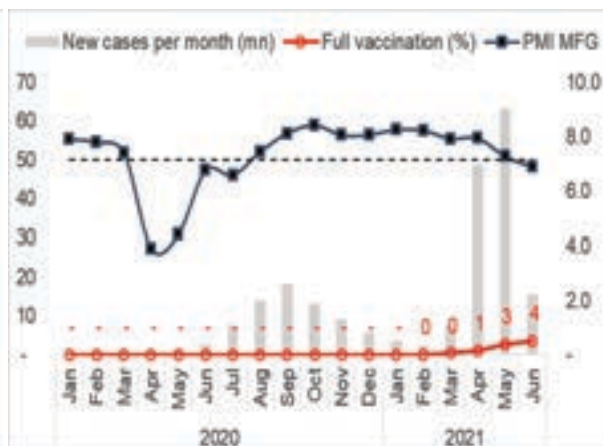
## Brazil



## Japan



## India



Note: Share of total population that have received all doses prescribed by the vaccination protocol. \*On average, between 201 2 and 2021

Source: OurWorldinData.org, CEIC, CRISIL

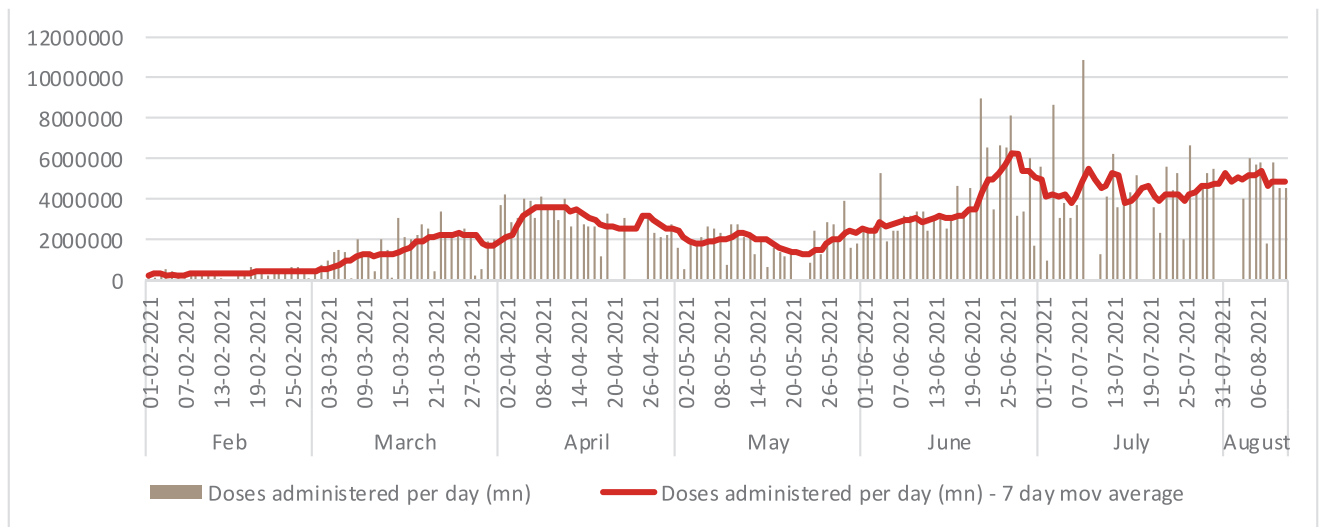
### Hence, there is a need of speed for vaccination in India

Since India's vaccine rollout began on 16 January 2021 and as per ministry of health and family welfare 52.9 crore vaccine doses have been administered as on 12<sup>th</sup> August, 2021. Out of the total doses administered 8.7 percent people are fully vaccinated (received both doses of vaccine) and about 30 per cent people have received their first dose of vaccine. In comparison, in Canada, Spain, UAE, and the UK, among others, over 50 percent of the population has received both their doses. Across countries such as the US, Germany and France, the fully vaccinated population accounts for over 40 percent of the population.

The Centre had estimated that as per supply, India should have completed 51.6 crore cumulative vaccinations by the end of July. However, India completed 47.2 crore cumulative

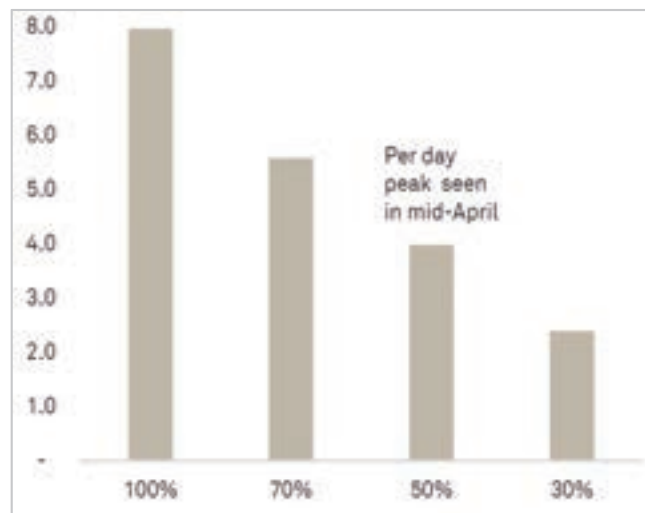
vaccinations by end of July. The projected availability for the remaining 139 crore doses included 50 crore doses of Covishield, 40 crore doses of Covaxin, 30 crore doses of Corbevax by Biological E that is still under Phase-3 trials, 5 crore doses of Zydus Cadila’s DNA vaccine ZyCoV-D and 10 crore doses of Sputnik V. The government has also given approval for Johnson and Johnson’s single dose Covid-19 vaccine for emergency use in India and are also in talks to acquire 5 crore doses of vaccine produced by Pfizer Inc. and BioNTech SE.

**Trend of daily vaccination pace**



Source: Ministry of Health and Family Welfare, OurWorldinData.org, United Nations, CEIC, CRISIL

**Vaccination doses per day required to meet specified target of adult population (mn doses per day)**



Source: Ministry of Health and Family Welfare, OurWorldinData.org, United Nations, CEIC, CRISIL

## Contribution of various sectors to India's GDP

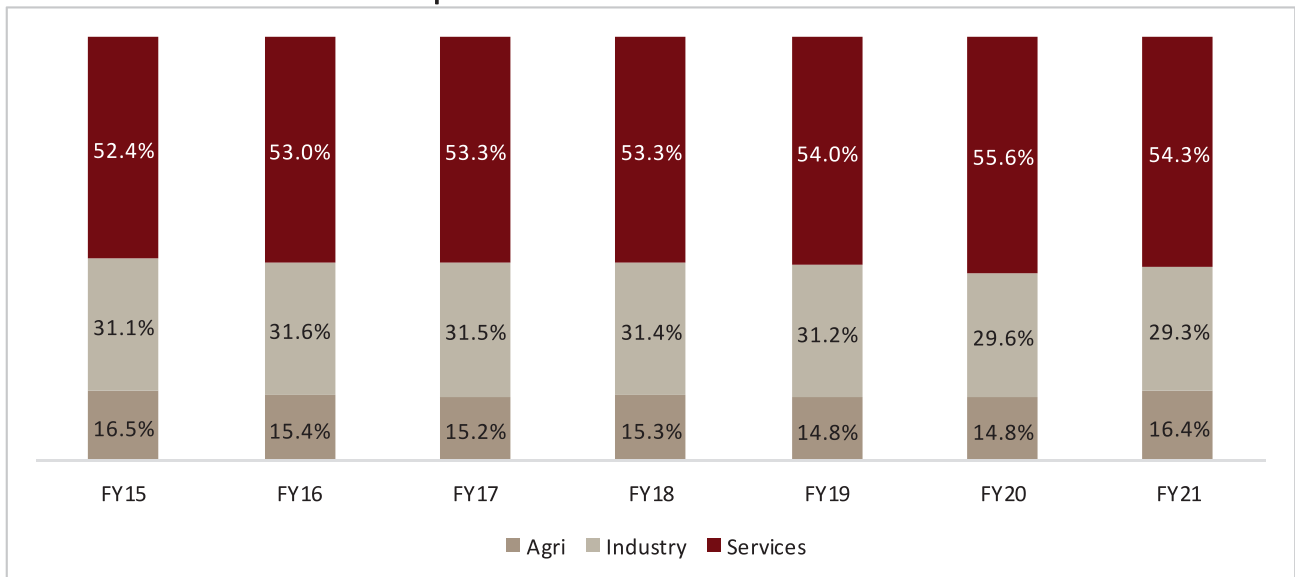
Services sector alone contributes ~55% of India's GDP. Over the fiscal 2015 to 2020 period services sector expanded at 7.7% CAGR increasing its share in overall GDP by from ~52.4% in fiscal 2015 to ~55.6% in fiscal 2021.

Industrial sector which is the second largest contributor maintained its share in GDP as the sector grew 7% CAGR over fiscal 2015 to 2019. Industrial contribution contracted in fiscal 2020 with the slowdown in economic development. Before the overall economic activity slowed down in fiscal 2020, growth in India's industrial sector output was supported by Government's make in India initiative, rising domestic consumption and implementation of GST. The government initiatives improved India's ranking in World Bank's ease of doing business ranking by from 142 in 2014 to 63 in 2019.

Economic slowdown was exacerbated in fiscal 2021 amidst the emergence of Covid and the subsequent lockdowns. Services segment witnessed the biggest drop 8%, followed by industry at 7% y-o-y. Agriculture sector was the only sector which clocked y-o-y growth and restricted the drop in GDP.

In turn, during fiscal 2021, agriculture sector witnessed share expansion while services and industry share contracted during the year.

## Share of sector in GVA at constant prices



Source: RBI; CRISIL Research

### Inflation down on base effect

CPI inflation moderated to 5.6% on-year in July, compared with 6.3% the previous month and 6.7% in July 2020

The moderation was driven by food inflation, which printed at 4% in July, compared with 5.1% the previous month and 9.3% in July 2020

Fuel inflation was almost stable at 12.4% in July compared with 12.6% the previous month, and higher than 2.7% in July 2020

Core inflation moderated to 5.8% in July from 6.1% the previous month, but higher than 5.6% in July 2020

Sequentially, headline CPI grew 0.2% on-month, driven by fuel (0.6%) and core (0.5%), though food inflation declined 0.2%

Rural CPI inflation moderated to a greater extent, at 5.5% on-year in July compared with 6.2% the previous month, while urban inflation reduced to 5.8% from 6.4%

### How key items saw inflation move

CPI inflation for **food and beverages** combined slowed to 4.5% on-year in July from 5.6% the previous month. Sequentially, prices declined 0.2% on-month as opposed to a 0.5% growth seen in June

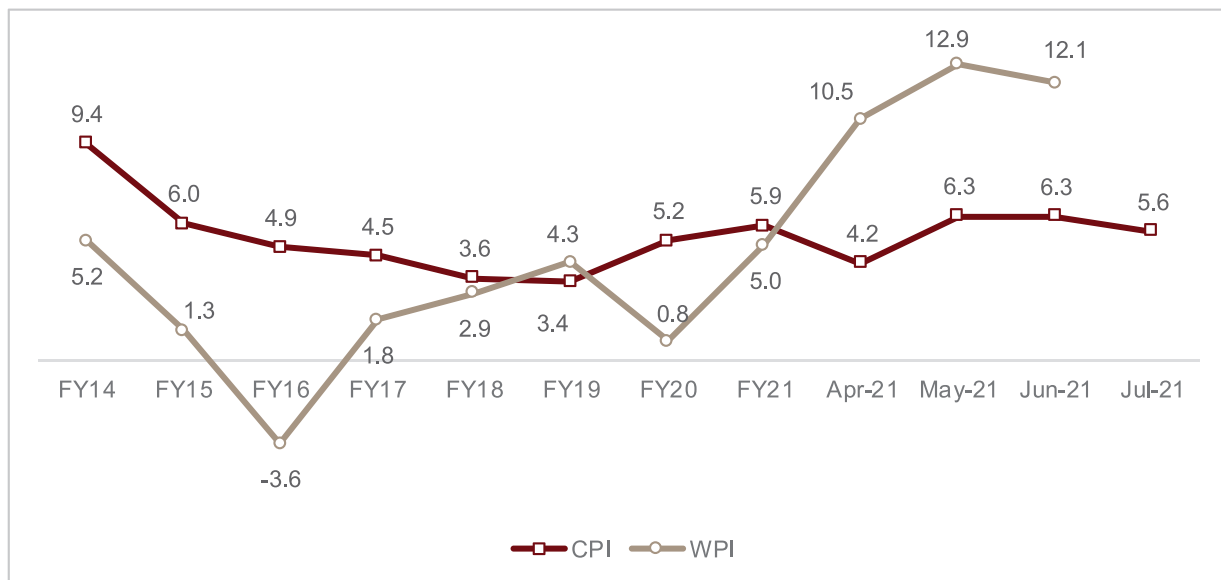
- Cereals, vegetables and fruits drove the decline. Cereal inflation declined for the sixth successive month, at -1.7% on-year, though on-month basis, the decline was 0.5%. Vegetable inflation declined for the eighth consecutive month at -7.7% on-year, and by 0.8% on-month. Fruits inflation was 8.9% higher on-year, but 0.9% lower on-month
- Edible oils and pulses also saw inflation easing, as government reduced import duties on these items. Edible oils inflation, while staying high at 32.5% on-year, was 0.5% lower on-month. Reduction in import duty helped cap the rise in edible oil prices, even as international prices jumped 1.1% on-month and 50.4% on-year<sup>3</sup>. Pulses prices, while 9% higher on-year, were 0.7% lower on-month. Similarly, egg prices were 20.8% higher on-year but 1% lower on-month
- Other protein items, though, continued to see rising inflation. Milk prices rose 2.7% on-year as well as 0.8% on-month. Meat and fish grew 8.3% on-year and 2.2% on-month
- Prepared meals, snacks and sweets prices grew 6% on-year, but declined 0.3% on-month. Sugar and confectionery were 0.5% lower on-year and 0.4% lower on-month

**Fuel inflation** remained in double digits at 12.4% in July compared with 12.6% the previous month. On-month, prices rose 0.6%, stronger than 0.3% in June. Crude oil prices were 1.8% higher on-month and 73.8% higher on-year at \$74.4 per barrel on average in July

**Core inflation** came back below 6% after two months, at 5.8% on-year in July compared with 6.1% the previous month. Sequentially however, pressures grew, with 0.5% on-month growth compared with 0.2% the previous month.

- Rising sequential pressures were primarily seen for clothing and footwear (6.5% on-year and 0.5% on-month), household goods and services (4.9% on-year and 0.4% on-month) and personal care and effects (3.8% on-year and 0.2% on-month), indicating firms are passing on rising input costs to consumers in these items
- Transport and communication inflation remained in double digits for sixth consecutive month, at 10.5% on-year. Sequentially, too, prices rose 0.9% on-month, driven by rising petrol and diesel prices
- Health inflation remained high, at 7.7% on-year and 0.4% on-month
- Housing inflation inched up slightly, growing 3.9% on-year and 0.3% on-month

### Inflation trend



Source: MOSPI, CEIC, CRISIL Research  
Note: Data denotes on-year growth

### WPI inflation stable in double digits in June 21

Wholesale Price Index (WPI)-linked inflation came in at 12.1% on-year in June, the third successive month of double-digit growth. The print was slightly lower than 12.9% previous

month, but much higher than -1.8% a year ago. While low base in June 2020 contributed to the stubbornness, prices of select items rose sequentially as well. Seasonally adjusted, WPI rose 0.4% on-month in June, the same pace seen in May.

The sequential moderation was driven by food, which saw a fall in inflation to 6.7% on-year from 8.1% previous month. Interestingly, fuel inflation also reduced to 32.8% on-year from 37.6% despite the rise in crude oil price during the month.

However, manufacturing inflation remained firm at 10.9%, compared with 10.8% a month ago. Manufacturing items that saw the steepest inflation were basic metals (28.9% in June versus 27.6% previous month), machinery and equipment (28.9% vs 27.6%), and textiles (13.9% vs 11.4%).

### **Inflation outlook**

Inflation continues to face pressure from high international commodity prices, including edible oils and metals, which are at decadal highs and crude oil prices which remain beyond the comfort zone at over ~\$70 per barrel. Recent data has indicated firms passing on rising input costs to consumers despite weak demand conditions. We expect the pass-through to gain more steam as domestic demand strengthens in the second half of this fiscal.

The lid on overall inflation will be kept by food, as it benefits from the high base of last year. However, the progress of monsoon and impact of rising global food prices will remain a key monitorable.

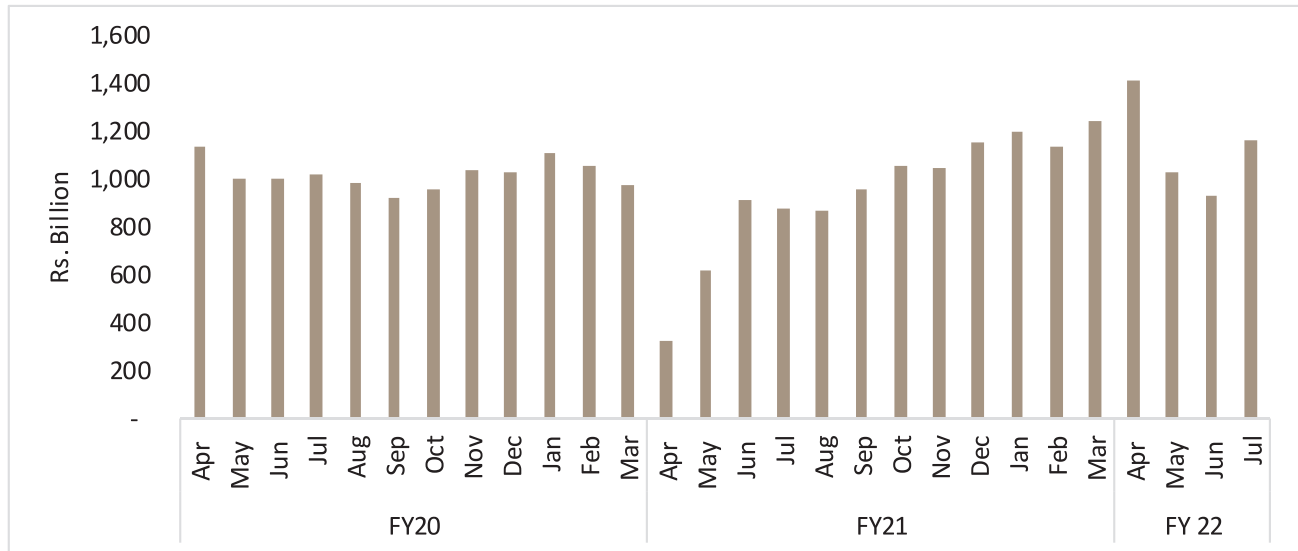
Due to these factors, we have revised up our forecast for CPI inflation to 5.8% for fiscal 2022 from 5.3% estimated earlier. Despite the rise, it will be lower compared with 6.2% last year.

### **GST Collection**

Total GST collections reached historic low during April 2020 amidst emergence and Covid pandemic and the ensuing nationwide lockdown. With reduction in Covid severity, the subsequent staggered unlock and reopening of economic activities, GST collection levels rose gradually during the year.

Economic activities more or less normalized during the second half of the year and GST collections witnessed a 50% growth vis-à-vis collection in the first half.

## Trends in GST collection



Source: Press Information Bureau, Government of India

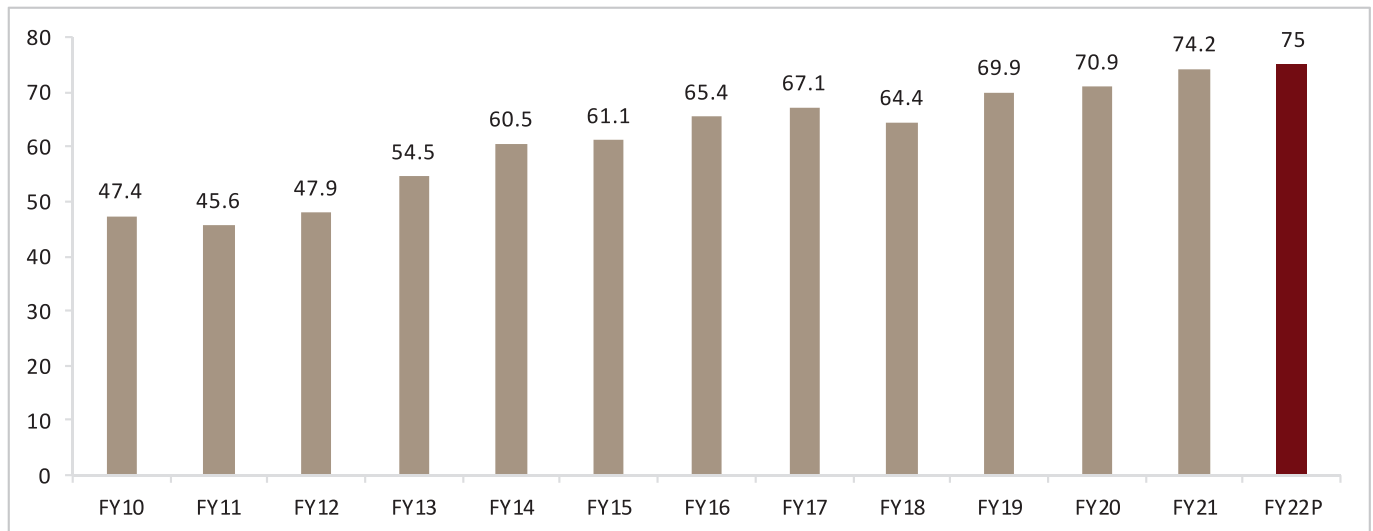
In April 2021, at Rs 1.4 trillion, GST collections set a new record with highest GST collections since inception. Collections were supported by the sustained economic growth achieved during that period.

The second wave and the subsequent restrictions impacted economic activities in May and June dragging down the GST collection levels. GST collections in June are related to the business transactions done in May. As most of the states were in complete/partial lockdown in May, GST collections in June dropped below Rs 1 trillion levels.

### Rupee expected to weaken as second wave grips businesses

Economy was getting back on track gradually after the first wave when Industrial production came to a halt, exports tanked and exchange rate climbed to 76 in April'20. As expected, recovery was slow but encouraging. GST collection crossed 1 lakh crores in September and the market didn't look back after that. With the increase in foreign investment, rupee strengthened and balanced out the surge in cases and rise in imports. Exchange rate remained mostly stable around 73 mark in the last quarter of FY21.

### Exchange rate INR-USD



Source – RBI, CRISIL Research

Second wave, however, put too much downside pressure. Steep surge in Covid-19 cases dampened the investor sentiment. As states implemented lockdowns of varying severity, economic activity and industrial production again came to a halt. Widening of the trade deficit and increasing crude prices also added to the depreciation pressure. As US ramps up its vaccination, dollar index is expected to get a further boost putting more pressure on rupee. Overall, despite high double-digit growth expectations from Indian economy in FY22 exchange rate is expected to depreciate further to 75 due to second wave and weak economic momentum.

### Review of EXIM Trade

During fiscal 17 to fiscal 19 overall merchandise exports from India grew at a healthy pace of 10% CAGR to reach

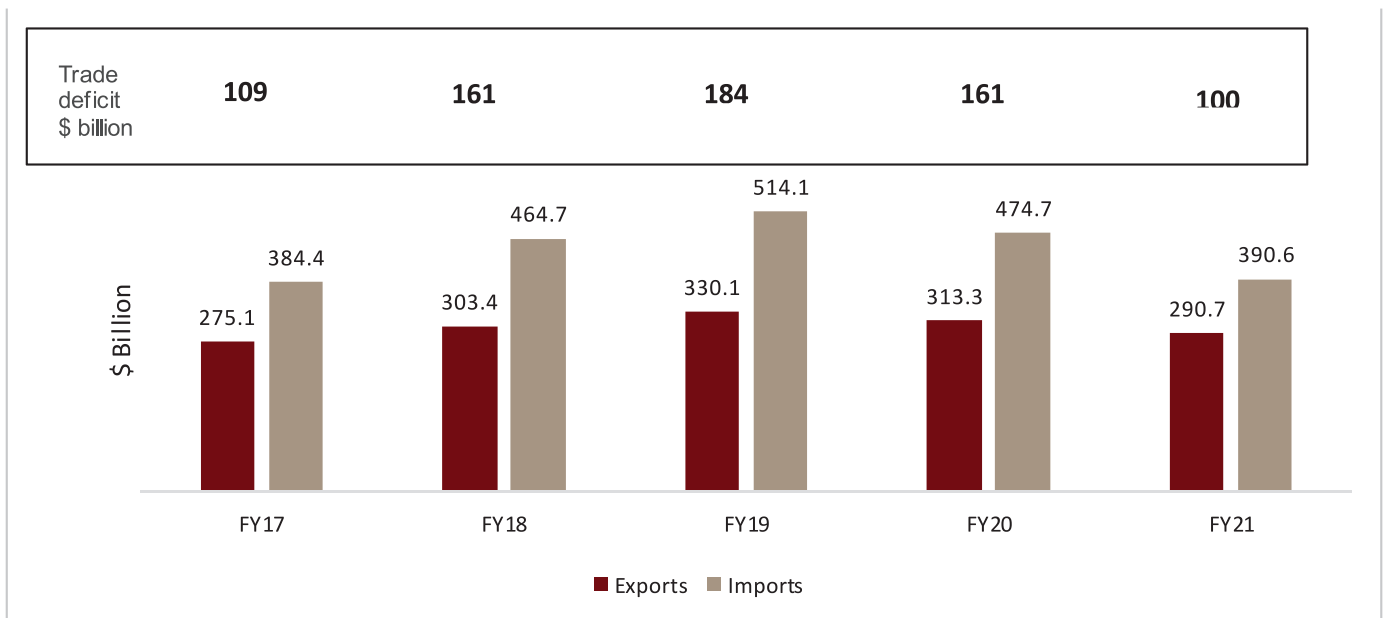
\$ 330 billion. Imports, on the other hand, increased at a faster pace of 16% CAGR backed by 27% rise in oil imports. India's trade deficit widened to \$ 184 billion in fiscal 19. On a high base of fiscal 19, merchandise exports as well as imports dropped 5% and 8% respectively in fiscal 20 amidst the weak global demand as well as slowdown in India's economic growth. Oil imports dropped 7% on year to \$ 131 billion. However, higher drop in imports supported India's trade deficit which registered some improvement during the year.



Emergence of Covid 19 pandemic in fiscal 21 exacerbated the EXIM situation with sharp drop in global demand and in turn, the world trade. The slowdown was witnessed across regions with GDP growth decelerating and some economies even moving towards recession.

India's imports registered a sharp drop of 18% in fiscal 21 to reach \$ 391 billion. The drop was primarily on the back of the sharp contraction of 37% in oil imports due to reduced transportation requirement. In line with the GDP contraction, non-oil import demand also dropped (11%) during the year.

### Overall Merchandise trade trend



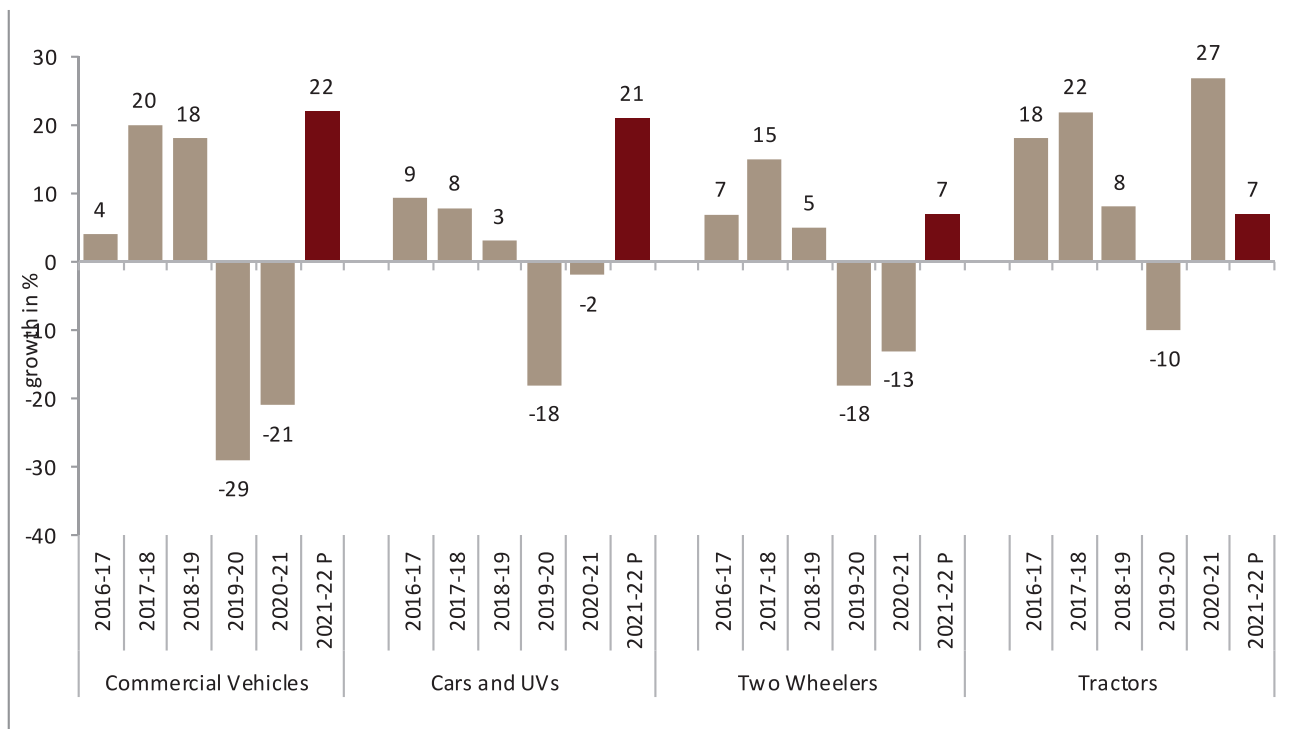
Source: Ministry of Commerce and Industry, CRISIL Research

Exports levels dropped 7% during fiscal 21. Textile exports fell ~60% during the first half of the year with a sharp drop in demand from traditional exports market. Increased demand from non-traditional markets in the second half of the year restricted the fall in overall exports for the year. Second wave of Covid in US & EU during Q4 fiscal 21 exerted additional pressure on the textile exports. Gems & Jewellery exports were impacted significantly in fiscal 21 amidst the sharp decline in discretionary demand globally as well as postponement/ cancellation of global trade events / diamond Jewellery shows. Drop in energy demand across the globe dragged down petroleum product exports 38% during the year.

However, exports registered a relatively lower decline backed by increased exports from pharma sector, especially vaccines, also backed by some improvement in the global demand during the second half of the year.

## Automobile Industry

### Sales projections for various automobile segments



Source: SIAM, CRISIL Research

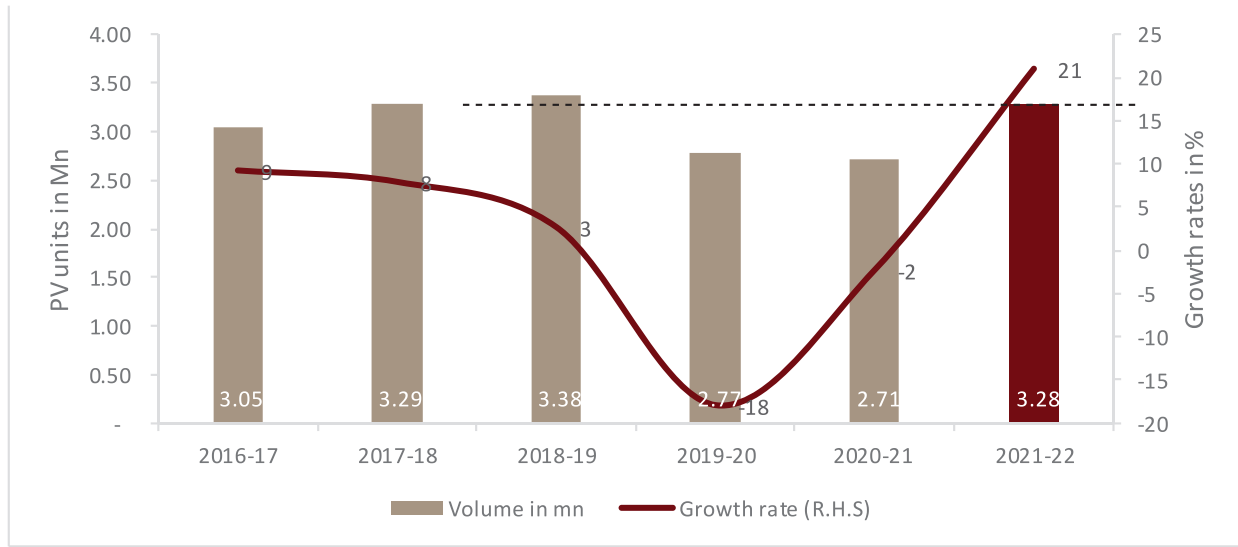
All automobile segments, are expected to see a growth on account of improvement in economic activities. Except tractors, all segments witnessed a steep decline last year due to the economic disruption caused by the pandemic.

- Urban income is estimated to have recovered post the first quarter of fiscal 2021 in-line with recovery in demand, while rural India brought its share of good tidings with record high production and expected 3-5% increase in per hectare profitability, as well as healthy reservoir levels to support sowing in fiscal 2022
- Rural contribution to be at par as last year with an expectation of normal and well distributed monsoon in fiscal 2022
- Infrastructure activities to uplift automobile demand in the current fiscal with higher contribution in the second half of the fiscal
- Crude oil prices are expected to average \$63-68 per barrel in CY 2021. Hence, retail fuel prices to remain elevated above Rs. 100, expected to constraint vehicle demand.
- Rising commodity prices to remain a key monitorable for all vehicle segments. Further hike in vehicle prices expected in the coming months as well

- Despite liquidity measure announced by the central bank, financiers were averse to lending on account of increasing gross NPAs in fiscal 2021. However, in the current fiscal financing scenario to remain accommodative; barring MSME and commercial segment

## Passenger vehicles

Domestic sales to grow at 20-22% yoy in fiscal 2022, slightly lower than fiscal 2019 levels; however, shortage of components like semi-conductor remains a key monitorable



Source: SIAM, CRISIL Research

- Despite of difficulties posed by covid, such as impact on supply chain due to nation-wide as well as regional level lockdowns, labour issues, shortage of components, etc., need for personal mobility aided the demand for passenger vehicles. In fiscal 2021, industry declined marginally by 2% yoy, though on a low of fiscal 2020 where industry witnessed a decline of 18% during BS-VI transition phase.
- On a low base of last two years, CRISIL Research expects the industry to grow by 20-22% yoy in fiscal 2022, driven by need for personal mobility as CRISIL Research expects the economy to open up and model launches mainly in UV space.
- **Impact of covid 2<sup>nd</sup> wave:** From a high of Q4 of fiscal 2021 sales contracted sharply by 31% qoq in Q1 of fiscal 2022 amidst the 2<sup>nd</sup> wave and the subsequent restrictions. Cars witnessed a higher drop of 34 % qoq while UVs contracted by 26% qoq. Major impact was seen in the month of May 2021 when OEMs had stopped their production to break the covid chain as well as preponed their annual maintenance. CRISIL Research expects sales to gradually normalize from Q2 of fiscal 2022 onwards backed by continued need for personal mobility, strong order pipeline, estimated improvement in economy and added push with new model launches.
- **Fall in urban incomes not as severe:** Urban income is estimated to have recovered post the first quarter of fiscal 2021 in-line with recovery in demand, while rural India brought its share

of good tidings with higher kharif sowing and expected 3-5% increase in per hectare profitability, as well as healthy reservoir levels to support upcoming rabi sowing.

- **Financing push gives further support to the industry:** Approximately 78% of the passenger vehicle sale is financed, currently, banks are flushed with liquidity and limited avenues for corporate lending, hence financiers have been aggressive in this segment offering financing at similar LTVs (higher for customers with good credit score) and lower interest rates.
- **Low inventory at dealer end and higher waiting period to aid sale in this fiscal:** Inventory at the dealer end is at the tune of 15-20 days by end of Q1 of fiscal 2022 due to shut down of plants on account of the spread of covid 2<sup>nd</sup> wave in Q1 of fiscal 2022. Fast moving models are having waiting period due to supply constraints, this is expected to support wholesale this fiscal provided supply constraint eases out.
- **Increase in total cost of ownership:** The rise in fuel prices has led to weak consumer sentiments mainly in small car category segment, however, more and more OEMs coming up with CNG models. Demand for CNG cars is on an uptick. Moreover, in this fiscal, the price of passenger vehicle has been increased by the major OEMs twice due to increase in commodity prices. This is expected to slightly impact the consumer buying sentiments.

**After exports declining in fiscal 2021 due to global slowdown on account of covid, export is expected to grow by 38-40% yoy in fiscal 2022**

- PV exports stayed flat in fiscal 2020, owing to demand slowdown in export markets of the US, Chile and Algeria. From Jan 2020 onwards, global passenger vehicle sale slowed down due to the impact of covid, fiscal 2021 recorded a decline of 40%.
- Major blow was from Europe where covid had a serious impact. Share of Europe in our exports' basket had fallen from 6% in fiscal 2020 to 1% in fiscal 2021.
- Demand in fiscal 2022 will be driven by improving global situation on a low base of last year, however, on account of supply constraint, OEMs are expected to focus on domestic market as compared to exports.
- Global covid situation and the pace of vaccination in the developing countries will remain a key monitorable.

<i>Countries</i>	Share in exports (FY 2020)	Share in exports (FY 2021)	Growth in FY 2021(yoy %)
<i>Mexico</i>	23%	22%	-42%
<i>South Africa</i>	17%	16%	-42%
<i>Saudi Arab</i>	11%	10%	-43%
<i>USA</i>	10%	8%	-52%
<i>UAE</i>	4%	5%	-29%
<i>Chile</i>	4%	7%	7%
<i>Nepal</i>	2%	2%	-20%

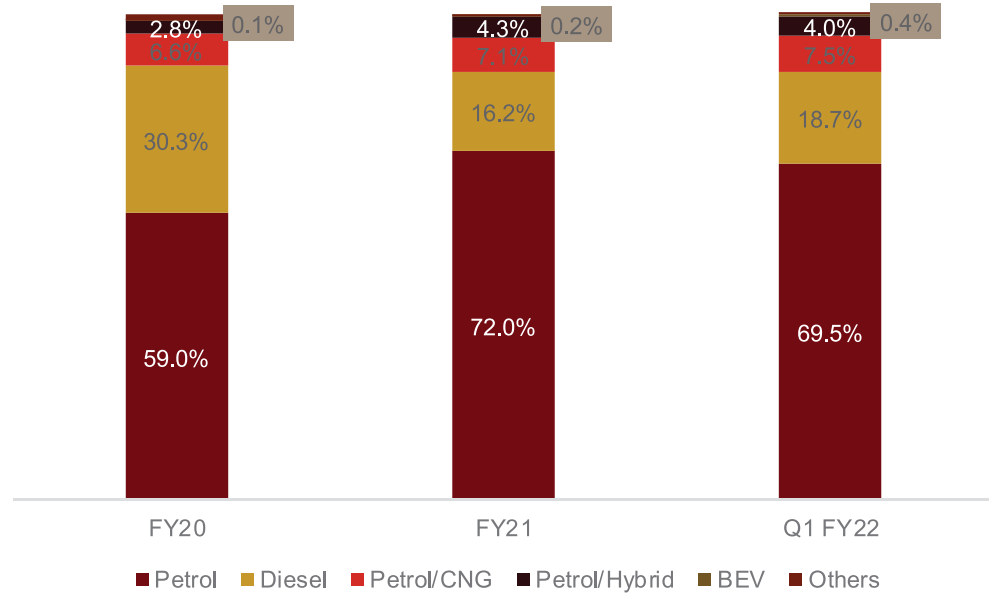
<i>Peru</i>	2%	2%	-31%
<i>Italy</i>	2%	0%	-99%
<i>Indonesia</i>	2%	1%	-49%

Source: CRISIL Research, DGFT

- **Other key changes in the PV industry**

- Move towards alternate fuel sources

- Diesel share reduced in fiscal 2021, after major OEMs phased out diesel variants due to relatively higher price hike compared petrol/ CNG variants on account of BS VI transition.
    - Additionally, higher cost of fuel (petrol above Rs. 100) has led to negative sentiments amongst the vehicle buyers.
    - Due to demand for CNG variants, OEMs are launching CNG variants of their models, mainly in small car segment. CNG penetration across states is expected to increase going forward, leading to better CNG supply.
    - OEMs have launched electric variants (mainly in UV segment). It still remains a small share in the PV portfolio. As on fiscal 2021, it occupies 0.2% pie of the retail sale. Share has grown to 0.4% in Q1 of fiscal 2021 due to entry of models like Nexon, MG ZS EV, etc.



Source: MoRTH, CRISIL Research

○ **Model launches to give impetus to sale**

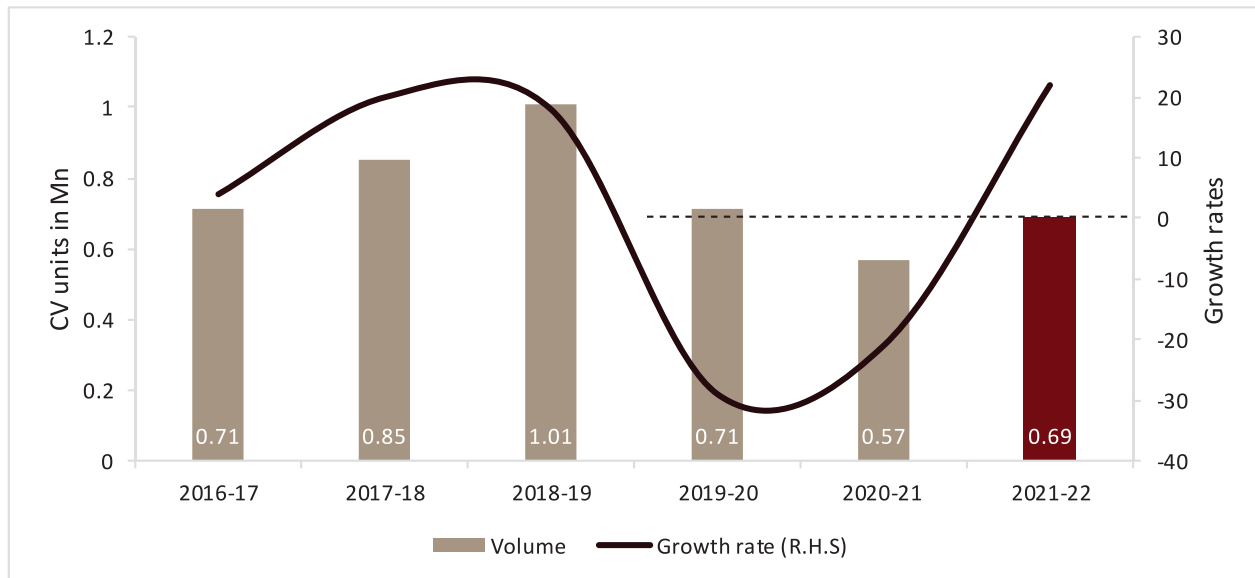
- Major models such as Altroz, Creta, Seltos, Triber, etc. were launched in UV segment, this aided the industry in fiscal 2021. It garnered a share of 17% in fiscal 2021.

Few model launches were postponed in fiscal 2022 due to the covid 2<sup>nd</sup> wave due to lower consumer sentiments and supply constraints. CRISIL Research expects the situation to improve as covid spread is under control. Traction from recent model launches like Alcazar, Kiger, Magnite, XUV 700, etc. will aid demand in fiscal 2022.



## Commercial vehicles

Fiscal 2022 to see an optical recovery constrained by outbreak of covid 2<sup>nd</sup> wave; yet volumes are expected to be lower than fiscal 2020 levels

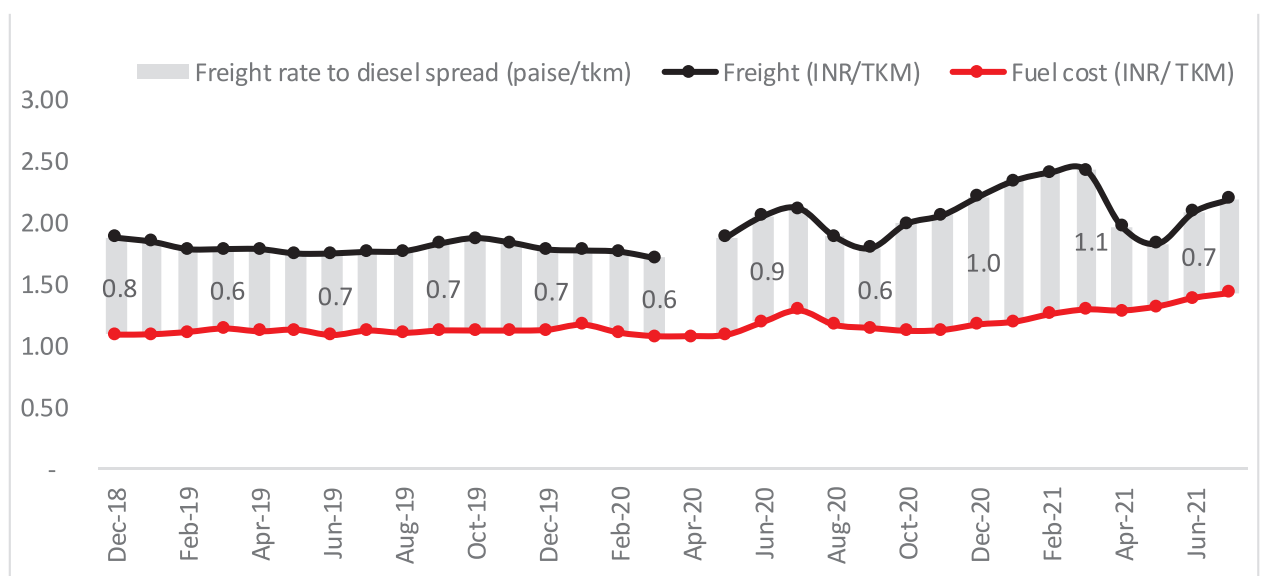


Source: SIAM, CRISIL Research

- 2<sup>nd</sup> wave impacted volumes in Q1 of fiscal 2022, demand to recover in upcoming 9 months:** 2<sup>nd</sup> wave of covid outbreak led to lockdown in key affected regions in Q1 of fiscal 2022. This has impacted volumes across segments post a healthy Q4 of fiscal 2021. Consequently, LCV, MHCV and bus volumes declined by ~42%, ~63% and ~43% quarter-on-quarter in Q1 of fiscal 2022 resulting in ~50% quarter-on-quarter decline in overall CV volumes.
- Significant inventory build-up in Q4 FY21 to limit scope for further inventory build-up:** On account of BS-VI transition, dealers ended fiscal 2020 with 0-5 days of inventory. Dealers in fiscal 2021 built up their inventory from near zero levels at the start of the fiscal to normal levels by the end of the fiscal. However, with muted freight demand, rising diesel prices, excess capacity and resultant pressure on transporter profitability, retail demand has remained weak. By end of Q1 of fiscal 2022, inventory levels have remained at 27-32 days. Hence, in fiscal 2022, scope of inventory built-up is less as compared to fiscal 2021.
- LCV demand aided by replacement as well as recovery in end use sector:** COVID-19 outbreak has impacted private consumption by lowering disposable income and at the same time lowered redistribution freight (freight dependent on redistribution of goods transported post primary movement), this in turn has hit LCV demand. LCV demand in

fiscal 2022 is expected to improve over a low base (~21% fall in fiscal 2020 and ~7% fall in fiscal 2021) aided by improvement in freight availability, and financing availability and strong replacement demand momentum in sub-one tonne segment.

- **ICVs, MCVs and Tippers to outperform in fiscal 2022 among MHCVs:** Demand from end user industries such as e-commerce, agriculture, oil & gas to aid demand for ICVs and MCVs. Revival in construction and infrastructure activities to support demand for tippers. Strong export momentum, robust demand for steel and cement on account of government's thrust on infra projects to support for trailers. MAV sales to improve on low base of fiscal 2021 aided by shift from tractor trailer segment.
- **Bus sales to recover over a low base in fiscal 2022 due to expected recovery in mobility post vaccination:** In fiscal 2022, bus demand is expected to rebound over a low base of fiscal 2021 as vaccination gains traction and reluctance to travel lowers; however, overall volumes expected to remain significantly lower. Prevailing work from home conditions, greater probability of school being shut till Q3 of fiscal 2022 and limited demand from STU on account of stretched state finances to keep bus sales muted even in fiscal 2022.
- **Increase in price of raw material prices:** Price of commodity like steel, iron ore and other precious metals have been on a rise since latter half of fiscal 2021. Prices of key production inputs are expected to rise further in FY22 due to global supply constraints as well as sustained demand recovery in end use industries. OEMs have increased the price of the vehicle twice in CY 2021, to pass on the impact of rising raw material prices hurting affordability for transporters.
- **High diesel price and lower freight rate impact transporters' profitability**



Source: CRISIL Research

- In Q1 of fiscal 2021, freight rates rose at a greater pace than diesel prices as transporters charged return freight even for a one-way journey due to lack of return freight. Diesel rates have increased in Q2 of fiscal 2021 and continued to remain high in Q3 of fiscal 2021 while freight rates have not witnessed proportionate recovery. As such, transporter profitability remains weak despite sequential improvement in freight demand and fleet utilisation. However, sequential improvement in freight demand in Q4 of fiscal 2021 and freight profitability led to materialization of deferred truck demand aiding sales.
- In Q1 of fiscal 2022, diesel prices increased by ~26% on-year but freight rates increased by a modest ~7% on-year due to resurgence of Covid-19 and hence transporters were able to pass on limited increase in fuel prices negatively impacting transporter profitability.

• **Growth expected across end-use segments**

Segments (% Growth Y-o-Y)	FY 17	FY 18	FY 19	FY 20	FY 21 P	FY 22 P
Coal (production)	3.0	3.0	7	1	(2)	6-8
Iron ore (production)	25	3	3	19	(16)-(18)	12-17
Steel (consumption)	3.1	8	9	1	(6)	10-12
Cement (consumption)	1.9	9	12	(2)	0.3	9-11
Roads (Km constructed / day)	7	8	9	11	11	12-12.5
Port (traffic)	5.6	6.5	4.5	2	(5)	7-8

Source: CSO, RBI, SIAM, CRISIL Research

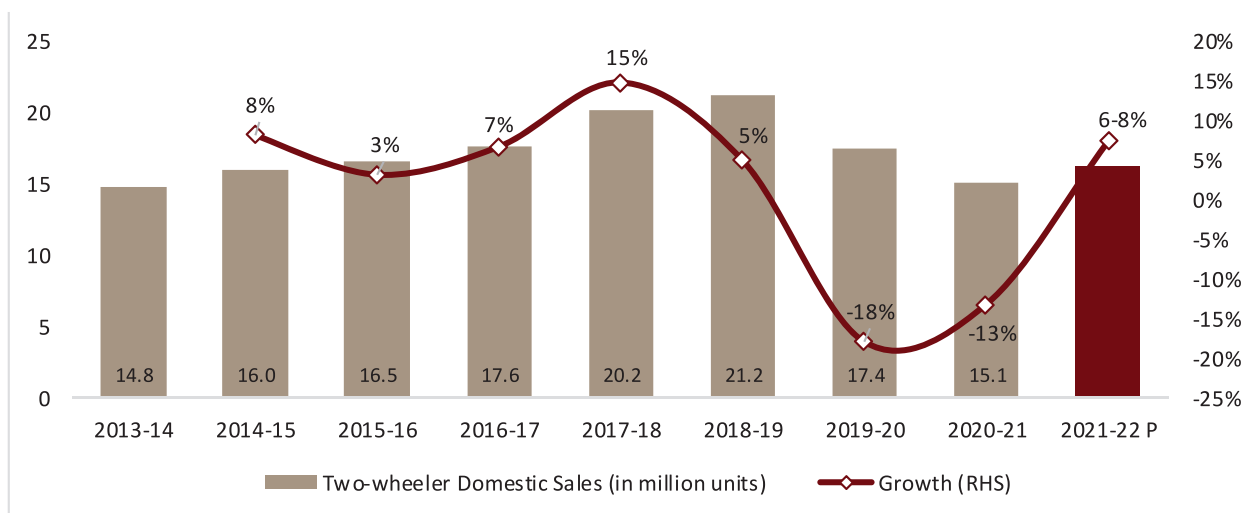
- All major bulk and non-bulk freight are expected to grow in fiscal 2022 on the low base of last year, which will lead to higher freight utilisation
- Despite the lockdowns and labour-related issues, developers made up for lost time and construction at NHAI projects rose 5% on-year to 4,175 kms in fiscal 2021. Given the acceleration in project awards, sharper focus on resolving land acquisition issues, and the 'Atmanirbhar Bharat' initiatives to ease liquidity, the pace of construction should continue to increase steadily in this year as well.
- Budget of 2021 announced Infrastructure push with an increase in outlay of ~10% vs fiscal 2021 RE (Revised Estimates) under the MoRTH (Ministry of Road Transport & Highways). CV demand, especially for tippers, to receive some

support from construction-led infrastructure push in sectors, such as roads and urban infrastructure.

- Rural road construction was almost half in fiscal 2020 at ~27,000 kms construction, as compared with ~49,000 kms in the previous year. Fiscal 2021, saw construction of ~37,000 kms. CRISIL Research expects the pace to be similar in fiscal 2022.
- **CV disbursement to pick up as impact of 2<sup>nd</sup> wave fades**
  - In fiscal 2022, and particularly from the Q2 of fiscal 2022, disbursement demand is expected to pick up as economic recovery post the 2<sup>nd</sup> wave will lead to an increase in private consumption and freight demand. As collections improve amidst demand revival, risk averseness among lenders is also likely to decline as replacement demand picks up. However, fleet operators have also had to contend with dropping load factors and freight rates, which, along with rising diesel prices, took a toll on their cash flows.

## Two-wheelers

### Second wave dampens the recovery in sales fiscal 2022



P: Projected

Source: SIAM, CRISIL Research

- Volume growth in fiscal 2022 in the two wheeler (TW) segment is expected to be driven by recovery in scooter sales as educational institutions re-open, more people commute to office, and urban income sentiment improves in the second half of the fiscal.
- Motorcycle sales will get support, on expectations of normal monsoon, leading to increased rural-income resilience.
- Also, vehicle price hikes would be modest at 3-4% in fiscal 2022 owing to high input cost compared with 10-15% in the previous fiscal (because of BS-VI norms), which affected sales. However, if the price hike is significantly higher over a 10-15% price hike of fiscal 2021, two wheeler demand would be further impacted.
- Rate cut pass on in TWs has been only to the extent of ~60 bps (compared with pre-pandemic levels), or half that for PVs, this would continue to impact demand sentiment in TW
- Outbreak of second wave of COVID in the domestic market since March 2021 has hampered sales growth in Q1 FY22. Although the industry is projected to recover growing by ~7%, volumes are likely to be much lower than anticipated earlier. CRISIL Research has not factored in the third wave of COVID in the forecast.
- Expected model launches in economy and executive segment of motorcycles and 125cc scooter segment to support demand in the current fiscal. Further, pick-up in pace of vaccination in 2<sup>nd</sup> of half of the fiscal is expected to result in improvement in people mobility especially in urban areas, in turn aiding scooter demand.

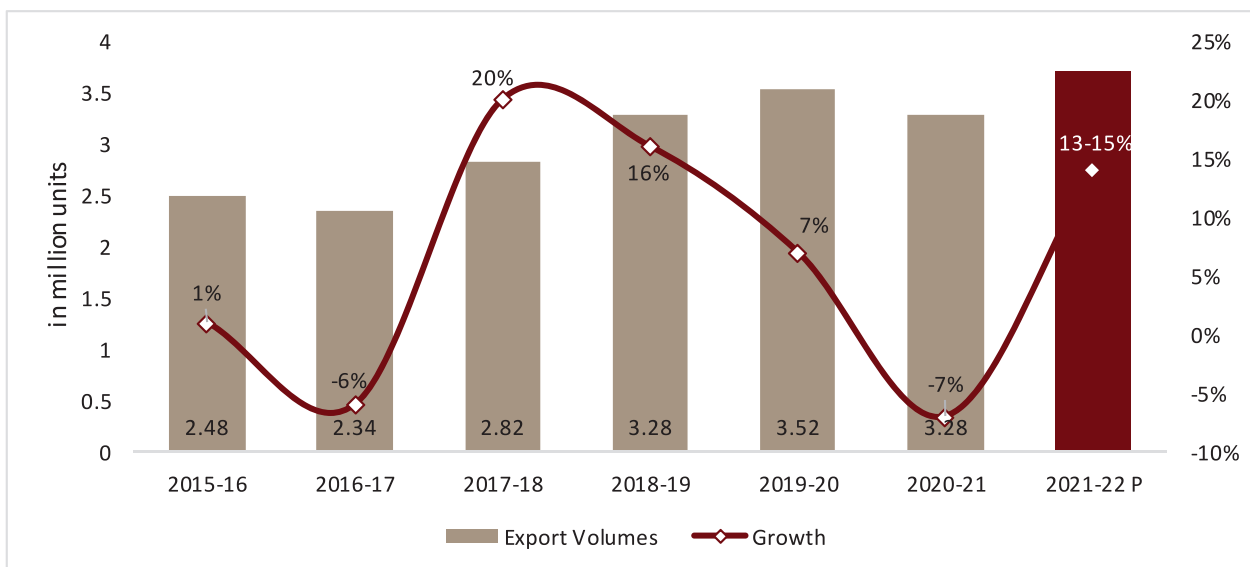
- Trend of electric two-wheelers is also picking up pace which is a positive sign for the industry and sales are further supported by the government subsidy offered.
- Improving financing environment aided by higher discounts by OEMs (to gain market share) will also support growth in the two-wheeler industry.

**Gradual improvement expected in two wheeler industry**

Parameters	Impact		
	FY20	FY21	FY22 P
Income for discretionary spending	NF	NF	N
Cost of Ownership	N	NF	NF
Interest rates	N	F	N
Fuel Injector Vehicle	-	NF	N
E-carburettor vehicle	-	N	N
Regulations	N	NF	N
<b>Impact on Overall Sales Growth</b>	<b>NF</b>	<b>NF</b>	<b>N</b>

Source: CRISIL Research

Two wheeler exports are projected to increase by 13-15% in fiscal 2022 led by recovery from key African destinations but restricted by muted demand from key Asian markets. Besides, dissipating impact of COVID due to availability of vaccines is also expected to bolster demand during the year.



P: Projected

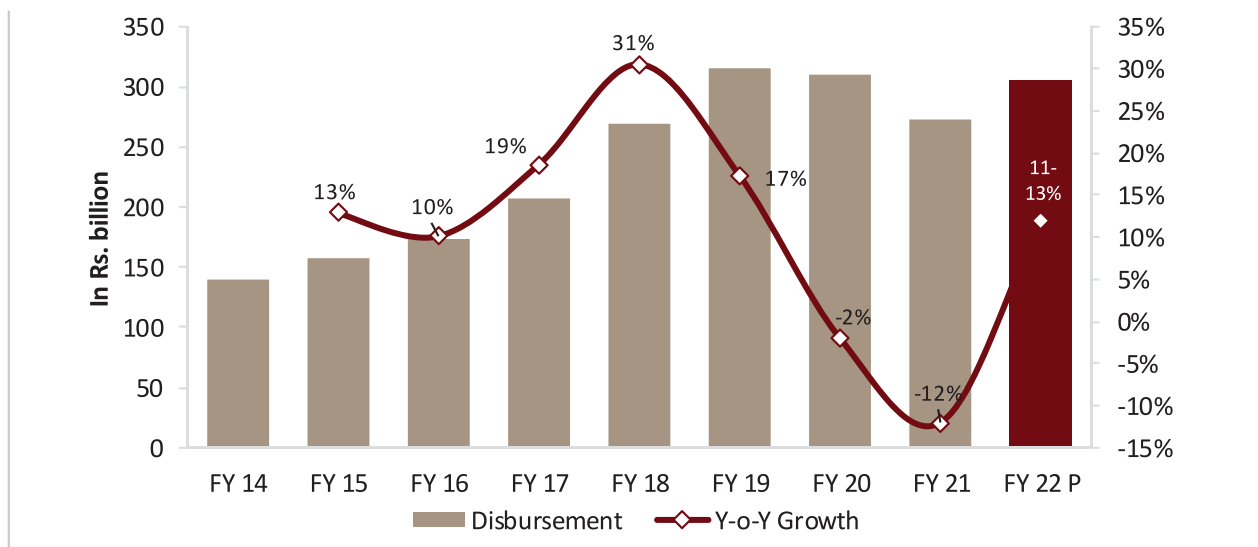
Source: SIAM, CRISIL Research

## Increased vehicle cost to impact cost of ownership

Total cost of ownership (TCO) had increased by ~27% in the past three years with ~35% of the increase coming due to the insurance norms in fiscal 2019. A similar contribution was due to the increased finance pay-outs owing to higher vehicle cost, rise in fuel prices over the past three years, too, contributed to the rise in TCO.

In fiscal 2022, CRISIL Research expects TCO to increase by a modest 3-4% on account of lower vehicle price hike and fuels costs to remain range bound. In fiscal 2022, average fuel prices are expected to remain stable on-year while with vehicle prices rising by ~4%, finance cost and insurance cost, too, is expected to rise by a similar amount. Cumulatively, TCO to rise by ~3-4% in fiscal 2022. However, rising fuel prices remains a key monitorable.

## Disbursements to reach pre-covid levels in FY22, finance penetration and LTV to remain range bound

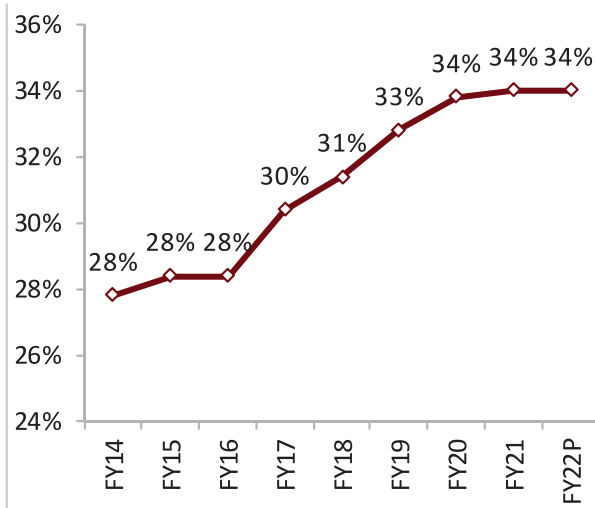


Source: Experian Credit Bureau, Company Reports, CRISIL Research

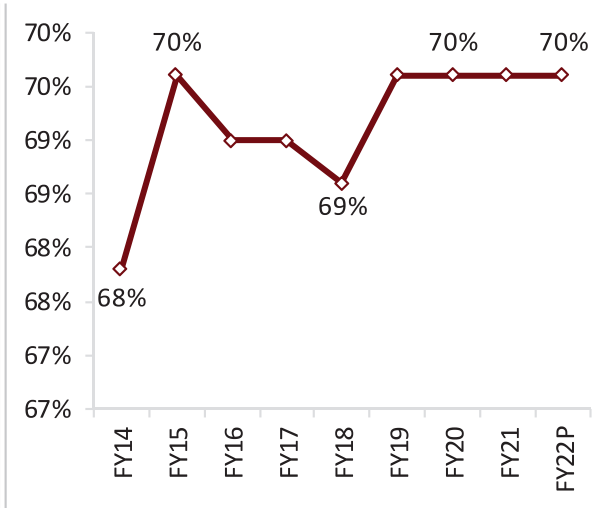
- Disbursements are expected to see an uptick in FY22, following a contraction in FY21 due to sluggish sales during the year
- Penetration levels are estimated to have remained more or less at year-ago levels in FY21. This was on account of financiers being apprehensive in providing loans in the initial months of the year. Lending was being provided to customers with stable income and good track record.

- In times of subdued demand sentiments, financiers kept the Loan to Value (LTV) at pre covid levels to push sales.

**Auto finance penetration**



**Loan-to-value**



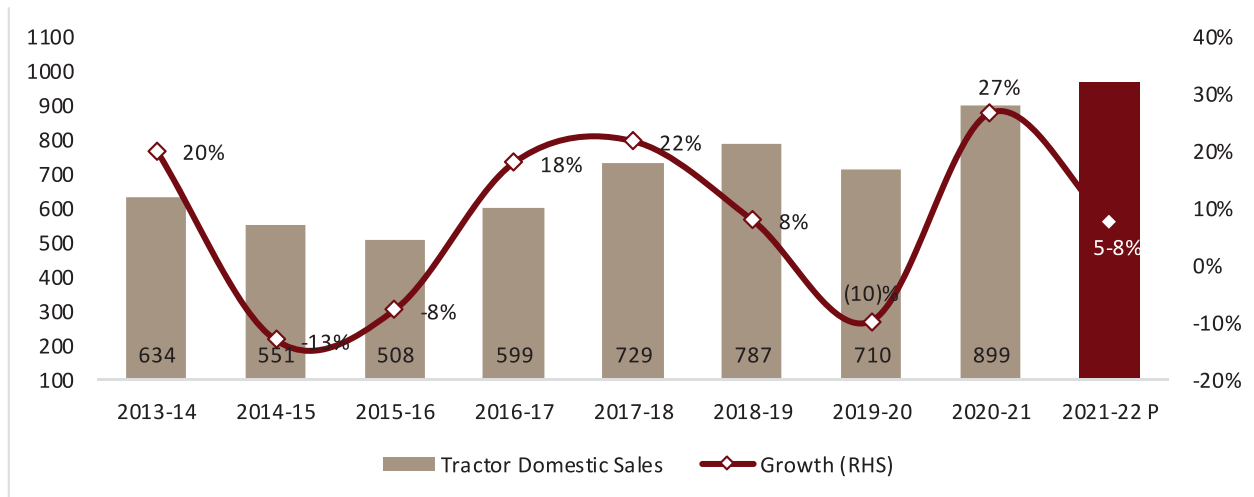
E: Estimated

Source: Experian Credit Bureau, Company Reports, CRISIL Research



## Tractors

### Domestic tractor demand resilient in fiscal 2022, owing to positive rural sentiments



P: Projected

Source: TMA, CRISIL Research

Domestic tractor demand rose by 27% in fiscal 2021 due to higher focus on rural development (allocation to rural development budget increased by 59% last fiscal), higher replacement demand, positive farm sentiments on account of better crop profitability, higher government support through income support schemes, higher procurement of field crops and oilseeds and higher need of mechanisation for some regions amid reverse migration.

- Normal monsoon and no further impact of Covid-19 (third wave) is expected to drive 5-8% growth in tractors in fiscal 2022
- Healthy reservoir levels, high farm profitability, sustained government support in terms of procurement of foodgrain, expected pick-up in commercial demand and normal monsoon prediction for the year to support growth in the fiscal 2022 on an already high base.
- Resilient growth due to high investment by farmers on agriculture activities amid absence of any other investment opportunities due to the continued impact of COVID-19 in line with the previous fiscal
- Increase in total profit for the kharif & rabi season in FY22 by 5-6% on-year to prevent drop in sales in fiscal 2022 over a high base. High reservoir levels at the start of fiscal 2022 to bode well for farmers' sentiments
- Higher procurement targets by the central and state governments will boost income and improve tractor demand

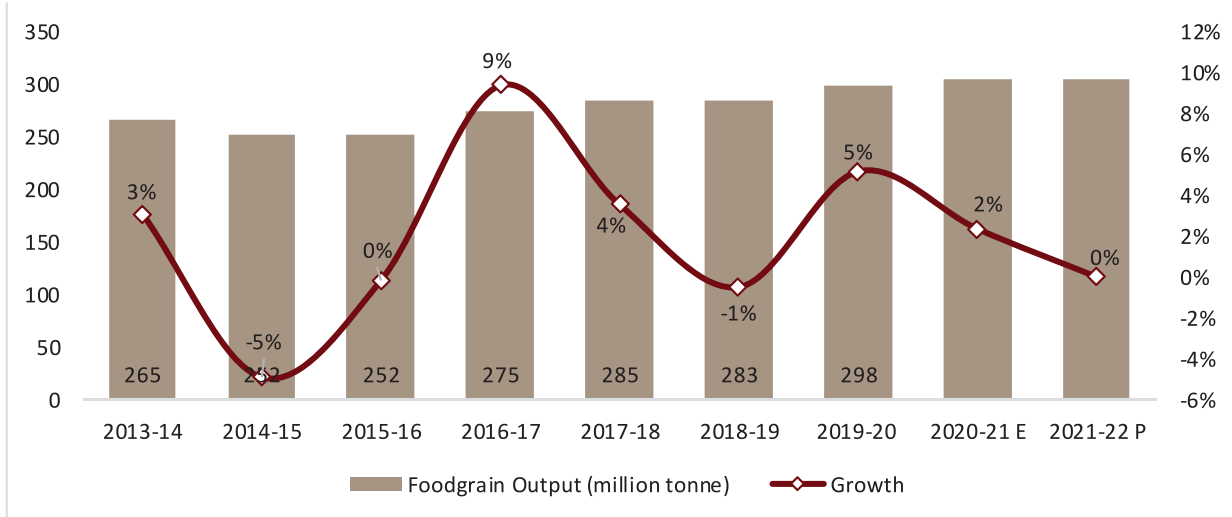
- Commercial demand from sand mining is expected to pick up as sand prices have been on a rising trend (increased by 30-40% on-year), thus encouraging illegal mining and preventing further drop in the fiscal
- Tractor demand growth in the northern region is expected to be lower than pan-India on account of a high base of previous year and uneven spread of initial rainfall
- High growth expected in west and south India on account of positive agriculture sentiments and good rainfall, further demand across states is expected to be positive during the festive season, which will boost tractor demand in the current year

### Normal rainfall and improving farm income to drive domestic tractor demand

Parameters	Impact		
	FY20	FY21	FY22 P
<b>Farm income</b>	N	F	N
Crop prices (minimum support price or MSP)	F	F	N
Crop output	N	F	N
<i>Kharif output</i>	NF	F	N
<i>Rabi output</i>	F	F	N
<b>Demand indicators</b>	NF	NF	N
Infrastructure development	NF	NF	N
Sand mining	N	N	N
<b>Finance</b>	N	N	N
Agri credit, finance availability	N	N	N
<b>Supply</b>	N	F	F
Channel inventory	N	F	F
Player action: Pricing & products	F	F	F

Source: CRISIL Research

### Foodgrain target expected to be stable on-year for fiscal 2022

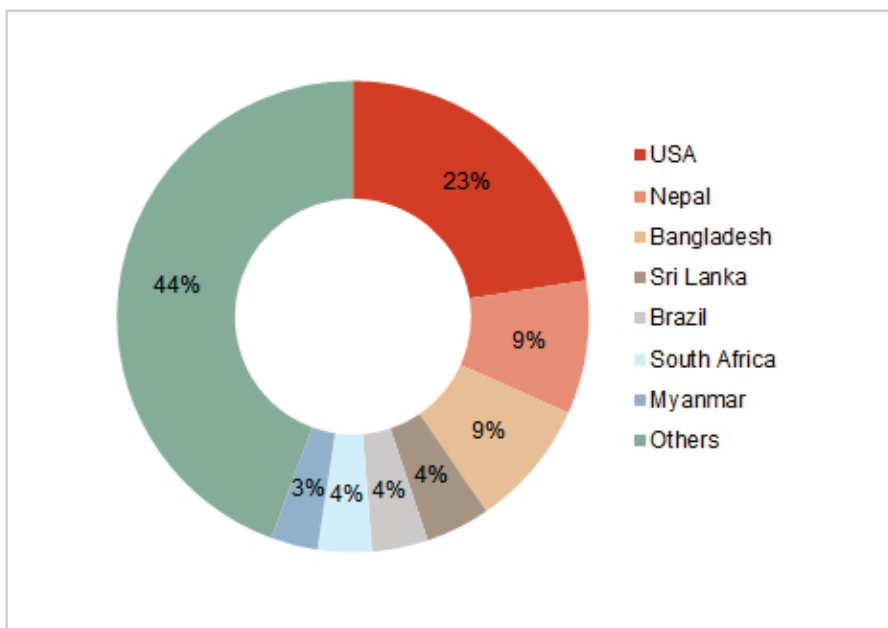


E: Estimated, P: Projected

Source: Ministry of Agriculture, CRISIL Research

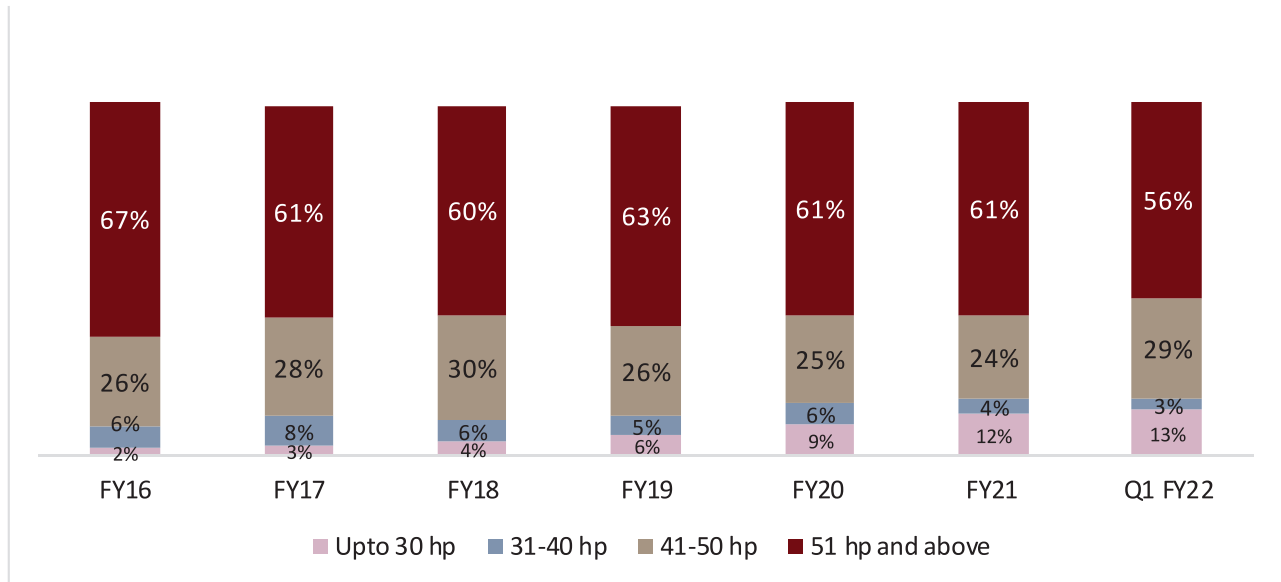
Crop production is expected to be stable on-year in fiscal 2022 on a high base of the previous year. Normal monsoon expectation coupled with good reservoir levels to aid well for the cropping cycle in fiscal 2022 and thus result in improved farm income.

### Demand for tractors remained unaffected from the importing nations despite COVID-19 outbreak in FY21



Source: Ministry of Commerce, CRISIL Research, FY21

**Tractors <30HP on an uptrend in exports**



Source: CRISIL Research

**Tractor exports to grow in fiscal 2022**

- Tractor industry clocked record exports with 17% growth during FY21 backed by increased demand from major importers such as Europe and Latin America coupled with strategic partnerships developed by players such as Escorts.
- However, on a q-o-q basis, exports dropped 6% during Q1 FY22 amidst continued impact on Asian markets
- Share of 51HP & above tractors drooped during the quarter while 41-50 HP tractors expanded their presence
- On a high base of FY21, exports are expected to grow at a relatively muted pace with continued support from major markets like US & EU while Asian markets are expected to remain muted

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**Auto Components  
Industry Performance Review :  
2020-21**

*by*

**ACMA**



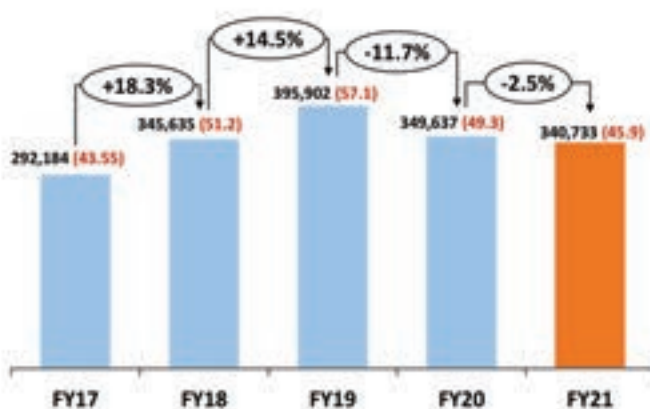


Automotive Component Manufacturers Association of India

## Auto Components Industry Performance Review: 2020-21

### Auto Components Industry Performance: FY 2021

Size of industry | INR Cr (USD Bn)



Sales to OEMs

Aftermarket

Balance of Trade

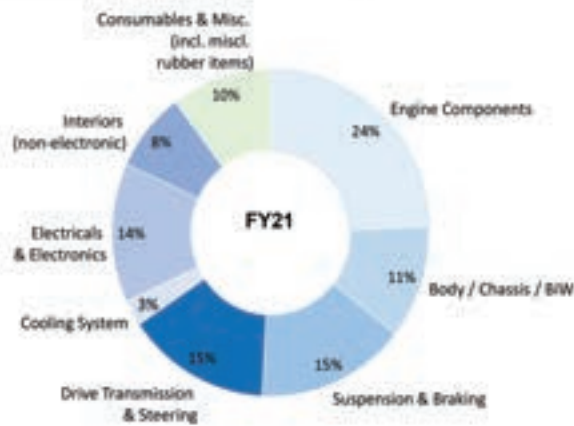
#### FY21 – Auto components industry performance

- PV and CV production increased by ~20x in H2 FY21 (vs. H1 FY21)
- Raw material cost per unit up by ~13% (vs. FY20)
- Key commodities: Steel (▲22%) & Aluminum (▲31%) prices surged Y-o-Y due to global supply constraints and increased demand from China
- Trade deficit narrowed down to ~\$0.5B in FY21 from ~\$1B in FY20
- Rupee value ▼5% in FY21 Y-o-Y
- Aftermarket saw a ~12% dip due to the pandemic; E-commerce platforms are expected to witness a spike in demand.

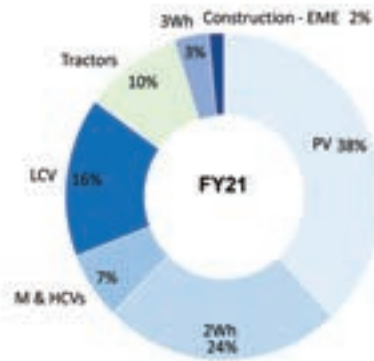
*Lockdowns, health-and-safety emergency had a major impact on the Indian components industry; Healthy pick up in demand in H2*

**Sales to OEMs: FY 2021**

**Component Sales By Category:**



**Component Sales By segment:**

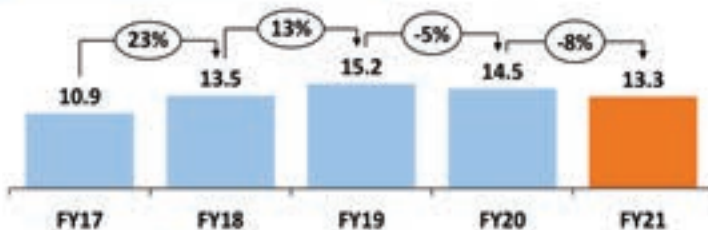


Source: CRISIL, 2021

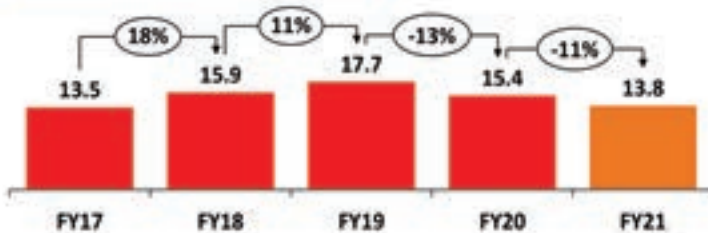
**Balance of Trade**

India's trade deficit for auto components reduced to ~ \$0.5B in FY21

**Total Exports | \$ Bn.**



**Total Imports | \$ Bn.**

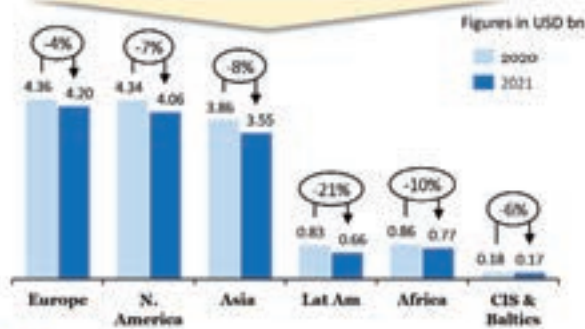
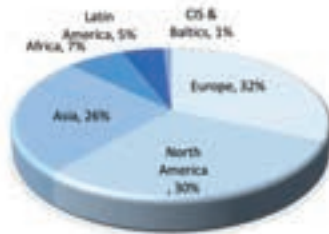


**FY21 EXIM performance**

- Exports fell ~8% on account of lockdowns in numerous major global markets (United States, Germany, Mexico). Expected to grow ~10% CAGR from FY21-FY26 (CRISIL)
- ~11% decline in imports Y-o-Y; reduced demand in the domestic market, supply chain deficiencies globally
- Localization by OEMs putting brakes on import growth
- Government's PLI and other policies focused on increasing localization: creating export champions, promoting 'Atmanirbhar' policy for self-reliance

## Region wise "Exports" for Indian auto component industry in FY 21

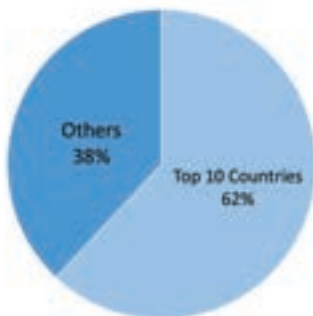
Total Exports in FY 2021  
USD 13.3 Billion



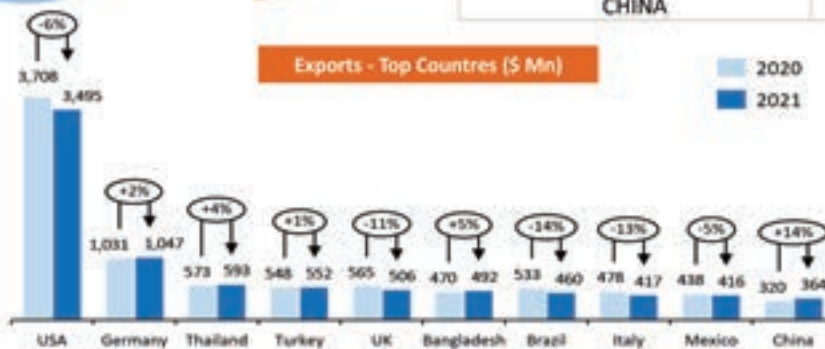
- The trade deficit decreased to ~\$0.5B for auto components. Exports grew strongly in H2 FY21 (~2.5x of H1)
- Latin America saw the biggest drop in export among all regions due to Covid-19 restrictions; Europe and North America remain the biggest export regions accounting for 64% of exports.
- 'Drive Transmission & Steering', alongside 'Engine', remain the 2 dominant segments, accounting for 53% of exports. 'Interiors (non-electronics)' is the only segment that delivered growth.



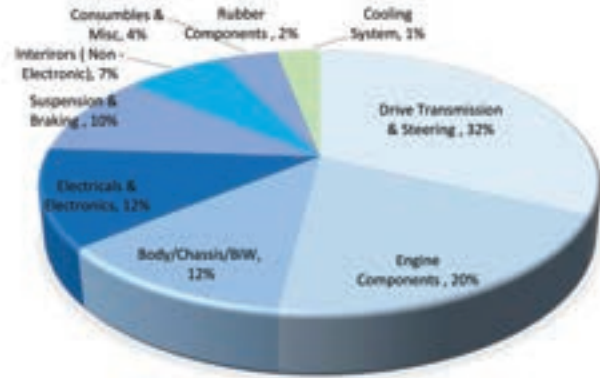
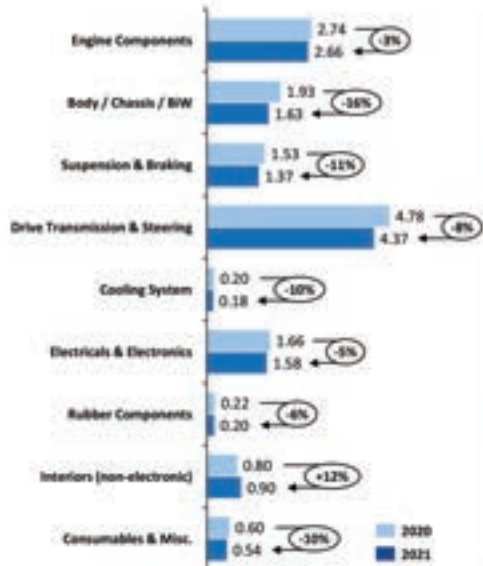
## Country wise "Exports" for Indian auto component industry in FY 21



Top 10 Countries	Share of Ex-FY21
USA	26%
Germany	8%
Thailand	4%
Turkey	4%
United Kingdom	4%
Bangladesh	4%
Brazil	3%
Italy	3%
Mexico	3%
CHINA	3%

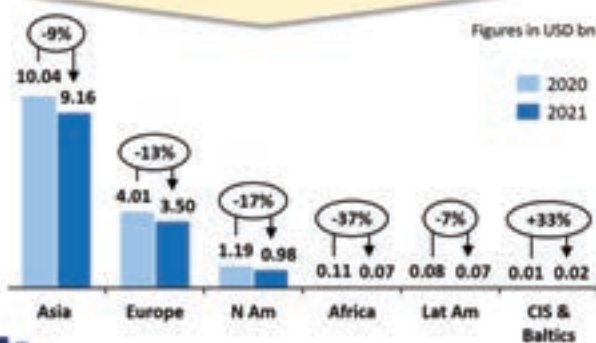
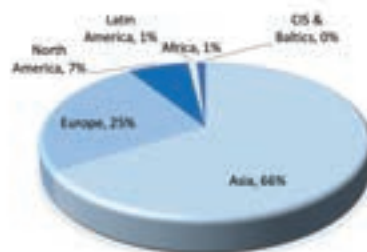


**Segmentation by product type: Exports- FY 2021**



**Region wise "Imports" for Indian auto component industry in FY 21**

Total Imports in FY 2021  
 USD 13.8 Billion



- > FY21 saw a ~ **11%** dip in auto components imports into India owing to decreased production, protectionist domestic policies and the pandemic weighing in on domestic demand for foreign components.
- > Government's PLI scheme expected to increase exports; reduce dependency on **China & Korea** (account for ~**42%** of imports)
- > **Import share from China** increased ~**3%** on the back of higher demand for replacement and low-value products such as gear boxes and other accessories used for motor vehicles.
- > The **Asian** market constitutes **66%** of auto component imports; heavily dependent on **China** and **Thailand** for aftermarket due to low-cost advantage.



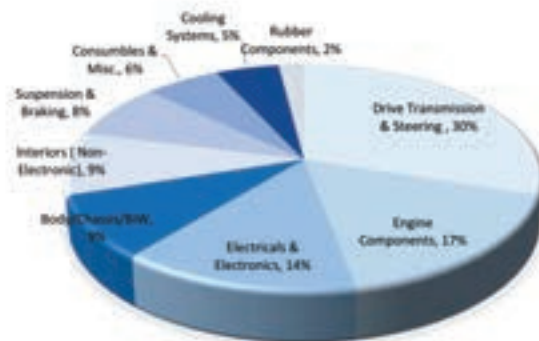
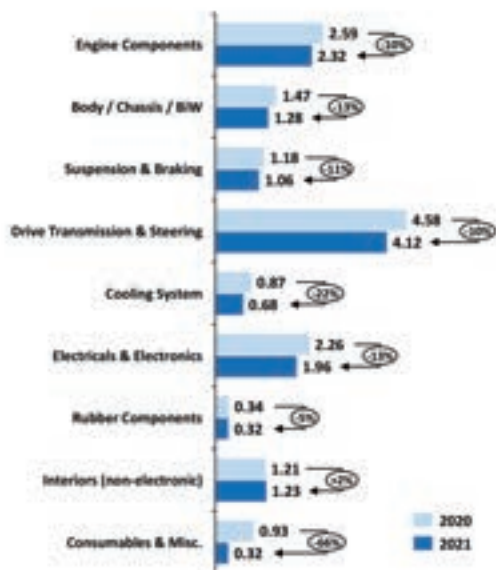
## Country wise "Imports" for Indian auto component industry in FY 21



Top 10 Countries	Share of Im-FY21
China	29%
South Korea	13%
Germany	10%
Japan	8%
USA	7%
Thailand	5%
Singapore	5%
Italy	3%
UK	3%
France	2%

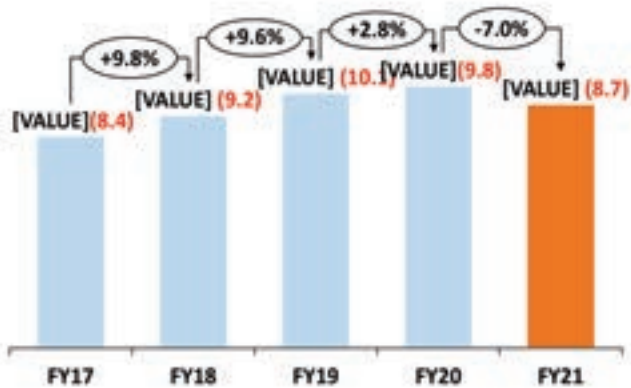


## Segmentation by product type: Imports- FY 2021



**Indian Automotive Aftermarket: FY 2021**

Aftermarket | INR Cr ( USD Bn)



**FY21 Aftermarket**

- The economic impact of the COVID-19 pandemic caused was sizable
- With increased government spending on infrastructure and reopening of institutions, a spike in mobility of CVs, trucks and buses likely to have a positive impact
- Key factors moving forward expected to have a positive impact: Growing used car market & vehicle parc, increasing vehicle ownership in semi-urban and rural markets, and growing safety norms and regulations

Aftermarket declined ~7% ; impact of lockdown period visible

*Thank You*

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**Global and Indian Automotive  
Aftermarket Trends**

*by*

F R O S T & S U L L I V A N

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Macroeconomic Factors Impacting Global Automotive Aftermarket, 2021

Global Automotive Aftermarket Outlook 2021

Macroeconomic Factors Impacting Indian Automotive Aftermarket, 2021

Global Automotive Aftermarket Outlook 2021

Major Trends in the Automotive Aftermarket – Global with emphasis on India



**MACROECONOMIC FACTORS IMPACTING GLOBAL  
AUTOMOTIVE AFTERMARKET, 2021**



## COVID-19 IMPACT ON WORLD GDP GROWTH

GROWTH WILL ACCELERATE TO 5.7% IN 2021, DRIVEN BY THE STRONG RELEASE OF DEMAND BY MID-2021, EXTENDED FISCAL SUPPORT MEASURES, STEADY DEPLOYMENT OF VACCINES, AND EASING RESTRICTIONS IN THE SECOND HALF OF THE YEAR. THE RISE IS ALSO PARTIALLY SUPPORTED BY A LOW GDP BASE FROM 2020.

Quarterly GDP Growth—Baseline Scenario, Global, Q1 2019–Q4 2021



\*A full recovery refers to GDP surpassing pre-pandemic GDP (Q4 2019 GDP) in constant prices.  
 • The data and analysis on this slide stands updated as of 20 April 2021.  
 • Data is subject to change based on real-time updates.  
 • Quarterly GDP growth is calculated based on the same quarter of the previous year.  
 • Data for Q4 2020 onward are estimates.

Source: IMF, World Bank, Frost & Sullivan

## GLOBAL GROWTH SCENARIO ANALYSIS—ASSUMPTIONS

GROWTH SCENARIOS HAVE BEEN DEVELOPED TAKING INTO CONSIDERATION FACTORS SUCH AS VACCINE COVERAGE, EMPLOYMENT CONDITIONS, DISEASE SPREAD, AND STIMULUS SUPPORT.

Assumptions for Growth Scenarios, Global, Q2 2021–Q4 2022

Scenario	Vaccine Coverage	COVID-19 Cases	Government Support Measures	Recovery
<b>Baseline</b>	<ul style="list-style-type: none"> <li>Advanced economies: 80% of population* to be covered by December 2021</li> <li>Major emerging and developing economies: 50%–60%</li> <li>Other economies: 30%</li> </ul>	New waves of cases in some countries in H3 2021, leading to partial lockdown measures, with some countries to see falling cases and easing restrictions	Continuation of support measures until Q4 2021 in the form of grants to small businesses, wage subsidies, loan guarantee programs, and so on	<ul style="list-style-type: none"> <li>Delay in the full recovery of manufacturing until Q4 2021, with countries that eased restrictions seeing faster manufacturing recovery; delay in the full recovery of the services sector until Q1 2022</li> <li>Increase in both workforce participation and employment, with 2021 unemployment rate (8.7%) similar to that of 2020 levels (9.2%)</li> </ul>
<b>Optimistic</b>	<ul style="list-style-type: none"> <li>Advanced economies: 85% of population* to be covered by September 2021</li> <li>Major emerging and developing economies: more than 60%</li> <li>Other economies: more than 30%</li> </ul>	Continuous decline in the number of active cases beyond H1 2021	Ceasing of several support measures by Q3 2021, in tandem with the stronger economic revival	<ul style="list-style-type: none"> <li>Manufacturing sector full recovery by H3 2021; services sector full recovery in H2 2021</li> <li>Gains in job creation to overshoot workforce participation, leading to unemployment rate reduction</li> </ul>
<b>Pessimistic</b>	Delayed vaccine administration, compared to baseline scenario, leading to weaker population coverage by the end of 2021	Economies continue to suffer from frequent outbreaks throughout 2021, leading to extension of restrictions and partial lockdowns beyond H3 2021	Extension of support measures throughout 2021, thereby putting pressure on fiscal health, with the implications of prolonged economic weakness and a heavy debt burden	<ul style="list-style-type: none"> <li>Manufacturing to remain constrained by extended lockdowns; service sector recovery to be delayed until mid 2022</li> <li>Unemployment rate to rise further and to be affected by business closures</li> </ul>

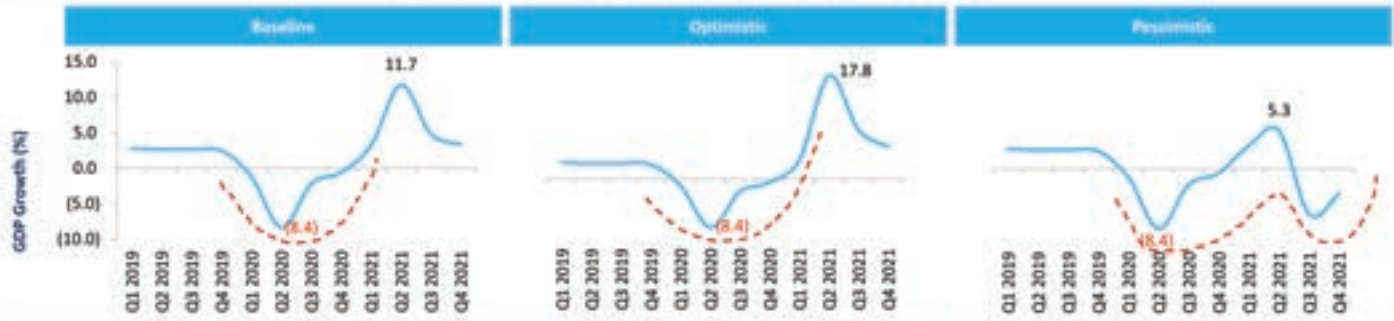
\*Only considers population willing to take the vaccine.  
 Key: Scenario analysis updated as of 25 April 2021.

Source: Frost & Sullivan

**WORLD GDP GROWTH UNDER DIFFERING SCENARIOS**

ACCELERATED VACCINE DEPLOYMENT IN 2021, STRONG REBOUND IN CONSUMER DEMAND, AND PARTIAL RECOVERY OF THE SERVICES SECTOR COULD ENABLE FULL GDP RECOVERY BY Q3 2021 (OPTIMISTIC SCENARIO). FULL RECOVERY WILL BE PUSHED OUT TO MID-2022 IN THE CASE OF MULTIPLE NEW COVID-19 WAVES, EXTENDED LOCKDOWNS, AND DELAYED VACCINE ADMINISTRATION (PESSIMISTIC SCENARIO).

Quarterly GDP Growth by Scenarios, Global, Q1 2019–Q4 2021



Scenario	Baseline	Optimistic	Pessimistic
Length of Recession	4-quarter recession in 2020	4-quarter recession in 2020	4-quarter recession in 2020 and 2-quarter recession in 2021
Depth of Recession	8.4% contraction in Q2 2020	8.4% contraction in Q2 2020	Sharp contraction in Q3 2021; contraction of more than 3.0% in Q4 2021
Full Recovery	Q4 2021	Q3 2021	2022
Recovery Curve	U-curve	U-curve, with accelerated Q2 2021 jump	W-curve, with brief recovery in H1 2021

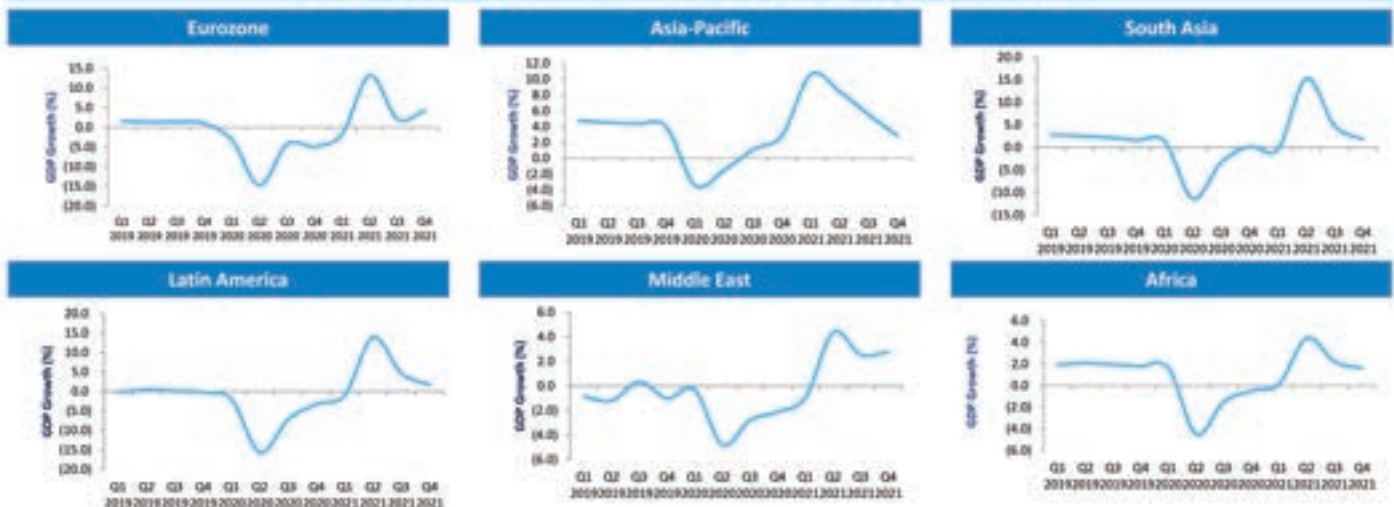
Key: Analysis stands updated as on 20 April 2021. Estimates start from Q4 2020.

Source: IMF, World Bank, Frost & Sullivan

**COVID-19 IMPACT ON KEY REGIONS**

EUROZONE APPEARS TO HAVE CONTRACTED FOR THE FIFTH CONSECUTIVE QUARTER IN Q1 2021. DEEPER OIL PRODUCTION CUTS IN SAUDI ARABIA WILL WEIGH ON MIDDLE EAST GROWTH RECOVERY. COVID-19 RESURGENCE IN INDIA WILL ACT AS A DRAG ON THE SOUTH ASIAN GDP OUTLOOK. THE RECESSION ACROSS OTHER REGIONS IS EXPECTED TO BE LESS PRONOUNCED.

Quarterly GDP Growth—Baseline Scenario, Select Regions, Q1 2019–Q4 2021



The data and analysis on this slide stands updated as of 20 April 2021. Data for Q4 2020 onwards are estimates for South Asia, Latin America, Middle East, and Africa. Data for Q1 2021 onwards are estimates for Eurozone and Asia-Pacific.

Source: IMF, Frost & Sullivan

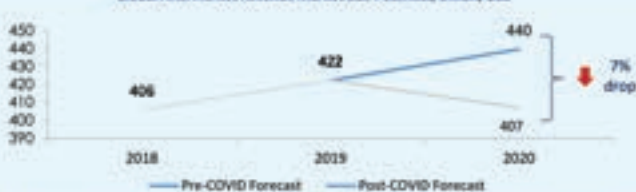
## GLOBAL AUTOMOTIVE AFTERMARKET OUTLOOK AND TRENDS, 2021

FROST & SULLIVAN

### IMPACT OF COVID-19 OUTBREAK ON GLOBAL AFTERMARKET

REDUCTION IN AVERAGE ANNUAL MILEAGE AND HINDERED CUSTOMER AFFORDABILITY WILL ADVERSELY IMPACT THE AUTOMOTIVE AFTERMARKET OUTLOOK FOR THE YEAR 2020, EVEN THOUGH AGEING VEHICLE PARC WILL MITIGATE THE IMPACT IN NEXT 12-18 MONTHS

Global Aftermarket Revenue Market Size Potential, Billion, USD



Manufacturer-level Replacement Parts Revenue by Category, Global, 2019-2020

Category	2019 Revenue	2020 Revenue Post-COVID	Growth Rate (2019/20)	
			Post-COVID	Pre-COVID
Tires	90.7	85.5	5.7%	4.1%
Batteries	17.2	16.8	2.2%	4.2%
Brake Parts	26.4	25.7	3.2%	4.7%
Filters	12.6	12.3	2.8%	4.7%
Collision Body Parts	39.8	39.1	2.5%	5.5%
Starters and Alternators	8.7	8.5	3.3%	3.2%
Lighting	7.2	7.0	3.7%	4.6%
Exhaust Components	9.9	9.7	2.4%	5.3%

\*Includes US and Canada

FROST & SULLIVAN

#### Top 3 Opportunity Areas to Watch Out

Rise in Online Parts Retail

- Online parts retail to account >5%
- Leaders: U.S., China, India, Germany
- Laggards: Africa, LATAM

On-demand Services on the Rise

- Movement post lockdown to propel demand for services (fueling, tire and battery)
- Fear of contamination at workshops, and contactless servicing to drive adoption

Downstream Consolidation

- Small to medium sized parts and service providers will hardest hit- leading to some consolidation
- Demand for digital channel will lead to M&A in the eCommerce market

Regional Overview, Revenue Potential Billion USD

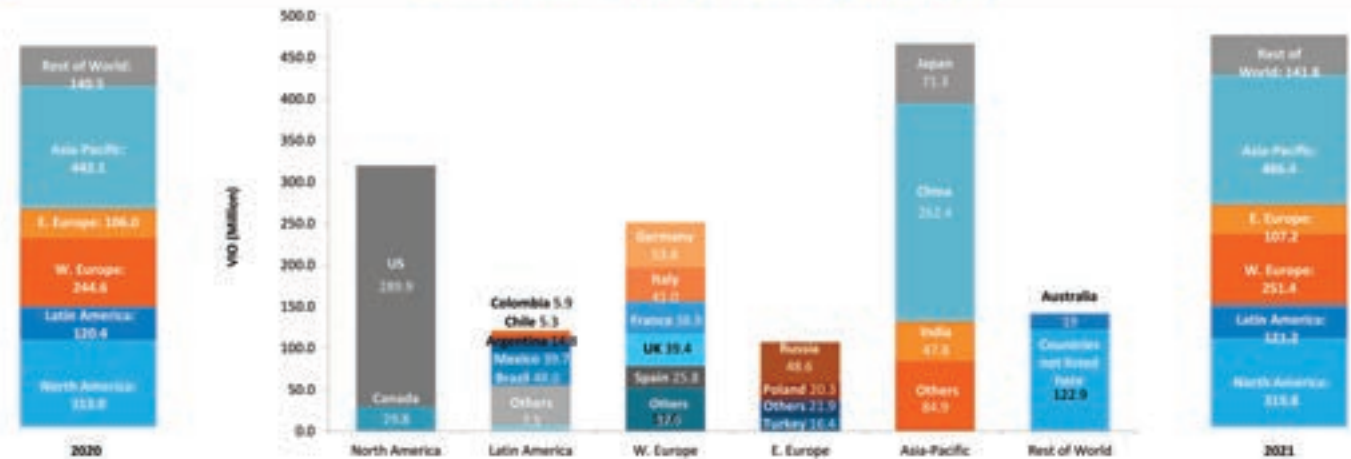


Source: Frost and Sullivan analysis

**GLOBAL LIGHT VIO**

A 15.1% YOY DIP IN NEW VEHICLE SALES IN 2020 MEANT THE VIO EXPANSION WAS SLOWER THAN THE PRECEDING YEARS.

Automotive Aftermarket: Light VIO, Global, 2020 and 2021



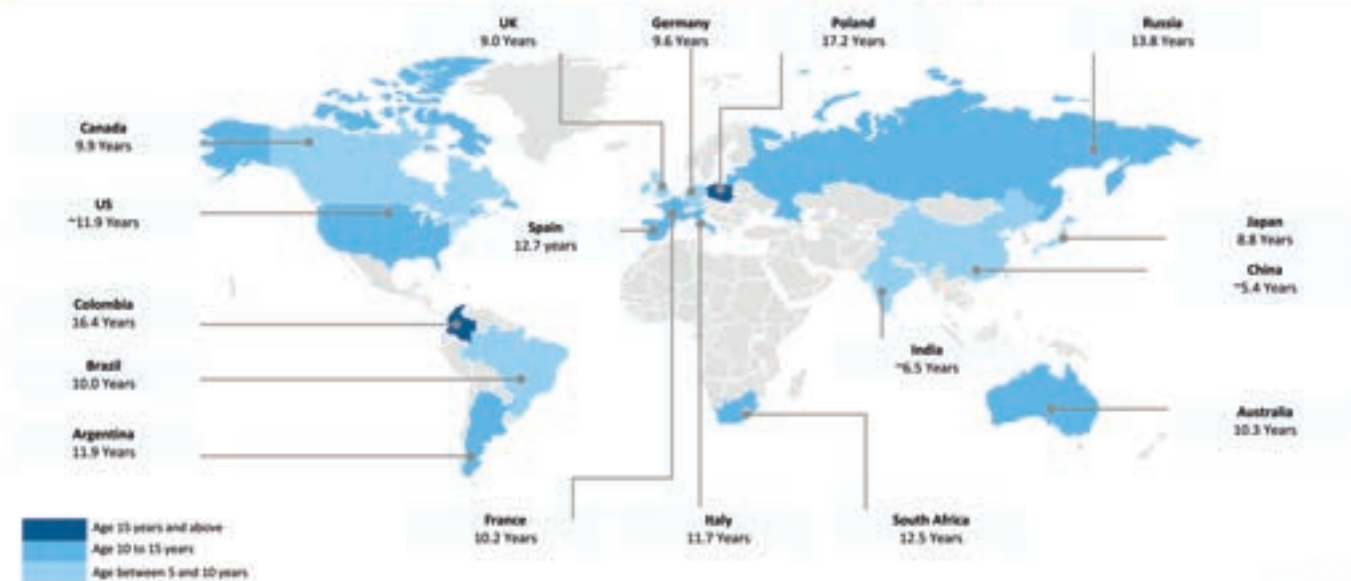
Key: Asia-Pacific includes China, India, Indonesia, Japan, South Korea, Malaysia, the Philippines, Taiwan, Thailand, and New Zealand.  
 Eastern Europe includes Bulgaria, Bosnia-Herzegovina, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Turkey, and Ukraine.  
 North America includes the US and Canada.  
 Latin America includes Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela.  
 Western Europe includes Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the UK.  
 Note: All figures are rounded. The base year is 2020.

Key: VIO figures of the regions are in million.  
 Center graph depicts 2021 data.  
 Source: Frost & Sullivan

**AVERAGE VEHICLE AGE**

SLOWDOWN IN NEW VEHICLE SALES DURING 2020 HAS INCREASED AVERAGE VEHICLE AGE, THEREBY CREATING OPPORTUNITY.

Automotive Aftermarket: Average Vehicle Age, Global, 2021



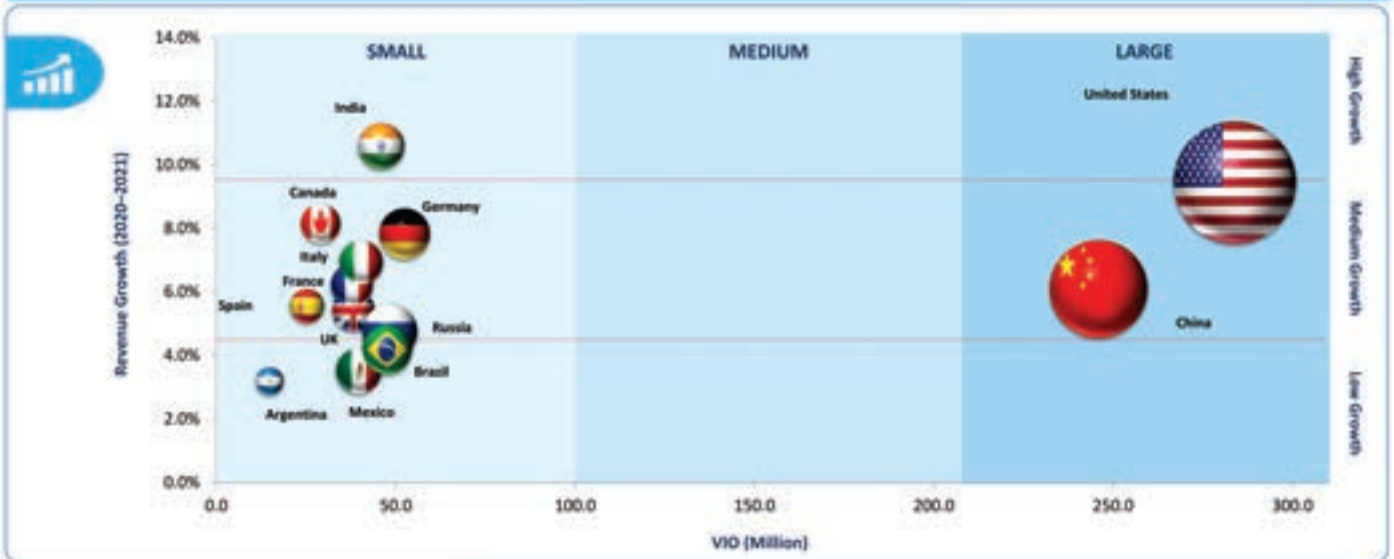
Age 15 years and above  
 Age 10 to 15 years  
 Age between 5 and 10 years

Source: Frost & Sullivan

## GROWTH OPPORTUNITY BY REGION

THE DEMAND FROM THE US AND INDIA AFTERMARKET IS EXPECTED TO REBOUND THE FASTEST, WHILE CHINA WILL CONTINUE TO BE MOST LUCRATIVE MARKET, IN TERMS OF REAL GROWTH.

Automotive Aftermarket: Regional Growth Opportunity Analysis, Global, 2021



Key: Size of the bubble is representative of the regional aftermarket revenue in 2020.  
Note: All figures are rounded. The base year is 2020.

Source: Frost & Sullivan

## MACROECONOMIC FACTORS IMPACTING INDIAN AUTOMOTIVE AFTERMARKET, 2021

## INDIA ECONOMIC OUTLOOK

### GDP AND GDP GROWTH RATE

- Even pre-pandemic, the Indian economy had been witnessing a slowdown in growth, with real GDP growth weakening to 4.0% in 2019/20, brought about by factors such as liquidity crunch, tepid private demand, and the start of lockdown measures towards the end of 2019/20. COVID-19 and its associated impact caused a 7.3% contraction in the Indian economy in 2020/21.
- Going into 2021/22, India's growth prospects were quite strong based on the prevailing scenario in Q1 2021. Frost & Sullivan mid-March forecasts pointed to 11.3% growth for the Indian economy in 2021/22. The onset of the second wave has however weakened India's 2021/22 growth prospects, with growth now forecast at only 9.3%. This downward revision in growth is influenced by factors such as the regional lockdown measures and weak progress in vaccination

Annual Real GDP Growth and Real GDP, India, 2015/16- 2024/25

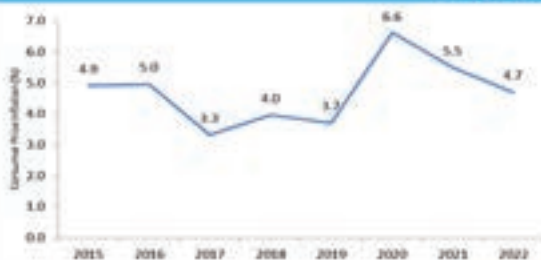
Indicator	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Real GDP Growth (%)	8.0	8.3	6.8	6.5	4.0	-7.3	9.3	11.2	6.7	6.9
Real GDP (Billion US\$)	113.7	123.1	131.4	140.0	145.7	135.1	147.7	164.1	175.1	173
GDP CAGR (%)	2015-16 to 2019-20 CAGR: 6.4					2020-21 to 2024-25 CAGR: 8.3				



Towards the end of the forecast period by 2024-25, India's growth is expected to normalize to 6.9%. Growth drivers include India's growing middle class, expected manufacturing boost (especially with production diversification from China), and structural reforms

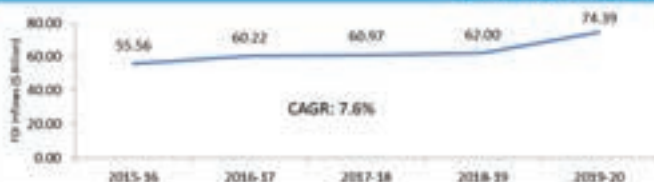
## INFLATION AND FDI INFLOWS

Annual Consumer Price Inflation, India, 2015-2022



In contrast to the global trend where inflation eased amidst lockdowns, India's inflation rose in 2020, with consumer price inflation spiking from 3.7% in 2019 to 6.6% in 2020. The rise in inflation could be attributed to factors such as supply-side disruptions amidst lockdowns and higher taxes on petroleum products. While inflation is expected to show some easing in 2021, inflation is still expected to hover at above 5%. The second COVID-19 wave and regional lockdowns could especially put pressure on inflation because of potential supply-side disruptions.

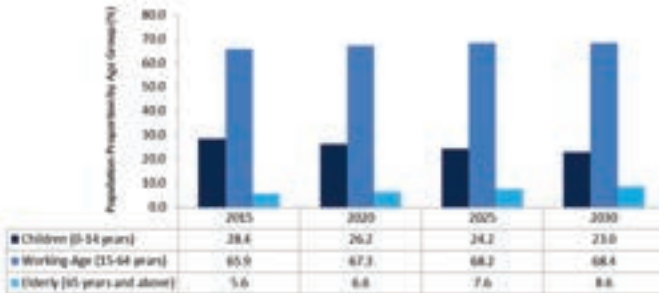
Annual FDI Inflows, India, 2015/16-2019/20



- FDI inflows into India have seen an upward growth trajectory over the past five years, growing from \$55.56 billion in 2015/16 to \$74.39 billion in 2019/20. For April-December 2020, a total of \$67.54 billion was received in FDI inflows.
- With growing production shifts outside of China following trade wars and the pandemic, Indian state governments have been promoting industrial policies to attract supply-chains from abroad. Gujarat's 2020 Industrial Policy, in place till 2025, entails relocation incentives for companies moving supply-chains from abroad. Similarly, Tamil Nadu's 2021 Industrial Policy also focuses on attracting supply-chains from abroad.

## INDIA DEMOGRAPHICS

Population Proportion by Age Group, India, 2015-2030



The growing working age population, if equipped with the right skill-sets, can help expand India's labor force and drive more savings and tax revenues in the country

Note: Estimates for 2015-2020 and forecasts thereafter. Forecasts are pre-pandemic forecasts.

Share of Rural and Urban Population, India, 2015-2025



- India's urban population as a proportion of the total population grew from 32.8% in 2015 to 34.5% in 2019, with the share expected to rise to 37.9% by 2025.
- A lot more of India's urbanization could be concentrated within tier-2 and tier 3 cities over the next decade, given factors such as high real estate costs and resource pressures in tier-1 cities, and higher growth expectations and associated opportunities for tier-2 and tier-3 cities.

## IMPACT OF COVID-19

THOUGH THE PANDEMIC WILL PUT A DENT IN AUTOMOTIVE INDUSTRY EARNINGS; FOR THE AFTERMARKET, HOWEVER, THE GROWING SHARE OF OLDER VEHICLES WILL BE THE SILVER LINING.

Automotive Aftermarket: COVID-19 Impact, India, 2019

NEGATIVE	POSITIVE
<p> Average annual miles driven per vehicle in 2019 was 12,240, which will decline by 15% in 2020. Recovery to 2019 levels will happen in Q2 of 2021.</p>	<p> Owing to social distancing and concerns of contamination in shared mobility, used car sales would increase.</p>
<p> Economy is expected to enter a recession phase, resulting in job loss, and lower per capita income and consumer spending.</p>	<p> Existing vehicles owners will spend more on vehicle upkeep, thereby creating opportunities for the aftermarket.</p>
<p> Economic uncertainty will keep some OEMs and parts manufacturers from taking risks and cause a strain on the entire supply chain or have a bullwhip effect in the short term. Labor shortage will also be a major setback.</p>	<p> Digitization of vehicle and parts sales and services will increase. For example, Hyundai has started selling vehicles online, creating a business case for extension to parts-and-accessories sales channels.</p>
<p> These economic factors and the lack of business opportunities in the aftermarket, due to low vehicle usage in the short term, will cause smaller retail businesses and workshops to become insolvent.</p>	<p> The preference for low-cost service options will increase, especially with ageing vehicle owners, thereby enabling better growth opportunities for the IAM.</p>

**DIGITAL & CONNECTIVITY SERVICES TO WITNESS UNPRECEDENTED GROWTH PRE & POST COVID-19; WHILE REDUCTION IN MILES DRIVEN, IMPACTS DEMAND FOR REPLACEMENT OF TIRES AND OTHER MAINTENANCE RELATED PARTS; INDIRECTLY SLOWS DOWN AFTERMARKET GROWTH**

Automotive Sub-Segments	Supply Dynamics			Demand Dynamics			Market Dynamics		Impact Assessment [2020]	Recovery Assessment [2020]
	Supply Chain Disruption	R&D Investment	Working Capital Pressure	Consumer Affordability	Customer Demand	Fear of Contamination	Government Relief Measure	Travel Restrictions & Country Lockdown		
Shared Mobility	-n.a.-	↓	↓↓	↑	↓↓	↓↓	-n.a.-	↓↓	Red Circle	Medium
Electric Vehicles	↓↓	↓↓	↓	↓	↓	-n.a.-	↑	-n.a.-	Yellow Circle	Fast
Connectivity	↓	↑	↓	↑	↑	↑	-n.a.-	↑	Yellow Circle	Fast
Aftermarket & Vehicle Service	↓	↓	↓↓	↑	↑	↑	↑	↓	Yellow Circle	Medium
Vehicle Leasing	-n.a.-	-n.a.-	↓	↑	↑	↓	-n.a.-	↓	Yellow Circle	Fast
Digital Retail	-n.a.-	-n.a.-	-n.a.-	-n.a.-	↑	↑	-n.a.-	↑	Green Circle	Fast

Level impact: ↓ Negative    ↑ Positive    Overall impact: Red Circle Negative Impact    Yellow Circle Medium Impact    Green Circle Positive Impact

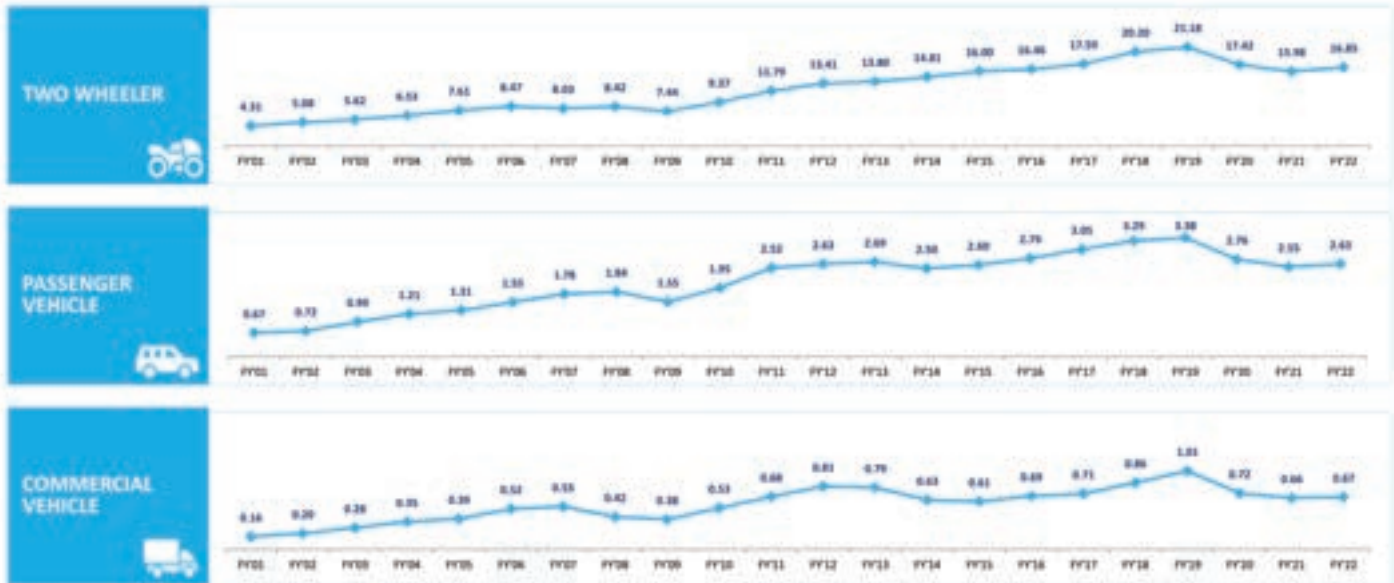
Source: Frost & Sullivan analysis

**INDIAN AUTOMOTIVE AFTERMARKET OUTLOOK AND TRENDS, 2021**



## SALES VOLUMES IN INDIA LIKELY SET BACK BY 2 – 4 YEARS; RECOVERY EXPECTED FY22 ONWARDS

CURRENTLY INDIA'S ECONOMY IS FACING A SLOWDOWN AND ON TOP COVID19 HAD HARD IMPACT ON DOMESTIC SALES; EXPECTED THAT AUTOMOBILE INDUSTRY RECOVERY WILL START BY YEAR 2022



## MAJOR INITIATIVES THAT HAVE AN IMPACT ON THE AFTERMARKET

THOUGH IMPROVEMENTS TO URBAN ROAD INFRASTRUCTURE (E.G., PARKING FACILITIES) WILL DRIVE THE AFTERMARKET DEMAND, ENHANCING ROAD QUALITY AND PUBLIC TRANSPORTATION WILL BE MAJOR RESTRAINTS.

Automotive Aftermarket: Major Initiatives Impacting Aftermarket, India, 2019



\*Average Miles Travelled

Source: Frost & Sullivan

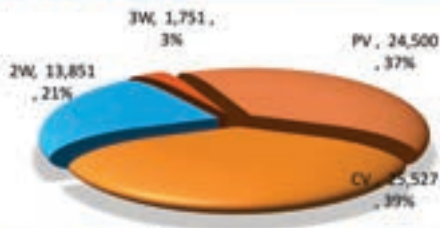
## INDIAN AUTO COMPONENTS AFTERMARKET, FY 2022

THE TOTAL AUTO COMPONENT AFTERMARKET IN INDIA WAS ESTIMATED TO BE AROUND INR 72,552 CRORES AND IT WAS ESTIMATED TO SURPASS THE INR 75,000 CRORE BY FY 21, BUT WITH THE COVID PANDEMIC THE MARKET IS EXPECTED TO DECLINE BY ABOUT 12 – 15% IN FY 21

Auto Component Aftermarket Potential in INR Crore



Auto Components Aftermarket Revenue Split by Vehicle Segment (In INR crore), 2020



- The PV and CV segments accounts for almost 70% of the entire aftermarket revenue
- However, the PV segment is estimated to take the biggest hit during the COVID phase with significant decrease in Shared Mobility users and also personal car owners
- Indian Automotive aftermarket is estimated to revive in FY 2022 and grow by about 13% to INR 69,000 crores

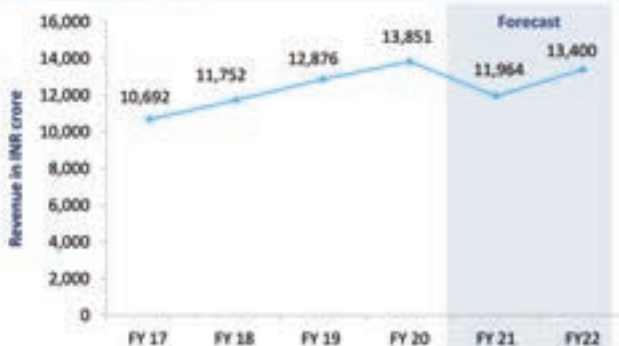
Source: Frost & Sullivan

## 2W & 3W AFTERMARKET COMPONENTS DEMAND RECOVERY EXPECTED IN FY'22

THE DEMAND IS EXPECTED TO INCREASE IN FY 22 FOR 2 WHEELERS WITH AN ESTIMATED INCREASED AVERAGE ANNUAL MILEAGE BY USERS ACROSS THE COUNTRY AMID THE COVID FEARS

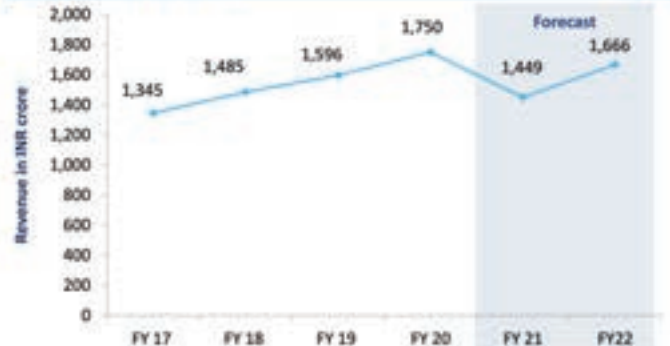
Impact on the Auto Component Industry in India, FY'17 to FY'22

TWO WHEELER INDUSTRY



- 2 Wheeler industry will not be largely impacted due to the current lockdown apart from the business lost in 2 months in FY21
- In FY 22; expected surge in aftermarket demand is 12% as the 2 wheeler vehicle users and mileage would increase substantially

THREE WHEELER INDUSTRY



- The demand from the 3 wheelers expected to sharply decline in FY-21 as even post the lockdown; Autos and Share Autos may not be a preferred mode of transport
- In FY22 the demand for spares is expected to increase by 15% once normality is reached in the market

FY: Financial Year (1st April to 31st March)

## PV AND CV AFTERMARKET COMPONENTS DEMAND RECOVERY EXPECTED IN FY'22

WITH AN ESTIMATED DECLINE OF 50-55% IN THE SHARED MOBILITY USERS, THE PV SEGMENT WILL HAVE THE BIGGEST IMPACT IN FY 21; THE DEMAND HOWEVER IS EXPECTED TO SURGE IN FY 22 POST THE COVID PHASE

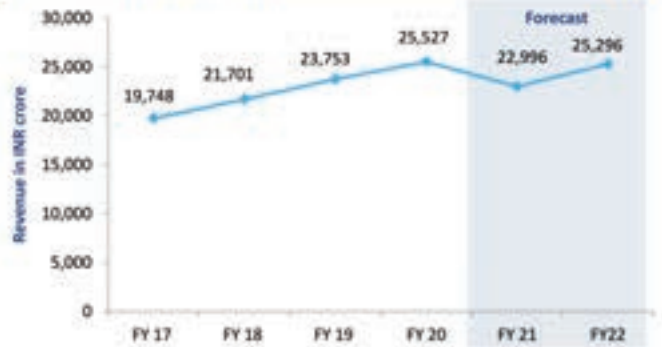
### Impact on the Auto Component Industry in India, FY'17 to FY'22

#### PASSENGER VEHICLE INDUSTRY



- The Passenger Vehicle Industry will be largely affected due to COVID phase due to substantial decline in shared mobility users in FY 21
- In FY 22; revival is estimated in the aftermarket with 20% growth post the COVID phase

#### COMMERCIAL VEHICLE INDUSTRY



- There is an expected surge for two months in the AM demand post the lockdown
- The aftermarket demand is expected to decline by 10% in FY21 but it is expected to revive in FY 22 by 12%

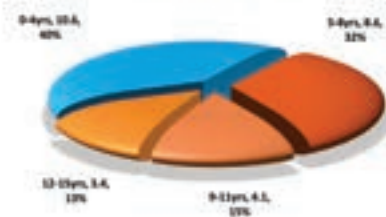
FY: Financial Year (1st April to 31st March)

## INDIA PASSENGER VEHICLE PARC – AGE PROFILE

THE ONGOING COVID-19 PANDEMIC ALONG WITH THE ECONOMIC SLOWDOWN WILL BRING DOWN THE NEW CAR SALES BY 20%

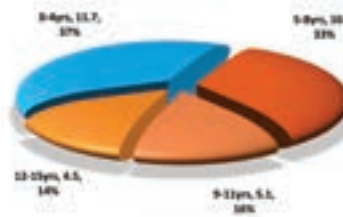
#### PV Parc by Age, 2016

Total – 26.7 Mn



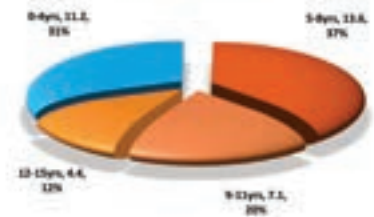
#### PV Parc by Age, 2019

Total – 34.4 Mn



#### PV Parc by Age, 2022

Total – 36.4 Mn



- Number of vehicles over 8 years of age is estimated to grow from 9.6Mn units in FY2018 to 11.6 Mn units by FY2023
- However, the new car population is expected to decline from 11.7 Mn Units in 2018 to 11.2 Mn Units by FY2022 due to the slowdown in the vehicle sales due to economic slowdown and the impact due to COVID-19 during this phase
- And as the new car sales are estimated to drop over the next two years, the vehicle population in the age 5-11 years is estimated to increase due to weak sentiment towards car buying during the economic slowdown

Source: Frost & Sullivan

### SHARE OF VEHICLES SERVICED

IT IS CURRENTLY ESTIMATED THAT AROUND 55% OF THE PASSENGER CARS IN INDIA IN FY2020 ARE LOYAL TO THE OE SERVICE CHANNEL WHICH INCLUDES VEHICLES THAT ARE SERVICED UNDER WARRANTY.

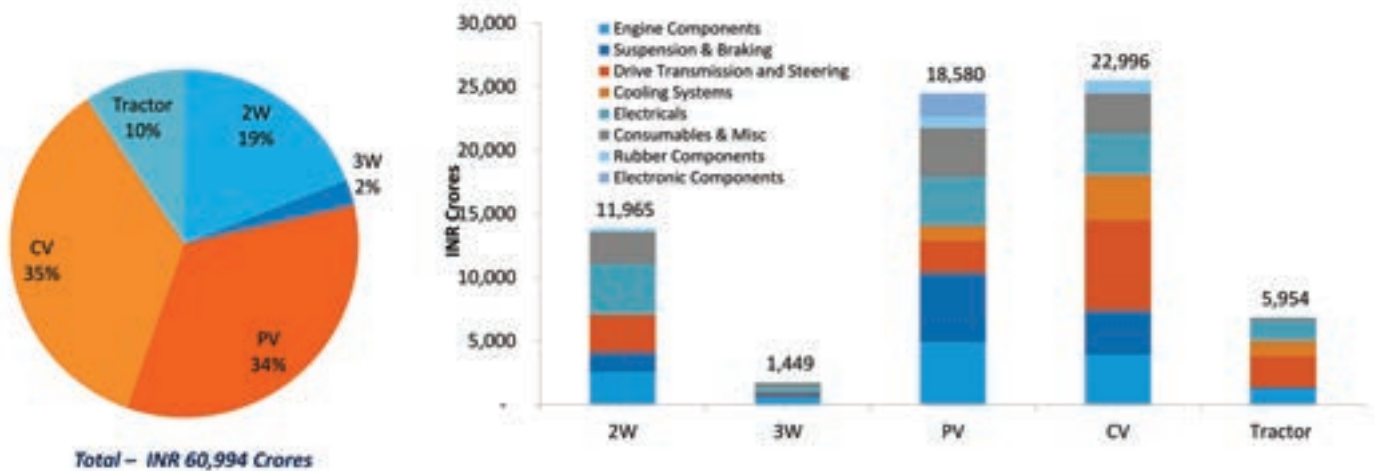


- OEM authorized service networks are working aggressively to retain service customers by
  - Offering enhanced customer experience in the service centers
  - Attractive extended warranty packages
  - Getting repairs done under insurance is far easier in the OE service channel
- The share of, and capabilities of organized independent garages is expected to increase thereby compensating for capacity constraints in the OE service channel
- However, the number of vehicles over 8 years of age is expected to grow from around 9.6 million in 2019, to around 11.5 million in 2023
- Significant improvements in vehicle technology particularly in terms of vehicle electronics and implementation of BS4 & BS6 emission norms will affect the independent garages
- In the coming years, independent garages may require considerable up gradation in order to stay relevant in the market

Source: Frost & Sullivan

### SEGMENT WISE AND SYSTEM WISE BREAKUP OF AFTERMARKET DEMAND FOR SELECT COMPONENTS IN FY2021

PV AND CV COMPONENT ACCOUNT FOR 70% OF THE DEMAND



Total – INR 60,994 Crores

## CHALLENGES IN THE AFTERMARKET

COMPARED TO THE NORTH AMERICAN AND EUROPEAN AFTERMARKET INDUSTRIES, THE INDIAN AFTERMARKET INDUSTRY IS VERY DISINTEGRATED AND FACES ITS OWN UNIQUE SET OF CHALLENGES.

### Automotive Aftermarket: Challenges in Aftermarket, India, 2021

#### Lack of Large Independent Service Chains

The highly fragmented Indian service network landscape is dominated by independent workshops. The IAM is facing several hurdles, such as developing the necessary infrastructure, enhancing the skillset to adapt to newer technologies, and technical knowhow, which creates apprehension about service quality. As vehicles get more sophisticated, this apprehension will translate into a higher number of opportunities for OES channel.



#### Counterfeit Parts and Unorganized Sector in Aftermarket

Counterfeit parts are look-alike fake parts of popular brands. In the unorganized sector, the parts are offered under brand names but the suppliers neither adhere to regulations nor have a standardized testing process. This is a major challenge in the Indian aftermarket. A few manufacturers have taken measures to address the counterfeit parts by offering parts that carry hologram seals.

#### Lack of Parts/Vehicle Catalog

The lack of data sets, such as vehicle catalogs, ACES and PIES, parts identification and purchase process, has hampered the migration of parts distribution and retail to a digital channel.

Source: Frost & Sullivan

## GLOBAL AND INDIAN AUTOMOTIVE AFTERMARKET TRENDS, 2021

**TREND 1 — PANDEMIC-INDUCED PRODUCTS AND SERVICES**

COVID-19 HAS ACCELERATED NOT ONLY DIGITIZATION BUT ALSO THE INTRODUCTION OF NEWER PRODUCTS AND SERVICES AND PUSHED EXISTING SOLUTIONS TO THE LIMELIGHT.

**Automotive Aftermarket: COVID-19 induced Implications on Parts and Services Retail, Global, 2021**



**Automotive Aftermarket: COVID-19-induced Implications on Vehicle Distance Travelled, Global, 2021**



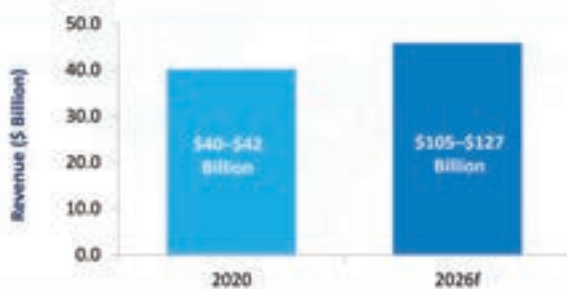
Key: 1Market opportunity for selling replacement parts and accessories online in B2C channel, 2Market opportunity from online demand services.  
 Note: All figures are rounded. The base year is 2020.

Strength of Impact on Vehicle Distance Travelled: Low, High  
 Impact on Vehicle Distance Travelled: 2020, 2021, Reverted 2021  
 Source: Frost & Sullivan

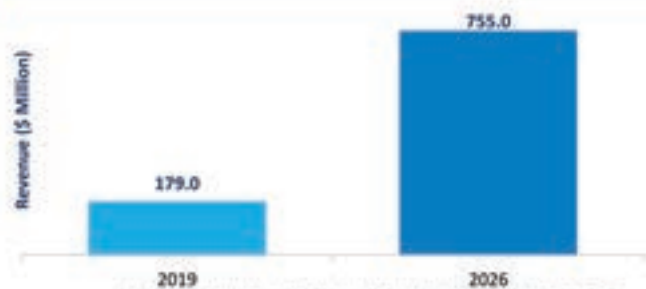
**TREND 2 — E-RETAILING**

ADVANCED E-RETAILING WILL PENETRATE THE AFTERMARKET OVER THE NEXT 3 OR 4 YEARS AND FAST-TRACK STRATEGIC INVESTMENTS IN AFTERMARKET DIGITIZATION.

**Automotive Aftermarket: eRetailing Revenue, Global, 2020 and 2021**



**Automotive Aftermarket: eCommerce Parts Sales, India, 2019 and 2026**

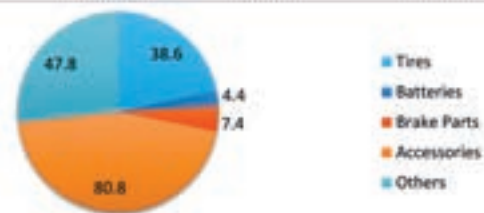


\*Graph in the center represents the revenue by part category for the 2019 period. Graphs on either side represent overall eRetail parts revenue.

**Automotive Aftermarket: Top eRetailing Trends, Global, 2020-2026**

- 24%** growth in global revenue in replacement parts and accessories sold online during 2020.
- Heightened brand awareness and growing appetite for value line products will propel leading online sellers to invest in developing private label brands.
- Online presence will prove to be crucial to garnering customer mind share and eventually share of wallet, whether online or offline; this could be through digital catalogs, online videos and so on.
- While 2020 saw a huge uptake in DIY-related purchases from online sellers, solutions aimed at DIFM customers with O2O integration will be vital to take the momentum forward in 2021.

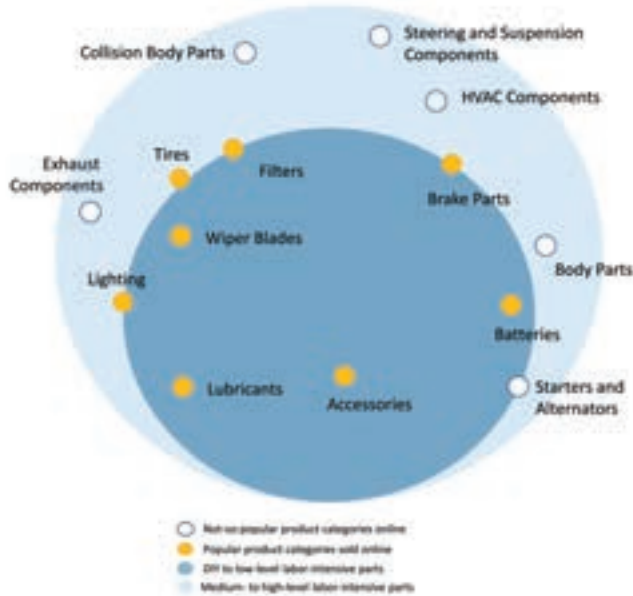
Note: All figures are rounded. The base year is 2020.



Source: Frost & Sullivan

## TREND 2 — E-RETAILING (CONTD...)

ACCESSORIES AND MAINTENANCE PARTS ARE LOW HANGING FRUITS, WHILE TIRES OFFER OPPORTUNITIES FOR O2O PARTS AND SERVICE INTEGRATION



Note: Online penetration level corresponds to global penetration

FROST & SULLIVAN

### Accessories

Online Retail Penetration (2019): 9%



### Tires

Online Retail Penetration (2019): 6%



### Brake Parts

Online Retail Penetration (2019): 4%



### Filters

Online Retail Penetration (2019): 4%



### Lighting

Online Retail Penetration (2019): 4%



DIY segment will particularly emerge as a strong driver for adoption in 2022



E-commerce platforms are expected to witness a surge in demand. Key focus would be on Tier 2 & Tier 3 cities, technological innovations, and improved online purchase models



Digital customer outreach and servicing models to lead the market towards evolution in aftermarket retail

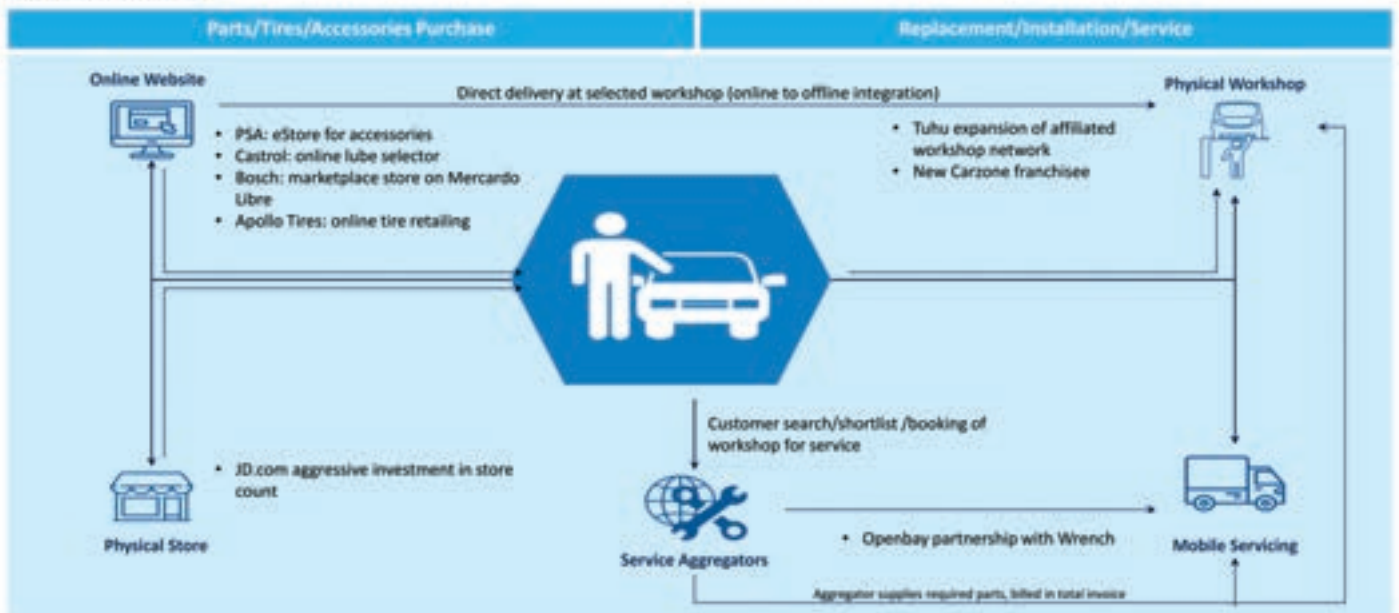


Generally higher preference of customers to buy online, local competitors expanding to other markets

Source: Frost & Sullivan

## TREND 3 — DIGITIZATION

DIGITIZATION HAS ENABLED INTEGRATION OF CUSTOMER PURCHASE JOURNEY FOR PARTS RETAIL TO THE POINT OF FULFILLMENT, THEREBY UPLIFTING OVERALL IAM ATTRACTIVENESS.



Source: Frost & Sullivan

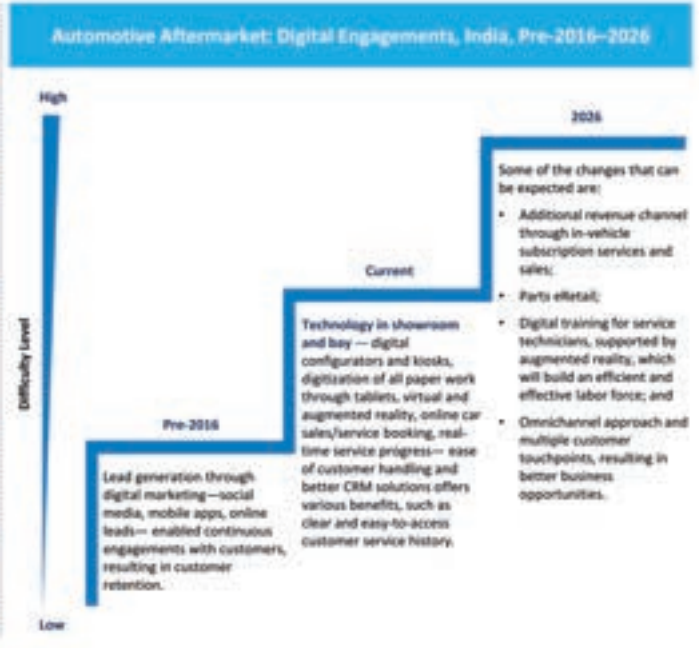
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**TREND 3 — DIGITIZATION (CONTD...)**

GAINING THE TRUST OF BOTH CUSTOMERS AND GARAGES IS CRITICAL.

**Automotive Aftermarket: eCommerce Bridging the Gap, India, 2019**

- Parts procurement:** Better supply chain management enables seamless functioning of various processes such as ordering, on-time delivery, credit processing, handling wide range of brands, and be cost competitive.
- Shop and service management:** Garage management tools enable garages to follow a standard operating procedure for booking, service and job scheduling, billing, and notification to customers.
- Skillset development:** Training with respect to repair and workshop management, diagnosis tools, database for standard operation procedures will enhance the technicians' proficiency.
- Customer acquisition:** Marketing, promotions, extended geographic reach, and customer relationship management offer better visibility to IAM participants and will equip them to compete with the OES channel.
- Big Data analytics:** Analytics enables the IAM, OES, and all associated participants in the value chain to implement strategies that will improve businesses and part/vehicle quality.



Source: Frost & Sullivan

**TREND 4 — UPTAKE OF SUB-COMPACT AND COMPACT SUVs**

SUB-COMPACT AND COMPACT SUVs TRANSLATE TO HIGHER PER VEHICLE SPENDING ON MAINTENANCE SERVICES AND ACCESSORIZATION.

**Automotive Aftermarket: Trends in Vehicle Models, Global, 2020–2021**

Factor	Model Type			Powertrain			Brand Growth			Aftermarket Opportunities	
	Region	Compacts	SUVs	Pickups	Gasoline	Diesel	EV	Brand1	Brand2		Brand3
North America	↓	↑	↑	↓	↑	—	—	Tesla	Alfa Romeo	Volvo Cars	Diesel engine components, SUV parts and accessories
EU	↓	↑	—	↑	↓	↑	—	AvtovAZ	Changan	Chery	EV components and services, SUV parts and accessories
China	↓	↑	—	—	—	↑	—	Lincoln	SOL	VGY	Hybrid vehicle related services, non-Chinese brands
India	—	↑	—	↑	↓	—	—	Kia	MG	Tata	Multibrand servicing, SUV parts and accessories
LATAM	↓	↑	—	↑	—	—	—	JAC	Dodge	Ram	Multibrand servicing, SUV parts and accessories

Segment Penetration in Vehicles in Operation: Decreasing ↓ Stable — Increasing ↑

Source: Frost & Sullivan



## LONG-TERM OPPORTUNITY

ADAS SENSOR RECALIBRATION IS BEING WIDELY SEEN AS AN AFTERMARKET OPPORTUNITY TO HARNESS AND EQUALLY EVIDENT FROM THE NEW PRODUCT LAUNCHES BY KEY INDUSTRY PARTICIPANTS.

Automotive Aftermarket: ADAS Sensor Recalibration, Global, 2020–2025



Automotive Aftermarket: Opportunities from ADAS-equipped Vehicles, Global, 2020–2025

- Collision Repair:** Windshield cameras, bumper-mounted radar/LIDAR, and ultrasonic sensors; some cases even necessitate sensor replacement.
- Tire Replacement/Wheel Alignment:** Tire jobs disrupts alignment between the original sensor position relative to the vehicle ground clearance and wheel alignment values.
- Vehicle Customizations:** Accessorizing and other performance related customizations.

In addition, sensor replacement offers newer product servicing categories to the aftermarket suppliers; these include ultrasonic sensors, radars, and cameras.

Note: All figures are rounded. The base year is 2020.

Trend Impact: Low to High

Automotive Aftermarket: Long-term Trends, Global, 2021

		Trend Strength	Trend Impact
1	<b>COVID-19-induced changes in Personal Mobility:</b> COVID-19 has heightened the use of technology that provides alternatives to F2F meeting, offline retail, and has also dampened the exuberance for shared mobility.		
2	<b>New Demand Pockets from Hybrid and Electric Vehicles:</b> Increasing proliferation of alternative powertrain vehicles is creating new categories in both parts and services aftermarket and promoting newer business models for fulfillment.		
3	<b>ADAS Sensors and Recalibration Demand:</b> ADAS-equipped vehicles have specific requirement for sensor replacement and calibration in particular events. A growing parc fitted with these sensors offers opportunities and, at the same time, poses a challenge to aftermarket stakeholders.		
4	<b>Digitization Across Value Chain:</b> Increased customer exposure to digital channels across lifestyle aspects will push aftermarket stakeholders to invest aggressively in digitization beyond parts retail and even workshop services.		
5	<b>New Business Models for Fleet Servicing:</b> Aftermarket service providers will be compelled to alter their offerings to target fleet customers, for example, through subscription-based tire replacement programs.		

Source: Frost & Sullivan

## MAJOR AUTOMOTIVE TRENDS THAT HAVE AN IMPACT ON THE INDIAN AFTERMARKET

MULTIBRAND SERVICES AND SERVICE AGGREGATION OFFER GOOD REVENUE OPPORTUNITIES, AS THEY SERVE AS GOOD SUBSTITUTES FOR OES AND ARE OFFERED AT COMPETITIVE PRICES.

Automotive Aftermarket: Major Trends, India, 2020



Do it for me: <sup>1</sup>Online-to-Offline

Source: Frost & Sullivan

## 5 KEY EMERGING TRENDS IN THE AUTO COMPONENTS INDUSTRY INDIA

THE E-COMMERCE INDUSTRY IS EXPECTED TO GROW SIGNIFICANTLY IN THE FUTURE IN THE 2W AND PV SEGMENT WITH THE GROWTH OF ORGANISED MULTI-BRAND WORKSHOPS AND GARAGES, BRIDGING THE GAP BETWEEN OES AND THE INFORMAL SECTOR

<p>Emergence of eCommerce</p> 	<p>E-commerce market driven by players like Boodmo and Spares Hub . High value systems to feature in online sales. E-commerce sales to contribute to 4-5% of the components aftermarket revenue by 2025</p>
<p>Downstream Consolidation</p> 	<p>Larger financially "stable" distributors with a national reach expected to acquire and merge with smaller regional players to maintain liquidity and financial viability</p>
<p>Transition b/w OPEX &amp; CAPEX</p> 	<p>Predictive maintenance and diagnostic service features increasing, driven by Telematics. Subscription-based contracts / service packages to drive sustainability</p>
<p>Growth of Multi Brand Garages</p> 	<p>Consolidation in the independent multi-brand aftermarket garage space to be driven by technology, training and investments by OEMs and Suppliers</p>
<p>Localisation</p> 	<p>The dependency on China for auto components is expected to decline to about 15% from the current 27% and this would create an opportunity for a number of component manufacturers in India</p>

Source: Frost & Sullivan



THANK YOU

# Vehicle Recycling and Scrappage Potential in India

*by*



**Grant Thornton**

# Content

Introduction

Automotive recycling in India: A potential opportunity

Vehicle scrapping or recycling? A look at Indian perspective

Why recycling metal and batteries considered important?

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# Introduction

In India, vehicles are usually driven for 15-20 years until they can no longer be cajoled into life and then they land at scrap dealers, to be dismantled and their innards reused with little regard for the environment. Vehicle users in India tend to continue the usage well beyond the expected life of the product. Such vehicles lead to producing higher emission content, lower fuel efficiencies and have lower safety standards. Therefore, with a rapid increase in population of new vehicles, there is a concurrent need for modern facilities that would help in recycling and recovering materials from old and used vehicles, which reach their end-of-life (EOL).

Automobile owners permanently retire their vehicles for a variety of reasons such as loss of structural/mechanical integrity from corrosion or an accident, poor reliability of parts and components, or degraded performance among others. The junkyards in India are now full of old vehicles having no more usability. As the number of end-of-life vehicles (ELVs) continuously increase, so does their impact on the environment. In such cases, the need to reduce its impact on environment and contribute to the protection, preservation and improvement of the environment quality and energy conservation becomes imperative.

**It has been realised that automobile recycling needs to be organised in India and the ELV regulation cannot be the only solution towards making automobile recycling an organised sector. Further, it is not the only measure for making auto recycling an environment friendly process.**

The benefits of this regulation may only be reaped in conjunction with the infrastructure development such as:

- Inspection and maintenance of in-service vehicles;
- Setting up ELV collection and dismantling centres across the country;
- Modernisation of existing recycling facilities;
- Modernisation of vehicle registration and de-registration system in the country;
- Formulation and enforcement of motor vehicle;
- Environmental rules boosting the automotive recycling industry.

# Automotive recycling in India: A potential opportunity

India is in the process of finalising regulations on recyclability and disposal of ELVs. Currently, it lacks a specialised scrap vehicle collection, treatment, dismantling and recovery infrastructure wherein the government needs to make a substantial investment in building infrastructure for automotive recycling industry.

One of Asia's largest automotive junkyards is originally located in western parts of the capital. A report from the India's Central Pollution Control Board has estimated that as many as 3,000 shops are currently operating in the area as compared to 500 shops established in 1975. The market is pegged to have been turning a profit of INR 6,000 crore (about USD 0.81 billion).

## Elements of recycling chain

The elements of the recycling chain which deal directly with ELVs can be divided into three major steps:

- **Pre-treatment:** The dismantler first removes all hazardous parts and fluids.
- **Dismantling:** The fluids like engine oil, coolant, refrigerant, steering oil, washer fluid, antifreeze, transmission oil, brake fluid, fuel, coolant and other remaining fuel are typically removed. These fluids can either be removed by gravity or using pumps. Apart from this, the dismantler also removes the tires, batteries, airbags and all parts presenting a potential hazard at this stage. After that, the hulk is crushed making it easier to transport it to the shredder.
- **Shredder:** The shredder takes the compacted vehicle through hammer mills. These hammer mills then shred the vehicle.

**Almost 95% of vehicles parts are turned to scrap, while the remaining ones may be refurbished. Scrap, such as copper wires, plastics and small metals, is taken by scrap dealers.**

The automobile sector is a major material consumer. Nowadays, 95% of all vehicles go through the recycling process at their end of life which means at present, modern recycling facilities are able to recover over 95% of the ferrous and nonferrous metals in ELVs. Since, the collection rate is quite high, less than 5% of the residual metals remain in the shredder and constitute for about 5–15% of the weight of the shredder residue.

To put in perspective, the efficiency of the recycling industry leads to a 75% weight of vehicle recycled. The remaining 25%, also known as Auto Shredder Residue (ASR), goes to landfill. ASR is mainly composed of foams and fluff (40-52%), plastics (20-27%), rubbers (18-22%) and metals (4-15%). This calls out the need for a more cost-effective recycling technology that can be used for plastics and foam residual.

Thus, to facilitate the recycling of non-metallic materials from shredder residue, the dismantling industry, repair shops, the shredding industry, and automobile manufacturers must work together.

Overall, if a vehicle is taken to an auto recycler, the parts that can be recycled or used to replace parts in other vehicles would be removed before the vehicle is sent to a shredding operation.

Reuse of Parts	Remanufacturing of Parts	Recycling of Materials
<p>Components used for the same purpose for which they were conceived</p>	<p>A three-step process, where:</p> <ul style="list-style-type: none"> <li>• A used product is disassembled</li> <li>• Its parts are cleaned and repaired</li> <li>• The parts are re-assembled to a sound working condition</li> </ul>	<p>It is the reprocessing of waste materials for original purpose or any other (excluding energy recovery)</p>

Parts that can be recovered for reuse or remanufacturing include AC compressors, water pumps, carburetors, calipers, power steering pumps, carrier assembly, alternator, starters, transmissions, axle assemblies, engines, and transfer cases. Batteries, catalytic converters, radiators and tires are also removed from end-of-life vehicles for recycling. The following chart shows the way in which ELVs are generally managed.

## Current Management of ELV





Retired Vehicles: Old End-of-Life Vehicles and Premature End-of-Life Vehicles from Accidents

<b>Depollution</b>	remove battery, fluids, tires, mercury switches, ozone-depleting substances, airbags
<b>Re-use</b>	batteries, fuel, fluids such as antifreeze and windshield washing fluid, tires, ozone- depleting substances
<b>Re-cycling</b>	batteries, fluids, tires, ozone-depleting substances
<b>Dismantling</b>	remove parts and materials
<b>Shredding</b>	shred vehicle
<b>Recovery</b>	recovery of metals

## Can vehicle recycling in India become the next Europe, US, or China?

**Globally, governments have effectively used vehicle scrappage policy as a tool to stimulate auto demand.** The current international automotive recycling industries within Europe, the US, and China are the world's biggest and most mature auto-recycling industries. It is very well known that these industries are focused on waste management and contribute significantly to sustainable global economy.

**The global vehicle recycling market reached a value of USD 20.6 billion in 2020. The market is expected to grow at a CAGR of 5.1% during 2021-2026.**

	<b>Germany</b>	100% of the vehicle with all the additional parts is being used again in the production.
	<b>USA</b>	Auto recycling is very popular in this country. During 2019, there were around 14 million vehicles recycled, while less than 10 million cars were bought.
	<b>China</b>	There are around 700 Chinese companies that are dealing with the recycling of vehicles. Around 4 million vehicles are recycled every year.
	<b>Japan</b>	An average of 9 million vehicles are recycled every year, while more than 5 million old vehicles are being restored or kept for collection

On the other side, we have some smaller countries with a much greater percentage of recycling like Denmark, Belgium, Hungary, and other European states, with an average rate of around 75% of vehicles being recycled.





The European Union took the right step by linking ELVs to EPR (Extended Producers Responsibility); where the manufacturer of a vehicle is responsible for the recycling compliance of earlier sold vehicles. As per compliance, the manufacturer has to recycle a certain percentage every year or pay a considerable penalty.

**Therefore, the focus must be on the four R's – Reduce, Reuse, Recycle, Recover in order to head towards a greener environment in near future**

### **Challenges and Opportunities in Indian Vehicle Recycling**

There are many challenges in the auto recycling industry in India. One such challenge is the task of developing an organised recycler to source ELVs. With India being dominated by unorganised sector when it comes to vehicle scrapping, developing for an organised recycler and get a regular inflow of vehicles there becomes a huge task which needs to be managed proactively.

Challenges	Opportunities
<p><b>Task of an organised recycler to source ELVs</b></p> <p>Due to dominance of the unorganised sector</p>	<p><b>Increased volumes of Electric Vehicles</b></p> <p>More petrol and diesel vehicles would be heading to the recycler's yards</p>
<p><b>Supply all spare parts from ELVs to the second-hand market</b></p> <p>The demand is decreasing with more new and revised models of vehicles on the roads and older vehicles becoming fewer</p>	<p><b>Implementation of proper recycling methods</b></p> <p>Auto recycling industry can make a massive difference as it focuses on a greener environment</p>
<p><b>Increasing real estate costs</b></p> <p>As a recycler, it's essential to be close to the city hub where there is a large consumer base</p>	<p><b>Compliance Support</b></p> <p>Government providing subsidies for small or medium enterprises</p>
<p><b>Low margin business</b></p> <p>A high volume – low margin business makes it challenging from the cost point of view</p>	<p><b>To replicate global models in an organised way</b></p> <p>Additional employment opportunities would be created, which is a key requirement.</p>
<p><b>Skilled staff for auto recycling</b></p> <p>Vehicle recycling is not only labour-intensive, but the process of recycling a vehicle is extremely complicated</p>	<p><b>Reduction in accident rates by buying out of order vehicles from the road</b></p> <p>Keeping roads and highways clear of disabled and abandoned automobiles</p>
<p><b>Improve productivity and quality</b></p> <p>Investment in modern recycling facilities and use of recycling equipment- thereby impacting the recovery costs, which is already on the lower side</p>	<p><b>Vehicle tire recycling is viable</b></p> <p>The recycled material can be used to produce roadways</p>
<p><b>New materials being used in today's vehicles</b></p> <p>The increased use of plastic and plastic composite including carbon fibre, reinforced plastics (CFRP), to make vehicles lighter and also more fuel-efficient. Though it is good for the industry, but in terms of recycling recovery, it would reduce the recovery value</p>	<p><b>Automotive recyclers to supply retail and wholesale customers with quality</b></p> <p>The auto parts supplied cost 20% to 80% less than comparable new auto parts</p>

All the above-mentioned challenges and opportunities about auto recycling demonstrate that not only in India but the global auto recycling industry is also a vibrant and entrepreneurial business opportunity.

# Vehicle scrapping or recycling? A look at Indian perspective

In the last one decade, the Indian auto industry has matured and witnessed many milestones as well as transitions that turned the industry into a stronger and more valuable segment in the country's manufacturing sector. From the BS-VI emission norms implementation to new axle norms, from the adoption of electric vehicles to the penetration of CASE - the domestic auto industry has seen many disruptions in the last 10 years. The latest among these is the vehicle scrappage policy.

The Indian government's vehicle scrappage policy is the next big change the auto industry is adapting to after the implementation of the BS-VI emission norms. The voluntary vehicle scrapping scheme to drive out old and obsolete vehicles, would not only help in curbing emissions, but would also be useful in reducing the Indian fuel import bills. Overall, the scrappage policy aims to help incorporate INR 10,000 crore worth of fresh expenditure and add 50,000 new work prospects. The latest policy announcement is also expected to boost employment by creating 3.70 crore jobs.

**At least 4 crore vehicles registered across states are more than 15 years old and nearly 50% of these are older than 20 years.**



## Top 5 states

	15-20 years	20 years +	Total	
<b>Karnataka</b>	31.9 lakh	38 Lakh	70 lakh	With approximately 70.1 lakh 15-year-old plus vehicles, the state tops the list
<b>UP</b>	32 lakh	24.5 lakh	56.5 lakh	56.5 lakh such EOL vehicles
<b>Delhi</b>	15 lakh	35 lakh	50 lakh	Nearly 50 lakh registered vehicles that are over 15 years old; the national capital has the third-highest share of such vehicles in the country
<b>Kerala</b>	14.5 lakh	20 lakh	34.5 lakh	
<b>Tamil Nadu**</b>	18 lakh	15 lakh	33 lakh	
<b>All states/UTs</b>	1.9 crore	2.1 crore	4 crore***	

Note:

Digitised vehicle records of centralised Vahan 4

Data for Andhra Pradesh, Madya Pradesh, Telangana and Lakshwadeep not included

\* government's announcement to mandatorily de-register old vehicles - 15-years-old commercial and 20 -years-old personal vehicles - if they fail to pass the fitness test from 1<sup>st</sup> June 2024.

\*\*followed by 33.43 lakh in Tamil Nadu, 25.38 lakh in Punjab and 22.69 lakh in West Bengal.

\*\*\* A proposal to levy green tax has already been sent to the states

Apart from strong hybrids, electric vehicles and alternate fuels like CNG, ethanol, LPG etc, vehicles used in farming, such as tractors, harvestors and tillers, will be exempted.

Under the scheme, transport vehicles older than eight years could be charged green tax at the time of renewal of fitness certificate at the rate of 10% to 25% of road tax.

National Automobile Scrappage Policy, launched virtually at an Investor Summit in Gujarat on 13, August 2021 by the state government and the Ministry of Road Transport and Highways would attract investment to set up vehicle scrapping infrastructure under the Vehicle Scrapping Policy and is also intended to make the auto components less expensive and increase competitiveness in the international market.

### Key projections

- **99% of recovery of metal waste** could be done with regular scrapping.
- **Cost of raw material** could be brought down by **40%**.
- With estimated increased sales of automobiles, the government is likely to get a profit of **USD-3-4 billion (INR 30,000-40,000 crore) in GST**
- Development of an integrated scrapping hub

Overall, the new scrappage is meant to **create rules for rearing commercial and private vehicles** in a way that creates a new system to slowly get rid of the unfit and polluting vehicles out of the central database of vehicles.



## Expectations from the Policy

**The policy is perceived to act as a booster in reviving the Indian automobile industry and would give birth to a recycling industry.**

<p><b>Creation of a huge number of materials eligible for recycling</b></p>	<p>The recycled material from the phased-out old and unfit vehicles would help in reducing the prices of the new vehicles as the production cost would be reduced because of lesser dependency on imported material.</p> <p>This would lead to the auto companies and component manufacturers to save production costs for their products.</p>
<p><b>Increased revenue from exports/ Reduced import cost with increased recycling</b></p>	<p>The Indian auto industry currently generates USD 23.7 billion (INR 1.45 lakh crore) revenue from exports. Post-implementation of the scrappage policy, the figure could increase to around USD 40.4 Billion (INR 3 lakh crore). Raw materials used in manufacturing automobiles would see a significant drop in their prices. These include such as steel, plastic, rubber, aluminium, etc.</p>
<p><b>Target to make India a global auto manufacturing hub</b></p>	<p>The vehicle scrappage policy is aimed at making India a global automobile manufacturing hub. If achieved, the country could witness a significant reduction in the cost of the vehicles that are manufactured locally making them more affordable, eventually benefitting the common buyers as they would spend a lesser amount for buying new vehicles.</p>
<p><b>Employment boost to industry</b></p>	<p>The government is setting up authorised vehicle scrapping facilities, this would in-turn generate huge employment opportunities.</p>
<p><b>Setting up of vehicle recycling business units</b></p>	<p>The industry would witness elevated numbers of joint venture and partnerships between companies as well as the government enterprises to expand business in automotive recycling</p>

\*The Society of Automobile Manufacturing (SIAM) has recommended the government to provide incentives in any possible form to the vehicle owners who decide to scrap their 15-year-old vehicle.

**The existent scrap market area in New Delhi continues to run as an unorganised market. While the market has helped in getting rid of tons of vehicular waste, many shopkeepers now fear that changing government policies and entry of bigger players into the market would make their business less sustainable.**

However, according to a Central Pollution Control Board (CPCB) report, the unorganised industry of vehicle recycling and scrappage creates pollution whereas the auto parts like non-functional switches, brake shoes, and rubber parts, etc. are disposed of carelessly — releasing asbestos, mercury, and several other pollutants in the environment. Further, liquids like coolant, brake, and hydraulic fluids, etc. are drained on the ground resulting in contamination of groundwater and air.

Overall, the policy would help to transform auto recyclers into legitimate and vital entities which can strengthen the economy by reincarnating waste into valuable raw material for the industry and at the same time, improving the environment by employing eco-friendly waste management techniques.

Thus, in addition to scrappage policy, the Indian government is also in process of issuing guidelines for setting up, authorisation, and operating of Authorised Vehicle Scrapping Facility (AVSF). These initiatives in tandem are expected to create the right push-pull factor which is required for organising the otherwise un-organised vehicle recycling and scrappage industry.



# Why recycling metal and batteries considered important?

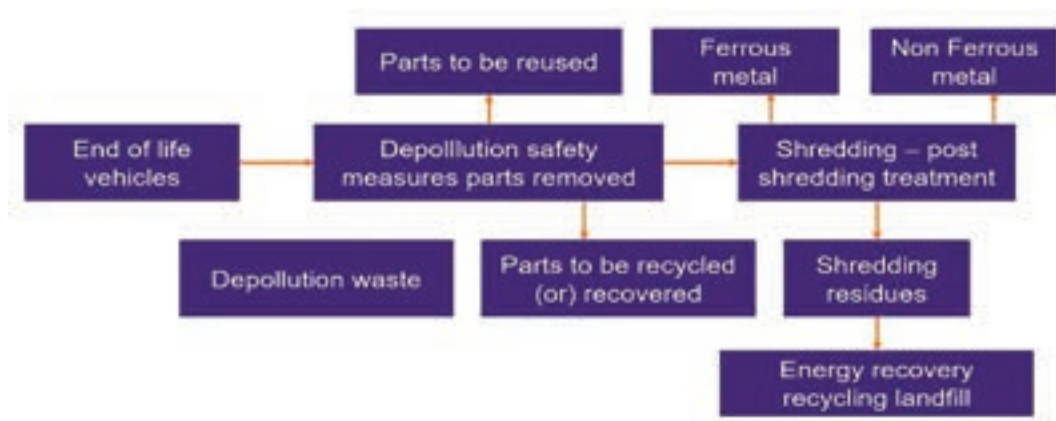
## Metal Recycling Market

The metal recycling market in India is driven by the country’s urgent need to organise the recycling sector. This entails meeting the demand for automated and faster methods of processing scrap. The waste import bans in China have resulted in the US and Europe turning to India and a lot of scrap—both ferrous and non-ferrous—now comes in from these countries.

Recyclers use mechanical shears to break apart and pile up the different metals and send it separately to furnaces. However, vehicles contain many different metal alloys that are mixed together. When they are broken up, these along with aluminium car panels often have steel rivets that are difficult to remove, even with magnets. This has complicated the process of metal separation.

In case of electric vehicles, the task can be more daunting as EVs use more copper wiring in their electronics. Notably, recycled steel can crack during manufacturing if it contains copper which can be as little as 0.1%. Therefore, this recycled metal ends up being used in places with low performance requirements such as aluminium castings in engine blocks and steel reinforcing bars.

One of the key challenges faced by the non-ferrous metals industry is its heavy dependence on import of metal scrap. A major share of metal scrap demand is served by imports owing to the underdeveloped metal scrap collection, segregation and processing infrastructure in the domestic market.



The Global Benchmark Recycling Rate and Current National Recycling Rate of these metals are:

Material	Global benchmark recycling rate	Current national recycling rate
Aluminium	98.5%	30%
Lead	>90%	85%
Copper	82%	20%
Zinc	>30%	10%

Currently, material recycling in India faces multifarious challenges. Lack of an organised / systematic scrap recovery mechanism, lack of sustained implementation of existing regulations on waste collection and recycling, and lack of standardisation of recycled products adversely affecting market adoption are some of them. Additionally, import barriers have also been adversely affecting input cost of operations.

Moreover, lack of public awareness on the necessity of recycling, specific skill sets for responsible methods along with technologies having highly skewed business share between the formal and informal recyclers are also some of vital challenges that need to be addressed.

### **Recycle Electric Vehicle Batteries**

As electric vehicles take off, there would be a need to recycle their batteries. There is a need to ensure that the EV batteries being sold today can be recycled in 2030 and beyond, when thousands of batteries would reach the end of their lives every day.

Britain and the United States have found ways to recycle electric vehicle batteries that can drastically cut costs and carbon emissions, further supporting an expected surge in demand. The techniques, which involve retrieving parts of the battery so they can be reused, would help the auto industry tackle criticism that even though EVs reduce emissions over their lifetime, they start out with a heavy carbon footprint of mined materials.

### **What will happen to all dead batteries with the Electric Vehicle push in India?**

**We can't recycle complex products like batteries the way we recycle other metals. Shredding, mixing up the components of a battery and pyrometallurgy destroy value**

\* Pyrometallurgy refers to the extraction of metals using high heat in blast furnaces, which is not considered economic

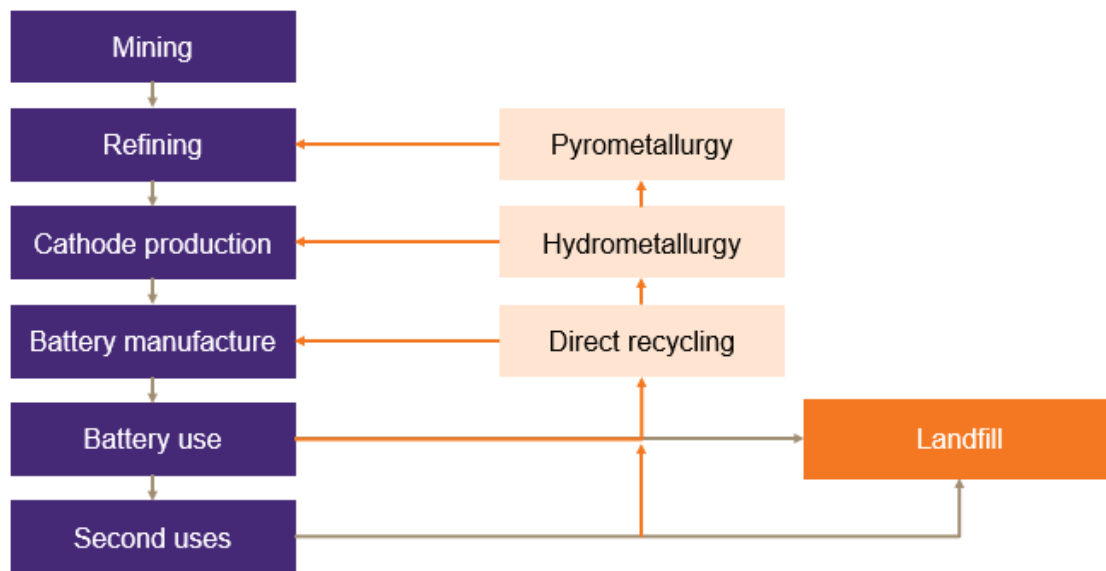
\*Hydrometallurgy refers to extraction of metals from their ores, concentrates, and recycled or residual materials.



**A batty pack is made of** thousands of cylindrical cells with components (as sourced from around the world) transforming lithium and electrons into providing enough energy that propels the vehicle hundreds of kilometres, again and again, without tailpipe emissions. As EV batteries reach end-of-service, they are still able to store at least 70% of their original capacity which can be repurposed for “second life” energy storage uses in new applications such as electrical grids and communications towers, as well as energy storage for solar farms, wind farms, and other renewable sources.

But when the battery comes to the end of its life, its green benefits fade. Thus, if the battery ends up in a landfill, its cells can release harmful toxins, along with heavy metals which can make recycling the battery a hazardous business.

### Battery Recycling



### So, how can millions of electric vehicle (EV) batteries that manufacturers expect to produce over the next few decades are expected to be recycled?

New innovations are needed that can rapidly extract valuable materials from existing battery packs and change the chemistries to ensure successful recycling for new electric vehicles. Establishing a circular economy, exploring of end-of-service battery recycling and repurposing initiatives for the next-generation of electric vehicle batteries becomes imperative.

As of now, the current recycling methods rely on shredding the batteries into very small pieces, known as black mass, which is then processed into metals such as cobalt and nickel. However, a switch to a practice known as direct recycling, aimed at preserving components such as the cathode and anode, could drastically reduce energy waste and manufacturing costs. Thus, to make lithium-ion battery recycling profitable, avoid passing on the disposal fee to consumers, and to encourage growth in the recycling industry, new methods need to be developed that ensures generation of higher profit margins for recyclers.

# What's in for all stakeholders?

Considering the issues which ELVs create on-road as well as during the recycling and scrappage practices, there is a dire need for a comprehensive and robust policy in India for handling ELVs. The comprehensive policy should be framed considering all the key stakeholders like vehicle owners, scrappage industry players, as well as automobile manufacturers.

<b>Automobile Industry per se</b>	With good incentive available for ELV owners to scrap their vehicles, the automobile industry is expecting a surge in vehicle demand after going through a downturn due to the COVID-19 pandemic.
<b>Dismantling Industry</b>	<ul style="list-style-type: none"> <li>• Increase the number of materials and parts that can be removed by dismantling</li> <li>• Endeavor to market and use the dismantled materials</li> <li>• Sort, save, and ship defective and damaged parts for recycling</li> <li>• Recover automotive fluids from defective and damaged parts and send them for recycling</li> </ul>
<b>Shredding Industry</b>	<ul style="list-style-type: none"> <li>• Provide expertise in the shredding and separation of shredder residue components</li> <li>• Become more selective in planning their shredding campaigns to prevent cross contamination of the residues</li> </ul>
<b>Original Equipment Manufacturers</b>	<ul style="list-style-type: none"> <li>• Design cars for easy dismantling of potentially reusable parts, so the dismantlers can recover additional parts for reuse and recycling more efficiently and economically</li> <li>• Reduce the number of polymer species used in building vehicles</li> <li>• Eliminate or minimise the use of hazardous materials and substances of concern (SOC) that could make recycling more difficult or expensive</li> </ul>
<b>Auto component manufacturers</b>	<ul style="list-style-type: none"> <li>• Component makers to face a bumpy ride as price-sensitive market acts as deterrent</li> <li>• Indian auto component majors would require technological upgradation in terms of auto recycling efficiencies, creating need to get into joint ventures and mergers with global auto component makers</li> </ul>

# Conclusion

India has the potential to lead the global automotive industry. The Government of India has formulated an automobile policy with a vision to establish a globally competitive automobile industry in the country.

The future looks bright for automobile recyclers, but they need to adapt to the newer technologies and methods or else they would be made redundant. Researchers would also analyse new technologies for disposing of old vehicles and separating the materials. The upcoming regulations and modified policies are likely to deliver a new suite of designs for recycling tools along with technology roadmap for the whole industry.

The voluntary scrappage policy is gaining momentum and encourages public and private participation in opening Registered Vehicle Scrapping Facility (RVSF) along with setting up of Automated Fitness Centres on a PPP model by state government, private sector, automobile companies, etc.

Concerted efforts are needed to take auto manufacturing to a level of self-sustainability where the organisations are likely to have volumes, ability to develop the requisite technology and meet the evolving emission requirements. The auto components sector also need to develop capacities, train and induct small-scale manufacturers and workers into the sector that would complement the efforts of auto manufacturers in becoming globally competitive.

Overall, upon implementation of policies after taking current discussions in consideration, India's recycling activities can be at par with the ones that is observed in more mature markets. It would lead to creation for more scrap yards in the country and effective recovery of waste from old vehicles. Thus, the automotive recycling offers great business opportunities for several industries, as well as would lead to achievement of common goals on sustainability.



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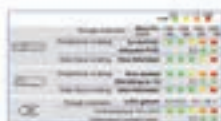
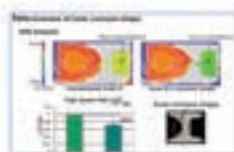
HDPD (Heavy Duty PVD) for higher thermal load diesels of PMax > 160 bars

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New Generation GN Variants enhances performance of contemporary Gasoline engines

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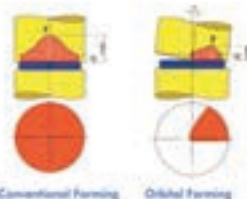
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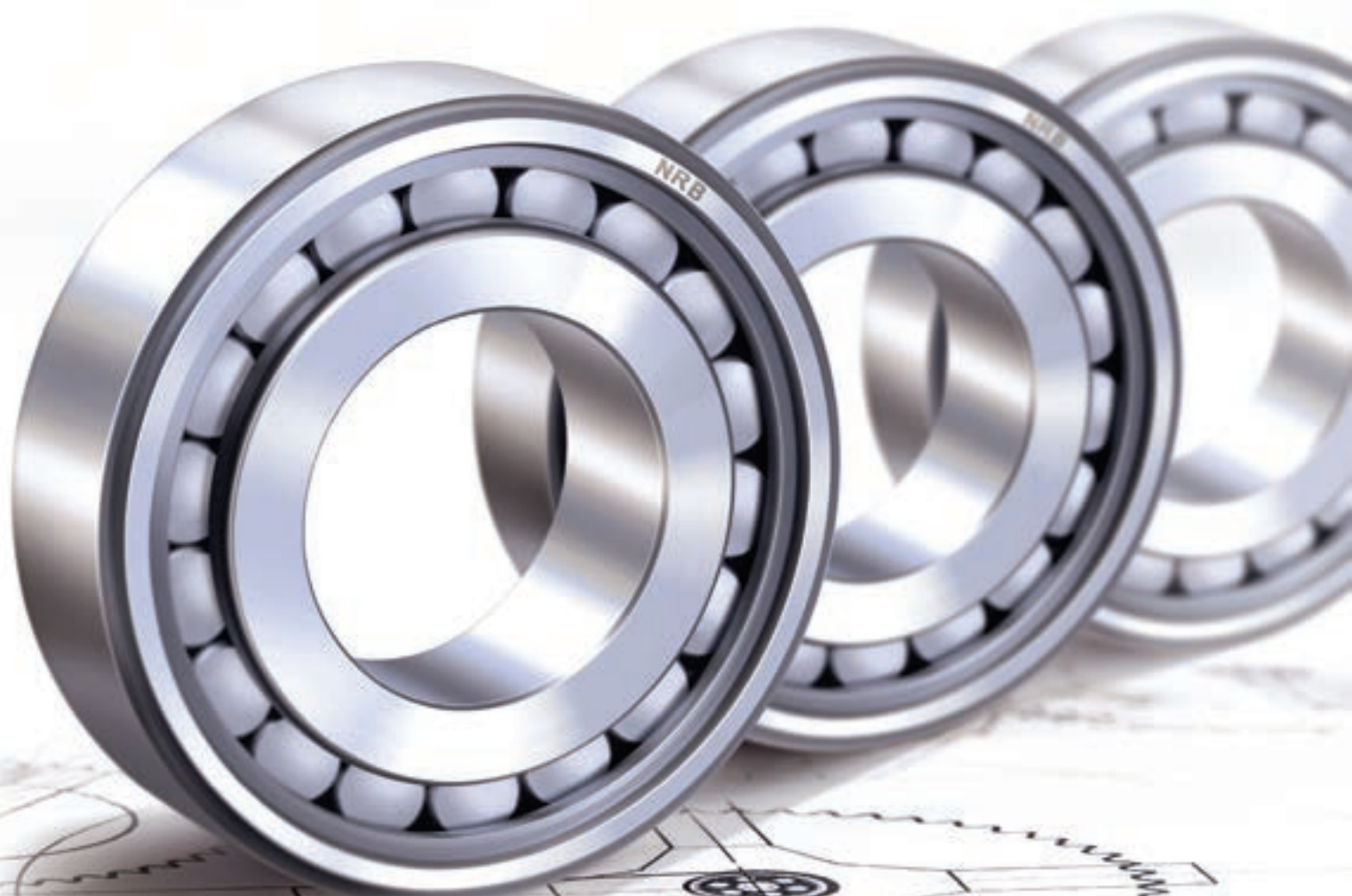
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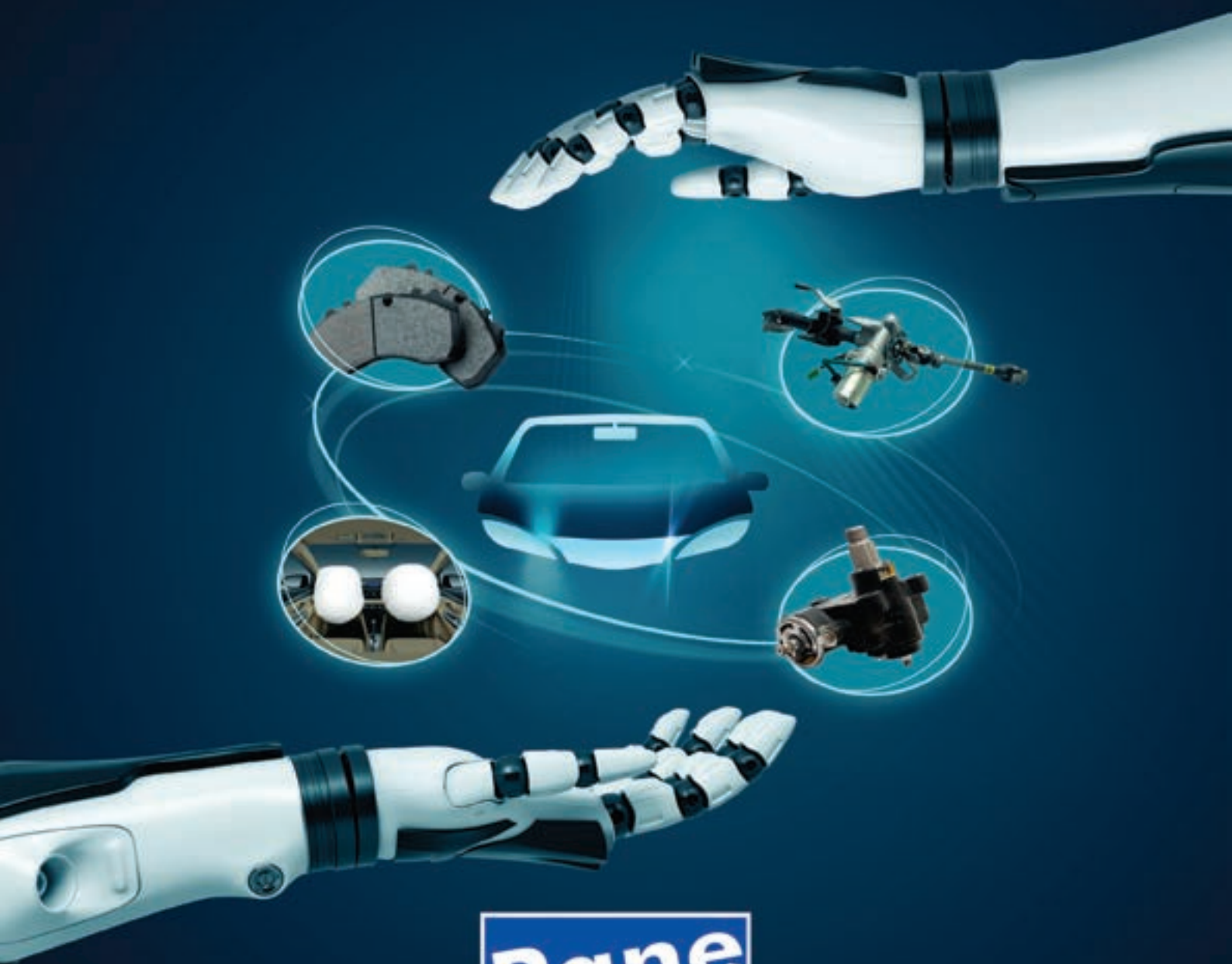
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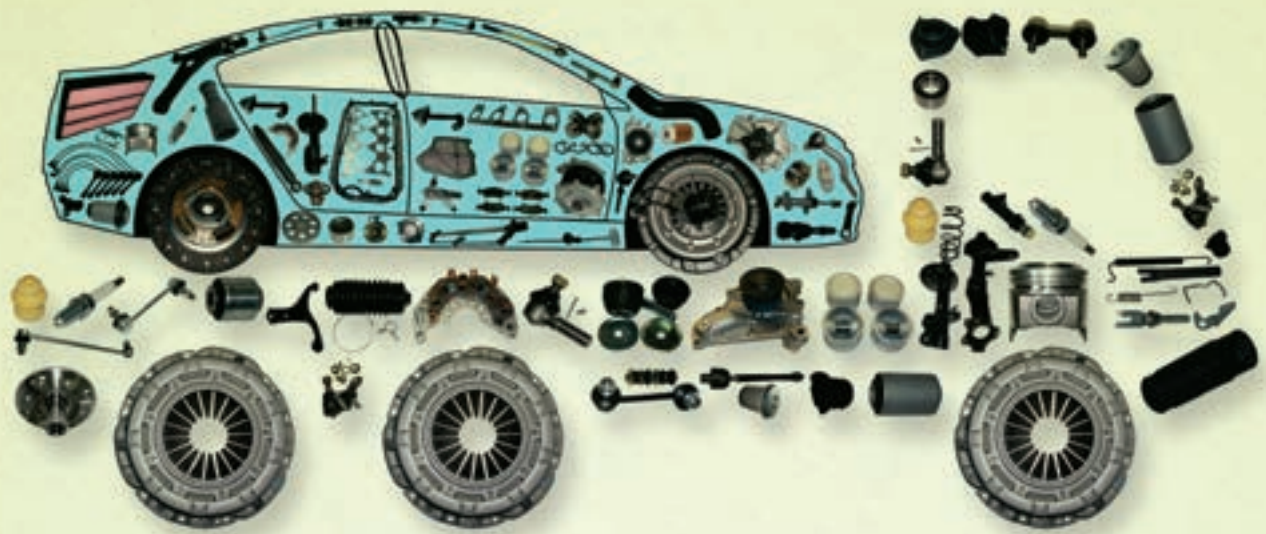


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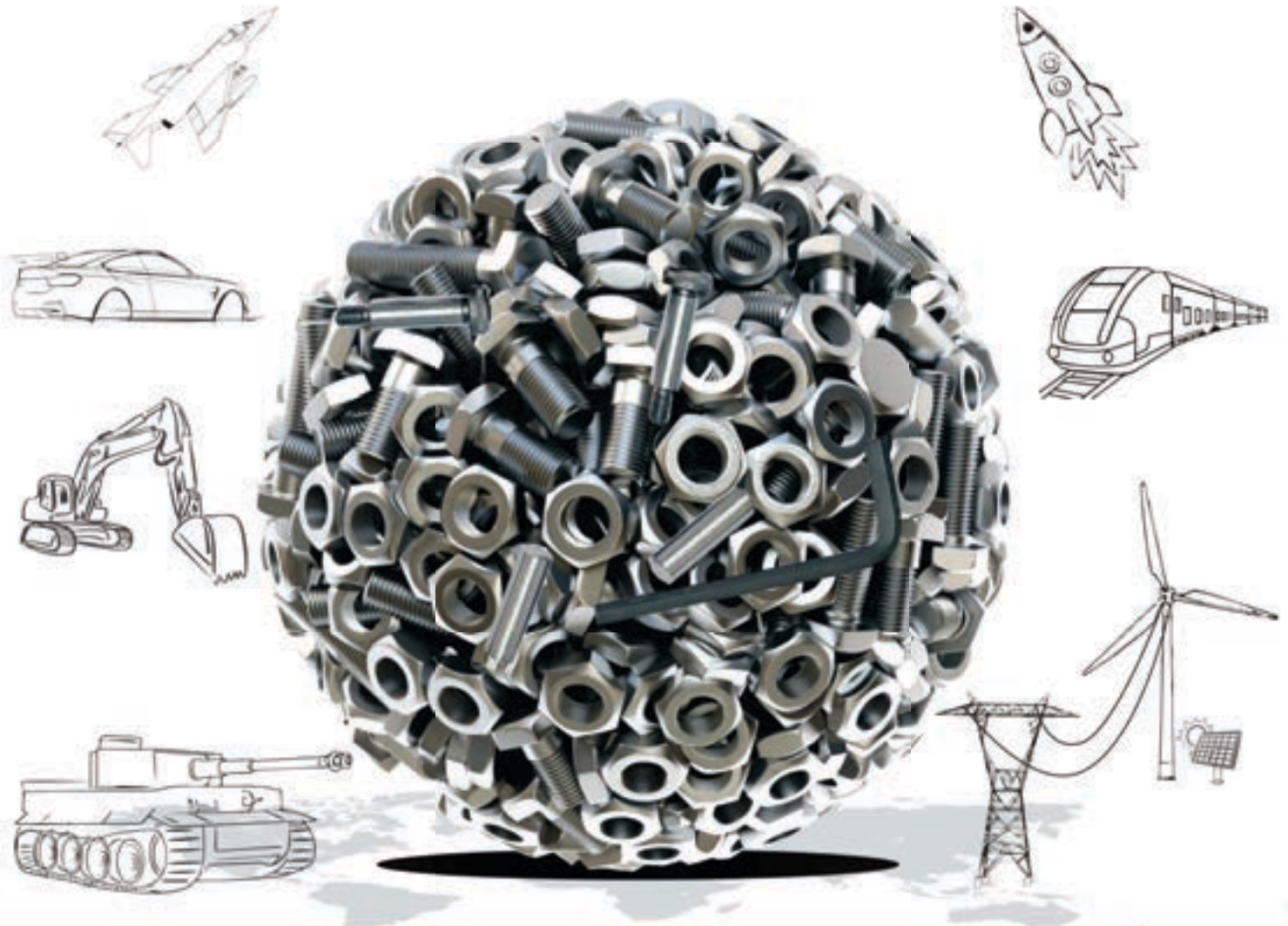
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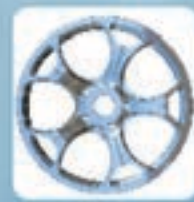
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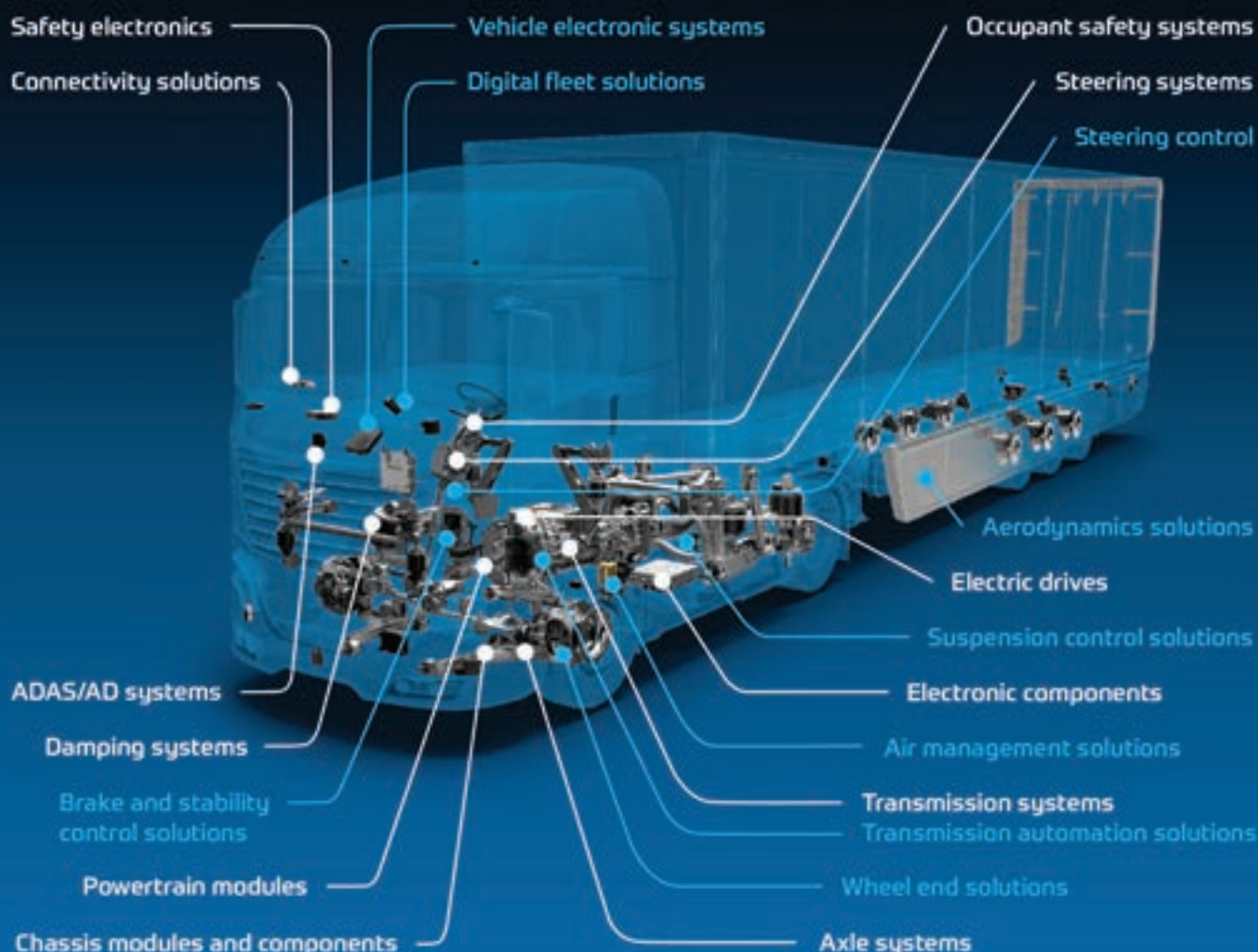
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