IDENTIFY GROWTH OPPORTUNITIES ACROSS AUTOMOTIVE VERTICALS FOR INDUSTRY RECOVERY

Automotive Stakeholders to Focus on Resource Optimization, New Growth Segments, and Cost Rationalization to Overcome Slowdown Due to COVID-19
GLOBAL RECESSION NOW DEFINITE; STRETCHED-V OR U-CURVE RECOVERY, PARTIAL 2021 GDP RECOVERY

Quarterly GDP Growth, Global, 2019-2021

Scenario | Details
--- | ---
Severe Pandemic | 35+ countries to register 3000+ cases by mid-April, 20+ countries to register 10,000+ cases, with lockdowns to continue through April-May.
Global Emergency | 80+ countries to register 5000+ cases by mid-May, 35+ countries to register 10,000+ cases, with severe spread across Africa and Latin America as well.

Note: Economic recovery is defined by a rise in output levels (GDP in constant prices) vis-à-vis the same period of the previous year. Full economic recovery is defined as a rise in GDP to pre-crisis levels. In regards to Covid-19, Q3 2019 (quarterly) and 2019 (annual) have been considered as the pre-crisis base period. The data and analysis stands updated as of 16th April.

Source: IMF; Worldometer; Frost & Sullivan
Annual light vehicle production global to decline by about 21%.

Note: Light Vehicles include Passenger Vehicles and Light Commercial Vehicles with GVWR of up to 6 MT.
Despite an impact on electric vehicle sales in the short-term, recovery is likely to be swift due to more localization of future supply chain

<table>
<thead>
<tr>
<th>Models</th>
<th>Charging Stations</th>
<th>Battery Cell Production</th>
<th>EV Estimated Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020 Est. (without COVID Impact)</td>
<td>35</td>
<td>500,000+</td>
<td>108,000 MWH</td>
</tr>
<tr>
<td>2020 Est. (with COVID Impact)</td>
<td>28</td>
<td>470,000+</td>
<td>100,000 MWH</td>
</tr>
</tbody>
</table>

Impact of COVID-19: Electric Vehicle Sales by Month, Global, 2017-2021 (estimated)

- Evolution of EV market, surpassing one million plus units per annum
- Evolution of EV market, surpassing 2 million plus units per annum
- COVID-19 affects sales starting from February and continues until August 2020
- EVs bounce back to boom times from Sept 2020 onwards

Impact:
- Medium
- Low
- Low
- Low

Growth of EVs from China and Europe

Decline due to China

Evolution of the EV market, surpassing one million plus units per annum

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Impact of COVID-19:

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IMPACT OF COVID-19 OUTBREAK – MORTALITY MATRIX OF THE AUTOMOTIVE INDUSTRY

Future prospects cover the spectrum from collapse and sharp declines to high and, in some cases, exponential growth.

COVID-19 Growth Impact Assessment for the Automotive Industry: Mortality Matrix Of the Automotive Industry

**Definition:**
- **Moribund:** Technologies/Business Models that will decline by nearly 50% because of COVID; perhaps post a late and slow recovery.
- **Endangered:** Technologies/Business Models that will see sharp 20 to 30%+ decline during and post Covid will see slow recovery.
- **Immortal:** Resilient Technologies/Business Models that will see low impact and high revenue growth post COVID.
- **Nirvana:** Technologies/Business Models that will see exponential growth during COVID and continue to sustain growth post-COVID.

**Endangered Verticals**
- Car Sharing
- Bike Sharing
- Ride Hailing
- ICEs

**Moribund Verticals**
- Mobility as a Service (MaaS)*
  - Car Pooling

**Immortal Verticals**
- Electric Vehicles
- Connectivity – eCall
- LCV Leasing
- Used Car Sales
- Short-term Lease - Vehicle Subscription

**Nirvana Verticals**
- Digital Retailing
- On-demand Service Models
- Feature on Demand (FOD)
- Contactless Delivery
- Health, Wellness & Wellbeing (HWW)
- Aftermarket Hygiene related Accessories

Note: *Mobility as a Service to see low interest in the short-term, but will slowly recover in Q4

Source: Frost & Sullivan
IMPACT ASSESSMENT FOR THE MOBILITY INDUSTRY IN EUROPE DUE TO COVID19

As per the “Severe Pandemic” scenario, y-o-y production in the region is likely to fall by as much as 55% and 57% in the months of April and May, respectively, with imminent recovery in June-July.

Cumulative Production Forecast, Europe, 2019 & 2020

- Growth in uncertainty & personal mobility
- Avg. age to reach < 7 years.
- Used car leasing as business model to grow 29.6% YoY.

Growth Opportunity Areas

- Corporate Operating Lease to witness 0.8% YoY growth
- Drastic increase for LCV leasing: 4.5% (OL) YoY growth
- Demand for flexibility to drive car subscription.

- Used Cars

- Bikes sharing spike utilization up 150%-200% in some cities.
- Fleet repurposing – healthcare mobility, retail deliveries.
- Opportunity in contactless & cleaning/disinfection solutions

- Shared Mobility

- Accelerate online parts retail and service aggregators
- On-demand models like Fixster’s pick up & delivery
- Car care market to see demand for services sanitization.

- Aftermarket

- HWW – Coating, filtration
- Virtual development & testing technologies
- Resilience in Electric Vehicle Sales . . . BUT

- Fleet & Leasing

Note: Europe includes Austria, Belgium, Finland, France, Germany, Italy, Netherlands, Portugal, Spain, Sweden and the UK
IMPACT OF EV SALES: 10-20% DECLINE DEPENDING ON SCENARIO, CAFÉ COMPLIANCE AND NEW MODEL LAUNCHES THE KEY DRIVES BEHIND ROBUSTNESS

Impact of COVID-19, Europe, 2019-20

Impact of COVID-19 on EVs: Scenario Estimates, Europe, 2019-2020

Source: EV Volumes, Frost & Sullivan Forecast
COVID-19: IS CHINA PROOF OF A V RECOVERY?

- November 2019 to April 2020 -
IMPACT OF EV SALES: PSA AND VW GROUP BIGGEST GAINS SINCE 2019, BUT GLOBAL MODELS (MODEL 3, NISSAN LEAF) COULD ENABLE OTHER OEM’S TO SHIFT VOLUMES

Source: EV Volumes, Frost & Sullivan Forecast
GROWTH OPPORTUNITIES IN ELECTRIC VEHICLES — ELECTRIC VEHICLE SALES WILL NOT BE IMMUNE FROM THE PANDEMIC— HOWEVER PROVIDES MORE ATTRACTIVE GROWTH OPPORTUNITIES VS ICE

Acceleration of New OEM Co-operation Models
Joint Manufacturing, Licensing of skateboard platforms

Incubator Strategy
One Gigafactory for multiple Battery Suppliers

Opportunity With ‘Broader EV Ecosystem Products’
Charging Stations, Home Energy Products
Thank you!