IHS Markit Automotive Advisory

Uniquely positioned for your most complex challenges

Project Overview: LCV Market Study and Sales Forecast

Steven van Arsdale Senior Consultant, Automotive Advisory EMEA
Automotive Advisory
We deliver customized solutions based on unmatched combination of information, insight, and expertise

Providing an unmatched combination of information, insight, and expertise by transforming in-house and open data into knowledge and customizing scenario-based solutions to overcome your greatest strategic and operational challenges

- **Reduce risk**
- **Streamline business planning**
- **Accelerate informed decisions**

Execute **strategic multi-faceted** consulting projects

On the ground experts in over **130 offices in 36 countries**

Team members with extensive **automotive industry backgrounds**

Partner to more than **80% of the Global Fortune 500** & **95% of the OEMs and suppliers**
Automotive Advisory – Our Global Practice Areas
We help you navigate uncertainty and provide a lasting impact on your long-term performance

**Technology & Mobility**
Combining industry-experience and strategic-insights with technology-databases and diverse industry contacts to benchmark, analyze, and forecast the critical enablers and solutions in the rapidly-developing automotive technology landscape

**Compliance & Powertrain Studies**
Providing a scenario-based outlook into global electrified-powertrain rollout while identifying business impacts, mitigation strategies and response approaches with tailored assessment of a comprehensive set of compliance influencers

**Sales / Volume / Market Planning**
Providing in-depth, custom scenario planning and insights to vet and support market strategies as a proven business partner of major global OEMs

**OEM Sales and Marketing**
Driving significant ROI helping OEMs and NSCs on high-spend, high-impact sales and competitive positioning efforts leveraging a full range of proprietary automotive data assets

**Dealer Network Planning**
Delivering cutting-edge value through innovation and efficiencies as global network planning and optimization partner of OEMs and NSCs
Automotive Advisory – Data sources

IHS Markit analyst teams maintain expertise and forecasts in critical vehicle, powertrain, and component areas, which we integrate into our customized advisory projects wherever relevant.

<table>
<thead>
<tr>
<th>Light Vehicle Sales Forecasts</th>
<th>Light Vehicle Production Forecasts</th>
<th>Light Vehicle Powertrain Forecasts</th>
<th>Components and Technology Systems Forecasts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivers insight on sales volume, market demand, segment growth, and competitive dynamics</td>
<td>Gives OEMs and suppliers the ability to size and identify new opportunities, defend against competitors, and optimize current programs, capacity, and business performance</td>
<td>Deliver industry-leading analysis for current and future powertrains and advanced propulsion technologies combined with CO2/Fuel Economy forecasts</td>
<td>Provides insight into the market trend of components and component-systems, covering powertrain, thermal, electronics, interior, digital-interfaces, and ADAS</td>
</tr>
<tr>
<td>Medium and Heavy Commercial Vehicle Forecasts</td>
<td>New &amp; Used Vehicle Registrations/ VIO Data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales and production insight by manufacturer, segment, and plant</td>
<td>Data is available at micro levels of detail (i.e. make, model, engine)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Automotive Advisory – leveraging our extensive Industry relationships

We support a broad range of clients who through daily interactions provide ongoing insights and feedback.

- 100% of the top global automakers are IHS Markit clients.
- Oil and energy companies depend on IHS Markit data to anticipate changing demand.
- Retailers work with IHS Markit to understand local aftersales demand and how to transform their sales networks.
- We have a global client-base, with projects covering both mature and emerging automotive markets.
- We work with technology companies looking to enter or expand into the automotive realm.
- 80%+ of tier 1 automotive parts and equipment suppliers leverage IHSM insight on a daily basis.
Automotive Advisory – What we do
We are positioned to handle a diverse range of strategic projects across the automotive domain

<table>
<thead>
<tr>
<th>Competitor Analysis and Benchmarking</th>
<th>Market-Analysis and Market-Entry Strategies</th>
<th>Supply value-chain assessment</th>
<th>Regional and country-level market studies</th>
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</thead>
<tbody>
<tr>
<td>Technology sector evaluation and implementation strategies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenario forecasts for specific markets and segments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customized databases and forecasts</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Evaluating future trends around:

- Industry
- Markets
- Technology
- Competition
- Business-models
- Regulations
Automotive Advisory – What we do
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Material Forecast Analysis
North American Material Consumption by Closure (Net Usage)

Battery Packaging
- Tesla’s battery-on-floor (“skateboard”) design is expected to become the industry norm.
- Provides vehicle handling, design, and packaging advantages.
- Utilizes metal structure to build the battery cells.
- The “skateboard” design offers significant advantage over designs like the Chevrolet Volt, which eliminated middle seat and rear seat foot space and are prone to coolant leaks.
- Significance: This affects how OEMs approach vehicle design.
- Near-term: OEMs electrify existing vehicle platforms, few examples of dedicated, ground-up, electrified vehicle design.
- Mid-term: Mix of traditional and electrified platforms, electrified vehicle platforms become more versatile.
- Long-term: Mandate need for dedicated electrified vehicle platforms will be satisfied by just a few modular platforms per OEM. Small sedan/hatch, large sedan, and SUV/CUV.

Market regulations – Russia
Scraping charge
Effective since 2012 for imported vehicles, both new and used, and since 2014 for locally built vehicles.
Scraping charge rates for new passenger vehicles (legal entities)

<table>
<thead>
<tr>
<th>Engine Size</th>
<th>Scraping Charge</th>
<th>Black Market</th>
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<tbody>
<tr>
<td>&lt;1000 cc</td>
<td>35,450 RUR</td>
<td>35,450 RUR</td>
</tr>
<tr>
<td>1001-1500 cc</td>
<td>54,200 RUR</td>
<td>54,200 RUR</td>
</tr>
<tr>
<td>1501-2000 cc</td>
<td>68,200 RUR</td>
<td>68,200 RUR</td>
</tr>
<tr>
<td>2001-2500 cc</td>
<td>84,400 RUR</td>
<td>84,400 RUR</td>
</tr>
<tr>
<td>2501-3000 cc</td>
<td>114,200 RUR</td>
<td>114,200 RUR</td>
</tr>
<tr>
<td>&gt;3000 cc</td>
<td>191,000 RUR</td>
<td>191,000 RUR</td>
</tr>
</tbody>
</table>

Scraping charge rate for private persons: 3,450 RUR (€ 46)

<table>
<thead>
<tr>
<th>Timeline</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 2012</td>
<td>Scrapping charge on imported vehicles introduced to offset the effect of customs duties reduction in course of Russia’s WTO admission.</td>
</tr>
<tr>
<td>Jan 2014</td>
<td>Pressured by WTO, Russia applies scraping charge to locally built vehicles. In exchange, OEMs with local production receive government subsidies depending on annual output.</td>
</tr>
<tr>
<td>Sep 2016</td>
<td>Scrapping charge increased up to 45% depending on vehicle category to mitigate the effect of value depreciation and customs duties reduction by 2%.</td>
</tr>
<tr>
<td>Apr 2018</td>
<td>Scrapping charge increased by 14% to 95% depending on vehicle category.</td>
</tr>
<tr>
<td>2020</td>
<td>Next round of the scrapping charge increase under negotiation – introduction expected Jan 2020.</td>
</tr>
</tbody>
</table>
LCV Market Study and Sales Forecast
# Recent OEM-oriented Projects – LCV Market Study and Sales Forecast

European LCV market analysis with a special focus on the electrification trend

## Light Commercial Vehicle Market Study and Sales Forecast

EU30 aggregated forecast covering markets such as Germany, France, Spain and Poland; looking at product strategies and electrification

<table>
<thead>
<tr>
<th>Key Question(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is powertrain of choice for LCVs and what will be the share of electrified powertrains in the future?</td>
</tr>
<tr>
<td>What are the obstacles to pricing of eLCVs and when will the TCO breakeven point be reached eLCVs?</td>
</tr>
<tr>
<td>What is the potential threat from new players and entrants?</td>
</tr>
<tr>
<td>How will electrification be different for passenger vehicles and commercial vehicles?</td>
</tr>
</tbody>
</table>

## IHS Markit Automotive Advisory’s unique-approach

We begin by doing a market and OEM specific deep dive analysis, looking at:

- Country specific CO2 regulations, city bans, charging infrastructure development and government support – complete market framework
- Current and future OEM product offerings based on IHS Markit production and sales data – CO2 compliance check to evaluate assumptions
- TCO analysis – evaluating when BEV parity will be reached, depending on country specific parameters
- Use cases review – impacting the electrification potential by sector and segment

## Target Groups

- OEM Product Management and Product-Planning teams
- OEM Sales Planning Teams
- LCV Tier 1 and Tier 2 Suppliers

## Updates

- Project piloted in Q1/2020, update potential to examine additional markets or special topics
Sales by Powertrain Scenario Forecast – Methodology
The forecast combines both a top down and bottom up approach for transparency, flexibility and traceability.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>- Production, powertrain &amp; sales forecasts (incl. outages)</td>
<td>- Unemployment rate</td>
<td>3.2. Market Structure - Segment &amp; price brackets - Urban vs. rural / LCV use assessment - Fleet relevance</td>
<td>4.2. OEM Portfolios - Assessment of vehicle &amp; powertrain / electrification portfolio per OEM - Launch timings &amp; portfolio complexity</td>
<td>- Forecast of OEMs towards regulation compliance?</td>
<td>- Vehicle Sales by Powertrain Scenario Forecast (incl. background documentations &amp; expert discussions)</td>
</tr>
<tr>
<td>- Oil price / fuel price</td>
<td>- Consumer confidence index</td>
<td>3.3. Technology Trend - Battery energy density (vs weight &amp; cost) - Charging / fueling technologies (Charging bottlenecks)</td>
<td>4.3. xEV Positioning - Segment &amp; body type - Driving range &amp; performance options - Pricing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Segment shifts</td>
<td>- Oil price / fuel price</td>
<td>3.4. Battery Supply - OEM supply chain integration, partnerships &amp; risks (bottleneck)</td>
<td>4.4. TCO Comparison - Initial cost - Running cost - Residual value</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Light Commercial Vehicles Scenario Forecast Process

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Findings of Interest – LCV Market Study and Sales Forecast

A significant shift towards greener transportation is underway in the commercial sector

Findings of Interest

COVID-19
- There will be an impact on the total LCV topline for the next few years

eLCV
- Is the preferred powertrain option for city usage and smaller LCVs
- The current AER of eLCVs is already sufficient for a range of use cases
- Private consumers still require a longer AER and lower upfront cost

Fuel Cell
- Long-term prospects in the larger LCV segments, especially for applications where payload and a long range are critical

Market Framework
- Many countries are looking to reduce local emissions
- LCVs are often neglected when it comes to national support schemes and regional ones are often not sufficient to kickstart the trend on a large scale
- Regional projects and test-runs for eLCV are ongoing to prove the viability of various use cases and learn from the experience
- Market readiness for eLCVs varies greatly between countries

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Findings of Interest – LCV Market Study and Sales Forecast

A significant shift towards greener transportation is underway in the commercial sector

**Findings of Interest**

**OEM Strategies**
- OEMs working to create partnerships with various logistic and delivery firms
- Many traditional OEMs are making conservative and low-cost investments, using existing passenger car electric motors and battery components
- Both foreign OEMs and new startups are preparing to enter the European LCV market
- New players with purpose-built dedicated eLCVs, are looking to shake up the traditional LCV market and are only focused on electrified powertrains
- Entering the competitive European LCV market, however, is not without many challenges for a new brand

**MHEV**
- Important solution for reducing CO2, especially in high traffic urban environments
- Cost effective solution for countries with an upfront or yearly CO2 based taxation
- High potential in lower segments, possibility to replace some diesel LCVs with petrol MHEV

**TCO**
- CO2 compliance is not the major driver of electrification in the LCV market in the short term
- Depending on the use case and government incentives, the eLCV breakeven point is quickly approaching, especially in lower segments

**Market Consolidation**
- Many OEMs are working together on LCV development with partnerships or alliances
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Use Case Analysis

Use Cases and Customers - Methodology
Defined customer groups are linked to specific Economic sectors to detail the use cases

Use Cases and Customers by Economic Sector – Example Germany
Most LCVs are rented for a short time period and customers therefore have less environmental concerns

Result of adaptation of assumptions to other countries
The estimate procedure provides an LCV market split by economic sector for the other countries

LCV Sales by Economic Sector

Highlights
- LCV sales to private households have not been estimated but are based on official registration data. In most of the markets – with the exception of France and Poland – the sector is the biggest one for LCV sales.
- Wholesale and Retail trade is an important sector throughout the countries, according to its contribution to the national GDPs.
- Transportation and Storage provides a small contribution throughout the countries whereas Manufacturing and Construction has a much higher share.

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**Sales by Powertrain Scenario Forecast**

The Standard Vehicle Sales Forecast identifies some but not all BEVs via nameplate or platform.

The sales by Powertrain Scenario Forecast provides a breakdown to Fuel Type and PSD for selected markets.

<table>
<thead>
<tr>
<th>Brand / Model</th>
<th>Fuel Type</th>
<th>Propulsion System</th>
<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mercedes-Benz</td>
<td>Gasoline, Diesel, Electric, Hydrogen</td>
<td>ICE, Mild-Hybrid, Full-Hybrid, Plug-In Hybrid, Battery Electric, Fuel Cell</td>
<td>Europe, USA, China, Japan, Brazil, Russia, India, Germany, UK, Spain, Italy, France, Canada, Australia</td>
</tr>
</tbody>
</table>

*Exemplary illustration Mercedes-Benz Sprinter, Image source: Mercedes-Benz*
## Sample Excel Dataset (2019 - 2031)

<table>
<thead>
<tr>
<th>Sales Market</th>
<th>Sales Parent</th>
<th>Sales Brand</th>
<th>Sales Model</th>
<th>Platform</th>
<th>HSM Segment</th>
<th>Off Type</th>
<th>Bodytype</th>
<th>Fuel Type</th>
<th>Propulsion System Design</th>
<th>CY 2019</th>
<th>CY 2020</th>
<th>CY 2021</th>
<th>CY 2022</th>
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<td>Renault</td>
<td>Kangoo / Kangoo Passenger</td>
<td>C</td>
<td>C</td>
<td>CV</td>
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<td>Diesel</td>
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<td>PV</td>
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<td>ICE</td>
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<td>92</td>
<td>872</td>
<td>887</td>
</tr>
</tbody>
</table>

**Delivery includes dataset in Excel and complete analysis shown above in PowerPoint**

- Sales Market
- Sales Parent
- Sales Brand
- Sales Model
- Platform
- IHS Markit Segmentation
- Custom Client Segmentation
- Off Type
- Bodytype
- Fuel Type
- Propulsion System Design
- 2019 – 2031
We are happy to discuss the LCV service in more detail, discuss pricing and answer any questions you might have.

We look forward to hearing from you.

Contacts for questions or further details:
Automotive@ihsmarkit.com
AsiaPacificAutomotive@ihsmarkit.com