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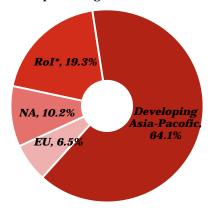
Automotive Markets Cool Down

Latest developments and their impact on growth perspectives

After a year of dynamic growth in the global core markets, 2017 is expected to herald a significant cool-down due to several factors. Concurrently, technical challenges and diverse growth opportunities in developing markets require ongoing investment and organizational change by OEMs.

Assembly Growth Contribution

2016 - 2023F (percentage)



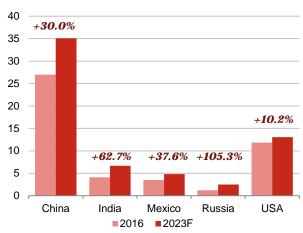
Source: Autofacts Q1 2017 Forecast Release *Rest of Industry

Major regions drive global trends

In the last three months of 2016, the Chinese market showed double-digit sales growth in the wake of an expected cancellation of the excise tax rebate for small-engine cars. Not only has demand growth been highly dynamic, at almost +15% for the full year, but also the sheer magnitude of the production increase is drastic, at almost 3.5 million units - this increase provided the long-awaited relief for low plant capacity utilization of several local Chinese manufacturers, while increasing the market share of domestic brands. For the long-term, we expect the market to converge at an annual production level of about 35 million light vehicles - assuming no great export initiatives. This annual sales volume could support a vehicle parc of 350-500 million units, depending on average replacement age. The North American market seems close to saturation, while local production capacity is being built up further. In

Top 5 Growth Countries

2016 vs 2023F (millions)



Europe, markets are still significantly below saturation, but are forecasted to take a short growth pause after a dynamic year of over +5% growth. More upward potential is expected from a large number of emerging markets, such as Russia, Brazil, and Thailand, which have significant room for recovery after extended crisis. India in particular seems set for a long-term growth increase, after a temporary relapse in the last quarter of 2016 due to the cancellation of several circulating rupee notes.

Industry Transforms at Hand

Based on experience at the Consumer Electronics Show (CES) in Las Vegas, the automotive industry has fully embraced the new trends of electrification, connectivity, and autonomous driving. The interaction of the consumer and IT industries within the automotive sector is in full swing, which is evidenced through numerous new features, services, partnerships and takeovers throughout the industry. The most challenging transformation, however, lies in a fundamental change of R&D processes: while the automotive industry has perfected the strictly deterministic but inflexible – "waterfall" approach, the IT industry is approaching R&D with a dynamic - but sometimes chaotic - "agile" approach, which allows for permanent integration and update of new features in the midst of an ongoing development process. The solution to these opposing approaches may lie in a complete digitization of the R&D process hardware development turning into programming and testing challenge. masters this transition first should have a significant advantage in the upcoming changes in customer requirements and available technologies.

Some new kids on the block

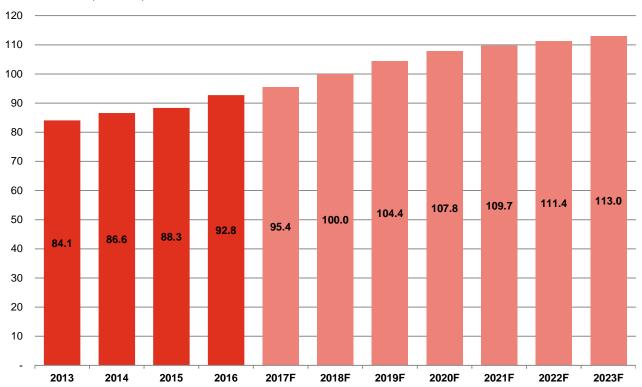
The number of automotive manufacturers has been growing organically and through consolidation. Interestingly, consolidation is happening mostly among similarly structured manufacturers, the takeover of Mitsubishi by Nissan serving as the latest example. The new combined group is one of the three largest automotive conglomerates

worldwide, and is forecasted to battle with GM and Volkswagen for the global number one status in the upcoming years. Core growth drivers of this forecast are the strategic position in global growth markets as well as the aptitude to new technologies, such as electric and autonomous driving. announced that its Mercedes-Benz brand has taken the lead in global premium vehicle sales, achieving the corporate target of 2 million units sold four years ahead of schedule. In the field of fully electric, highperformance vehicles, a host of new companies has developed around Tesla, which include Faraday Future, Lucid, LeEco, and Karma. While Tesla is already targeting established large-scale manufacturers with the announcement of its midmarket model, the mostly Chinese-backed new brands are focusing on surpassing Tesla's high-end models in a few product and service dimensions. At the same time, traditional manufacturers are products announcing new-technology innovative services to keep up with customer expectations and increasingly demanding regulatory requirements.

For additional information on PwC's automotive capabilities, please visit pwc.com/auto.

Global Light Vehicle Assembly

2013 – 2023F (millions)



Source: Autofacts 2017 Q1 Forecast Release