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PwC Automotive Industry Bluebook (2017 Edition)

China Automotive Market: Witnessing the Transformation

PwC China's Automotive bluebook

pwc

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To our Valuable Clients:

Thank you for your patronage over the years. With your great support, PwC China is the #1 Professional Services Firm for the largest automotive market in the world.

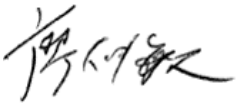
From an industry-wide perspective, China's auto market will experience an unprecedented transformation in the next few years. Given the support from Chinese government, the era of New Energy Vehicles has arrived, meanwhile, Connected Car, the more disruptive industry, is developing fast. So, it requires more technology innovation in the entire industry. On the other hand, Internet giants and other emerging players are actively entering the market, and they impose a great pressure and impact to traditional OEMs and dealers. Given this tide of the times, both traditional and new industry players need to grasp the consumer psychology and promote business fast and accurately.

Looking at after-sale market, the digital age is quietly coming and changing the traditional consumption patterns. The emergence of auto finance as well as the growth of the used car and aftermarket sectors are signs that market is moving beyond the flood of first-time buyers into a diversified, maturing market. It, however, brings with challenges. Low market penetration rate, the lack of large data analysis, the impact of Internet finance and other issues mean that after-sales market is in urgent need of breakthroughs and innovation.

PwC China's Automotive Team is an integral part of our global automotive network which consists of 4,800 partners and client service professionals focused on providing services across the entire automotive value chain. We are confident that no other professional services firm can match our qualifications, experience, global reach, thought leadership, and ability to deliver comprehensive services. Thus, be it financial, regulatory, operational, or strategic, we are eager to collaborate with you to develop solutions which will pave the way for your organization's long term success in China and on the world stage.

Please contact us to find out more on how our services and capabilities can create value for you and your business.

Respectfully,



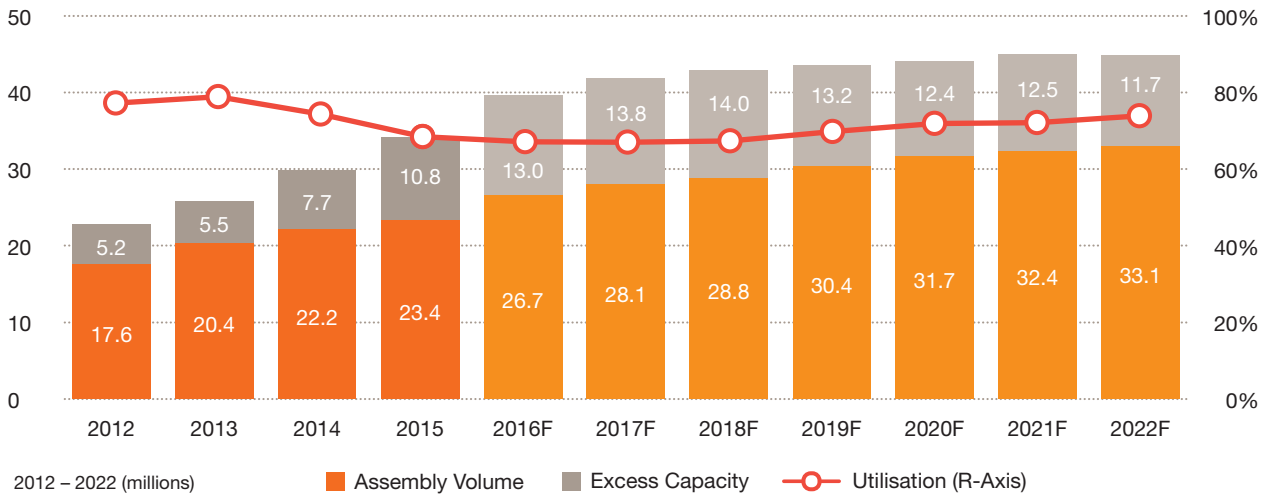
Wilson Liu

China Automotive Leader

During the second half of 2015, stimulated by tax cuts, the already weak China auto market stretched strongly in the fourth quarter, with the growth rate achieving 8.2% The tax policy in 2016 has continuously stimulate auto market, we expect that the growth rate will reach 14% at the end of the year. We believe that with withdraw of tax policy, China auto market will gradually return to moderate growth in the next year. This may be a sign of the "new normal" in China.

China Auto Market: At a turning point

China: Light Vehicle Assembly



Source: Autofacts 2017 Q1 Forecast Release

Inflection point

After enjoying over a decade of surging growth, the Chinese automotive market is reaching a critical point in its development. A strong, double-digit rebound in the final quarter of 2015 pushed the market to finish the year at 8.2% growth. In 2016, tax reduction policy continuously stimulates auto market, with the growth rate during first three quarters reaching 13.3%, due to the concerns that the policy will withdraw in 2017, consumer's demand of anticipated buying is expected to continue until the end of 2016. We expect that the overall growth rate in 2016 will reach 14%. Therefore, auto market is highly to be cool in 2017, and with the increasing Car Parc, the overall market will gradually enter to a mature path.

Beyond rate of growth, the development of peripheral sectors is another indicator that the Chinese market is showing signs of maturation. The emergence of auto finance and leasing as well as the growth of the used car and aftermarket sectors are signs that market is moving beyond the flood of first-time buyers into a diversified, maturing market. The current, older generation of vehicle owners have been known to be conservative with spending preferring to purchase with lump sum cash payments. This has kept auto finance penetration rates low - around 20% - especially when compared to the 50% to 80% rates seen in mature markets. Consumer demographics are shifting in the market, with buyers entering the market at a younger age who are more likely to leverage alternative financing measures like credit and leasing. In another sign of market maturation, as new vehicle sales and assembly growth has shown signs of slowing, used car sales have surged, reaching an impressive 18.6% compounded annual growth rate (CAGR) between 2010 and 2015. Used vehicle trade volumes reached 9.6 million units last year, and is expected to grow well past the 10 million units in 2016.

Technology driving change

As the market continues to change and evolve, the related technology within the sector will change as well. As pollution and smog continue to plague the market, the Chinese government has extended its efforts with new energy vehicles (NEVs) as one facet of tackling the growing concerns. Sales of NEVs reached 330,000 units in 2015, which is triple the volume of the previous year, putting China atop other markets worldwide. As stimulus subsidies are expected to remain through 2016 and beyond for NEVs, sustained growth of the segment is projected throughout the forecast window. The Autofacts forecast calls for NEVs to eclipse the 2 million unit mark in annual assembly by 2022, representing just under 30% CAGR between 2015 and 2022.

Inside the cabin, consumers are increasingly demanding added in-vehicle connectivity and technology – a reflection of the growing connectivity and mobility of the market as a whole. It is estimated that there were more than 600 million mobile phone users in China in 2015. By 2020, 60% of population is expected to live in densely populated urban centers, requiring even more mobility and technology. Local technology stalwarts Baidu, Alibaba and Tencent (BAT) are all already proactively reviewing their strategies within the auto space, just as tech companies abroad are playing an increasing role in design and manufacturing. Internet companies are now launching after-market style products and services, and in some cases, they're doing it with less lead time than their counterparts abroad. These developments confirm that cross-sector collaboration and partnerships between Chinese OEMs and private enterprises is not only inevitable, but serve as an opportunity for the industry to grow and develop into unchartered territory.

Obstacles remain

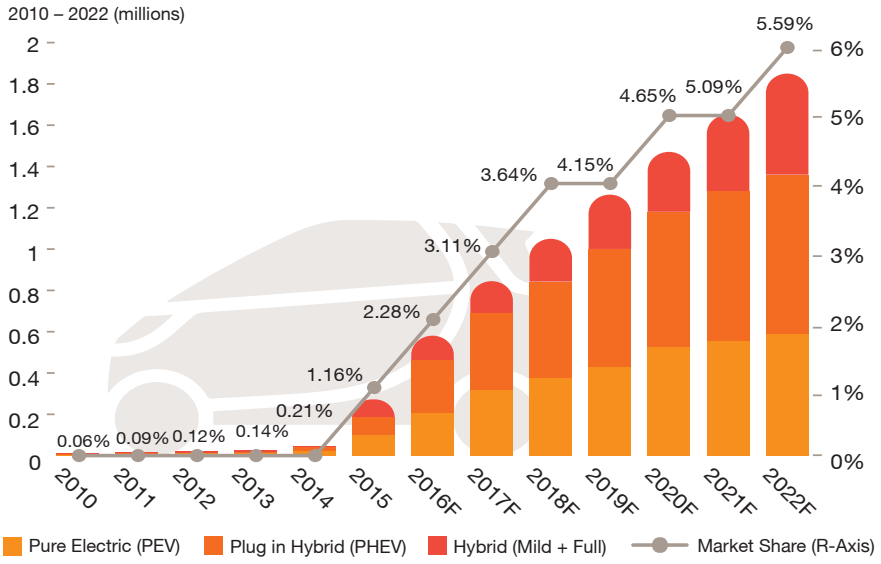
Of course, along with these opportunities for growth and development, challenges remain as the Chinese market progresses. One of the most foremost concerns is the need for consolidation in the number of brands and manufacturers, particularly among the domestic players. Currently, the market is home to 76 OEM groups, 184 vehicle assemblers and more than 1,000 tuning operations. Since 2013, the Ministry of Industry and Information Technology (MIIT) has pushed regulators to eliminate so-called "zombie automakers"– assemblers with little or no output by revoking their production licenses. This process has been slow, but it's an important step towards consolidation. As growth in the market cools and matures, both internal and external forces should drive increased M&A activity. We would expect the smaller OEMs to either seek partnerships or dissolve as larger OEMs seek to acquire others. In the next decade, this shakeout should accelerate in progress, leaving a streamlined competitive landscape.

Related to the oversupply of brands and assemblers, over capacity continues to plague the market. Excess capacity could reach as high as 10 million in 2016, and this figure will only climb higher as the market slows down. Mature markets like the US and select EU countries have faced difficult decisions during economic downturns, where plants and facilities were either idled or shuttered. Assemblers in China will eventually face the same struggles but the hope is that, once complete, utilization rates will jump to more profitable levels and capacity is rationalized within an efficient range across OEMs and assemblers.

Forging ahead

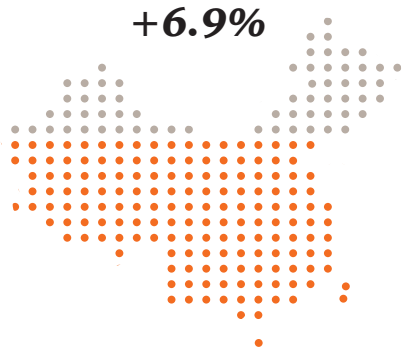
As the auto sector in China continues to develop and change into a mature market, we expect annual sales to slow considerably. Indeed, the 21% CAGR enjoyed between 2003 and 2013 will be a thing of the past. A mix of new peripheral sectors, advanced technology, and rationalization of existing industry participants and capacity will be required to maintain a sustainable level of growth. Of course, the focus on product and quality is equally essential during this critical juncture.

China: Alternative energy vehicles production forecast

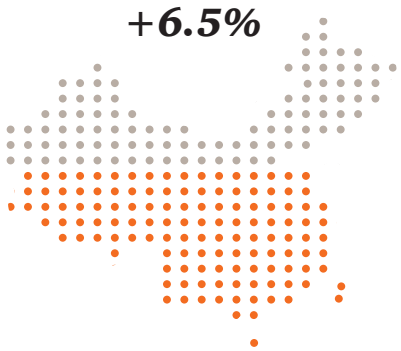


Source: Autofacts 2017 Q1 Forecast Release, Oxford Economics

China: NEV Development Outlook



2015
GDP Growth Rate



2016 - 2020
Annual Growth Target

Overall auto market is witnessing slower growth; however, the market of NEV is picking up the momentum gradually. Driven by the government push, the sales volume for NEV has exploded. The sales volume increased by 180% to reach 330,000 units. In 2015, the products was not generally accepted by customers. What's the future for the NEV under the spotlight? How should OEMs plan their business models?

New Energy Vehicle indicates industry-wide feasibility

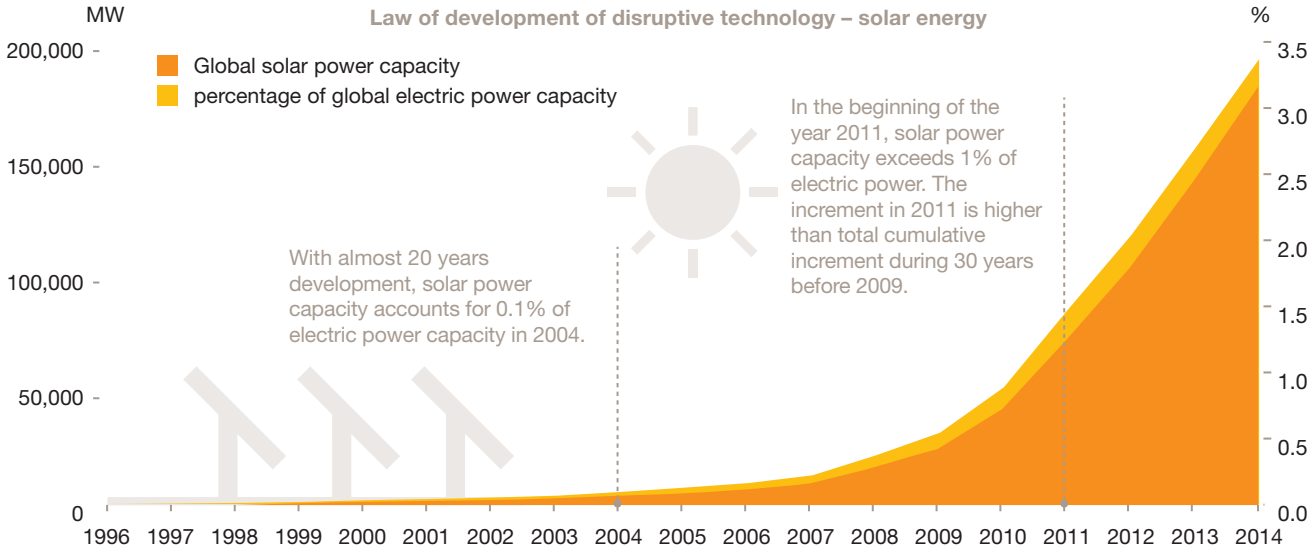
PwC Strategy& continuously tracked and monitored the development of New Energy Vehicle (BEV &PHEV).The development trend in recent years indicate that New Energy Vehicle Industry has entered a phase of rapid growth. In 2015, the sales volume of NEV climbed to 0.5 million units globally while 0.33 million units were contributed by China. The potential of consumer driven electric passenger vehicles is gradually being validated.

Energy security, environment protection and achieving competitive advantage in technologies are crucial reasons for developing New Energy Vehicle for China. Chinese government has been focusing on developing New Energy Vehicle since before 2010. However, challenges in consumer acceptance, infrastructure, technology and cost, put new energy vehicle on hold for many years. With the improvement of BEV technology and cost, expanding infrastructure, increasing consumer recognition and policy support, new Energy Vehicle market came to a turning point since 2014.

At present, market participants still hold different attitudes toward new Energy Vehicle. Considering the law of industry development, product feasibility, industrial environment and policy trends, we expect that new energy vehicle will have an explosive growth in next five years.

- **Law of new technology industry development:** The development path of breakthrough technologies (such as solar energy) indicates that when the PARC of new technology exceeds 1%, its growth will be non-linear and explosive. The actual situation will farsurpass the general prediction (Picture 1). In automobile industry, it took 10-15 years for technologies like VVT, FWD to reach 50% of the penetration rate during their commercialisation. After years of promotion, market share of New Energy Vehicle has reached 1%. The network effect of new energy vehicles consumption will further boost the growth in future.

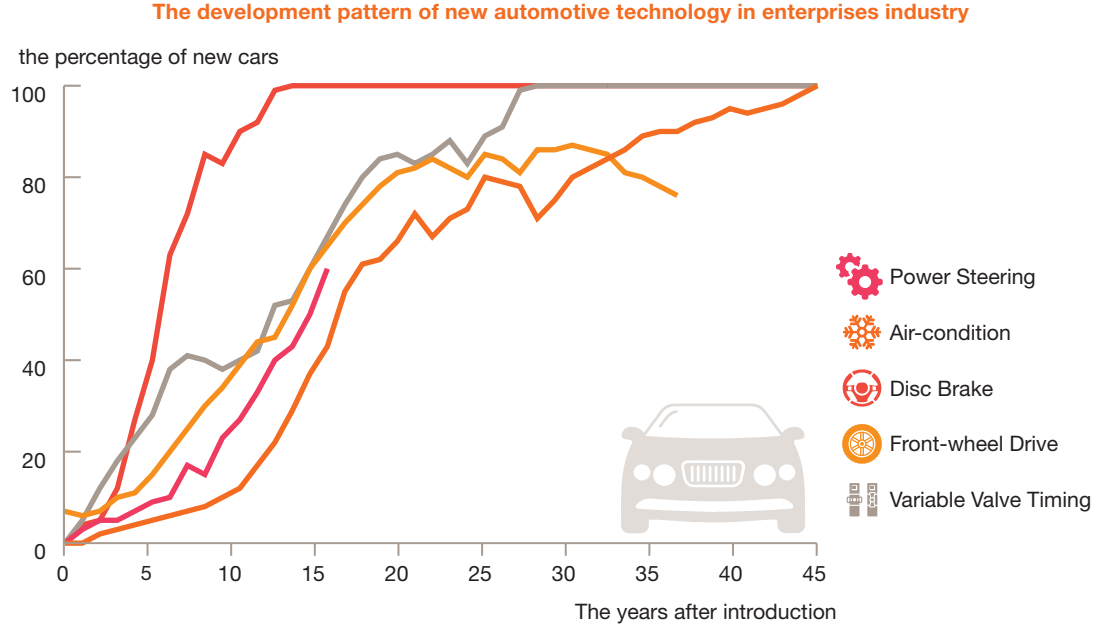
Disruptive technology, for example, the development of solar energy, reveals that once the inventory of new technology exceeds 1%, it will achieve non-liner and explosive growth, well above conventional forecast.



Comment: Gradual cost of solar energy follows Swanoson rule, which is when shipment doubles, cost will decrease 20%.

Data source BP , EIU Strategy& analysis

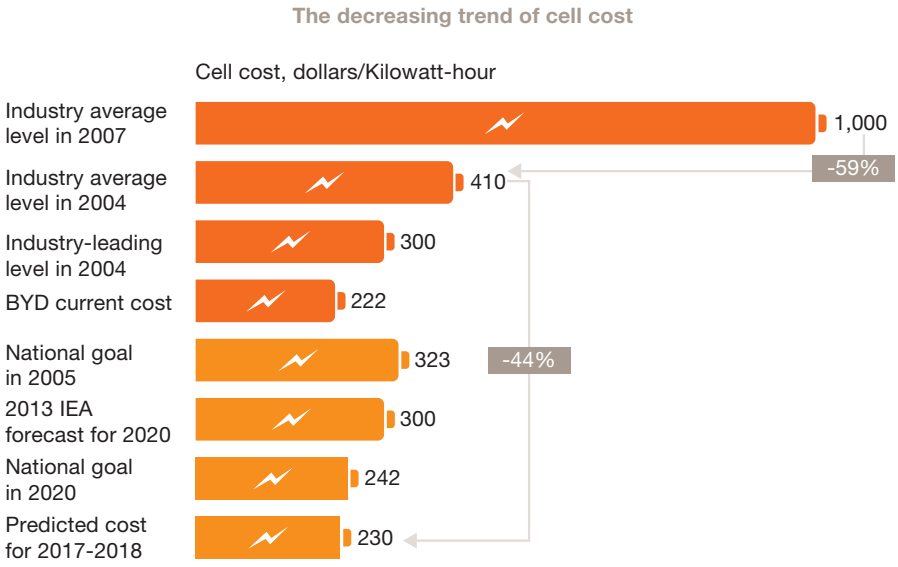
New technology industrialization in automotive field also conforms to nonlinear pattern. For example, the innovation of traditional Progressive Automotive Technology generally only takes 10-15 years to apply in over 50% of new autos.



Data source MIT, Wards, Electric Coalition Strategy$

- **Battery cost:** According to the prediction from multiple sources, driven by technology and scale, the cost of battery is expected to reduce 40% by 2020, and thus the cost of electric vehicles will achieve a similar level of gasoline vehicle. In particular, China's battery manufacturers are breaking through the battery market which is currently dominated by Japanese and South Korean producers. Domestic automakers are selecting domestic battery supplier to replace Korean suppliers.

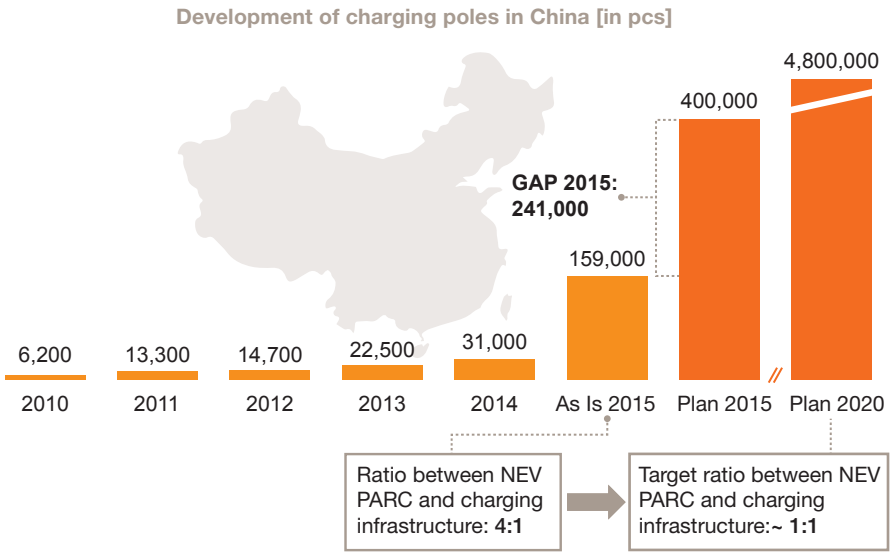
Battery cost declines much faster than industry professional forecast, and hopefully, the cost will decrease more than 40% in 3-5 years. This contributes to significantly reducing cost of electric vehicle and thus realizing parity with ICE cars.



Data source document research America Argonne National Laboratory Chian EV100 IEA Global EV Outlook, Carbon Brief, Strategy&

- Battery cost declines faster than expectation
  - In 2013, IEA(International Energy Agency) forecasted that battery cost would reduce to 300 dollars/ Kilowatt-hour in 2020. However, the latest research in 2015 indicated that leading enterprise, such as Nissan, Tesla, had already achieved this level.
  - Scale production, procedure improvement, raw material cost decline and technology advancement become the key driver of the decreasing battery cost. As closer to supply chain and market, battery cost in China is predicted to go down faster than abroad.
- Electric vehicle is predicted to be economically competitive in future 5 years.
  - When battery cost achieves 300 dollars/Kilowatt-hour, electric vehicle will become competitive. When it drop to 150 dollars/Kilowatt-hour, electric vehicle market will change quantitatively .
  - Battery cost model from American Argonne National Laboratory states that the cost of new battery from their own laboratory has dropped to 260 dollars.
  - Tesla predicts that when its super factory come into operation, cost will decline to 200 dollars or below.
  - BYD predicts that its battery cost will decrease by 50% to 110 dollars in 3-5 years.

- **Infrastructure:** Charging service companies still face bottlenecks, the popularity of new energy vehicles requires approximate 1: 1 ratio of vehicle - charging pile. By the end of 2015, 160,000 charging piles has been built, and that only accounts for 40% of the original plan. Currently, 4 new energy vehicles share only one charging pile. This situation impedes the development of new energy vehicles. With the scale production of electric vehicles, the enforcement of supporting policies, improvement of charging standards, increasing investment from grid enterprises and market access permission for private enterprises, charging infrastructure market will be gradually reach sufficient scale and profitability.



Source: Ministry of Science and Technology of People's Republic of China: 12th Five-Year-Plan for Electric Vehicle Development; The China Green Tech Initative (CGTI) report, China Charging Station and Charging Poles Market Report, 2014-2015 (researchmarkets.com); MIIT Jan. 2015; EV Charging Infrastructure Development Guide (2015-2020) , Strategy& analysis

- **Consuming Willingness:** During past five years, intense favourable policies were published to stimulate consumption. 30 thousands to 50 thousands Rmb subsidies, consumption tax reduction, free license plates, reduced electricity price significantly promoted the sales in tier1 and tier2 cities, especially in the cities with license plate restriction. Electric vehicles are accepted by higher educated population who are willing to try new technologies. Consumers who had no choice but to buy electric vehicles found that the driving and charging experiences are better than expected. Meanwhile, according to the research from PwC Strategy&, car sharing platforms have released over 10,000 electric vehicles to the market and have achieved more than 500,000 users. Considering these car sharing vehicles are mostly in a few tier1 or tier2 cities, the penetration of electric vehicles in these cities is quite considerable. Car sharing enhances the consumer awareness of electric vehicles, and fosters the adoption. Also, the younger, internet generation will have higher acceptance of new energy vehicles. These factors pave the way for the further penetration of electric vehicle in future.

- **Government policy:** Finally, although the subsidies will gradually phase out, the policy stimulus is expected to continue. Policies of charging facilities' construction, advantages on license plates are expecting to continue and more implementation specifics of policy will be released. With city pilot continues, more local governments are likely to set clear new energy vehicle targets which may be incorporated into their KPI system.

Different from gasoline vehicles, the current sales of new energy vehicles are mainly dominated by domestic automakers. Given the uncertainty of strategy and high price, joint ventures have been quite conservative in NEVs. Driven by the development of Connected Cars, a number of digital technology enterprises and startups joined in NEV market, such as LeTV, NextEV. However, their possibility to launch reliable products is yet to be seen. The latest consumer research shows that existing NEVs are still unsatisfactory in terms of driving range and quality. With the improvement of industry environment, increase of demand and profit potential, more traditional OEMs and new-technology companies will join the competition and provide better products.

Considering the rapidly growth of NEV market, automakers can make preparation in several areas:

1. Discovering attractive product segments, determining profitable products portfolio.

Comparing with fuel vehicles, NEV has worse performance in interior decoration, quality, configuration and power. However, many initial buyers of NEV are high end customers of ICE cars, therefore the products cannot meet the expectation of customers. Due to the high cost of electric vehicles, JV automakers cannot yet provide comparable products to ICE cars in cost, price and quality. Therefore, companies need to further analzye potential market segments to enter and leverage their own cost structure to define their target segments and design profitable product portfolio.

2. Determining the powertrain strategy

Powertrain is the largest cost elements of EV, so self-made or purchased powertrain are the key factors of profitability. Japanese and Korean suppliers dominates battery market, while domestic battery suppliers are improving fast and are expected to significantly reduce battery cost. Companies should combine their own capabilities with market's supply to make profitable and differentiating powertrain strategy.

3. Determining sales and service strategy

Since most income of dealers come from ICE vehicles and the proportion of EV sales are too small to get enough attention, existing dealers network cannot support the scale sales of electric vehicles in the early development of electric vehicles. Meanwhile, due to sub-scale, operation cost in personnel training, inventory and after-sales service, etc, are relatively high. As a result, dealers have low motivation to sell NEVs. Some companies bring their products into market by cooperating with car sharing platform. For example, BAIC successfully established electric vehicle brand awareness and cultivated potential consumers via partnership with its own or 3rd party car sharing platforms. In addition, some companies promote its products by leasing, for example, ZINORO brand in association with BMW.

4. Charging infrastructure strategy

Due to the slow development charging facilities, a number of automakers are investing in charging infrastructure to promote their EV sales. They also hope to control customer data via charging APP thus to establish synergy with overall automotive ecosystem. Charging infrastructure market has a long value chain, such as: power supply, equipment manufacturing, installation and operation, charging network applications, etc. Automakers should set up their own objectives in charging strategy, for example, making charging network more accessible to their own brand customers in order to promote sales and get consumers' data. Automakers should consider their own product positioning and automotive ecosystem to decide how to participate in the charging business, for example, gaining controlling share, gaining participating share, cooperation and other models.

Autonomous driving is regarded as the future of the auto industry, but how far is the future? Many signs reveal that OEMs, R & D institutions, and government all try to develop this business. PwC predicts that by 2030 the market share of autonomous car will reach 15-20%. But the issue it will bring with is network security. Will auto industry be able to provide consumers with sufficient response strategies?

Is the era of Connected Car coming?

Strategy& continues its annual Connected Car research and tracks its development and impact on the automotive industry's price, sales volume and technological innovation. Recent research shows that as more OEMs are working on intelligent driving systems, technology innovation in Connected Car is developing rapidly. Recent leading technologies include BMW's remote parking technology, which can park automatically after passengers get off, and Volkswagen's emergency assistance system, which can automatically stop the vehicle in case of an emergency. Almost all OEMs are looking for ways to create value in this digital arena. In premium-car market, auto companies and their suppliers are trying to differentiate themselves from others by creating digital experiences. Economic car makers, however, are trying to find basic digital integration functions based on a cost-effective margin. They may need support from external partners.

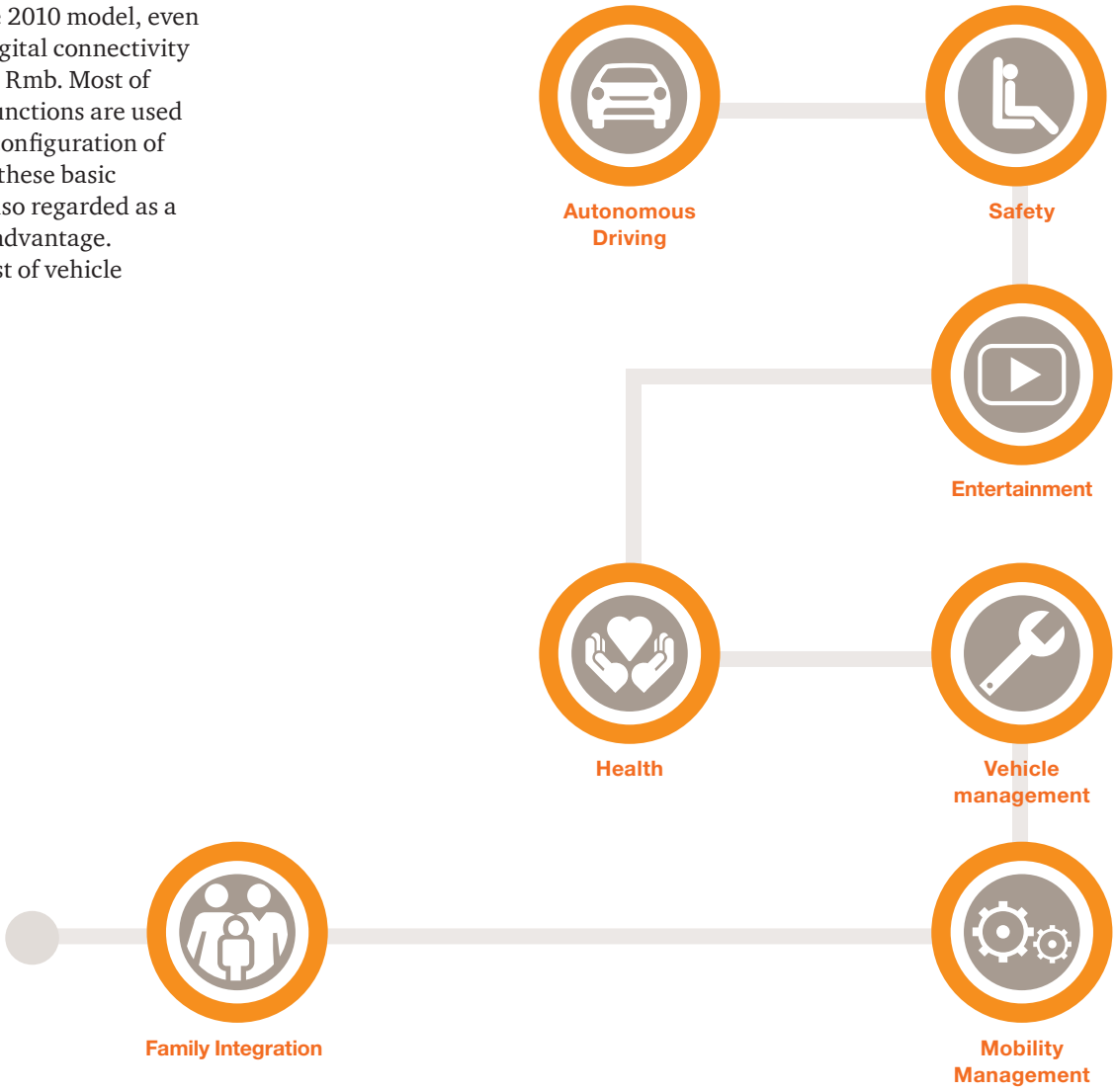
The core of development of Connected Car industry is based on the following seven functional areas:

- Autonomous Driving: The vehicle can travel automatically without manual operation. It is not yet popular, and only suitable in some areas, such as self-parking, highway service stations, and connected trucks which transport goods in the carefully delineated routes.
- Safety: The ability to warn of road safety, automatically sense and avoid potential collisions, such as risk warning signals and emergency call functions.
- Entertainment: Provide passengers and drivers with entertainment functions, such as smartphone connector, wireless or LAN hotspot, social network connector or "mobile office".
- Health: The functions that optimize driver's health and their driving status, such as electronic alert functions that detect or relieve driver's fatigue, and other forms of personal assistance function.
- Vehicle management: Minimizes operating costs and improves comfort, such as remote control of vehicle functions, display of service items and vehicle status, and traffic data transmission.
- Mobility Management: Enables quicker, safer, more economical and more energy-efficient driving experiences based on specific data collected from vehicles, such as displaying real-time traffic information, displaying maintenance and service-related information and transmissions data and so on.
- Family Integration: The ability to connect the vehicle to home, office or other building, such as a home alarm system or an energy monitoring system.

We expect that in 2016 the fees that terminal users spend on Connected Car technology will be as high as 403 billion Rmb. Among them, the spending on safety and automatic driving accounts for the largest share at about 61% of total consumption. By 2021, premium car market's spending on digital technology will rise to 10% of total vehicle sales, which doubles the current level(4%).

In the premium car market, OEMs treat these functions as their "bargaining chip." They have to remain competitive and avoid price dilution, but they will not raise the overall price of the vehicle, at least the overall price will not increase because of these new features. For example, the Mercedes-Benz E-Class with a built-in 2015 Digital Feature Pack prices only 16,000 Rmb higher than the 2010 model, even though the cost of digital connectivity is more than 70,000 Rmb. Most of these connectivity functions are used to replace the basic configuration of the current car, and these basic configurations are also regarded as a unique competitive advantage. Similarly, BMW's cost of vehicle digitization is more than 60,000 Rmb per vehicle, including bundled butler services and navigation devices that provide real-time traffic information. Audi and Lexus have a similar upgrade as well. In short, the overall price of the vehicle is not expected to grow substantially. For example, the average price of a Mercedes-Benz E-Class is risen by only 4%, despite of a significant investment in digital function by OEMs. This phenomenon is expected to continue.

In the economy car market, that target clients are middle-income consumers, OEMs are trying to increase the basic connectivity of vehicles. By 2021, spending on digitization service will reach 2.6% of car retail price, compared with 0.5% in 2015. However, our study shows that consumers in the economy car market are less willing to spend money on connectivity or connectivity equipment provided by OEMs, although this consumer group also values the digital functions and services of vehicles. So far, they are more willing to buy relatively cheap alternatives from a third-party in after-sale market or download the application through phones. In order to ensure profitability, OEMs in the economy car market need to think about what digital functions their customers are willing to pay for. Currently, a TomTom navigation system is priced at about 1,800 Rmb, while OEMs provide it with the price at about 6,000 Rmb.



he outlook of Autonomous Driving

A Connected Car is, to some extent, more like a feature package of new automotive technology. This is actually a breakthrough technology, and it will transform the traditional structure of the automotive industry, bringing in a new business model, and change the nature of the automotive industry. The vehicle is gradually becoming a 'thing' in the Internet of Things: the connection between computers, smart phones, sensors and actuators and other intelligent devices. By 2020, there are expected to be 50 billion smart devices connected to the Internet, and this figure is as 10 times as PC's.

We expect that by 2020, the automotive industry will really move to the automatic driving. By 2025, 20% vehicles will have significant automatic driving function. Pilot will begin first in the city, and the initial autonomous driving will not be fully automatic. While digital participants are working on revolutionary innovations, such as autonomous driving without steering wheel, OEMs regard autonomous driving as driver's assistance packages, from "passive" features, such as today's parking assistance system, to the semi-automatic driving system which allows driver to control at any time. Of course, these technologies will become more mature and stable, and in 2030, people can even see autonomous vehicles without the steering wheel. Even with conservative estimates, by 2030, the penetration rate of autonomous vehicles is expected to be 15-20%.

Challenge of Network Security

Connected Car industry provides OEMs with a new lucrative opportunity, but it will also bring with an unprecedented risk. The recent reports on certain incidents have caused widespread public concern about the vulnerabilities of Connected Car and electronic malicious attacks toward it.

Network security have become one of the most important threats to OEMs because it endangers drivers' life so affects OEMs' reputation and financial situation. Hackers can sneak into the car network, enjoy digital services without paying any fees, or ask consumers to pay for services they do not subscribe to. The chip tuner can increase the engine power and control it through the CAN's overall interface. Criminals can theft car by disabling vehicle's anti-theft system and setting driving mode. Synchronization between the customer's mobile devices and their vehicles increases the risk of personal information leak, as a hacker can remotely steal a user's personal information by invading a vehicle's Bluetooth or wireless interface.

These security risks seriously destroy customer's trust in Connected Car, but the trust is a very important for OEMs. When consumers know that the Connected Car may disclose personal information, and may even endanger their safety, they will, of course, resist it. Therefore, if OEMs want to realize the great potential of digital automotive technology, they must convince consumers that this technology which totally depends on electronic network technology is safe and reliable.

OEMs must provide consumers with the most effective strategy to deal with network security of Connected Car. We believe that the responsibility of Connected Car's safety will ultimately fall on the shoulders of OEMs. As a service provider, OEMs need to build consumers' trust in their security systems. Only safety-conscious OEMs can win the market, while those who ignore security will definitely lag behind in this competition.

Strategies of Automobile Industry

In the future, the automotive industry have to respond to the development of Connected Car, and adjust its culture and strategy. PwC will provide relevant support for OEMs.

In the perspective of culture, technology companies have a digital culture and flat layers of management that speeds decision-making process. They emphasize results over processes, and give employees creativity, enable them to break barriers and then achieve goals in a variety of ways. They reward people with vision, curiosity, flexibility and motivation. Communication and collaboration are the key. A mixed team consisting of experts from different departments work together on a project. Career development is fast and unpredictable. This reflects the vibrant technology industry, which changes fast and unpredictably. Survival depends on innovation, victory depends on the rapid response. How well the automotive industry adapts to this change will be crucial.

In terms of strategy, such as for premium vehicle OEMs, they need to define a dominant area: to produce a vehicle that no one else can produce. And become a "super competitor" in this field: the master of this field, who other companies must cooperate with in order to success. At the same time, build a global production capacity of the car, even if you may need to sell other brands (as long as you control the overall situation). If OEMs can dig out new value of data, they are dare to try some digital risks. If OEMs change from a transaction-based business model to a service-oriented model, their customers will become lifelong customers.

For example, for non-premium OEMs, they also need to find a feasible path of development: provide the correct digital features based on the cost that the company can bear, and thus bring the company into the new world; Share the cost of R&D with other companies by collaboration; Mining data alone or collaborating with others. Selectively innovate and use R&D funds as rationally and efficiently as possible; Find ways in which bureaucracy can be removed in order to ensure that creativity is released and resources is saved; Shape and support the mobile ecosystem, and design vehicles for current drivers and future passengers.

Suppliers face the choices: cooperation with the OEMs, or developing digital products by themselves. Under the current technology, it is difficult to take both into account. Re-visit the existing and past OEM partners, and help them to re-plan investment. Change from equipment- oriented to service-oriented model. At the same time, start own digital transformation to become a real catalyst in the industry and gain profits.

No matter of the industry giants or small market participants, both of them are facing the difficulties in cutting the cost to increase profit. Excess capacity, high expense cost and low operating efficiency are the common phenomenon in automobile industry. At present, operators should have more thoughtful strategy and further understanding in lean manufacturing.

Feasible ways for OEMs and suppliers to cut cost and enhance efficiency

I. All parties of traditional automobile industry chain are suffering the pressure of "Fail to fall" cost

China's auto industry has experienced 10 years of rapid development but since 2011, it stepped into a steady period. Moreover, E-business has significant impact in automobile sector, the traditional business model was hit to the ground. Sellers' market turned to be buyer's market.

The current China's auto market has the following industry characteristics: 1) Market competitions is unprecedentedly intense; 2) OEM's capacity utilization and profitability drop back to the normal level; 3) The sales growth rate is slow but steady, but large basis of Car Parc promotes after-sales service market. The scale of aftermarket is expected to reach 1 trillion in future, it will become new highlight.

This change in the overall industry brings new opportunities and challenges to each automotive industry segment:

Components manufacturers: slowing down sales of new vehicles indirectly increases the cost pressure for components manufacturers.

- Vehicle manufacturing sector is relatively mature and stable. While, components industry are still stick to the early stage and developing under uncertainty. Also affected by sales of vehicles, parts suppliers will experience a slowdown. Although in the long run, this trend might be better off thanks to expanding aftermarket driven by large basis of Car Parc, the cost pressure which transfers from OEMs to components enterprises will not be released in the short term.

- Furthermore, export its products will be a practical way to make components enterprises grow bigger and stronger. Domestic passenger vehicle components suppliers have great potential in substituting imported products and even exporting products. And relying on growing competitiveness, domestic passenger vehicle parts will achieve export expansion and diversification. However, due to fluctuations in the Rmb exchange rate and uncertainty of global political and economic situation, such opportunities require more on quality and price.

OEMs: profit has the trend to decline continuously, and cost pressure for OMEs become increasingly prominent

- Profit margins of major China's joint ventures are in the range of 5% to 10%, but the profit margins varies significantly between domestic enterprises. According to the historical profit margin of mature markets, the average number of major OEMs was around 2% over the past 3 decades in U.S and Europe market, 3% over the past 2 decades in South Korea market and 3% during the past 3 decades in Japan market. While JVs' annual average profit margin is around 7% and the domestic is around 3%, which exceeds the historical average level of overseas market. Based on profit data, we expected that influenced by steady capacity utilization, reducing scale effect, increasing cost for R&D and labor fees, cost pressure for OEMs will become increasingly prominent in the future.

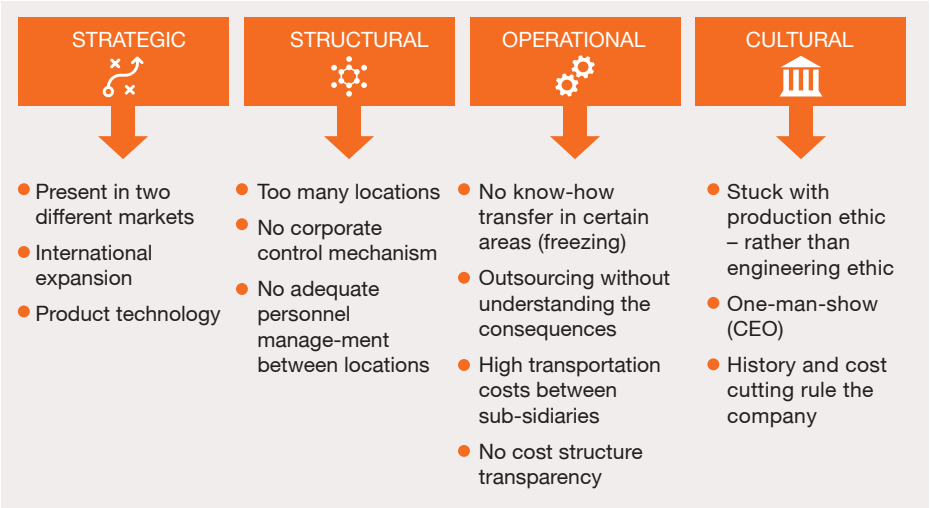
Dealers: Profits from business of selling new vehicles is neglectable, so they are hungry for finding a new profitable growth point and practical business model. And the new business model requires more on dealers' cost management.

- Selling new vehicles is no longer a practical way for dealers to win revenues and the profit was shrunk dramatically since 2012. After-sales service is the major source of profits, and the CAGR is expected to be 15%. With the expansion of aftermarket and the stable margins from selling new vehicles, dealers' will change their major business from selling new vehicle to providing after-sales service. The changes will help dealers to win new profit driving force but it is also challenging their management ability.

In summary, it is obvious that all participants in automotive industry are faced with different types of cost challenges. However, the approach to cut cost and increase profit will be the major issues for each enterprises.

II. Use more comprehensive and systematic methodology to analyze cost expense and operational efficiency rather than make analysis separately on a certain issue.

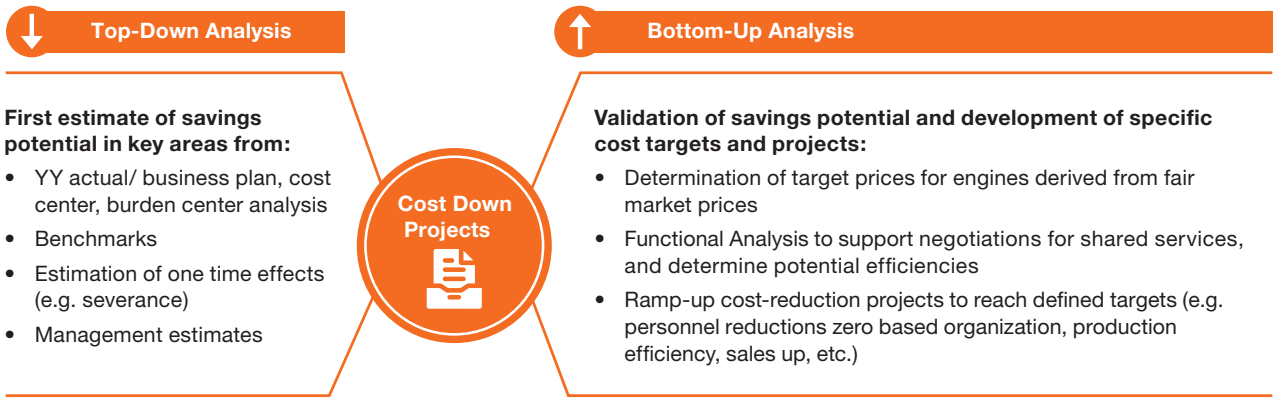
- The cost problem is a symptom of an enterprise problem. A typical chain of enterprise problem is starting from culture level then transferring to strategy level, and finally revealed in financial operations statement. PwC's analytical approach, which analyzes from cultural perspective to strategic perspective, provides a more complete picture of management, strategy, or other essential problems hidden behind cost.



- After identifying true nature problem, the way to solve these problems and optimize the cost usually includes the following three aspects: 1) Adjust core business structure; 2) Promote the overall operational efficiency; 3) break through the existing business boundaries, and identify emerging profit growth points. We can make out a comprehensive cost optimization solution through the evaluation and design of above three aspects.

III. How to use comprehensive methods to help auto companies to evaluate their own cost expense and operational efficiency

PwC set up a top-down and bottom-up methodologies, helping clients in cost reductions and efficiency enhancement projects:



IV. The most practical method for auto companies to cost-down and efficiency-up

Point 1: Recognize optimizable aspects of sales and management fees in traditional cost structures

- Figure out detailed items which have space to save cost by benchmark and cost division such as marketing activities expense, administrative expenses and etc. Then, we can optimize each of the items sorted out.
- A certain customer of PwC realized transformation by upgrading products and increasing cost efficiency. Also, process management was optimized. Reduced cost of major raw materials increase gross profit margin from 2.4% to 10.1% and net profit margin increased from 1 % to 1.5%, leading to significant improvement in profitability.

Point 2: Reducing the overall cost by building a sharing center, such as the SCCC is particularly applicable to the current automobile market where a large number cases of M&A happens due to the political and economic situation

- The integrated enterprises can promote common managing business processes sharing to form scale effects in order to cut operational cost.
- A certain customer of PwC proposed to set up a shared financial center to centralize management of information and cash flow. And it establishes a unified financial model within the group to ensure the standardization of financial management quality and internal risks control. Meanwhile, it helps to achieve low-cost, low-risk management and support company expansion.

Point 3: Use innovative way to reduce financial and capital cost. Enhance the capital efficiency in order to go through turbulent times smoothly. Expand the scale of business by capital investment.

- For the 2B side: For the complex and sophisticated automotive industry, supply chain finance has financial advantage for every player in industry chain. Industry players develop business through different forms and cooperation types to achieve finance support. Supply chain finance can effectively inject funds into small and medium-sized suppliers meanwhile provide large enterprises with better financial management. Therefore, it solves the problem of unbalanced distribution of funds in the supply chain and enhance the competitiveness of the whole supply chain groups.
- For the 2C side: Whether in the new car, used car side, or in car owners, car enterprises side, 2C-side supply chain finance will provide consumers with much more and faster credit, and widely solve the difficulties and high cost of financing. It will not only cover the whole process of car pre-sale, sale and after-sale, but also extend to the automotive consumption and other related fields. From the aspect of financial services, in addition to the credit business, it also includes financial leasing, car savings, car consumption insurance, credit cards, guarantees, automobile accounts receivable factoring, automobile accounts receivable securitization and other financial services in the process of automotive consumption.

As 'O2O operations, digital strategy' have become hottest topics in the automotive industry, we see that traditional manufacturers and dealers are trying to seize the new challenges and opportunities which bring by technology upgrading. China's new generation, who is growing up in the era of Internet, the consumer experience, e-commerce and other Silicon Valley inventions are now key selling points to promote sales.

New sales mode under challenge of digitization age

Chines consumption behaviors are changing, resulting in changes of retail channels in auto industry.

In recent years, China's high-end automotive industry is experiencing recession. Dealers and their investors or financial supporters have already felt the double pressures from rising house prices and declining stock markets, and they have to cope with the increasingly fierce market and have to meet demanding and informative customers. Many dealers' profits are suffering from pressure from independent service providers "ISPs" (see below) in key after-sales operations, and their financing is difficult as well. As a result, dealers increasingly rely on OEMs to maintain their normal cash turnover, while those whose capital chain crack were bankrupt.

However, the previous situation is totally different. A few years ago, China's economy maintained double-digit growth, OEMs are busy in expanding retail network in teri2 and tier3 cities. Investors behind the dealers can quickly recoup their investment (certainly faster than US or European investors) and get high returns.

At that time, the ways that customers get information is mainly via dealers. According to a survey conducted by PwC ('Investigations') in 2015, customer would, on average, visit dealers 4-5 times before making a decision. Since the customer only has a basic understanding of their target cars, salesmen have sufficient opportunity to establish a mutual trust relationship with the customer and eventually reach a purchase agreement.

Three Key Challenges for Chinese Dealers

Based on surveys (which mainly research consumer behavior changes and dealer roles) and PwC's high-end customer feedback, the change in the business environment has shaken up the luxury retail industry. According to a survey from more than 1,300 car owners in 20 1-line, 2-line, 3-line and 4-tier cities in China, dealers and manufacturers need to make efforts in the following three aspects to adapt the new environment:

- Based on surveys (which mainly research consumer behavior changes and dealer roles), the change in the business environment has shaken up the luxury vehicles retail industry. According to a survey covered more than 1,300 car owners from tier1 to tier4 cities in China, dealers and manufacturers need to make efforts in the following three aspects to adapt the new environment:

- The industry's first major challenge comes from digitization. This will affect how customers purchase vehicles, and how dealers and carmakers use technology to maximize sales opportunities and optimize operations and retail formats. Fundamentally, customers want a contact who can provide suggestion and information about inventory, dealers and the address of after-sales service. The automotive industry should take advantage of digital technology to provide customers better consumption experience.

- The online resources provide potential customers with more information than ever before. It significantly affect the relationship between dealer and customer. Customers are able to get a lowest transaction price by online comparing between different dealers. According to the survey, 90% of buyers would spend more than a week on online research before go to the exhibition hall.

At present, the potential consumers are much likely to make a purchase decision after visiting dealers just once or twice, so dealers and OEMs need to ensure that their Online-to-Offline ('O2O') information are synchronous. This means that, in practice, if a potential customer has made an inquiry on the Internet, he or she should get the same information when he or she visits the retail stores, the dealer can follow up and then generate a sales opportunity.

Digital also affects the customer's purchase experience in dealers. The survey revealed that consumers want to have more digital experiences while visiting resellers. 61% consumers say that they want to use touch screens, interactive walls, and 3D displays to more vividly configure their car's specifications, and even to enjoy the virtual driving experience. As we know, today customers may only visit dealers once before making purchase decision, dealers need to seize the opportunity to impress customers.

The second challenge is how the dealer can optimize the current exhibition, including maximizing the number of showed vehicles, after-sales working area and entertainment facilities. The survey showed that customers want a more realistic driving experience before buying a certain vehicle, especially when customers upgrade vehicles to a high-end product. Most car manufacturers usually want to show different vehicles in stores, but it will inevitably cause the problem of crowded and mess, which will give dealers a big challenge. Dealers also need to ensure test drive which is thought as an essential part of the purchase process, so experience period should not be too busy. According to the survey, 75% of respondents want to have a test drive experience, but due to the unsatisfactory route design or unskilled salesmen, the actual experience is often worse than expected.

Customers also want a place for entertainment, where they can have food and relax or even have children care business when they browse vehicles in stores. 75% respondents said they expected entertainment place in stores and over 62% consumers want a coffee or tea area since more than 60% respondents would come with their spouse or friends. Although we see more dealers have upgraded their facilities to meet customer expectations, many of them still need to emulate the former and improve.

The third major challenge is how OEMs adjust their dealer network and use more flexible business models. The rapid expansion during economy's high-growth period cause the problem that the dealers network of some manufacturers are inefficient and clumsy. Sometimes one manufacturer has too many dealers in a certain city; or their dealers may be too densely distributed, and cause unnecessary competition. Such dealers are struggling to run the business which is difficult to get profit. If they cannot get financial support from OEMS they will bankrupt.

We believe that with the establishment of diverse service channels, more flexible dealer network will be the solution of this problem. For example, according to our survey, consumers have different requirements for the dealers' location. The location of after-sales service should in the range of 30 minutes' drive from home. Customers consider the location of after-sales service as the crucial factors when they purchase vehicles so dealers need to meet these demand. Some large 4S stores (one-stop shops offering sales, repair, accessory and information services) need to establish smaller professional stores to provide after-sales service in order to be more flexible, and specifically, to compete with increasing number of ISPs which location advantage.

Last but not least

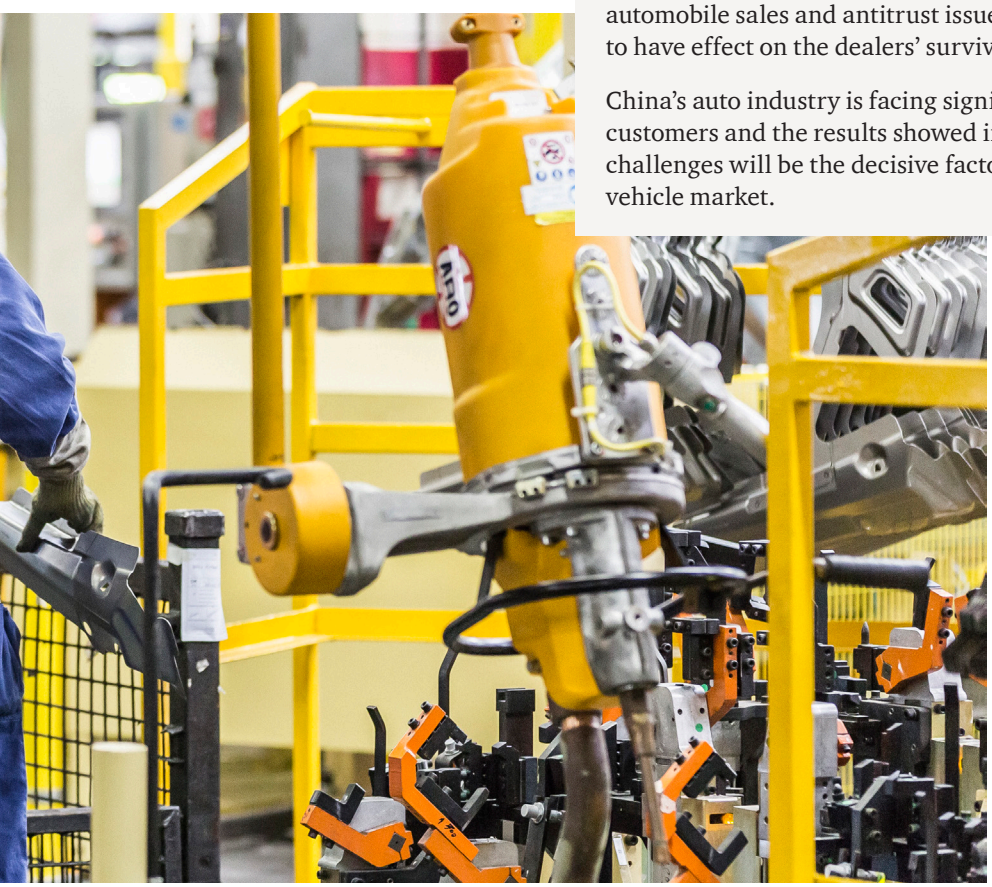
PwC has been aware of the significant changes in premium automotive industry. Most brands are taking steps to improve the integration of their O2O services and provide more strategic distribution centers to compete against ISPs. We also see that in many cases, dealers provide customers with a range of impressive entertainment facilities to ensure that customers get better consuming experience.

But this progress is not uniformly reflected in premium market. OEMs and dealers need to adopt a more consistent approach to update their business models. For example, an integrated O2O operation is critical to maximizing sales opportunities, but it needs to be complemented by the right traditional physical facilities. This will require a brand flagship store located in the city center and provide a high-tech digital experience, a convenient after-sale location, and a large off-site exhibition hall to provide numerous vehicle models and test drive facilities.

But more regulatory changes in the future will cast a shadow over the industry, and these changes are likely to have far-reaching impact. We have noted that a new law on the after-sales service, which is promulgated by the Ministry of Commerce in September 2014, encourages independent dealers to compete in the traditional profitable business. The current new legislation also requires OEMs to publish a workbook. This law will enable ISPs to provide after-sales services to premium vehicles.

More regulations are expected this summer. These two policies may reshape the relationship between OEMs and dealers, depending on the specific regulations and the severity of compliance penalties. The draft related to automobile sales and antitrust issues from Chinese government is expected to have effect on the dealers' survival environment.

China's auto industry is facing significant changes. As we learn from our customers and the results showed in surveys, how to properly address these challenges will be the decisive factor in China's fiercer competitive premium vehicle market.



Dealers are suffering in these days and many stores are forced to close. However, those previous extrodinary lucrative profits are pushing them to seek a new path to survive. Under New Normal, a journey of 'Fit for Growth' has quietly begun among dealers.

Fit for Growth– Strategy Choice of Automobile Dealers under the New Norm

The skilled warriors are good at using its advantages and potentials, especially at hard time. While China is on an economic turning point, facing the challenge of lifting the economy onto the new level. Chinese government are implementing 'supply-side structural reform', 'three drop one fill' policies, which result in some organizations including auto OEMs struggling in the context of "New Norm". Dealers, who are at the end of the "food chain", are facing pressure of sheer survival, The dealer network management reform, which is, in effect, a type of 'supply-side structural reform' in automotive industry and it also needs de-leverage and de-stocking to reduce cost and improve efficiency. We note that many companies, especially after experiencing profit pressure, will pay more attention to management transformation and their focus change from scale-orientated model to quality-orientated model. They pursue light assets, low capital, strong control, high yield and they realize that the sustainable management approach is 'Fit for growth'.

PwC's 'Fit For Growth' methodology

The essential of 'Fit for Growth' methodology, aims at not only increasing market share, but also identifying sustainability and optimizing the resource allocation. Specifically, through finance function transformation and integration between business and finance, we can develop multi-dimension causal and benchmarking analysis to identify and eliminate inefficient assets and optimize business processes as well as organization and systems. Meanwhile, based on 'Fit For Growth' methodology, company potentials can be stimulated by establishing 'Fit' culture to promote upgrade and transformation.

Challenges for Auto Dealer Network Management

During the last golden decade, Chinese automotive market impressed the world. In order to increase market share, OEMs expanded production capacity and developed highly intensive dealer network covering from Tier1 to Tier 4 cities and even stretching out to the rural area. Since investing in a premium 4S store costs about 50 million but annual net profit may reach to 10 million and the payoff period only needed five years with double-digit annual rate of return, investors scrambled for this easy to earn money.

However, China automotive market has encountered unprecedented downturn recently. Witnessing the weak automotive market growth rate, high excess capacity, dropping MSRP, coupled with new vehicle purchasing restriction, second-hand car movement limitation , fast chain repair and the impact of electricity providers, dealers are facing operation difficulties. For example, 70% of one mainstream luxury brand dealers are suffering deficit. In the view of OEMs, some new entrant dealers are lack of operation and management expertise, and some others not only have insufficient funds, but also cannot provide high quality services, yet they still occupy valuable market resources and consume a huge subsidy from OEMs. On the other

hand, in the perspective of dealer investors, OEMs continue to pass pressure and ignore dealer's financial difficulties, which leads to dealers feeling helpless and left out. Many 4S store loses one million every month, even if it gains marginal profit, it still cannot cover depreciation. Moreover, banks also continuously threaten to call in loans. Due to local government management issues, many stores cannot obtain land certificate, resulting in insufficient collateral, so they have to borrow usury. As a result, a vicious cycle begins.

Currently, everyone is aiming at the OEMs' large-scale year-end subsidies for dealers. However, the subsidy granting process lacks sufficient analysis and precision, because the superficial management evaluation reports merely shows the dealers' performance results, such as revenue, profitability, customer satisfaction, etc. For the large amount of losses, it is difficult to tell the root causes of dealers simply through these traditional indicators, for example, whether the problems resulted from lack of management competence, or local market decline, or special problems related to investors, such as debt disputes, other owner business losses, excessive initial investment, cash outflow by external guarantee, etc. Auto makers are crying for a more 'Fit' tool to see through the maze of dealer performance and identify the effects of uncontrollable factors so that they can figure out those who really need support and are actually supportable. In conclusion, by more efficient and precise resources allocation, OEMs can better manage the subsidy process supporting dealers who can create the greatest value.

Network segmentation and classification management help dealers realize 'Fit For Growth'

Our 'Fit For Growth' tools have now helped some OEMs achieve multi-dimensional rating and risk classification for dealers. After comprehensive research, we found that most current dealer problems are concentrated in working capital issues, except for some dealers which have too high initial investment. In fact, very few established 4S stores of mainstream brands suffered bankruptcy simply because of the dealer operation. The true reason is most often related with investors, who invest much capital in other risky business, or have debt/equity disputes.

In the past, when managing with dealer subsidies, OEMs tend to focus on the urgent rather than the important issues. Indeed they have to balance the overall market, they want to prevent the failing dealers from sudden collapse which creates serious market vacuum and brand damage, and they hope to make all players feel like they are treated with fair principles. However, emergency measures as cash rebates, temporary target reduction and billing discount, etc. are usually targeted at dealers with serious "capital chain rupture", and that term in China means too late to be saved. As a result, these subsidies are often diverted by investors to offset losses in other areas – their most urgent and painful points. Often the indiscriminate comprehensive subsidies are based on topline related figures, and it actually encourages dealers to borrow usury for more sales. As a result, dealers with strong new car sales get the most subsidies, including those who 'creatively' reaches sales target. The dealers with potential capital chain risk and declining sales performance actually need the OEM support most, however, they are often missed out from the priority list. Therefore, although OEMs invest billions of subsidy funds every year, they cannot get effective results due to inaccurate targets and miscalculated approach.

Based on the above analysis, we suggest that OEMs prioritize their support towards dealers with outstanding sales track record, established local reputation, and recognized management but facing short term funding issue or temporary market downturn.

After screening and analyzing a large number of data, we recommend and assist in implementing a series of support policies, for example, timely cash rebates, business plans adjustment, short-term financing support based on payable rebates, idle asset buyback, etc. These measures, if timely implemented, will help dealers avoid being blacklisted by banks, or sinking into usury mire and help them survive through the crisis. Of course, rather than taking last minute measures, OEMs should push dealers to avoid pitfalls of cash flow strains in the first place and turn around quickly at early signs of trouble through close-loop cash management. In particular, real breakthroughs are needed in the area of auto finance for inventory procurement, and third parties should be involved to closely monitor cash, stock and quality certificate, when necessary, enforcing close-loop management to ensure the proceeds from car sales go directly to banks. This would promote financial discipline and give piece of mind to both bankers and consumers.

Furthermore, OEMs should avoid blindly supporting the failing dealers who have no commitment and no future. We suggest OEMs set up centralized database for investor business intelligence, support regionally strategic dealers, closely monitor and enforce close-loop funding management for risk dealers, and if necessary, encourage the orderly exit from the network.

Last year, PwC helped some OEMs assess their channel risk and decisively persuade nearly 10% of dealers for closure (to speed up network restructuring), meanwhile the OEMs reallocated resources towards the other 10% high potential ones for rapid change and strong growth. Finally, these measures made the overall network turned around reaching sales and profitability targets. All in all, 'Fit For Growth' not only improves financial health, but inspires the entire sales and marketing channel and lays a foundation for further sustainable development of dealer network.

"Fit For Growth" is driven by data and intelligence to achieve sustainable win-win situation. It naturally requires continuous testing and adjustment on the policies and measures. Under the New Norm, it is a good strategic choice for enterprises to achieve growth in current downturn.

In 2016, the relevant departments began to gather opinions on 'car sales management approach', which inspired many auto parts manufacturers. With the gradually mature market and increasing Car Parc, vehicle maintenance and repair will become a stable and considerable source of profits. In this case, we take this opportunity to discuss how to find some chances in the complex automotive aftermarket.

Unlock opportunities in Auto Parts Market

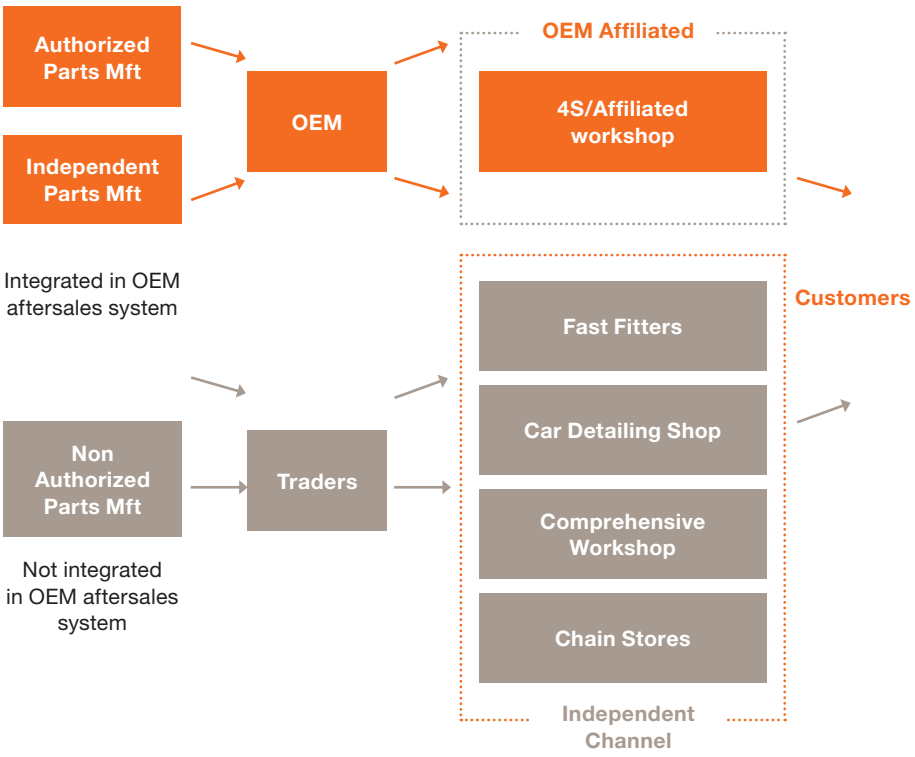
I. How to take a place in the huge auto parts market

For the auto parts enterprises, OEM related market and after-sales market are two main business segments to support its operation:

1. For OEM market, Chinese domestic OEMs have the same operating model with OEMs in mature market, but both of them have their own complete procurement catalog.

2. Chinese after-sales market has a completely different competitive landscape from mature markets, which is entering a fast-growing path resulting from the increasing Car Parc in China. However, due to the long-term disordered state of China's auto after-sales market, various types of auto parts enterprises are seeking for suitable business models to grow. The main formats of China's auto after-sales market are showed as follows:

China Aftersales Market Channel Overview



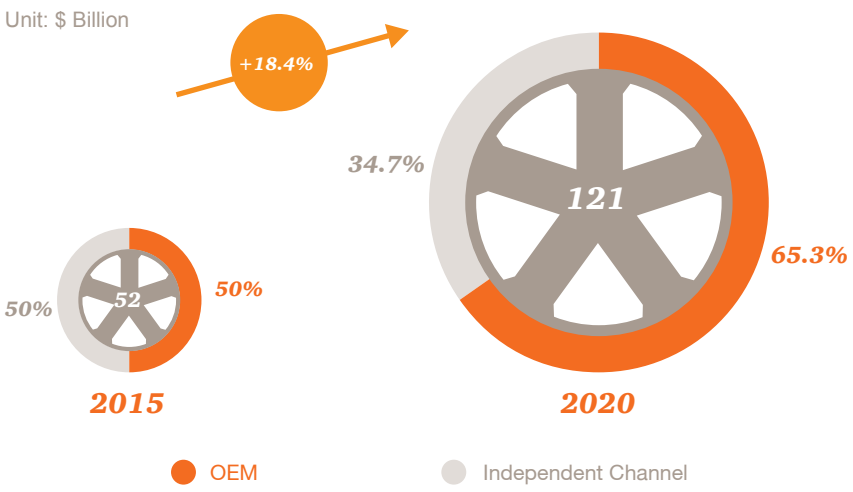
'Measures for the Administration of Automobile Brand Sales', which is aimed at anti-monopoly, is expected to expand the distribution channels of after-sale accessories. The business model in auto parts market is expected to catch up with international level, so auto parts market would benefit from it.

- Meanwhile, 'Measures for the Administration of Automobile Brand Sales'released the new rules: The enterprises, which are not authorized by OEMs or without qualifications, should not provide vehicle resources. This regulation gives rise to strong control of after-sales accessories for OEMs. Besides, when OEMs choose their parts suppliers, they generally would sign a related agreement with parts companies, which, for example, can require their supplier not to sell corresponding parts to any other channel but 4S Stores.
- As for the Europe in 2002, EU regulations on car sales and service provided that car repairs were no longer tied to sales. OEMs could not require dealers to have repair shops and ask automakers to publish a full set of technical information, tools, equipment, and trainings to independent, unauthorized auto repair. Consumers can choose their own vehicle repair channels.
- After the antitrust incident, the domestic after-sale market is expected to gradually follow up the international standards. The "Regulation of Automobile Sales" may be revised. If the vertical monopoly in auto industry is broken, auto parts enterprises would benefit from it.

In future, independent after-sales channels will partly replace OEMs' after-sale channel. By 2020, its market share will reach 65% becoming the main format of auto parts market:

- According to the analysis, with the development of non-OEM vehicle's after-sales channel and the changes in consumption pattern, we expect that the independent after-sale channel will partly replace OEMs' after-sale channel reaching to 65% market share in 2020 and this situation will become the main stream of auto parts market:

China Aftersales Market Value* Forecast by channel



The parts companies need to learn from the experience in the mature market, but also must base on the multi-structure characteristics of the Chinese market and develop a more flexible after-sales business model to seize the huge automotive aftermarket market share. We believe that the main business model of auto parts companies will be as follows in the future:

Model 1: Auto parts enterprises provide after-sales repair products independently

- Parts companies can be the suppliers of OEMs and provide relative services. In addition, after breaking the vertical monopoly in after-sale market, they can choose not to enter the sales channel of 4S stores and establish their own sales channels.
- By the combination of OEM and after-sale market, parts companies can expand sales scale, and can provide a more competitive price than 4S stores. In other words, they not only broaden source of income but also reduce costs from upstream procurement thanks to the expanding sales scale.

Model 2: Auto parts companies sell products to wholesalers

- In the future, if the "Measures for the Administration of Automobile Brand Sales" are amended, the auto parts enterprises may sell the products to wholesalers or independent repair stores besides 4S stores and then wholesalers can sell products to consumers.
- If the authorization for dealers' after-sale market is released by OEMs in future, parts manufacturers can directly sell their products to dealers, instead of through OEMs.

Mode 3: Auto parts companies sell their products to online suppliers

- Online after-sales parts websites are emerging gradually. These E-Commerce mainly purchase products from large well-known parts manufacturers, as these enterprises have strong comprehensive strength and they are not be entirely controlled by a particular OEM. Thus, they have the rights to sell their products to the after-sales market. Also, if accessories circulation gradually opens, other parts companies can provide products to E-Commerce as well.
- Unlike the traditional repair shops, online stores solve the problem of adulterated goods. Although some parts in the online suppliers are not original pieces, online suppliers ensure the same quality with original accessories, and they also have the price advantage.

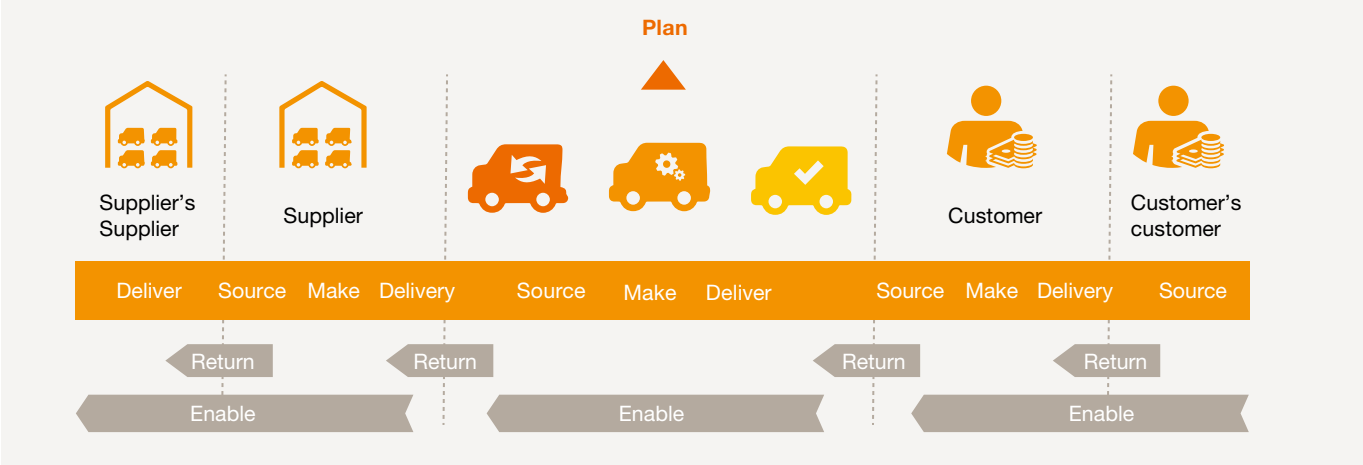
II. Build leading and high-quality accessory systems from the perspectives of forecasting, planning, procurement, logistics, networking and sales strategy.

In the view of global mature market, OES and other independent after-sales channels in after-sales market divide the market equally. However, the situation varies by regions, in US, Germany and UK, other independent channels account for 80% and OES take the rest. However, a totally opposite effect is in Japan and Korea that this figure is exchanged. In the terms of China, the OES's market share is around 15%. Therefore, whether OES can own further development in China, they are confronted with the following operational problems:

- Narrow distribution of brands and single business structure: thousands of small-scale resellers in China have the similar irrational business model. It is difficult to change the inherent business model for auto parts dealers mainly relied on vehicle parts, let alone provide a satisfactory maintenance service. While, domestic accessories dealers can agent different brands in order to cover more models and provide extensive services to customers which will meet the market demand better.
- Insufficient operational capacity of dealers / agents: China's dealers have very limited capacity for inventory management in the terms of weak planning capability and cash flow control. This kind of dealer business models brings difficulties and challenges to the promotion and operation of OES.
- Counterfeit parts affect authentic parts' market share: Many auto parts brands, especially foreign brands have encountered imitation problems in China.

No matter what kind of operation model will be selected by auto parts companies, how to solve the above operational problems will be a key issue to the future success after identifying the business mode.

For such operational issues, our SCOR model can evaluate each operation sector and then identify and solve problems:



Process	Definition
Planning	Balancing aggregate demand plan and supply process. Forming the best process of purchasing, producing and demand.
Purchasing	The process of obtaining raw materials and services. Satisfying plans or actual demands.
Production	The process of raw materials turning into products. Satisfying plans or actual demands.
Delivery	The process of offering products and service. Satisfying plans or actual demands, such as order management, delivery management and logistics management.
Sales Return	The process of returning products or accepting the returns. This process extends to the customer support after delivering products.
Effects	Supply chain relationship, performance and information is supported by process management which will connect supply chain into other areas such sales, IT service, human resource.

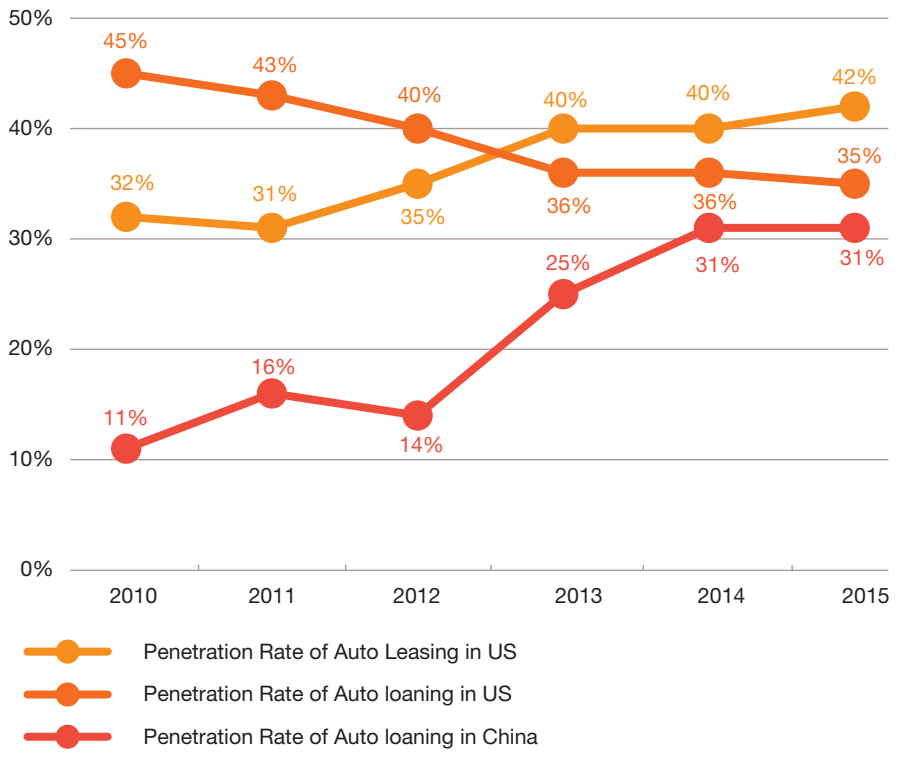
In mature markets, auto finance is regard as an important sales tool of new and used car. With the booming development in China's auto market, this business is experiencing bottlenecks after high-speed growth in the past few years, Auto finance needs to conquer some difficulties for further healthy development.

Eight Pain Points in Auto Finance Market

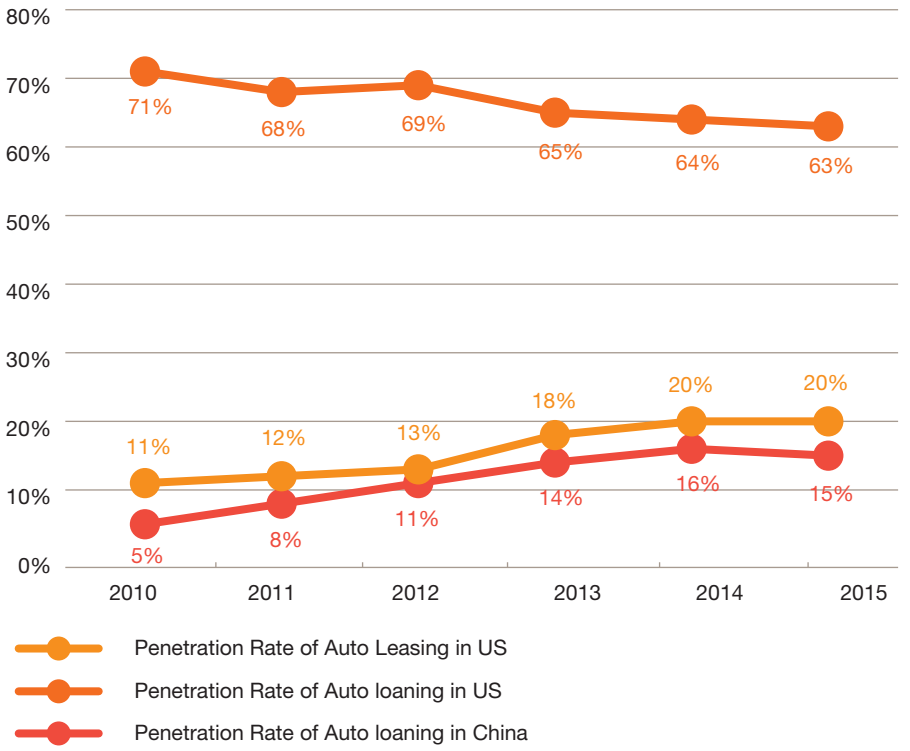
In 2015, the sales of China's passenger car was more than 21 million units, of which the penetration rate of auto loaning was between 27-28%. In other words, there are at least 5.6 million new cars are sold by loaning. Since 2004, when China's first auto finance company was born, this business has developed for 12 years. Given the sustainable growth in sales of new vehicles, penetration rate of auto loaning is risen from the initial, at less than 5% to nearly 30%. Despite of the great increase, the penetration rate of auto loaning is still far behind by developed countries where less than 20% of total vehicles are sold by paying in full and all other vehicles are sold by auto financing. It means that the penetration rate in domestic auto finance market still has a great potential to improve. But currently, domestic auto finance institutions are generally suffering from bottleneck, and penetration rate of auto loaning also shows slowing down trend, then why is such situation? The reasons are showed briefly as follows:

1. **Low penetration rate of auto financing.** In mature markets, auto finance business is consisted of regular auto loaning and auto leasing. (See chart below)

Premium-Car Market



Non-Premium-Car Market



At present, in domestic passenger car market, the penetration rate of auto financing is relatively low, which is less than 2%, and the majority of this share are not owned by auto finance companies which have licenses of auto financing, but owned by nearly a hundred financial leasing companies. The largest passenger car finance company is All Trust Leasing owned by China Grand Auto. Auto finance companies are unwilling to develop auto finance business. When promoting this business, many of them either flinch or stumble. Successful cases are only a few. The reasons are only known by those who have personal experience in auto finance market.

2. Auto finance in used car market is still in early stage of development. In 2015, sales of used car was approximately 9.4 million, but what about its penetration rate of auto loaning? According to incomplete statistics, this rate is less than 10% and its penetration rate of auto leasing is less than 1%. But in developed countries, the penetration rates in used market and new-car market are almost the same.

3. Auto loaning is still in the pilot stage. As the penetration rate of new car was increasing rapidly in the past few years, some leading loaning companies try to entry auto finance market in order to get a slice of the cake. It is a common business model in developed countries. However, due to huge losses in auto loaning market between 2000 and 2003, loaning companies are still afraid to widely promote business. As a result, pilots of auto loaning and the expansion develop very slowly, therefore, auto loaning market cannot be improved significantly.

4. The effect of the discounted rate of OEMs' leasing is less than satisfactory. As now the ads of low interest-rate or zero interest-rate can be seen everywhere, OEMs' financing products with discounted-rate was less attractive then before and consumers have an aesthetic fatigue. At the same time, whether financing products with discounted-rate really promotes sales of new vehicles is a problem. Does it increase customer stickiness and after-sales service value? If the answer is yes, how much does it help, or is it cost-effective? Under such concern, OEM's attitude towards discounted-rate of financing is changing.

5. Internet financial companies also want to entry this market relying on the power of the internet. But because the internet financial companies are disintermediated, and have high-frequency & low-turnover and other characteristics, their business operation model is different from traditional auto finance companies of which business model is low-frequency & high-turnover. So far, no internet financial institutions is able to construct a complete closed-loop operation chain, and thus consumer experience is not so good. To conclude, the internet finance fails to greatly affect auto finance industry.

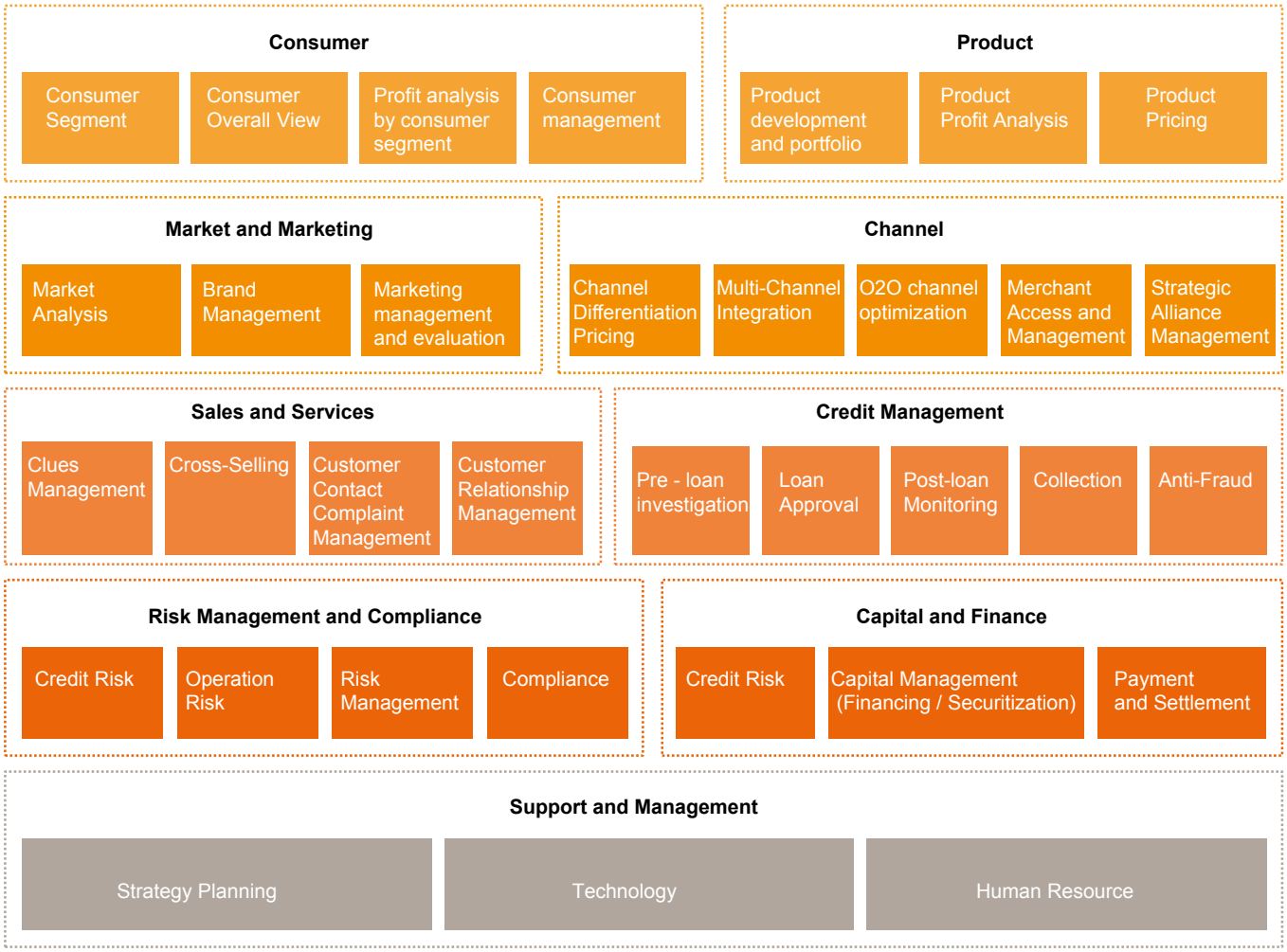
6. The risk of inventory financing is greater. As competition in new car market has become more fierce, dealers face a lot of pressure in the retail side. On the other hand, OEMs also transfer their pressure on expanding market share and promoting sales to dealers by the way of backlogging inventory. So the risk of inventory financing for dealers are gradually exposed, with the increasing overdue rate and bad debt rate. Financial companies and banks' losses from this area also show an upward trend.

7. It is difficult to choose great third-party channel to entry auto finance market. At present, many wealthy investors are optimistic toward auto finance market, but they lack not only channel advantages compared to financial companies, but also wide network distribution and human resources advantages compared to large banks. Therefore, they have to rely on third-party channels to expand auto finance business. The current third-party channels are mainly SP model (SP is simply an upgrades of insurance company). However, because SP has a low entry threshold and low cost of start-up, it is still in a fast growth stage and difficult to tell good from bad. When cooperating with numerous SP companies, which management ability varies a lot among each other, those investors who are interested in auto finance market feel too confused to choose partners.

8. Big data in auto finance did not apply to practice. As auto finance companies grow rapidly in the past few years, their customer base is considerable. However, it is been concerned that whether auto finance companies are able to analysis the big data and to support their own development or even support the whole industry. It is a pity that so far big data in auto finance market fails to play its role effectively.

China has an old saying: no broken no start. As an important part of consumer finance, auto finance is in urgent need of breakthrough and innovation, so every industry players need go ahead and make further progress to promote the development of the auto finance industry.

In response to above pain points, PwC believes that the development of auto finance business needs not only a clear business model, but also a clear operation model. It also requires auto finance companies to deeply understand the key business modules and capability. Based on the rich experience in this field which PwC accumulated in practice for many years, combined with the characteristics of the auto finance industry, auto finance business can be divided into the following eight business modules, namely: customer, product, market and marketing, channel, sales and services, credit management, risk management and compliance, capital and finance, support and management.



PwC designs differentiated business models based on the different strategic positioning and business status from different financial institutions. Combining with industry research, we share domestic and international leading practices for each type of capability, and conduct industry benchmarking and differentiated analysis, to provide customers with feasible suggestion.

In recent years, whether the shareholding restriction on foreign ownership in auto-manufacturing JVs shall be lifted initiated discussions and speculations on this topic among various stakeholders. The lifting of foreign ownership restrictions in auto manufacturing JVs will lead to a substantial transformation of the auto industry in China. In terms of the players in auto manufacturing industry, long term preparation and consideration shall be taken into account of for such lifting of restrictions. From legal perspective, this article proposes to explore on main legal issues that will be involved when foreign shareholders of an auto-manufacturing JV acquire the shares of the Chinese shareholder after the lifting of foreign ownership restrictions on auto manufacturing JVs.

The legal interpretation of lifting of foreign ownership restrictions on auto manufacturing JVs

On July 22, 2016, China Association of Automobile Manufacturers and representatives from FAW, DFMC, SAIC, BAIC as well as experts from China Automotive Engineering Research Institute and China Automotive Technology & Research Center discussed over whether the shareholding restriction on foreign ownership in auto-manufacturing JVs shall be lifted, which initiated discussions and speculations on this topic among various stakeholders.

Issued in 1994, the Policy on Development of Automotive Industry ("Auto Industry Policy") provides that "the shares held by a Chinese shareholder in a Sino-foreign joint venture which manufactures automobiles, special vehicles, agricultural vehicle, motorcycles or engines shall not be lower than 50%". Several amendments to the Auto Industry Policy have been made since 1994. However, the foreign shareholding restriction in auto-manufacturing JVs has been remained.

In recent two years, relevant automotive government authorities have released many positive signals on the possible lifting of foreign shareholding restriction in auto-manufacturing JVs. On November 19, 2013, the press spokesman of MOFCOM said at a regular press meeting that "the foreign investment restrictions on registered capital, shareholding percentage and business scope with regard to general manufacturing industries such as steel, chemicals and auto would be further lifted". On April 25, 2016, the Minister of MIIT, Wei Miao, spoke at the closing summit of the China Automobile Forum that "the lifting of foreign shareholding restriction of auto manufacturing JVs now has an agenda - either in 8 years, or 3-5 years this may happen". In addition, at the end of June 2016, at the Davos World Economic Forum held in Tianjin, the Commissioner of NDRC, Shaoshi Xu, has announced that "the Chinese government is considering to increase foreign shareholding participation in auto manufacturing JVs". Furthermore, 0n July 19, 2016, the State Council has announced that foreign investors may establish wholly foreign owned enterprises to manufacture motorcycles in four free trade zones ("FTZ") in China. This is seen as a signal of lifting the foreign ownership restriction of auto manufacturing JVs as FTZ has always been acting as the pilot for the introduction of new national rules and policies of PRC government.

The lifting of foreign ownership restrictions in auto manufacturing JVs will lead to a substantial transformation of the auto industry in China. In terms of the players in auto manufacturing industry, long term preparation and consideration shall be taken into account of for such lifting of restrictions. We have briefly listed below the main legal issues that will be involved when foreign shareholders of an auto-manufacturing JV acquire the shares of the Chinese shareholder ("Share Transfer"):

• State-owned assets appraisal and approval

As most Chinese shareholders of auto-manufacturing JVs are State-owned companies, the Share Transfer shall strictly conform to the regulatory requirements concerning the administration and supervision of State-owned assets trading. State-owned assets appraisal of the shares to be transferred by the Chinese shareholder is required, and in principal, such Share Transfer shall be carried out via a public bidding process at an equity exchange centre, and shall be approved by relevant SASAC authorities in order to avoid the loss of Stated-owned assets:

- State-owned assets appraisal. Before the Share Transfer, State-owned assets appraisal of the shares held by the Chinese party is required. The appraisal result must be approved by or filed with relevant authorities and must be used as the basis of the share transfer price to be agreed between the parties;

- Transfer of State-owned assets. Even though the Share Transfer is between the existing shareholders of an auto-manufacturing JV, the Share Transfer must be carried out via a public bidding process at an equity exchange centre where the JV is located. Therefore, the foreign shareholder may face competition from other interested buyers which may push up the share transfer price;

- Approval by in-charge SASAC authorities. Share Transfer must be approved by the in charge SASAC of the Chinese shareholder if the JV is a key subsidiary of such Chinese shareholder.

• Approvals by other Chinese authorities

Besides the approval required from SASAC, the Share Transfer is also subject to the approval by NDRC, MIIT and MOFCOM:

- NDRC. Pursuant to the Auto Industry Policy, change of shareholder of auto manufacturers (including JVs) shall be approved by NDRC.

- MIIT. Pursuant to the Administrative Rules for the Access of Passenger Vehicle Manufacturers and Products, Share Transfer of a passenger vehicle manufacturer who has obtained entry access prior to the promulgation of the rules shall be approved by MIIT.

- MOFCOM. Shareholder change of JVs also requires the approval of the original foreign investment approval authority of the JV. In most cases, MOFCOM is the in charge authority on this issue.

• Merger control filing and national security review

The Share Transfer may also trigger merger control filing and national security review:

- Merger control filing. Auto companies usually have high turnovers. It is quite common that the group turnover of auto-manufacturing JV's shareholders would reach the reporting threshold of merger control filings under PRC law. In addition, Share Transfer will lead to change of control of the auto-manufacturing JVs, which is a type of activity caught by merger control rules under PRC law. Therefore, merger control filing is very likely required for the Share Transfer.

- National security review. Currently national security review is mainly relevant for industries involving key agricultural products, key energy and resources products, vital infrastructure, important transportation services, core technologies and significant equipment manufacturing etc. Auto industry is not on such list. But it is noteworthy that the recently released Draft Foreign Investment Law has expanded the scope of national security review to any foreign investment that endangers or may endanger national security. Moreover, relevant authorities may initiate national security review at their own discretion. Therefore, the possibility for national security review to be triggered at the time of Share Transfer cannot be totally excluded.

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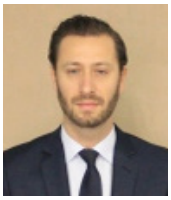

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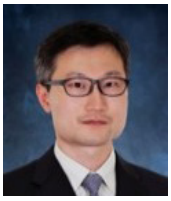

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