



Market Analysis Report: China's Automotive Industry

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EXECUTIVE SUMMARY

- China became the world's largest automobile producer and market in 2009 with annual sales of nearly 14 million vehicles. The market continues to expand in 2010. In the first nine months of 2010, automobile production reached 13.08 million units, a 36.1 percent increase from a year ago. The China Association of Automobile Manufacturers (CAAM) raised its forecast for annual sales to reach a record 17 million this year, matching the highest annual total ever reached in the United States.
- Industry growth has been primarily driven by rising domestic demand stemming from rising incomes, a growing middle class, and by supportive industry policies from the Chinese government.
- The Chinese automotive industry remains very fragmented. In addition, Chinese central government officials fear that unchecked expansion of China's auto industry encouraged by local authorities could harm the wider economy, and that excess capacity must be stopped. Hence, the central government continues to push for mergers and acquisitions (M&A) in the automotive industry which will support the emergence of a few leading national companies.
- China's weak R&D, domestic innovation and design capabilities are key challenges to its international competitiveness. With the government's encouragement, domestic firms have opted for strategic partnerships with foreign players, aiming to facilitate technology transfer and improve domestic design and engineering capabilities.
- The Chinese government has implemented a number of tax adjustments and subsidies for automobile purchases to encourage hybrid electric vehicles, pure electric vehicles and traditional vehicles of small engine displacement.
- Beijing has gradually introduced higher automobile emission standards for new vehicles. Plans to develop hybrid electric and pure electric vehicle production capabilities are part of a broader, environmentally friendly strategy to develop the auto industry.
- Market opportunities exist especially in the following areas:
 - Developing domestic innovation capabilities (e.g. vehicle design and engineering, hybrid electric and pure electric engines, electric motors and electric controls)
 - Productivity and quality upgrade (e.g. engines, transmissions, electronic control systems and safety systems)
 - Mergers and acquisitions (both in China and in Israel)
 - Clean transportation technologies

- Advanced manufacturing technologies
- Supply of essential automotive components/systems to OEMs (e.g. electronic control systems and safety systems)
- The following automotive segments in China are considered to be highly competitive and it will likely be difficult for Israeli firms to penetrate the market unless they have an extreme competitive advantage: Fabric for seats/interiors, seat covers, floor mats, curtains, aluminum die casting, rubber bumpers, electronic harness cables, antennae, speakers, electric starters, vehicle cleaning products, window films, A/C compressors, fuel and oil and air filters.

1. MARKET OVERVIEW

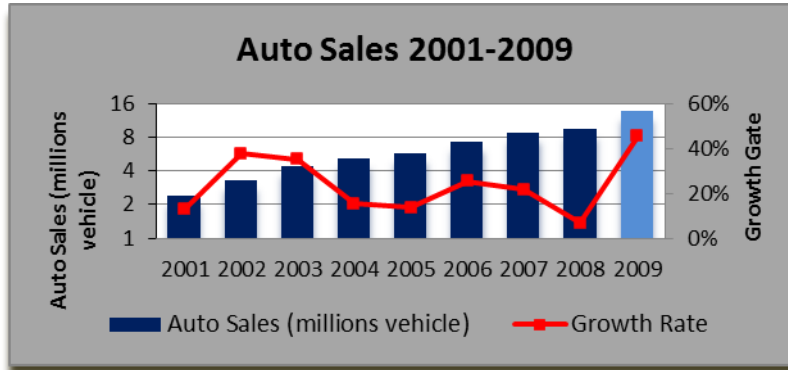
- China's automotive market has the most growth potential in the world; per capita car ownership is still remarkably low at 4.78% and is expected to grow significantly.
- Domestic whole-vehicle manufacturers and automotive suppliers are still extremely fragmented (government-supported consolidation is imminent in the near future); challenges remain for domestic R&D and design.
- With government subsidies and tax incentives, China is aiming to establish an early footing in the production of low-emission and environmentally friendly automobiles.
- Component imports surged by 130% in the first half of 2010; 60% of imported components were drivetrains, engines or automotive body components.

1.1 GENERAL OVERVIEW

Market Growth

Primarily fueled by domestic and partly by foreign demand, China's rapidly expanding automotive industry has outpaced the nation's already impressive GDP growth rates in recent years. Domestically, rising incomes and encouragement from the Chinese government for the urban population to obtain drivers licenses have spurred the demand for passenger vehicles. The booming passenger vehicle market has led to a soaring demand for automotive components. Internationally, automotive manufacturers faced with decreasing margins and profitability have sought out more affordable supply chain solutions, looking to China as a potential source for lower cost automotive components.

Unlike developed markets for passenger vehicles, where growth in demand has been largely stagnant, China's domestic demand for new automobiles has skyrocketed in the past years. Strong car sales in China in 2009 pushed the auto market to the largest in the world, and 2010 is set follow the positive trend.



Source: China Association of Automotive Manufacturers (CAAM)

In the first nine months of 2010, automobile sales reached 13.08 million units, up 36.1% from a year ago. Over 9 million of the total sales were passenger cars and 3.24 million were commercial vehicles. CAAM predicted that the 2010 annual sales will reach a record of 17 million units.

It is widely believed that China's automotive market currently has the most growth potential in the world. China's 2009 per capita private car ownership was 4.78%, far less than the 40% average of developed countries, and even less than other emerging markets such as Russia, Brazil and India. This is a strong indication that China's domestic market is far from being overly saturated. According to CAAM predictions, growth in the auto industry will remain strong until 2020 with annual growth expected to consistently range from 13 to 15 percent. The total number of vehicles will jump from 67 to 150 million. Sales in larger tier-one and tier-two cities as well as rural areas should keep growing at a rapid pace over the next few years and high growth areas will move from eastern China to the central and western regions.

Market Players

There are currently more than 100 whole-vehicle manufacturers and nearly 8,000 automotive parts manufacturers in China, located primarily in Southern, Eastern, and Northeastern and central China (see the map on the right).

Together, the top ten passenger vehicle manufacturers (seven of which are joint ventures (JVs) make up almost 90% of China's market share (see the table below). Nearly every major global vehicle manufacturer has established JV operations in China.



Top 10 Passenger Vehicle Manufacturers in China (2009)					
Rank	Company	HQ	JV Partner	Sales (Unit)	Market Share
1	SAIC ¹	Shanghai	GM, VW	2,705.5K	19.83%
2	FAW ²	Changchun	VW, Toyota, Mazda	1,944.6K	14.25%
3	Dongfeng	Wuhan	PSA, Nissan, Honda	1,897.7K	13.91%
4	Chana (incl. Hafei)	Chongqing	Ford, Mazda, Suzuki	1,869.8K	13.70%
5	Beijing Auto	Beijing	Hyundai Daimler	1,243.0K	9.11%
6	Guangzhou Auto	Guangzhou	Honda, Toyota, Isuzu, Fiat	606.6K	4.45%
7	Chery	Hefei	N/A	500.3K	3.67%
8	BYD	Shenzhen	N/A	448.4K	3.29%
9	Brilliance	Shenyang	BMW, Toyota	348.3K	2.55%
10	Geely	Taizhou	N/A	329.1K	2.41%
	Others			1,750K	12.84%

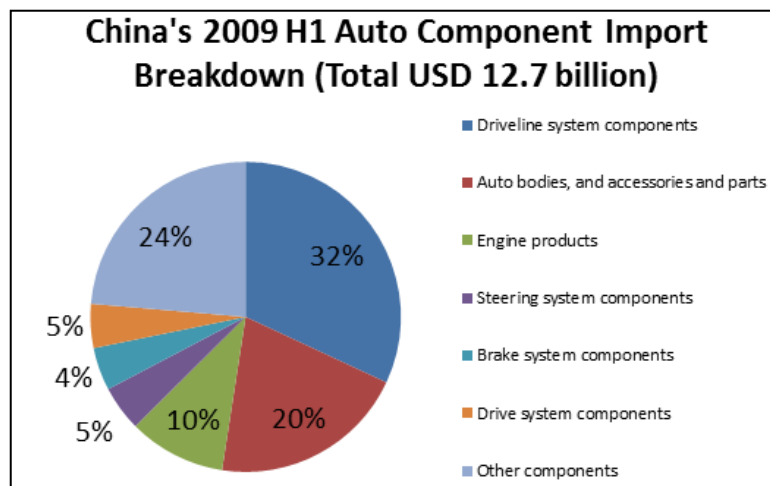
Source: CAAM

Import

Positive demand growth for automobiles and components has not only caused domestic industry development, but has led to increased attention from leading foreign automotive manufacturers eager to expand into the rapidly growing market. Foreign automotive manufacturers have also been encouraged by lower import tariffs, which have been lowered for whole vehicles from 70-80% to 25% since China joined the World Trade Organization (WTO). Import tariffs on Semi-Knocked-Downs (SKDs) and Complete-Knocked-Downs (CKDs) have dropped from 50% to 25%, while import tariffs on vehicle components have dropped from 15% to 10%.

¹ Shanghai Automotive Industry Corporation

² First Auto Works



China's automotive import growth was slowed due to weaker demand caused by the global economic crisis of 2009. Annual total import were USD 33.1 billion in 2009, representing a year-on-year increase of only 5.34%. Assisted by government incentive programs and China's economic recovery, China's auto import total bounced back from a sluggish 2009, surging by 130% to USD 27.22 billion in the first half of 2010. Imported European

luxury cars had a remarkable 237.2% increase in 2010 compared to the same period the previous year. China's automotive component imports grew to USD 12.7 billion in the first half of 2010, a 90% increase over the same period of 2009. Drivetrain, engine and automotive body components accounted for over 60% of the total component imports (see chart). More than 80% of the imported components came from Japan, German, Korea, and the United States.

The main groups of imported automotive components to China can be divided into three categories:

- **Japanese and Korean OEMs and Tier I suppliers:** Generally these companies tend to only use suppliers from their country of origin. For example, Toyota typically sources components from Japanese JVs or Wholly Owned Foreign Enterprises (WFOEs) on the mainland, or directly imports from Japan. Such practice tends to result from strict quality requirements, cultural compatibility and logistical concerns.
- **German OEMs and Tier I suppliers:** These companies typically import components in the areas where Chinese suppliers are weak (e.g. safety systems for high-end passenger cars).
- **The US and French OEMs** operating in China have not increased their automotive component imports as much as their peers for different reasons. US OEMs have steadily increased their sourcing from local Chinese suppliers for vehicles manufactured in China to stay competitive, and French OEMs are facing a shrinking market share in China.

Chinese OEMs are emerging buyers of imported automotive components, especially in the segments of hybrid and electric vehicles and Chinese-brand luxury vehicles.

Export

The impact of the economic crisis in 2008-2009 forced many multinational companies to reduce their sourcing of automotive vehicles and components from China. According to CAAM, China exported a total of 369,600 units in 2009 worth USD 5.19 billion, which was down by 46% from 2008.

China's auto exports rebounded as the global market recovered in 2010, with 250,100 vehicles exported in the first six months (up 55.93% year-on-year).

Passenger vehicle exports surged 115.93% to 116,500 units, while commercial vehicle exports increased 25.50% to 133,900 units. Algeria, Vietnam and Egypt were the major whole-vehicle export destinations in the first half of 2010.

The auto component's export growth has witnessed even more impressive growth than whole-vehicles. Exports increased 54.11% to reach USD 18 billion in the first half year of 2010, with drive system components exceeding 50% of the total by value. More than 50% of the components were exported to the USA, Japan, South Korea, Germany and the United Kingdom.

1.2 MARKET STRUCTURE

Supplier Landscape

The automotive supplier landscape in China is extremely fragmented. According to CAAM, there are approximately 8,000 automotive enterprises scattered across various segments including full vehicle manufacturing, vehicle refitting, motorcycle production, engine production and automotive parts manufacturing. Most of these companies specialize in lower-end parts and lack the capital needed to invest in production of higher quality products. Seven of China's ten largest components manufacturers are foreign companies, and about 70% of the country's USD 160 billion auto supply market is occupied by foreign companies or joint ventures. There are approximately 120 OEMs in total, 40% of which produce passenger vehicles. One of the key contributors to the fragmentation of the automotive market as a whole is that Chinese suppliers serve a large amount of separate OEMs.

The world's leading automotive companies are all well-established in China. OEMs are represented by Ford, General Motors (GM), Volkswagen (VW), Daimler, BMW, PSA, Mazda, Nissan, Honda, Toyota, Hyundai, and tier-one international companies including Bosch, Delphi, Denso, Johnson Controls, Lear, Magna, Visteon, Yazaki, ZF, Arvin Meritor and TRW.

Most of the international automaker and component manufactures have invested heavily in China in attempts to gain a competitive edge. For example, GM, Ford and Jaguar Land Rover have established their Asia Pacific headquarters in China. GM, VW and Honda have also opened China R&D centers and have begun to design car models specifically for the Chinese consumer.

International automotive components companies have also expanded their presence in China. For instance, BorgWarner recently opened a China Technical Center. ZF announced the establishment of its Asia Pacific headquarters in Shanghai as well as a new Shanghai R&D center. Eaton's Asia Pacific headquarters is in Shanghai. Rapid expansion from international firms has led to foreign-invested automotive components suppliers holding 70% of the Chinese market share.

Most of the top Chinese automotive parts manufacturers are wholly owned domestic companies such as ASIMCO, Wanxiang, Hongteo, Fuyao, Dicastal, Wanfeng and others. These companies could be potential competitors or partners for Israeli companies.

In response to the soaring domestic demand, Chinese automotive component manufacturers have ramped up their production capacities significantly, but this has also led to an increase in quality complaints.

Key Challenges for the Domestic Industry

Chinese suppliers are now looking beyond the domestic market and improving their production process to emerge as true global competitors. However, further investment in R&D is still required before Chinese manufacturers can truly compete globally, as the industry still lacks technological capability and suffers from quality issues.

Flagship Domestic Automotive Companies

Chery Automotive (Chery)

- Founded in 1997 and now has an annual production capacity of 650,000 vehicles, 400,000 engines, and 400,000 sets of gearboxes.
- Continues to expand into the overseas market and has established plants in 16 countries becoming the biggest Chinese vehicle exporter for seven consecutive years.
- Chery Automobile Test & Technology Center opened in July 2010, which became the largest auto lab in Asia. The company will invest RMB 2.4 billion in 2010 to accelerate its new model development.
- Chery now owns a full set of manufacturing and R&D facilities, including four car plants, two engine plants, a gearbox plant, an automobile engineering research institute, an automobile planning and design institute and an automobile test & technology center.
- Have extensive technological and business relationships with overseas auto companies. Chery signed an agreement with Chrysler to produce Chery made cars under the Chrysler brand to be sold in the United States and Mexico.
- Chery Quantum Auto. Ltd is a joint venture between Chery and Quantum LLC under an Israeli Group. They aimed to invest USD 334 million in 2010 to develop high-end cars and SUVs for the overseas market.

R&D capability

Chinese automotive component manufacturers are able to manufacture products when they are provided with designs and specifications, however most of them lack design, engineering and R&D capabilities.

Owing to weak R&D and engineering capabilities, many local suppliers have opted to enter into technical collaborations or JVs with leading international suppliers with the goal of facilitating the transfer of technology and improve basic product engineering capabilities. A growing number of Chinese auto parts suppliers have begun to invest in and acquire western firms. Domestic R&D capabilities of Chinese automotive part manufacturers have historically been limited due to the small-scale of most operations and a shortage of investment in laboratory facilities in comparison to international firms.

Taking steps to remedy the situation, the Chinese government has continued to encourage investment in R&D for core systems, such as engines, transmission systems, steering systems, brake systems and driving control systems.

Safety and reputational issues

Incidents and product recalls have raised questions about the quality and safety standards of Chinese manufactured automotive components. According to the 2009 China Automotive Product Quality & After Service Quality report, among the 9359 complaints documented about Chinese made cars, 19.5% were related to engine problems; 10.5% to steering systems; 10.7% to braking systems; 18.5% to automobile accessories and electronics; and the remaining 40.8% related to the gearbox, clutch, front and rear axles, suspension systems and air conditioning systems.

As a result of complaints and recalls, as well as other non-automotive related manufacturing scandals in China including melamine milk, contaminated pet food, and anti-freeze laced toothpaste, Chinese manufactures are facing serious issues about their reputation. This is a problem local manufacturers will have to overcome if they want to increase their competitiveness on the global stage.

The drivers are in place for Chinese domestic manufacturers to move to the forefront of the global automotive industry, but substantial domestic investment in R&D and improvements on quality and reputation are a necessary prerequisite.

1.3 EMERGING INDUSTRY TRENDS**Industry Drivers**

The rapid expansion of the Chinese automotive industry has been largely attributed to the growth in domestic demand for passenger vehicles and international demand for affordable automotive components. The Chinese government also continues to play an important role in encouraging the growth of the industry.

Tier II and Tier III cities emerge as market growth engines

In 2010, most multinational automakers have included a focus on Central and Western China markets into their strategies in order to capture future growth opportunities.

For example, Volkswagen is ramping up capacity of its Chengdu plant more than doubling its production of Sagittars and Jettas from 150,000 to 350,000. GAIC Toyota (a JV between Guangzhou Automobile Industry Corporation and Toyota) is considering building a small and price-competitive car to target the lower end of the market. The JV also announced plans to expand its dealership network across central and Western China.

Central and western China have emerged as the main growth engine of the automotive market. According to CAAM, automobile sales in second and third-tier cities in the first nine months of 2009 surged 41 percent and 51 percent respectively, while sales in the first-tier cities increased by 34 percent.

Domestic demand has been fueled by rising incomes and a growing middle class creating a larger consumer culture. The purchase of an automobile is increasingly becoming a symbol of financial success. In the past, the focus has been on coastal cities. Since 2009, tier II and tier III cities have emerged as the strongest market growth engines (see more details on your left)

Even though large cities in China are facing serious traffic congestion issues, Chinese have not been deterred about making new automobile purchases. China overtook the U.S. as the world's number one automotive market in January 2009. The positive developments in the passenger vehicle industry have benefitted both domestic auto manufacturers (which are emerging from their infancy stages and developing competitive capabilities) and major international automotive giants (which have increased investment into China to expand their presence). However, with per capita car ownership was still only 4.78% in 2009, still far below the 40% average in developed countries. This is a strong sign that domestic demand for passenger vehicles will remain high in years to come.

The domestic aftermarket for automotive components is increasingly becoming an important driver of the industry. More than thirteen million cars are sold annually in China which is leading to a growing market for automobile repairs and further stimulating domestic demand for automotive components.

International demand for automotive components has also increased as international automotive firms face pressures to reduce costs and take advantage of more economical alternatives abroad. China's inexpensive labor force presents an attractive option for producing lower-cost automotive components, which were initially primarily for the international aftermarket but are increasingly being used by international OEMs. The majority of leading international automobile OEMs have established global sourcing offices, R&D centers as well as regional headquarters in China.

Finally, the Chinese government continues to play an important role in driving the industry. Post-WTO accession concessions have resulted in lower import tariffs, giving international automotive firms more access to the domestic market. Beijing has actively encouraged the establishment of JV R&D centers with preferential tax policies designed to facilitate the transfer of knowledge and technology. The government has pledged substantial funds towards automotive technology innovation, upgrades, and the R&D of alternative-fuel automobiles and components. They are also setting restrictions and quotas requiring all vehicles that are used for government use to be produced domestically.

Industry Consolidation

China is determined to restructure its automotive industry, with the hopes of changing the market from many fragmented manufactures to two or three dominant domestic firms. According to the State Council's regulations released in early September 2010 which called for greater industrial consolidation, the automobile industry was at the top of the list of targeted sectors. The State Council set the goal of reducing the number of major automakers who are responsible for 90% of domestic sales output, from 14 to 10. Under the plan two or three companies would dominate the industry, responsible for producing more than three million vehicles annually, while four others would have annual output capacity of 1.5 million units.

The State Council named the following four groups as potential industry heavyweights, urging them to take advantage of consolidation opportunities: FAW; Dongfeng;

Flagship Domestic Automotive Companies

Shanghai Automotive Industry (Group) Corp (SAIC)

- Headquartered in Shanghai, it is one of the top three auto groups in China.
- Mainly engaged in the manufacturing, sales and R&D for passenger cars, commercial vehicles and auto components.
- The company is ranked 223 of the Fortune 500 companies with consolidated revenue of US\$33.6 billion in 2009.
- Sold over 2.7 million vehicles in 2009, making up almost 20% of China's market.
- SAIC invested over 10 billion RMB on new model development in the past 3 years, and will launch hybrid and electric vehicles in 2010 and 2012.
- Acquired Nanjing Automotive (Group) Corp (NAC) in 2007 and became the largest manufacturer in China with a consolidated annual production of 2 million units.
- SAIC has opened branches in the USA, Europe, Hong Kong, Japan and Korea. It has established a long-term cooperation with GM and Volkswagen. SAIC and GM formed Shanghai GM and the Pan Asia Technical Automotive Center (PATAC) in 1997 and launched 8 additional China joint ventures, including SAIC-GM-Wuling, GMAC-SAIC Automotive Finance Company, and General Motors SAIC Investment Limited.
- Shanghai Volkswagen (a joint venture between SAIC and Volkswagen AG) recently announced it will build a fifth assembly plant in Jiangsu. The plant will have an annual production capacity of 300,000 vehicles and start operation by the end of 2012.

SAIC and Chang'an. Additionally, it named four regional leaders that it encouraged to consider regional consolidation: Beijing Automobile; Guangzhou Automobile; Cherry and Sinotruck. All of these companies are passenger vehicle manufacturers with the exception of Sinotruck which manufactures heavy-duty trucks (sales of over 125,000 units in 2009).

Industry analysts predict that the coming wave of M&As within the automotive sector could see a deal that breaks the USD 1 billion mark, more than doubling the largest deal to date which was the USD 450 million purchase of General Motors' Nexteer steering components unit by a joint venture established by Beijing's Tempo Group and the Beijing government.

Global Expansion

As the leading automotive market, China automakers are accelerating global transformation to increase their presence in the overseas market. Zhejiang Geely Holding Group (one of China's largest independent carmakers) recently completed its acquisition of Ford Motor's Volvo brand for USD 1.5 billion. This is an indication that Chinese automakers have begun to recognize the power of strong brand reputation. Geely's Volvo bid is the largest takeover in Chinese auto industry and will provide a pattern for Chinese carmakers to expand abroad and acquire companies with a strong reputation. Beiqi Foton, China's leading commercial automaker followed Geely's step and announced its global expansion plan. This includes setting up a production base in Russia by 2012 with an annual capacity of 100, 000 vehicles and building five other plants in Brazil, India, Russia, Mexico and Thailand before 2015.

New Energy Vehicle: Focus of Future Development

High oil prices, air pollution, and China's commitment to reduce carbon emissions have led the automotive industry to explore alternative energies. The Chinese government has launched policies and incentives to stimulate the development of new energy vehicles, including electric (hybrid, plug-in and battery), fuel cell, and hydrogen-powered. China has identified new energy vehicle as one of the seven emerging strategic industries. Many estimate China will become the world's largest new energy vehicle market by 2020.

The *Energy Saving and New Energy Vehicle Development Plan (2011-2020)* and the *Automotive Industry 12th Five-year Plan (2011-2015)*, two of the key policies expected to guide the development of new energy vehicle industry, are expected to come out by the end of 2010. The Ministry of Industry and Information Technology (MIIT) is the principal drafter of these plans which are later submitted to the State Council for approval.

The plans set the following key targets for the new energy vehicle industry by the end of 2020:

- In the following five years China will aggressively support the development of key components of energy efficient and new energy automobiles. For electric motors and

batteries manufacturers, China hopes that three to five “backbone” enterprises will emerge with their combined market share exceeding 60%.

- China will produce 5 million new energy vehicles and become the number one producer of new energy vehicles in the world by 2020;
- Average fuel economy of passenger vehicles will be 4.5 L/100 kilometers by 2020, the same as European standards.

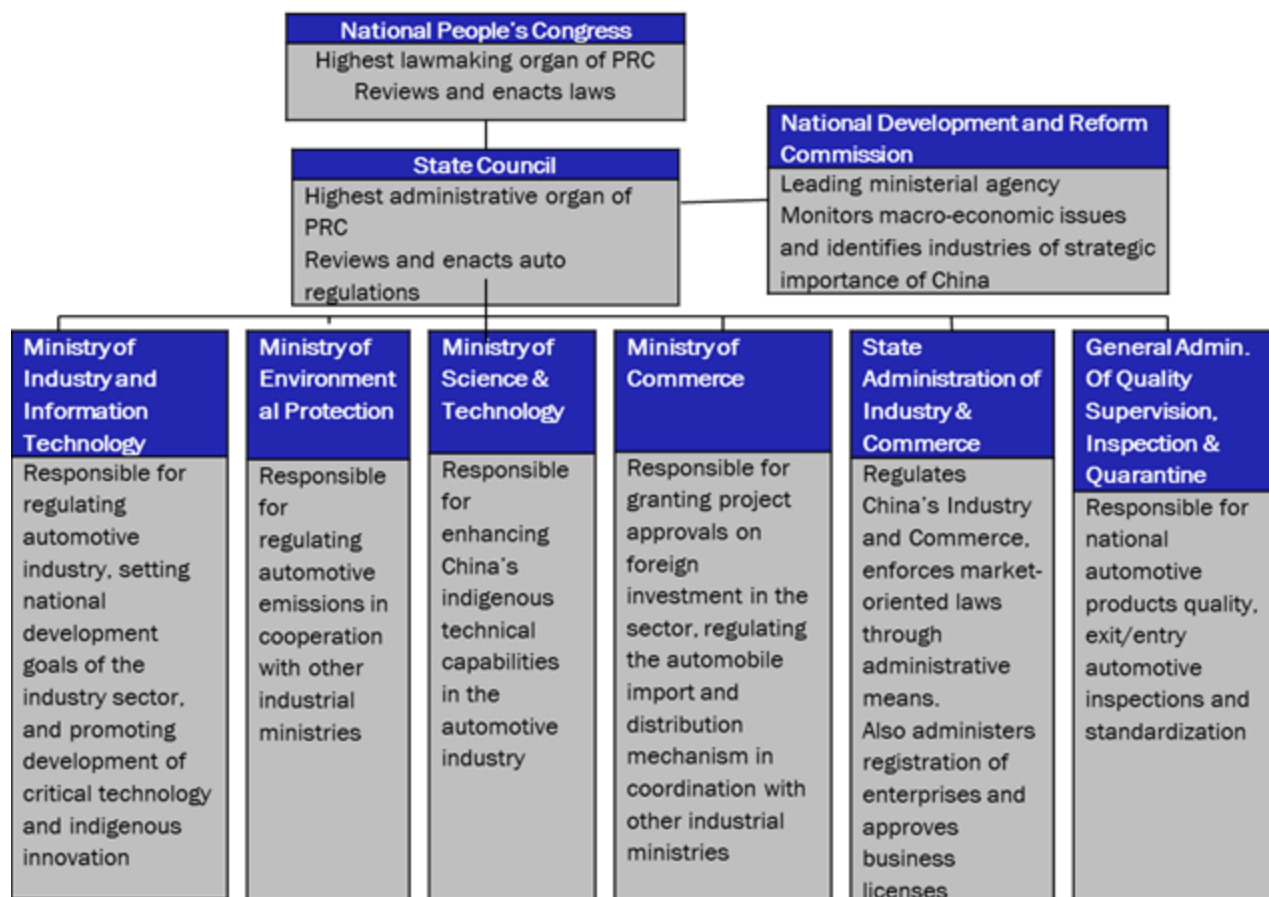
The plans will become the backbone policy for the entire new energy vehicle industry, as it provides direction for public funding, sector focus and industry structuring. Most important to pay attention to is that Chinese companies are likely to reap the most benefits from these structured strategies. To support indigenous innovation, the Chinese government has stated that the two or three key new energy vehicle component manufacturers will most likely be domestic companies, either state-owned or private.

2 REGULATORY OVERVIEW

- Government tariffs on automotive imports are in compliance with WTO rules, but minimum capital barriers still exist for foreign investors. The government has created some incentives to spur R&D partnership, and regulations for foreign distributors have been eased somewhat.
- The government has plans to implement higher auto emissions standards for new cars in China. So far four regions have implemented “China IV” emission standards (Beijing, Shanghai, Nanjing and Guangdong Province).
- The Chinese government views the development of the new energy vehicle industry in China as a top priority and has introduced a wide range of subsidies and policies in its favor.

China’s automotive industry supply chain is very broad with many components such as import and export, manufacturing, environmental protection, technology upgrades and quality control. As such, the industry is regulated by a range of government organs, both at the national and sub-national level.

The below chart illustrates the key central level regulators of the automotive industry, and their relevant responsibilities.



The automotive industry is subject to a number of laws and regulations. The key regulations that are relevant to Israeli companies are addressed below.

2.1 FOREIGN ACCESS TO THE CHINESE AUTOMOTIVE MARKET

Trade

The Chinese auto sector is competitive and has a well-developed supply chain. Imports of foreign-made auto parts will likely decrease as OEMs continue to increase their local capacities. At the same time, higher quality Chinese auto parts are increasingly being integrated into the global supply chain. Currently the import tariff for whole vehicles is 25% and for automotive components is 10%.

Investment

Foreign businesses must meet a number of requirements in order to access China's automotive market. The Chinese government has set requirements for minimum registered capital when a firm wants to establish an automotive facility which is RMB 500 million (USD 75 million³) for automobile financing, RMB 500 million (USD 75 million) for engine production and RMB 10 million (USD 1.5 million) for an R&D center. All projects are subject to government approval.

Foreign firms looking to produce passenger vehicles cannot set up WOFEs, but must partner with a local Chinese firm in the form of a JV, with the foreign partner's stake limited to 50%.

On the other hand, China offers fiscal and financial incentives to attract foreign investment in R&D strategies as part of the central government's strategy to speed up the transfer of international technology. China currently provides tax incentives for enterprises engaged in research and development activities, allowing R&D enterprises to deduct 50% of R&D expenses.

Suppliers are most often required to localize or invest in China and Israeli companies interested in tapping into the vast Chinese market will need to consider establishing a local presence.

2.2 AUTOMOBILE EMISSIONS STANDARDS

China is in the middle of adopting "China IV" standards which are equivalent to Euro IV standards. Automobiles that fail to meet emissions standards will be banned from sale. Beijing was the first to take initiative and implement China IV emissions standards ahead of schedule at the beginning of 2008. So far four regions have implemented "China IV" emission

IPR Issues in China

While the protection of intellectual property rights (IPR) remains a contentious issue for companies in China, the country's laws and regulations have progressed considerably in recent years, with the large majority now compliant with requirements of the WTO's TRIPS agreement.

The main challenge surrounding IPR protection in China is the lack of effective enforcement of the existing regulations. Enforcement issues arise from a range of root causes, including the relatively recent introduction of IPR legislation and concept of intellectual property in general, the absence of a fully independent judicial system, and provincial officials' often protective attitude towards local job creating counterfeiting industries.

While most foreign companies considering business operations in China may have to accept an unavoidable degree of IPR infringement, there are nevertheless a number of actions that a company can take in order to limit their IPR-related risk:

- Ensure to register your patents, copyrights, or trademarks with the relevant bureaus
- Ensure that your trade or other business agreements include clauses to protect your IPR
- Sign contracts or confidentiality agreements with staff that has access to key technologies and make sure that your policies on trade secrets and other relevant issues are properly communicated
- Be aware of China's (often quickly changing) laws and regulations, and understand the different possible ways of redress, including administrative and judicial channels

³ At the spot exchange rate of USD 1 = RMB 6.67

standards (Beijing, Shanghai, Nanjing and Guangdong Province).

2.3 AUTOMOTIVE INDUSTRY POLICIES

Support for New Energy Vehicles

The Chinese government views the development of the new energy vehicle industry in China as a top priority and has introduced policies and incentives in its favor. In 2009, MIIT published a policy (*“Administrative Provisions for the Access of New Energy Automobile Manufacturers and Products”*) to regulate technology and capacity, while at the same time promoting the development of new energy vehicles. In February 2009, the Chinese government approved pilot programs in 13 cities for new energy vehicles used for public service purposes such as public transportation, taxis, official business, sanitation and postal delivery. The pilot programs were later expanded to the following 20 cities: Beijing, Changchun, Changsha, Chongqing, Dalian, Guangzhou, Haikou, Hangzhou, Hefei, Jinan, Kunming, Nanchang, Shanghai, Shenzhen, Suzhou, Tangshan, Tianjin, Wuhan, Xiamen and Zhengzhou. The pilot programs provide subsidies for public transportation: up to RMB 420,000 (USD 62,969) for hybrid buses, RMB 500,000 (USD 74,963) for battery powered buses and RMB 600,000 (USD 89,955) for fuel cell buses. There are also subsidies for other hybrid battery electric and fuel cell vehicles which are RMB 50,000 (USD 7,496), RMB 60,000 (USD 8,996) and RMB 250,000 (USD 37,481) respectively.

A subsidy program to support the purchase of new energy vehicles was rolled out in June 2010. Auto manufacturers from Shanghai, Shenzhen, Changchun, Hangzhou and Hefei will receive a subsidy to lower price tags. The subsidy is RMB 3,000 (USD 450) per kilo-watt hour of battery output. This translates into a price reduction for consumers of up to RMB 50,000 (USD 7,496) for hybrid plug-in cars and up to RMB 60,000 (USD 8,996) for electric vehicles.

The government will also offer nationwide subsidies of RMB 3,000 (USD 450) to consumers who purchase any passenger vehicle (of any fuel type including hybrid) which have an engine capacity of under 1.6-litre and that consume 20% or less fuel than government standards.

In addition, China plans to develop its infrastructure of recharging stations and battery swap stations to fulfil its vision of putting 500,000 green cars on the road by 2013.

From 2011 to 2020, the central government plans to allocate over RMB 100 billion (USD 15 billion) to support the development of energy efficient and new energy vehicles. The details awaiting approval by the Ministry of Finance are:

- RMB 50 billion (USD 7.5 billion) from 2011 to 2020 for the R&D and industrialization of energy efficient and new energy cars;
- RMB 30 billion (USD 4.5 billion) from 2011 to 2015 for the deployment of new energy car pilot projects;

- RMB 20 billion (USD 3 billion) from 2011 to 2015 for the promotion of hybrid electric vehicles and other energy saving cars;
- RMB 10 billion (USD 1.5 billion) from 2011 to 2015 for the development of key components; and
- RMB 5 billion (USD 750 million) from 2011 to 2015 for the deployment of electric vehicle infrastructures in the pilot cities.

Local governments will also be asked to allocate special budgets to support the development of energy efficient and new energy cars and the electric vehicle support infrastructure. Besides direct financial support, the plan outlines preferential policies for electricity tariffs, land allocation and other support for electric vehicles.

Support for Indigenous Innovation

China recognizes the need to support indigenous innovation and development of the auto industry. The government is supporting technological improvements for key automotive components including electric motors, batteries, electric controls, engines, gearboxes, brake systems, steering systems, transmissions, suspension systems and automobile control systems. The government has announced it will invest USD 1.46 billion specifically for automotive technology innovation and the R&D of new energy automobiles and components.

Additional government measures to support domestic auto manufacturers include a requirement for 50% of government vehicles to be domestic makes, and favorable treatment of local auto manufacturers for loan grants and financing. According to the draft of the Automotive Industry 12th Five-year Plan, passenger cars of local brands are expected to hold more than 50% of the domestic market share and 10% of the total automobile export by 2015.

3.0 MARKET OPPORTUNITIES

- Many market opportunities exist for Israeli firms in China:
 - Developing domestic innovation capabilities (e.g. vehicle design and engineering, hybrid electric and pure electric engines, electric motors, electric controls)
 - Productivity and quality upgrading (e.g. engines, transmissions, electronic control systems, safety systems)
 - Mergers and acquisitions (both in China and in Israel)
 - Clean transportation technologies
 - Advanced manufacturing technologies
 - Supply of essential automotive components and systems to OEMs (e.g. electronic control systems, safety systems)

3.1 CURRENT OPPORTUNITIES

Below we list a number of segments in the automotive sector that are open to Israeli penetration. The degree of success in penetrating these and other segments as indicated by IEICI will depend upon both the level of technological requirement in each segment, and Israeli firms' capability to bridge the technological gap in each segment. The higher the technological requirement in the segment, the greater the opportunity presented to Israeli firms.

Developing Domestic Innovation Capabilities

Developing indigenous car models and innovative technologies is now a priority in China. China's policy is to encourage Chinese automotive companies to carry out more R&D activities. In this regard, opportunities exist for Israeli auto parts companies to work with Chinese counterparts on R&D and engineering programs.

Domestic whole-vehicle enterprises are still in the process of developing internal innovation capabilities with varying degrees of success. Some of the areas where domestic enterprises are looking to further develop and improve include:

- Establishing vehicle design and development processes including:
 - Auto body and chassis development techniques
 - Standardized and differentiated technologies for auto bodies, engines and transmissions
 - Emission and purification techniques
 - Electric motor, battery system and electric control development and engineering
- Making breakthroughs on crash safety, NVH and other key related techniques
- Controlling design and manufacturing costs for new energy automobiles.

Additionally, a number of key components that require higher technological capabilities are generally acquired from multinationals Chinese subsidiaries or acquired directly from overseas. There is a push to develop domestic production, engineering, and innovation capabilities for these products as well. Specific areas that China would like to improve include:

- Making further efforts to promote the research and manufacturing of 1.5 liter and smaller gasoline engines which meet the China IV (Euro IV equivalent) Motor Vehicle Emissions Standards, and 3.0 liter and smaller diesel engines with power of 45KW/liter and above.
- Making breakthroughs in key technologies for heavy duty commercial vehicle chassis integration.

- Providing support for the R&D of key technologies used in high-power diesel engines, and their high-pressure electronic fuel injection systems, post-treatment systems, and automated manual transmission (AMT) for commercial vehicles.
- Providing support for power assembly including engines (especially direct gasoline injection engines and the high pressure common rails for diesel engines), unit pumps, unit injector technologies and post-treatment systems (all of which are weaknesses for Chinese engine manufacturers).
- Developing matching electronic control systems for components is a bottleneck since the matching tests are time consuming and require large investments.

Productivity and Quality Upgrade

In an effort to increase automotive components productivity and quality, the Chinese government issued a *Catalogue of Automotive Products for Technology Advancement and Upgrade* in 2010, which consists of the following components.

Batteries

The battery system is the core component of an electric vehicle. Battery technologies of interest are: rechargeable battery systems with a life cycle of over 1200 charges, battery heat management system, battery status detector, issue diagnostic equipment, battery safety protection and network communication capabilities.

Engines

In order to meet “China IV” emission standards, automotive manufacturers are looking to upgrade emissions and displacements of electronic gasoline engines and improve high-pressure injection technologies for electronic diesel engines (including Diesel Particulate Filters (DPF), Selective Catalytic Reduction (SCR), Exhaust Gas Recirculation (EGR), and On-Board Diagnostics (OBD) technologies).

Transmissions

Passenger vehicles: Dual clutch automatic transmissions can be produced with equipment originally designed to manufacture manual transmissions. Incentives for this type of transmission include the ease of operation, fuel efficiency and low investment costs. Other desired upgrades include manual transmissions with more than six shifts and Continuously Variable Transmissions (CVT).

Commercial Vehicles: AMT, hydrodynamic and electromagnetic retarders.

Electronic Control Systems

Chinese companies have started to develop their own Tire Pressure Monitoring Systems (TPMS), malfunction diagnostic instruments, and LED front lighting systems. Though other electronic control systems are manufactured by JVs, much of the key technology remains the property of the foreign partners.

Systems such as Anti-lock Brake Systems (ABS), Traction Control Systems (TCS), Electronic Brakeforce Distribution (EBD), and Electronic Stability Program (ESP) are keeping pace with those of overseas markets. However, domestically produced versions of these systems are currently priced much higher than those offered by international companies.

Safety systems

Energy-absorbing steering systems and electric-powered steering systems

Others

There remains much room for improvement in other components for commercial vehicles, including axles for low-floor buses, air suspension, inverter air-conditioning systems and re-enforced steel wheels.

Mergers and Acquisition

A segment of the Chinese automotive industry is on the lookout for acquisition opportunities in North America and Europe. They are aiming to improve their reputation by acquiring well-known brands, access new large automobile markets and gain access to new technologies to improve product development and R&D capabilities.

Clean Transportation Technologies

Owing to recent environmental protection and energy efficiency concerns, Chinese auto policies are strongly promoting the development of clean transportation technologies. As such, activities related to fuel cells, electric and hybrid automobiles and components all present opportunities in China.

China's current auto industry favors the development of alternative-fuel vehicle capabilities. Four-fifths of car buyers in China are first time buyers, meaning they have not yet established a preference for high powered gasoline cars. Driving between cities is rare and commutes are generally short and at low speeds. Alternative-fuel vehicles are positioned well to take advantage of this market

Best Practices

Factors to consider before taking action in the Chinese automotive market:

- Ensure products are tailored to the Chinese market with a higher performance-to-price ratio.
- Branding should be adapted to local customs and products should have established reputations in North American, European, Middle Eastern or Australian markets.
- The ability to quickly establish an efficient distribution network for both sales and service is crucial.
- Study and understand local intellectual property rights (IPR) procedures for products and technologies, and take the proper steps to register IPR in China (either through patent or trademark).

This is not to say that obstacles do not exist. Chinese city-dwellers generally live in apartments which make it difficult to set up recharging devices. There will first need to be heavy investment in public charging centers before owning a hybrid or electric vehicle becomes practical. Rechargeable lithium-ion batteries have suffered from reputational issues because of the prevalence of counterfeit products that have caused accidents. Lithium-ion batteries are also expensive which decreases the price competitiveness for vehicles that use them compared to traditionally fueled vehicles that use cheaper government subsidized gasoline.

These obstacles represent opportunities for foreign enterprises that have the capability and desire to collaborate with domestic firms to make technological advances and offer revolutionary solutions in these fields.

Advanced Manufacturing Technologies

As Chinese automobile and parts manufacturers seek out opportunities to enhance their manufacturing capabilities, demand for advanced manufacturing technologies and equipment will continue to grow.

Supply of Parts to OEMs in China

Firms can take advantage of the growing automotive market and establish themselves as an automotive parts supplier to OEMs in China. This can occur through JVs with foreign manufacturers and Chinese OEMs. In most cases, owing to just-in-time production and cost factors, this will require investing/establishing a facility within China. In addition, due to OEM's comprehensive quality assessment system and the long time period required before a potential supplier receives actual orders, Israeli companies who have previous experience servicing OEMs have more opportunities. For others, pursuing business opportunities in this area requires significant patience and investment.

Fiercely Competitive Automotive Segments

The following automotive segments in China are considered to be highly competitive, and will be relatively difficult for Israeli firms to penetrate, unless they have an extreme competitive advantage:

- Fabric for seats/interiors
- Seat covers
- Floor mats
- Curtains
- Aluminum die casting
- Rubber bumpers
- Electronic harness cables
- Antennas

- Speakers
- Electric starters
- Vehicle cleaning products
- Window films
- A/C compressors
- Fuel, air and oil filters

3.2 KEY INDUSTRY EVENTS

Auto Shanghai 2011

Shanghai New International Expo Center

April 21-28, 2011

Organized by CAAM, the China Council for the Promotion of International Trade (CCPIT), the Shanghai International Exhibition Co. Ltd., and MMG-Messe Muenchen International, this auto show is the oldest professional international auto exhibition in China. It is held every two years, alternating locations between Shanghai and Beijing. First held in 1985, the 2009 exhibition theme was “The Art of Innovation.” Last year’s event utilized 11 indoor exhibition halls in the Shanghai New International Exhibition Center (SNIEC) with a total exhibition space of 170,000 square meters. 100,000 square meters of the space was designated for exhibitions from automobile manufacturers’ and 47,000 square meters was used for auto components exhibitors.

Major exhibitors include all three of the big U.S. car manufacturers (GM, Ford and Chrysler) Additional attendees include BMW, Mercedes-Benz, Toyota, Honda, Nissan, Volkswagen Audi, Skoda, Citroen, Peugeot, Volvo, Mazda, Hyundai and Kia. Local exhibitors for the upcoming event include FAW, SAIC, Dongfeng, Chang’an, GAC, BAW, BYD, Haima, Great Wall Auto, Brilliance, Changfeng, Greely, Jianghuai and Hafei.

<http://www.autoshanghai.org/en/ShowArticle.asp?ArticleID=45>

China International Auto Parts Expo

China International Exhibition Center, Beijing

September 8-10, 2011

Organized by the Ministry of Commerce, the annual China International Auto Parts Expo (CIAPE) was first held in 2007. Co-organizers include automotive industry associations from 10 countries such as the U.S., U.K., Germany, France, Italy and Korea. The 2009 CIAPE hosted 1,100 exhibitors with over 45,360 visitors from 126 countries and regions. The exhibition floor space was over 70,000 square meters. Participants included Bosch, Denso, Delphi, Magna, GM, Ford, VW, Toyota, FAW, SAIC, Geely and Dongfeng. Overseas participants were mainly from Korea, U.S., Russia, Japan and Brazil.

Exhibit categories included auto parts, auto maintenance equipment and accessories, car tuning equipment and accessories, materials and components, energy-saving, environmentally friendly and new energy technologies and products, and more.
<http://www.iapechina.com/english/>

2011 China Beijing International Exhibition on Buses, Trucks & Components

Beijing Exhibition Center

May 12-14, 2011

Organized by the Ministry of Transport, the Second China Beijing International Exhibition on Buses, Trucks & Components will be held at the Beijing Exhibition Center from May 12-14, 2011. The exhibition will be managed by the China Academy of Transportation Sciences, the Bus Institute of China Highway Society and the CCPIT. Registered exhibitors include Daewoo and a number of Chinese manufacturers. The exhibition has a total floor space of nearly 40,000 square meters.

Exhibit categories will include coaches and buses, trucks, accessories & components and new technology for fuel emission reduction and environmental protection.

<http://www.bustruckexpo.com/en/Default.asp>

Automechanika Shanghai

Shanghai New International Expo Center

December 8-10, 2010

Organized by Messe Frankfurt (Shanghai) Co. Ltd., and China National Automotive Industry International Corporation (CNAICO), Automechanika Shanghai is an annual international trade fair for automotive parts, equipment and service suppliers. The China Chamber of Commerce for Import & Export of Machinery & Electronic Products is also very involved. The 2009 exhibition hosted 2,414 exhibitors using 103,500 square meters of floor space. It attracted 38,551 visitors. Participants include representatives from the vehicle manufacturing industry, parts and accessories manufacturers, garage equipment and tool manufacturers, petrol stations and companies, auto dealers, government agencies and trade associations.

Exhibit categories include parts and systems, accessories and tuning, repair and maintenance, IT and management, and service station and car wash.

http://www.messefrankfurt.com.hk/fair_homepage.aspx?fair_id=11&exhibition_id=11

APPENDIX I: LOCATION OF MAJOR AUTOMOTIVE INDUSTRY CLUSTERS IN CHINA



APPENDIX II: MAP OF CHINA



APPENDIX III: ACRONYMS

ABS	Anti-lock Brake System
AMT	Automated Manual Transmission
CAAM	China Association of Automobile Manufacturers
CKD	Complete Knock Down
CVT	Continuously Variable Transmission
DPF	Diesel Particulate Filter
EBD	Electronic Brakeforce Distribution
EGR	Exhaust Gas Recirculation
ESP	Electronic Stability Program
JIT	Just-In-Time
NVH	Noise, Vibration and Harshness
SKD	Semi Knock Down
FAW	First Automotive Group Corporation
OBD	On-Board Diagnostics
OEM	Original Equipment Manufacturer
SAIC	Shanghai Automotive Industry Corporation
SCR	Selective Catalytic Reduction
TCS	Traction Control System
TPMS	Tire Pressure Monitoring Systems

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