Innovatie Attaché China

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Automotive Industry in China

- Technological developments

Following three decades of rapid growth, China is the world’s largest automotive market and automotive manufacturing country since 2009. In 2014, the total output was 20 million and sales of vehicle units exceeded 23 million. This is larger than the North American and European markets combined. With respect to technological developments, China takes international trends into considerations, for example

  - **New/clean energy vehicles**: (fuel cell, electric, hydrogen, solar etc); assigned as a key point of development in the Twelfth Five-Year Plan, with Chongqing being the pilot city in terms of R&D, production and infrastructure. It is China’s ambition to provide 15% of the global hybrid and EV market by 2020, described in the "Energy Saving and New Energy Vehicle Development Plan". R&D investments are provided via the 863 program (a national high tech R&D program of the Ministry of Science & Technology). The EV-market is also stimulated by subsidy programs (f.e. via “10 cities, 1000 vehicles”), but EVs don’t easily compete with conventional cars based on price and achievement. EVs for public transportation, specifically electric buses, do a better job in China.
  - **(Lightweight) materials**: Chongqing Renewable Resource Industrial Park is intended to introduce foreign and domestic technologies for recycling of electronic waste and scrapped vehicles.
  - **Connected Vehicles**: China is just now starting to develop Internet connected vehicles. In spring this year SAIC and Alibaba Group jointly invested 1 billion Yuan to develop Internet connected vehicles. Also other Internet giants as Baidu are investing in this field and the first products are expected in 2016.
  - **EV Testing Facility & development**
  - **Intelligent Traffic Systems**

but so far most of these developments are coming from other countries, or foreign companies active in China. The Chinese industry is regarded as deeply fragmented, lacking innovative capacity, and dependent on imported technology and know-how. It is expected to improve due to strategic cooperation with domestic top scientific research institutions like China Academy of Engineering and China Academy of Science, as well as joint venture cooperation with famous international enterprises like FEV of Germany and Ricardo of Britain.

In general the traditional industries (oil, car makers) change slowly. It is up to the government to change the value chain towards the benefit of new technologies.
- **Key-players and networks**

The market is dominated by roughly 4 State Owned Enterprises named SAIC, Dongfeng, Wuling and Chang An. These 3 all have foreign joint venture partners. The biggest private players are Chery, Great Wall and BYD.

SAIC Motor Corporation is China’s largest vehicle manufacturer. It is a state-owned enterprise (SOE), comprising 16 subsidiary companies. SAIC Motor operates three of China’s most financially successful international joint ventures, one with Volkswagen and two with General Motors (one together with Wuling, manufacturing microvans in China). It recently started the Research & Advanced Technology Division, which will perform research on new technologies in the automotive industry.

DongFeng Motor Co. Ltd. achieved a market share of approximately 11.6% in 2014. Most notable JV of DongFeng Motor at this time is the Dongfeng Nissan Passenger Vehicle Co. This JV invested 500 Million CNY in building a Venucia modelling centre, an advanced engineering technology centre, and an enterprise-university centre, aiming to improve the R&D technology, modelling & design and attract innovative talents.

Chang’an is the number three producer of finished vehicles in China and invested 300 million RMB in its Automotive Engineering Research Institute conducting research related to NVH development, engine technology, electric fitting technology, crash safety, chassis & CAE technology, new energy technology etc. Chang'an also acquired R&D institutes in the UK (engine and systems), USA (chassis), Japan (engineering) and Italy (body and interior design).

In Chongqing the China Automotive Engineering Research Institute (CAERI) hosts four national-level research and engineering centres, such as NGV Engineering Centre, State Key Laboratory for vehicle NVH and Safety Technology, National & Local Engineering Lab for alternative fuel and Chongqing branch of the National Motor Vehicle Quality Supervision Inspection Centre.

Last but not least there is the China Automotive Technology & Research Center (CATARC), with a strategic partnership with Volvo Car Group. CATARC is specialized in standardization, technical regulations, programs on development of energy conservation and new EVs.

- **Role of the government**

The role of the government is very important in China. Therefore it is of great value to follow government policies in this respect. China focuses on the development of light pure EVs by technological developments in key technologies such as batteries, electric motors and control systems. The following goals are specifically mentioned in the 12th Five-Year Plan;

- 50% less production costs of batteries
- More than 1 million EV’s on the road by 2015
- Expansion of production capacity of batteries to 10 GW per year
- Development of a standard system for EVs
- Expansion of “EV model cities”
- Installation of 2.000 charging stations and 400.000 charging spots in model cities.

‘Het IA-Netwerk verbindt in opdracht van het ministerie van Economische Zaken kennis over internationale innovatieve ontwikkelingen en daaraan gerelateerde trends aan Nederlandse bedrijven, kennisinstituten en overheden.’
• **Relevant development/ actuality**

A recent article about the Chinese automotive industry highlighted that international companies wary as mainland’s middle class turn to cheaper clones made by domestic brands originally designed overseas. Domestic brands seem to have gained market share without cutting margins to the bone. Great Wall Motors, JAC Motors, Chang'an Automobile Group and Landwind see more of more of interest to Chinese car buyers. The fact that more and more consumers are choosing domestic brands brings opportunities for especially in auto parts. The demand for higher quality and innovative products are wanted by domestic Chinese car manufacturers.

The Netherlands already picked up this trend and early this year (2015), the Dutch Minister of Economic Affairs Mr. Henk Kamp led a company delegation to China. During his visits to West-China he discussed potential cooperation in the automotive sector with Chinese officials and industry leaders. In July 2015, the Netherlands Office for Science and Technology (NOST - Innovatie Attache Netwerk in Dutch) organised a Safety, Connectivity and New Materials in the Automotive Industry seminar. In September 2015 an automotive fact-finding mission took place, with various Dutch players participating. And later, in November 2015, Stella Lux will come to Shanghai. Stella Lux is the energy positive family solar car, built by students from Eindhoven University. During this two-week visit NOST will organise various events and meetings related to technological developments in the automotive industry.

• **Opportunities for Dutch companies and knowledge institutes**

The Dutch and Chinese automotive industries seem complementary. Chinese manufacturers and end users could benefit from Dutch technology and expertise, whereas Dutch suppliers would be able to access new markets for their products and services. The fast growing number of legally registered automobiles provides a large Original Equipment Manufacturer (OEM) and replacement market for automotive parts with opportunities existing for EU SMEs with specialised components, equipment and technologies to supply to the leading manufacturer of premium cars. Opportunities for the Netherlands:

- Battery techniques and production methods in order to improve quality and reduce costs. New materials with higher energy density (link topsector Chemistry).
- Battery management systems
- New materials and constructions for safer cars and weight reduction
- Certification for European market
- Platform electrification (integration electric systems), with links to software, mechatronica, embedded systems and nano electronics
- Intelligent Transport Systems for more efficient and safer use of the road (link topsector Logistics)
- Optimal conventional internal combustion engine
- Industrial design of interior, exterior, human-machine interface
- Training

Especially the EV in public transportation is growing quickly. Please note that EV Zone signed a MoU with the automotive campus in Brabant and work together with traffic light optimization with TuDelft.

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