Development, Problems and Countermeasures of Chinese Racing Car Industry

J J Yang¹ ²

¹ School of Automotive Engineering, Wuhan University of Technology, Wuhan, 430070, China
² School of Mechatronics Engineering, Wuhan Business University, Wuhan, 430056, China.

E-mail: yangjianjun2004@163.com

Abstract. In recent years, motor car racing has developed rapidly in China. However, under the background of maximum vehicle production and car ownership in China, the racing car industry has a long way compared with that of the developed countries. The paper analyzes the current situation and summarizes the problems of Chinese racing car industry with supporting documentation and review of the literature. The future trend of the development of car industry in China is discussed. On the basis of the analysis and prediction, the strategies to respond to the future racing car industry in China are presented.

1. Introduction

The racing car industry is the related industrial chain from motor vehicle manufacturing, research and development, event organization, catering, entertainment, transportation, to the car derivatives (motor training school, racing clothing, supplies, etc.). Complete industrial chain is helpful to promote the regional economic development, promote the development of the automotive industry and set up the city brand image, etc.

Since the date of birth, motorsport and automotive industries is mutually dependent. The racing car industry is developed with the development of automobile industry, which is one of the symbols of the advanced auto industry. The racing car industry is wing of the auto industry, which has positive influence.

2. The developing history of Chinese motor sports and the present situation of the racing car industry.

A Chinese motor sport was firstly held in 1985, the session of which was from Hong Kong to Beijing. Till now, projects include rally, cross-country, track racing and karting race, etc. and the different sizes of autodromes were built in Beijing, Shanghai, chengdu, zhaqing, ordos, zhuhai and macau. Motor sport is flourishing. the racing car industry also flourishes. The development of China's car industry probably has experienced three stages:

2.1 starting stage. In 1985 in the first session of rally from Hong Kong to Beijing before China, there were almost no car sports in China, let alone racing car industry. From 1985 to about 2004 years, Chinese racing car industry came to its first stage. the main sign of the stage are: Beijing-Hong Kong
rally, Beijing cross-country rally, such as Beijing and Paris, construction of zhuhai circuit, the establishment of Chinese motor sports federation, a group of folk motor sports association and the establishment of the club and the car sport of world championships, etc. In this stage, the development of Chinese auto industry was rapid. Motor racing is a rich sport. motor racing organization system gradually perfected. Racing talent was in scarcity. Racing drivers mainly came from motorcycle and other sports related industries.

2.2 Rapid Development Stage. From 2004 to 2013, the racing car industry came to rapid development phase. The main sign of the phase are: formed seven championships, club management specification, construction of different size of circuit in Beijing, Shanghai, chengdu, zhaqing, ordos and other places, the release of " reform and development compendium of Chinese motor sports federation from 2013 to 2022". In this stage, Chinese automobile industry developed in a very fast speed. China became the biggest car production and sales country. The population of participating motor sport increased obviously. Keen and in the number of, management capacity and profitability of clubs were strengthened. The competition and training school have trained a large number of racing talents. Participations of high level race in domestic and foreign increased significantly.

2.3 rapid growth stage. With the development of automobile industry and the increase of car ownership, the pursuit of cultural products is more and more colorful. Motorsport flourish and industrialization are an inevitable trend. Thus, Chinese car industry came into the fast growth stage. This phase (2013-2013) is characterized by a steady growth of the auto industry, the similar rate of number of people involved in motor sports compared with the developed countries, motor manufacturer valuing investment on motor sport.. Complete racing industrial chain of manufacturing, research and development, event organization, catering, entertainment, transportation and racing car derivatives, will be formed.

3. Problems of Chinese Racing Car Industry.

Because Chinese auto industry started relatively late and per capita car ownership is low, the car industry's development in China also has a lot to do compared to the auto industry in developed countries. There are a number of problems with Chinese car industry development:

3.1 short of racing car talents. Racing industry chain is very long. All kind of talents are needed. So the shortage of car industry talents is all-around in China, including race car driver and referee, car maintenance personnel and related service personnel. Lack of talent is performed on the insufficient number of people and low quality of the personnel. Taking race car driver as example, "car population" is very important to motor sport. Racer usually starts kart racing in their 4-5 years old in developed countries, and gradually promoted to entry-level formula. With relatively mature and perfect training system, racer can obtain broad participation, training and competition, which laid a solid foundation for racing talents reserves. From the realistic conditions of our country, it is impossible to train racer in from the age of 4 to 5.

3.2 bad mass base of the racing car industry. Bad mass base lies in following aspects. On the one hand, the car race is known as expensive sport. Participation ratio is very low on the condition of low life level and no possession of cars; On the other hand, car racing is associated with the auto industry, our country's industrial civilization is not developed. So attention to car race is little. What's more, motor sports' unbalanced regional development leads to few motor racing in less developed areas.

3.3 brand effect of racing car industry isn't obvious and competitive. Auto manufacturers have insufficient understanding of the car industry. They haven't realized the problems of the racing car industrialization from the aspects of industry, culture and market as a whole to know the car industry. They don't care about the car industry, or just for the sake of the car race. They do not to combine motor racing with the auto industry development. So with motorsport, there's no motor sports brand. The car's marketing function is not well used.
4. Countermeasure of Chinese racing car development.

4.1 bring the government macro management function into play. From successful racing experience in Shanghai, zhuhai, Beijing, we can see carrying out car race is the government behavior. The government's core roles lie in not only investment of money and land but also policy support, management, coordination, etc. as for motor racing in the future, the government need to fully recognize the correlation between car industry and racing car industry, the promoting function of racing car industry. Government should encourage the development of car industry in order to realize the auto industry’s fast development.

4.2 Enhancing training of the racing industry talent. Talent training of the car industry is a comprehensive system engineering, which need to use the advantages of university discipline group, such as automobile, tourism, management. All disciplines should involve in motor racing to train talents of car design and manufacture, operation management for sporting events, race car driver, the referee, car maintenance, the service of the event, etc. Auto club need to play role of training talents of racing and cultivating the students' practical ability. The mature experience of developed countries needs to be drawn. For instance, British racing car industry ranks no.1 in the world. Its car industry has stood on the high ground. There are a lot of experience can be used for, such as through cooperation with British colleges and universities, joint training racing talents, etc.

4.3 Improving and standardizing the motor sports club to raise the level of event organization and operation. On the basis of the existing management framework, we will continue to improve the construction about cars, including the driver, the referees, coaches, sites, the vehicle registration and management system, etc. To strengthen the construction of the standardization of the racing club, draw lessons from foreign car club success experience, in order to establish perfect rules and regulations, ensure the lawful rights and interests of the driver, the club and the sponsors. All measure above are important for the healthy development of motor sport in China.

4.4 Cultivating the car culture and promoting the development of car industry. With the rapid development of automobile industry in China in recent years, car culture has been formed. Based on this, the car culture needs to be promoted greatly. Promotion ways include: firstly, making full use of the motor sports column of the TV, radio, magazines, websites, video introduces the history and culture of motor sports; secondly, carry out the interesting motor sports, such as around the pile, racing, assembled sexual activity and all kinds of safe driving training activities, in order to let more automotive enthusiasts to participate in the movement, reduce vehicle movement into the threshold.

4.5 Encouraging domestic car to carry out motor sport especially self-owned brand car. Improve the domestic car brands’ participation, especially the self-own brand car, to form a good interaction of domestic automobile industry and motor sports. Guide domestic auto especially self-owned car brands, to become famous brands. These are necessary way to becoming famous brand. In recent years, there are a growing number of local brand cars in 7 big race, which is a good phenomenon. Motor sport management institutions and relevant government departments need to provide more platforms to attract local brands to join, to realize the benign interaction of the domestic automobile industry and vehicle movement.

5. Summary

Looking forward to the future, as continuing growth of Chinese auto industry, motor sports culture is deeply rooted in the hearts of people. car manufacturer pay more attention to motor sport unprecedentedly. Chinese auto sports will become more popular, and the car industry will become the wings of boosting the development of auto industry.
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References
[1] State general administration of sports car motorcycle sports management center. Chinese motor sports association 2013 annual work report, 2013.12. http://www.autosports.org.cn/
[2] Feng Wang. Study of Development Status and Countermeasures of Chinese Motor Sport [J]. Sports Culture Guide, 2014, (4): 24-26.
[3] Lei Shi. China Circuit Championship State of the Art [M]. Beijing, Capital Institute of Physical Education, 2008.
[4] Yuan Gao. China auto field championship business strategy research [M]. Wuhan, Wuhan Institute of Physical Education, 2008.
[5] Yongxiang Tang. Analysis on National Automobile Market Prospect at the Angle of F1 Match in Shanghai [J]. Journal of Nanjing Institute of Physical Education, 2005, 19(4): 43-45.
[6] James Meredith. Study of Combustion Performance of Biodiesel for Potential Application in Motorsport[A]. International Journal of Intelligent Information and Management Science(Volume 5,Issue 2,April 2016)[C].2016:8.
[7] Zhang Keke. The Design and Optimization of FSC Racing Suspension Rocker System[A]. Chinese Construction Machinery Society (CCMS).Proceedings of the 2015 International Conference on Advances in Construction Machinery and Vehicle Engineering(ICACMVE'2015)[C].Chinese Construction Machinery Society (CCMS),2015:6.
[8] Bin Zhu. Design and Optimization of FSAE Race Car suspension system[A].Proceedings of 2015 3rd International Conference on Mechanical Engineering and Intelligent Systems(ICMEIS 2015)[C].2015:4.
[9] Jun Ni. The Suspension Optimization of FSAE Racing Car Based on Virtual Prototyping Technology[A]. Society of Automotive Engineers of China(SAE-China)、International Federation of Automotive Engineering Societies(FISITA).FISITA 2012 World Automotive Congress Proceedings --Volume 7:Vehicle Design and Testing[C].Society of Automotive Engineers of China(SAE-China)、International Federation of Automotive Engineering Societies(FISITA);,2012:10.