

# Research on the Transformation and Upgrade Path of Automobile Manufacturing Industry

—Taking LiuZhou City as an Example

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**Abstract**—LiuZhou, which takes automobile as its pillar industry, is currently facing the problem of lowering the overall industrial output value due to the decline in automobile production and sales. Whether the automobile manufacturing industry can successfully transform and upgrade is the key to its economic growth. The upgrading of consumer consumption, the "new four modernizations" of automobiles and other development trends bring new opportunities and challenges to the transformation and upgrading of the automobile industry from high-speed development to high quality. How to seize the opportunities is the key to the transformation and upgrading of the automobile industry. This paper takes the development status of LiuZhou automobile manufacturing industry and the opportunities and challenges of transformation and upgrading as the starting point, and proposes that LiuZhou automobile manufacturing industry should carry out transformation and upgrade from the aspects of establishing innovation development, talent support, open development and automobile big data mechanism.

**Keywords**—Automobile industry; transformation and upgrading; path research

## I. INTRODUCTION

As the pillar industry of the national economy, automobile manufacturing is characterized by large industrial scale, long value chain, numerous related fields, strong pulling effect and wide influence scope. It is the main body of the real economy, the main battlefield of technological innovation and an important field of transformation and upgrading[1]. In the context of market evolution, industrial transformation, the outbreak of new and high technologies and the cross-border entry of other industries, the competition in the automobile industry is no longer a competition of sales volume, but a new starting point oriented by new technologies. New energy, 5G mobile communication, artificial intelligence, big data, cloud computing and other seemingly unrelated technologies of the automobile industry are accelerating the cross-border integration with automobile products and automobile industry. Electric, intelligent, networked and shared vehicles have

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become the main theme of the automobile industry. In the future, cars will no longer be just a means of transportation, but a carrier providing content and services beyond the vehicle itself, thus giving rise to a brand new consumption mode. Therefore, in the context of user consumption upgrading and cross-border integration of the automobile industry, the transformation and upgrading of automobiles from traditional means of transportation to intelligent products will become an inevitable trend, which is also an inevitable requirement driven by the market and the development requirements of relevant enterprises[2].

## II. ANALYSIS OF THE DEVELOPMENT STATUS OF THE AUTOMOBILE MANUFACTURING INDUSTRY

### A. Domestic automobile industry status

In the past decade or so, the automobile industry has been rapidly developed under the stimulation of favorable policies and consumption growth, making China the world's largest automobile consumer. According to data from the Ministry of Public Security, as of the end of 2018, China's automobile ownership was 240 million, an increase of 22.85 million units over 2017, an increase of 10.51%, of which 10,000 vehicles were owned by thousands of people. However, the development momentum of the automobile industry has declined. According to the statistics of the Automobile Industry Association, by the end of 2018, China's automobile production and sales volume were 27.809 million and 28.081 million, respectively, down 4.16% and 2.76% year-on-year. Despite its 30% global market size, sales have fallen by 1 million units compared to 2017, which is the first decline in the Chinese auto market in 28 years. Since 2019, China's auto market has continued to slump, and the overall sales of major auto companies have been poor. By April, the production and sales of 8.389 million and 8.353 million automobiles were respectively down 11 percent and 12.1 percent from the same period last year. It has become a new normal for the automobile industry to enter the "winter", in which the automobile manufacturing industry needs to transform and upgrade to get rid of the existing difficulties.

### B. LiuZhou Automobile Industry Status

At present, the development of the national automobile industry is sluggish. Before the first decline in the sales volume of the national automobile industry in 2018, the growth rate of automobile production in LiuZhou city showed a downward trend in 2016, indicating the "winter" of the automobile industry is coming. As can be seen from Fig. 1, although automobile production in LiuZhou has been in the growth stage for the past five years, the output growth rate has dropped sharply since 2016, and the annual growth rate in 2018 was only 0.48%. According to the statistics bureau of LiuZhou city, by the end of May 2019, the output value of LiuZhou automobile industry was 75.850 billion yuan, with a growth rate of -22.4%, and the industrial output value above the scale was pulled down by 11.03 percentage points. It can be seen that the situation of LiuZhou automobile industry is grim and the development of the automobile industry has entered a difficult stage. Automobile output value accounts for about 50% of the total industrial output value of the city. If industry is the business card of LiuZhou, then the automobile is the business card of LiuZhou industry. It can be seen that automobile industry plays a decisive role in LiuZhou. Therefore, the transformation and upgrading of automobile manufacturing industry is of great significance to the overall transformation and upgrading of LiuZhou manufacturing industry.

TABLE I. LIUZHOU AUTOMOBILE PRODUCTION IN RECENT FIVE YEAR

Year	LiuZhou Automobile Production (10,000 units)	Growth
2014	186.34	11.63%
2015	208.71	12%
2016	228.87	9.66%
2017	244.67	6.90%
2018	245.85	0.48%

According to the automobile industry development in LiuZhou city in recent five years (Fig. 1), the annual output value growth rate of the automobile industry in LiuZhou city has been in a declining state, and the contribution rate to the growth of the industrial output value above the scale has been continuously decreasing, and the driving effect on the industrial output value is gradually decreasing. The structural problems existing in LiuZhou industry have become more and more prominent in the context of the sluggish development momentum of the national automobile industry. Due to the excessive dependence on the automobile industry, LiuZhou's industrial economy is vulnerable to the fluctuations of the external automobile market and has insufficient ability to resist risks. Therefore, it is urgent to transform and upgrade the automobile industry through innovation, and to increase the added value of products by opening up the upstream and downstream industrial chain, so as to drive the economic growth of LiuZhou.

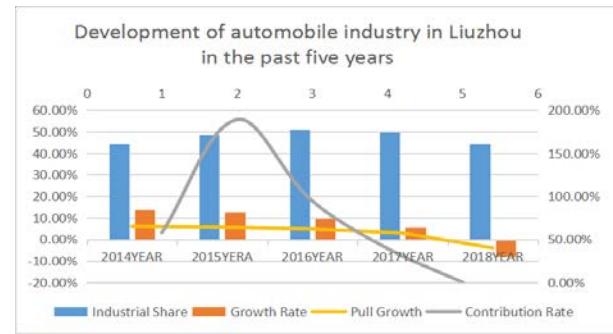


Fig. 1. Development of the automobile industry in LiuZhou from 2014 to 2018

### III. OPPORTUNITIES AND CHALLENGES FOR TRANSFORMATION AND UPGRADING OF LIUZHOU AUTOMOBILE MANUFACTURING INDUSTRY

At present, the national automobile industry has entered a preliminary winter, and the automobile manufacturing enterprises are in a critical stage of reshuffling, at this time, the automobile manufacturing industry will face new opportunities and challenges. The cooling automobile market and intensifying competition provide a strong impetus for the transformation and upgrading of LiuZhou automobile manufacturing industry, which will further accelerate the intensity and progress of the transformation and upgrading of LiuZhou automobile manufacturing industry[3]. If we can grasp the challenges and opportunities of the transformation and upgrading, LiuZhou automobile industry will be more mature and healthy after the winter, and have a long-term development prospect.

#### A. Increased user loyalty

After the rapid development, the automobile market capacity has reached a certain stage, and the advantages of the first purchase group have been reduced, but the repurchase group has spawned a new market, and the fight for the stock of more repurchase groups will become the main body of the automobile market. At this time, the level of brand loyalty will become the core factor affecting the sales performance of automobile enterprises, and become the key to that automobile enterprises can whether seize the new market[4]. Therefore, the research, maintenance and promotion of brand loyalty are the vehicle manufacturing enterprises must face at present. According to statistics, the overall level of brand loyalty in China rose to 25.79% in 2018, and the intention loyalty of Chinese passenger cars has been on the rise in the recent six years. The new market generated by the repurchase group and the continuous improvement of the overall brand loyalty in China creates good opportunities for the transformation and upgrading of LiuZhou automobile manufacturing industry and efforts to improve the sales volume of local dominant brands (WuLing, BaoJun, etc.).

Although the overall user brand loyalty increased to 25.76%, compared with the 40-50% loyalty of foreign brands, there is still a certain gap in the loyalty of domestic brands. Take the user loyalty of LiuZhou superior saic-gm-wuling BaoJun brand as an example (as shown in table 2). Although

BaoJun brand loyalty is higher than the overall level, it fluctuates significantly and shows a downward trend. The main reason is that the early by car to the countryside and so on preferential policy, BaoJun car sales continue to rise, raising the BaoJun brand loyalty, but as a result of BaoJun audience mainly concentrated in the three cities, and the impression of LiuZhou automobile still remains in the low-end models, higher level, the ratio of the late sales weak lower BaoJun car brand loyalty. This limits the development of the automobile market in first - and second-tier cities and hinders the sustainable development of LiuZhou automobile industry.

#### *B. MPV models are popular*

Due to environmental pressure, traffic conditions and other factors, more and more first-tier and second-tier cities introduce measures to limit the purchase of automobiles, making replacement groups gradually become the main body of car buyers in first-tier and second-tier cities. Moreover, the two-child policy is first popularized in the first-tier and second-tier cities, and MPV models with multi-function characteristics are more in line with the travel demand and attract more urban family users. Therefore, the MVP market welcomes the opportunity of prosperity and development. From the technical aspect, high fuel consumption was one of the core factors that hindered the popularity of MPV. However, in recent years, with the introduction of 2.0t, 1.5t, 1.3t and other turbocharged engines, the problem of high fuel consumption of MPV was gradually alleviated, further improving the capacity of MVP model products. The potential sales growth of MVP model creates opportunities for LiuZhou automobile manufacturing to further open the national MPV market. For LiuZhou automobile manufacturing, in addition to the challenges from research and development technology, it is also gradually facing increasing pressure from market MVP competitors. How to hold the existing market and how to seize the new market are the severe test that automobile enterprises have to face.

#### *C. Product configuration upgrade*

At present, domestic automobile brands are in a critical stage of transformation and upgrading from price to product power. For traditional parts suppliers, the improvement of automobile configuration can map a broader market prospect of spare parts. Automobile configuration to the concept of the harmonious development of people, vehicles, society, so as to accelerate the electrification of cars, networks, intelligent process, is conducive to the sustainable development of the automobile industry[5]. With the strengthening of interaction between automobile enterprises and the outside world, science and technology enterprises will accelerate their entry into the automobile industry, and intelligent internet-connected vehicles will become one of the core selling points of automobile enterprises. Therefore, those who follow closely the development trend of the "new four modernizations" first to upgrade the product configuration can seize the first opportunity in the future market competition. Due to the rapid development of technology, traditional parts will face the continuous decline of crisis. To meet the demand of main engine manufacturers, traditional parts suppliers in LiuZhou will be forced to innovate the existing production technology to meet the demand for intelligent manufacturing.

#### *D. The overseas markets*

From the performance of China's automobile consumption market in the past decade, the global automobile consumption structure dominated by Europe, America and Japan are changing, showing a trend of popularization from developed countries to developing countries such as Asia, Africa and Latin America. The main reason is that the improvement of economic level and population growth provides a good market basis for the further popularization of automobile consumption in emerging markets such as Asia, Africa and Latin America. Therefore, South Asia, Southeast Asia, East Asia, South America and other regions with concentrated population and active economy will become a new growth point of global automobile consumption. The continuous promotion of "One Belt And One Road" strategy improves the convenience of automobile production capacity output and provides favorable opportunities for the global layout of Chinese brands and the strategic transformation of joint-venture automobile enterprises. At present, foreign brands are also vigorously promoting the globalization and popularization of automobiles, which will bring certain challenges for Chinese automobile enterprises like LiuZhou automobile manufacturing to export overseas market and seize overseas market share. Due to the uncertainty of the external economic environment and trade friction between countries, the automobile export of LiuZhou enterprises will be affected to some extent, and the automobile manufacturing industry in LiuZhou will suffer certain pressure when expanding overseas market.

#### *E. The popularity of new energy electric vehicles*

In recent years, new energy vehicles have ushered in a favorable external environment due to urban purchase restrictions, double-point assessment, reduction of local protection policies, continued high oil prices, and other factors contributing to the development of new energy sources and their continued role. Due to the continuous expansion of the capacity of battery giants such as Panasonic, Ningde, and BYD, the power battery that restricts the development of new energy vehicles has achieved breakthroughs and development. The development of power batteries will better meet the desire of car companies for the quality and quantity of power batteries, and strengthen the foundation of new energy vehicles. In the next few years, Chinese brands, new forces of car making, overseas ordinary brands, luxury brands and other brands with the structural strength to subvert the new energy market will scale up the new energy automobile market, injecting new vitality into the continuous evolution of the new energy automobile market. In this context, on the one hand, the new-energy vehicle market does not lack purchasing power, but high-quality models. This is the moment to test LiuZhou's automobile manufacturing and research ability. On the other hand, LiuZhou will inevitably face market pressure from various competitions in the manufacturing of new energy vehicles. How to seize the market share of new energy quickly becomes a big challenge for LiuZhou automobile manufacturing.

#### IV. TRANSFORMATION PATH OF LIUZHOU AUTOMOBILE MANUFACTURING INDUSTRY

At present, the emergence of emerging automobile markets represented by new energy vehicles and intelligent networked vehicles, as well as the joining of cross-border forces such as new forces of automobile manufacturing, have injected new vitality into the further development of the automobile industry, and also brought development opportunities and challenges. The key to the transformation of automobile manufacturing industry from high-speed development to high-quality development is to grasp the development trend and opportunities of the automobile industry and explore a comprehensive and sustainable transformation and upgrading path in line with the development characteristics of the automobile industry[6].

##### A. Establishing an innovation-driven development mechanism

In the context of today's market evolution, industrial transformation, high-tech concentrated outbreaks and other industries' cross-border entry, the auto industry can only rely on innovation to drive high-speed development and upgrade to high-quality development. According to the upgrade direction of automotive users, the development trend of new car development, and the successful experience of competed products, we will innovate technologies and products from user usage scenarios, and consider innovative business and marketing models from the perspective of Internet thinking, cross-border thinking and shared logic. By eliminating backward production technology and establishing a more flexible production system, the brand positioning of different high- and low-class vehicles and the personalized and systematic product layout will be formed. This will be one of the paths for the transformation and upgrading of LiuZhou Automobile.

##### B. Improving the talent support mechanism

The key factor driving the transformation and upgrading is whether there is a complete talent system. In order to successfully transform and upgrade LiuZhou automobile manufacturing industry, it must rely on advanced talents. Thus, it is necessary to improve the talent introduction and incentive mechanism, introduce technical talents, and carry out scientific and technological development and reserve. By strengthening the construction of industry-university-research platform, promote the transformation of patent achievements, and further implement innovation and creation in actual projects. And then promote the development and upgrading of LiuZhou automobile manufacturing industry and its industrial chain, which will be one of the paths of LiuZhou transformation and upgrading.

##### C. Opening the development mechanism

At present, the domestic automobile consumption market is relatively saturated and subdivided. LiuZhou automobile industry should continue to develop new markets on the basis of the original market. Relying on "One Belt And One Road",

the implementation of "going global" strategy will be a compulsory course for Chinese brands and joint-venture automobile enterprises. Therefore, increasing the output of automobile production capacity to Asia, Africa and Latin America and neighboring countries and gradually forming a diversified export structure will be one of the paths for LiuZhou automobile transformation and upgrading.

##### D. Establishing a car big data development mechanism

According to the user consumption upgrade and the development trend of the "new four modernizations" of automobiles, intelligently networked automobiles will become the main product form of future automobiles. Therefore, the use of big data for analysis and digital production, promote the mobile Internet, cloud computing, big data, such as the Internet of things, and combining with the development of auto industry, through the whole industrial chain, increase product added value, timely make "smart car manufacturing base", "smart auto industrial park", promote the transformation of "intelligent", will be one of LiuZhou automobile path of transformation and upgrading.

#### V. SUMMARY

This paper describes the new opportunities and challenges faced by the automotive industry in the new normal of "winter", and summarize the transformation and upgrading path of the automobile manufacturing industry in this context, and propose countermeasures to promote the transformation and upgrading of the automobile manufacturing industry. It is hoped that the research results of this paper can provide a practical path for the transformation and upgrading of the automobile manufacturing industry, and provide decision-making reference for the government departments to formulate the automobile industry development plan and related support policies.

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