

# Improving the efficiency of technology transfer in the Vietnamese automobile industry

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**Abstract:** According to the automotive sector plan: automobile industry is considered as a spearhead industry, it plays an important role in the economic development of our country by the automobile industry promotes many related industries such as rubber, metallurgy, glass and plastic, petrol, electricity, electronics. For every dollar invested in the auto industry, it would take eight dollars to produce supporting industries. However, the Vietnamese automobile industry Currently, Vietnamese enterprises are not automobile manufacturers but car assemblers. Although many local companies have invested in automobile assembly and assembly projects, these projects are mostly small-scale, with backward technology and low localization. The question is how to have the automotive industry while Vietnam is currently almost no automotive industry. The answer cannot be different than to strengthen the development of technology innovation. The most effective method, from the author's point of view, it is to transfer technology in the automotive industry.

**Keywords:** automobile, technology transfer, automobile industry

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## 1. Introduction

According to the United Nations Industrial Development Organization (UNIDO): Technology is the application of science to industry by using systematic and systematic research and treatment results. According to the Economic and Social Commission for Asia and the Pacific (ESCAP): Technology is a knowledge-based process and technology for processing materials and information. However, as a whole, technology is a combination of methods, tools, and means based on the use of scientific knowledge in production and life to produce products and services. Service to meet the material and spiritual needs of man.

Technology: Includes four basic components that interact with each other to produce any desired transformation.

- Tools, machinery, materials.
- Information, methods and procedures, know-how.
- The organization demonstrates in the design of the organization, its linkages, and the management of the components in the system.
- People are professionally trained, have experience and skills, and professional skills.

Technology transfer is an activity aimed at bringing advanced technology and modern technology into production through the application of scientific research results to production or the application of a completed technology from this enterprise. to other businesses. Technology transfer is the purchase and sale of technology and is the process of training the user to use the technology. Characteristics of technology transfer include:

- Technology transfer activities involve two parties and the decisive factor is the new technology.
- Technology transfer activities not only include the transfer of material and technical means, but it is more important that training and training is provided for the skillful laborers to grasp and use technology.

Technology is a component of the material foundation, creating conditions for the existence and development of enterprises. Especially the technology directly influences and determines the ability to produce. Products increasingly diverse to meet the needs of the development of society. Without the development of technology, especially those with high gray matter content, it is impossible to diversify the production and supply the market with many products that have a decisive influence on the production and life of modern society. Technology is a factor that directly affects the competitiveness of enterprises. This impact is first expressed in the following: Technology and technological advances have made the product quality is maintained and improved, production costs are relatively saved to reduce costs, products New features have better use can be put into the design put into production, consumption. Moreover today the technology has become the direct object of production. Technology has a powerful impact on creating an image of the business. Companies that are constantly innovating on new technologies can create the trust of customers. Technology is the factor affecting the efficiency of production and business of each enterprise. This can be achieved by adopting new technology or by advancing traditional technologies that allow economical use of resources for production using inexpensive materials rather than using expensive technologies, rare materials, or using more stable and reliable means and means.



Figure 1. The automobile assembly line in Vietnam

At present, the production, assembly and import of means of transport such as motorcycles, motorbikes, locomotives, rail cars, electric trains and cable cars are not regulated as conditional business lines. The User security is ensured through periodic registry work. For automobiles, when putting them into use, they must also register periodically to ensure safety for users. At the same time, there should be strict regulations on the use duration of cargo trucks and passenger cars.

Technology plays an influential role both as a direct influence and as an indirect influence. The technology allows for the expansion and upgrading of technical infrastructure as well as social infrastructure. The technology allows businesses to access, process information quickly, check information is easy. Technology makes new business areas in the industry come into being. It is thanks to patents in the electronic field that the industry is constantly developing the technology creates equality in access to information, strongly promotes the formation of a socio-economic environment equal opportunity for all business enterprises. Technology plays a very important role for business enterprises.

### **The role of technology transfer in industry**

The important role of technology transfer stems from the meaning of technology for industrial enterprises. In our country, current scientific and technological advances make up about 30-40% in industry. Technology transfer is the main method and measures for technological renewal in a quick and effective manner. Technology transfer in the industry of enterprises that inherit the scientific achievements of other enterprises, saving the cost of research and development of technology and avoid the risk of research and development activities. technology. Small and medium enterprises have many limitations in their own investment in technology research and development so that they cannot carry out many research and technological development activities. Through technology transfer, businesses can save time, soon create a great technological potential, equipped with advanced technology to improve production.

## **2. Necessity of technology transfer in the automotive industry**

### **2.1. The role of the automotive industry**

Automobile industry is a very important industry for the development of society. In the automotive industry master plan, it is determined that the automotive industry will become a very important industry in 2020. This is because the automotive industry provides the basis for improving people's living standards and creating jobs for workers. This importance is reflected in the following roles:

- Manufacturing industry to meet the needs of consumers and provide transportation facilities,
- Contribute to addressing a number of social issues: solving most of the problems of over-employment, limiting unemployment and creating high-income jobs for the laborers.
- Promote the centralization of production and division of social labor. From the development of the automobile industry, some specialized industrial clusters have been formed. For example, the automobile industry of Nguyen Khe - Dong Anh, the Thu Duc automobile industry cluster - Ho Chi Minh City.
- The automotive industry is a high tech industry, so it promotes the development of technology in many different ways, there are businesses investing in research, there are also businesses that promote the transfer modern technology from abroad. It also contributes to human resource development and management.

- If you know how to handle it well, the car also contributes to improving the environment because of its high emissions standards. Urban beauty and modernization of life, comfort and comfort.
- Automobile industry promotes the development of supporting industries. For every dollar spent on auto industry, it needs eight dollars for auxiliary industries. Millions of vehicles a year, the auto industry and supporting industries will play an important role in the country's economy.

## 2.2. Current situation of the automobile industry in Vietnam

Vietnam's automobile assembly and assembly industry consists of two groups: FDI and domestic enterprises. Twelve of the 17 licensed FDI companies in Vietnam are operating with a total investment capital of \$1 billion, capable of producing 150,000 vehicles per year, mainly passenger cars and multi-purpose vehicles. At present, there are 47 domestic companies investing in the field of automobile assembly and assembly with the total investment of tens of trillion dong, mainly producing bus, passenger and light trucks, specialized vehicles. However, the biggest impact on the domestic car market is the 4-9 passenger cars, the prices of these vehicles as well as the tax rates associated with it are always hot topics in the market. The domestic automobile market has increased sharply in the past five years, sometimes failing to meet demand. For example, at this time, many businesses had to do three shifts a day and raise their full capacity but not enough to supply cars to the market. By the end of September 2007, the number of vehicles sold by FDI enterprises reached 32,000 units. Many of them had orders from hundreds of thousands of cars until the end of 2007 and some months of 2008. .

Vietnam is now a member of the World Trade Organization (WTO). Therefore, Vietnam's position has been increasingly enhanced, attracting investment, demand for fast-growing economy, and new policies. Imports and exports have made strong moves in the automobile manufacturing and trading industry. According to the Vietnam Automobile Manufacturers Association (VAMA) in May 2007, The car sales were 5,580 units, an increase of 59% over the same period in 2006, a 19% increase compared to April, of which five-seat cars doubled and multi-purpose vehicles increased by 25%. Forecasts to 2010 will increase to 3065040 units.

Poor infrastructure: By the end of 2000, the road system in Vietnam had 210,447 km, of which 169,005 km was rural roads and only 3,211 km of urban roads. Most narrow streets, bad quality. The area of traffic in urban areas (parking lots, parking lots) is small, only 0.7% while in modern cities it is 5-7%.

The demand for automobiles in Vietnam is relatively small: Only about 60,000 cars a year, while ASEAN is 2.1 million cars a year, China is 5.2 million cars a year, Japan 5.9 million cars a year ... Up to now, the number of cars in Vietnam has only 8 vehicles per 1000 people, while in China there are 24 cars per 1000 people, Thailand is 152 cars per 1000 people, Korea has 228 cars per 1000 people and 682 cars / 1000 people in the US. Germany has a population of almost 83 million inhabitants in Viet Nam, with an area of approximately 330,000 km<sup>2</sup>. But the volume of cars in Vietnam is about 670,000 units and 18 million motorcycles, while in Germany there are 52 million cars and about 7 million motorcycles (the area used by a car by 8 cars mounted machine). Some comments suggest that the demand for automobiles in the Vietnamese market is an artificial supply. Because of the high price of cars compared with the ability of consumers, the volume of cars produced is bought with public funds, with the state budget (buy to do public car). Of course this object is still a customer and they are classified in the "market of the organization" rather than the "individual consumer market." And the purchasing power of this object is enormous in any country. Every development is focused, overheated care. But in Vietnam, too much attention has been paid to the customer, making the market distorted and overwhelmed by administrative decisions. This is also the main reason for the high price of cars because when customers buy cars with public funds, "no money", and the car market suddenly turned to gloomy after decision 25/20 Vietnam's automobile industry , 06 / QD-TTg of the Prime Minister on thrift practice with the content "From 01/06/2006 will suspend the purchase of vehicles with budget.

The industry supporting this industry is currently underdeveloped: At present, nearly 40 FDI manufacturers and 30 domestic manufacturers supply automotive parts. According to Phan Dac Tuat, director of the Institute for Strategic Industrial Policy Research: There are too few supporters in Vietnam. According to the calculations, a car has 20,000 to 30,000 parts and to produce one car needs thousands of component suppliers, and to avoid a simple assembly, a car business needs At least 20 different suppliers. However, up to now, no automobile assembly and assembly company in Vietnam has had 20 domestic suppliers. The small component market is small because no one dares to invest in the industry. This is because of its complexity: high capital investment because it is a precision engineering industry and absolute safety, high quality and high technology, while backward technology in Vietnam, want to develop catch It is necessary to invest in technology transfer from abroad so it is relatively risky to invest in this sector. Another reason is the high cost of imported components, which is estimated to be 1.7-3 times higher than that of other countries. This has two effects: high price of components, scarce components on the market. When the supply of spare parts is limited by small quantity, poor quality and high price, the automobile industry cannot develop and the Vietnamese automobile market is still only market. Potential but not a big market.

### 3. Policies

In order to encourage the development of automobile and spare parts industry in service of domestic demand and export, the State has a number of supporting policies as follows: No import tax shall be calculated on the basis of CKD, IKD removable components; Calculate the tariffs on imported components and parts and encourage domestic production. Enterprise income tax exemption for test products is granted for one year from the time the products are sold on the market.

*Market policies and solutions:* Apply measures to support domestic production in line with the process of international and regional economic integration. To issue technical standards for automobiles and automobile spare parts in order to prevent the circulation of unsafe, unsafe and polluting goods. To strictly handle smuggled goods and commercial fraudulent goods, which are brought into the Vietnamese market. To step up investment in upgrading the road network throughout the country. To encourage enterprises producing and / or assembling automobiles to use engines and spare parts for domestic manufacture. To create conditions for enterprises in marketing and trade promotion activities in order to expand the domestic market. water and out to foreign markets.

*Investment policies and solutions:* Encourage cooperation and division of production among domestic enterprises with each other and with foreign invested enterprises to make use of the invested technologies and equipment, reduce new investment costs and avoid Duplicate investment. New investment step by step but focus, focus and fast investment in the basic technology, decide the quality of products, suitable to market demand. Foreign-invested projects in supporting industries, automobile engines, spare parts and components, especially investment projects of large capacity and production of products In order to increase the ratio of domestic production and export, the State shall fully enjoy preferential policies in accordance with the provisions of the Law on Foreign Investment in Vietnam.

*Policies and solutions on science and technology:* To encourage the transfer of technologies and investment in advanced technologies in service of the program of automobile and automobile spare parts, especially engine, transmission and transmission. The State shall provide financial support for technology transfer for engine, transmission and transmission projects if the technology is transferred from well-known firms in the world. The State shall provide financial support for investment in research and development activities in the automobile industry.

*Policies and solutions on human resources:* To increase investment in training and re-training of managers, designers and skilled workers in service of the automobile industry, including sending them abroad for study abroad from the State budget.

*Policies and solutions on capital mobilization:* Encourage the equitization of automobile manufacturing and assembly enterprises, including the sale of shares to foreigners to create new capital and diversify capital sources. To encourage all economic sectors to invest in the manufacture of automobile spare parts and components. When formulating a project, the investor shall base on the above investment orientations and orientations the actual competitiveness of the enterprise in order to determine the appropriate investment scale and location and at the same time bear the responsibility responsibility for their decision.

*Market policies and solutions:* To attach importance to research and implementation of measures to regulate supply and demand of the Vietnamese automobile market in order to ensure the healthy competitiveness and efficiency of the entire industry. To formulate and perfect the legal framework in order to create conditions for enterprises to rearrange and reorganize large enterprises in the model of parent company and subsidiary companies and satellite companies. Major industries in the field of automobile assembly and production; To well realize the specialization and cooperation.

### 4. Conclusion

Among current component suppliers, more than 90% are foreign-invested enterprises and most of the components are different from the requirements for components for the domestic market. In 2016, Vietnam consumed more than 300,000 vehicles (including approximately 230,000 domestically assembled cars and over 74,000 imported vehicles), forecast to increase by 10% in 2017. However, both investors and The government is not satisfied with this figure reaching just 45% of its manufacturing capacity. Usually a car is assembled from thousands of components, including some large components such as engines, during the assembly of cars are considered a part of the car, but the actual dynamic Muscle also includes hundreds of different small details. That's why car manufacturers have multiple supply chains and complexes, each with different suppliers.

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