Japan and the Global Automotive Industry

The Japanese automotive industry enjoyed spectacular success in the 1980s. This was largely due to the so-called "lean production system" – the combination of an efficient production system, an effective supplier system, and a product development system. In the 1990s the industry fell on hard times because of the Japanese asset price bubble and extreme currency appreciation. In this book, eminent industry specialist Koichi Shimokawa draws on his thirty years of research and fieldwork with Japanese and US firms to show how the Japanese automotive industry has managed to recover from this difficult period. He shows how firms like Toyota were able to transfer Japanese systems to overseas plants and how they have changed in order to compete in increasingly globalized markets. In addition, the book addresses the two major challenges to the current industry model: the rise of China and the environmental and energy supply situation.

Koichi Shimokawa is Professor in the Faculty of Business Administration at Tokaigakuen University and Emeritus Professor at Hosei University, Japan. He is one of the world's leading researchers on the automotive industry and is a leading member of the International Motor Vehicle Program. He is the author of several books on Japanese business and the automotive industry, including *The Japanese Automobile Industry* (London: Athron Press, 1994).

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Preface

This book describes the turbulent thirty-year history of the auto industry, while illustrating its important phases from a cross-sectional and a bird's-eye view. The auto industry has globalized rapidly in the past three decades, but now we have reached a time of world financial crisis. General Motors (GM) reigned as the world's top producer in the auto industry for seventy years, yet now has gone through bankruptcy restructuring. Nobody expected such a dramatic change. However, thirty years ago, nobody could have guessed that this would be a global industry and would be significantly linked with the fate of our new civilization at the beginning of the twenty-first century. A quarter of a century ago, in other words before the end of the 1970s, the automotive industry was only a local or regional industry which was independently established, although it was already an industry that represented regions and nations, particularly in the advanced countries. Certainly, no one expected that this industry would develop in Asian countries to such an extent that South Korea, China, and India would become countries which annually produce 3.3 million, 10 million, and 3 million cars respectively. Of course, even during this period, there were multinational companies in the industry, such as the US's Big Three, which produced cars in the US and Europe. But there was almost no business affiliation between these two areas.

However, automotive production, especially in Asia, is increasing significantly. It is only a matter of time until the production performance of China exceeds Japan's domestic production. The current situation in Japan shows that, in comparison with domestic production, the volume of overseas automotive production is increasing every year. In North America, the biggest foreign market, the annual production volume of cars has reached nearly 4 million, twice as much as Japan's export volume. Today, the automotive industry cannot exist without practicing global corporate behavior and strategies. This means that the operation of the industry should be available at any place of demand

in the world, and this includes the construction of global product development, parts procurement, and production systems. At the same time, we should not forget that as the globalization of the automotive industry progresses, the industry has to face up to the issues of the civilized world, that is, to morph into an industry which takes responsibility in such areas as energy, resource, and environmental issues, which are becoming more and more serious.

The automotive industry in the twentieth century started with car-manufacturing craftsmen in Europe, before developing along the paradigm of mass production and mass sales, of which the Ford System and GM's Sloanism are representative. It was believed that if the car-ownership ratio increased along with the cost reductions created by mass production, and as long as a replacement demand was created by the diversification of products and model changes, then society would be enriched. However, there was a trap hidden in the paradigm of mass production, and this gradually became clear as we came closer to the end of the twentieth century. This became particularly apparent when the sense of value that mass production and mass consumption would bring to people's lives collapsed. In other words, the automobile industry has been caught up in the problems of energy, resources, and traffic, and now it has to face up to social requirements for building energy-saving cars, clean-energy cars that do not rely only on fossil fuel, cars which recycle resources, fail-safe cars, and a traffic system that can dramatically reduce traffic accidents. The fact is that the automotive industry faces these serious problems along with the impact of the globalization of the industry; these relations are neither too close nor too remote from each other, and the challenge of solving these problems has just begun.

When we consider the globalization of the automotive industry in the light of these challenges, we can see that a great change is needed in the automotive makers' business processes: development, production, procurement, and sales. This upheaval is equivalent to the introduction of mass production and mass volume production which was the basic paradigm for the twentieth century's automotive industry as it developed mass production, mass sales, and mass consumption. This led to the emergence of a lean production system which could perform flexibly with changes in demand and which operated through all the processes of development, production, procurement, and sales. MIT's International Motor Vehicle Program (IMVP) in the US, which I have

been involved with for twenty years, made the paradigm of the lean production system known to the world, and it is believed that this paradigm started in the Japanese automotive industry in the 1980s. Today, it is universally recognized that auto makers everywhere are racing to adopt this business system.

The aims of this book are to show how the world's automotive industries went global over the past thirty years and how the change-over to this important paradigm was made. These questions will be examined based on data from field surveys conducted over the years and on the knowledge I have gathered from my involvement with two big international projects: MIT and Groupe d'Etudes et de Recherches Permanent sur l'Industrie et les Salariés de l'Automobile (GERPISA). Chapter 1 of this book discusses how a reversal occurred in the competitiveness of the Japanese and US automotive industries, of which a key factor was the oil crisis in 1979, and how the international comparison of productivity and Japan's comparative advantage were made possible.

Chapter 2 covers the internationalization of Japan's automotive industry, which gained momentum from the mid 1980s, and the situation of local production overseas, which symbolizes internationalization. This part also shows how the lean production system or the Japan-style production system, which developed in Japan, was transferred to local plants and how they in turn adapted it to suit the local situation. This part also examines how this move made an impact on the US's Big Three, especially on the systems of their plants.

Chapter 3 offers a multidirectional analysis into the reality of global competition in the 1990s, and this is a significant chapter, as it looks toward the future. This chapter covers the revival and reinstatement of Europe and the US's automotive industries in the 1990s, as well as the IT revolution and the realities and problems of global strategies which made the revival of the automotive industries possible. Furthermore, this chapter summarizes the deterioration of the international competitiveness of Japan's automotive industry and its restructuring. These happened because of the appreciation of the yen and the collapse of the bubble economy in the first half of the 1990s, something the Japanese automotive industry had not experienced before. This part also shows what Japanese auto makers learned from this bitter experience and how they went global. Chapters 4 and 5 cover the global reconstruction of the automotive industry, and the relocation of the

auto-parts industry. These chapters analyze how the *keiretsu* auto-parts transaction, which was one of the strong points of Japanese manufacturing, changed.

Chapters 6 and 7 examine auto-related business in Asia, which has drawn particular attention in recent years. The examination starts with ASEAN, where Japan has a strong presence, and then it looks into the prospects for China's automotive industry (where the influence of Japan's automotive industry is becoming apparent, especially in recent years), and the strategies adopted by Japan's auto makers against China.

Based on this discussion, in Chapter 8 special consideration is given to the future prospects for and tasks of Japan's automotive industry. A historical summary and a retrospective of the automotive industry in the world are attempted, while acknowledging the important changes that are taking place.

The last quarter of the twentieth century was an era in which the world automotive industry experienced a period of dynamic and dramatic change before it went global. Change occurred in various areas, including the engineering of cars, production systems, development systems, supplier systems, sales/distribution systems, the social system around cars, and the business system which utilizes this social system. A number of field surveys, including factory studies and interviews, in addition to both domestic and international documents, were needed for organizing the history of the ever-changing auto industry before it was globalized. I had no opportunity to visit the US until April 1977, just after I published my book *The Business History of the U.S. Automobile Industry* (Toyo Keizai Shinpo-Sha, 1977). This opportunity was realized through support from the senior and junior members of Hosei University. During the stay, I studied under Professor A. D. Chandler, the leading authority on US business history, at the Harvard Business School, and with Professor W. J. Abernathy I began fact-finding surveys about friction in the Japan–US auto industry as well as international competition. Sadly, Professor Abernathy passed away in 1983 and I lost an important colleague. However, based on the awareness I shared with the late Professor Abernathy, I joined the IMVP at MIT, and at the same time I conducted field surveys by visiting auto makers in the US, Europe, and Japan.

Conducting such field surveys, I received understanding and cooperation from almost all of the auto makers inside and outside of Japan

as well as from their suppliers, and I could share knowledge and awareness with them. Since the 1990s, as a member at the GERPISA convention, I have had close communications with researchers of the European auto industry through research presentations and field surveys.

My thirty-year field surveys and the research outcomes of two international automobile research projects are reflected in this book. For this, I would like to express my thanks to GM, Ford, DaimlerChrysler AG, VW, BMW, Renault, PSA, Fiat, Hyundai, Kia, Toyota, Nissan, Honda, and other Japanese auto makers, and suppliers including Delphi, Visteon, Bosch, Denso, NHK Spring, and Akebono Brake Industry. All of these companies kindly helped me in door-to-door surveys and factory studies. I would also like to express my thanks to Professors D. Roos, J. P. McDuffie, and M. Freyssenet, who were in charge of the two international projects, and the other researchers who were the main members of the projects.

Here, I would like to emphasize the fact that without instruction and help from the Japanese government, industrial circle, and my research partners, I could not have completed this book. I was able to continue my research and along with many other young researchers I shared in the bounty of a Grant-in-Aid for Scientific Research and International Academic Research from the Grant-in-Aid for Scientific Research of the Ministry of Education and Science. I would like to express my thanks to the Japan Society for the Promotion of Science.

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Koichi Shimokawa