



## *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.

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## Contents

<i>List of figures</i>	<i>page</i> vii
<i>List of tables</i>	x
<i>Preface</i>	xiii
Introduction	1
1 Comparing productivity of the Japanese and US automobile industries	8
2 The internationalization of the Japanese automotive industry and local production overseas	57
3 The recovery of European and US auto makers, and relocating and changing lean production	83
4 Early 1990s – the Japanese automotive industry loses international competitiveness, and the development of restructuring strategies	92
5 The restructuring of the global automotive and auto-parts industries	135
6 The restructuring of the world’s auto-parts industry and the transfiguration of the <i>keiretsu</i> parts transaction	167
7 Global M&A and the future of the global auto industry – the light and dark sides of merger and re-alignment	203
8 The Asian and ASEAN automotive industries in the global era	230

vi		<i>Contents</i>
9	China's automotive industry in the global era, Japanese auto makers, and their China strategies	260
10	Conclusion – the global automotive industry's perspective on the twenty-first century and tasks for the Japanese automotive industry	294
	Epilogue	314
	<i>Index</i>	317

## Figures

1.1 Comparison of two companies each for Japan and US for value added	<i>page</i> 13
1.2 Labor equipment rate (trend for two companies each for US and Japan)	19
1.3 Trends for the two companies each of the US and Japan for production equipment and tangible fixed assets	22
1.4 Comparison of two companies each in the US and Japan for trends in per head wages	23
1.5 Trends in production volume and labor productivity of the Japanese automobile industry; amount of labor input manpower distribution	27
1.6a Changing standards in productivity, labor input quantity, and process-wise required labor hours of the Japanese automobile industry (1975–1978)	28
1.6b Changes in productivity, labor input quantity, distribution of labor, and labor productivity in the Japanese automobile industry (1975–1978)	29
1.7 Progress rate of process-wise productivity of small passenger car factory (yearly rate)	30
1.8 Ratio of investment occupied by short-term equipment investment (die, tools)	38
1.9 Ratio of long-term investment as per sales (equipment investment other than die, tools)	38
4.1 Number of base models and variations of domestically produced vehicles	101
4.2 Number of named cars by country	101
4.3 Simultaneous engineering	107
4.4 Nissan revival plan – cost-reduction effect: ¥1 trillion	117
4.5 NPR recap: consolidated profits	118
4.6 Factors affecting 2001 ordinary profits	118

4.7 NPR recap: consolidated real interest-loaded liabilities of automotive operations	119
4.8 NPR recap: work factor improvement	119
4.9 Consolidated sales and consolidated net profits for Honda	125
4.10 Honda's TQM development	127
4.11 Integrated development and production at Honda	129
5.1 Industry structure – global overcapacity	139
5.2 Implications of the DaimlerChrysler merger	140
5.3 Passenger car volume vs. average price	141
5.4 Mercedes-Benz 1997 light vehicle unit sales by region	141
5.5 Chrysler 1997 light vehicle unit sales by region	142
5.6 DaimlerChrysler 1997 pro forma light vehicle unit sales by region	142
5.7 Global production ranking, 1997	143
5.8 Consolidated cash-flow ranking, 1997	143
5.9 Number of vehicles produced per platform (North America, 1997)	146
6.1 3D classification of parts and suppliers	174
6.2 Basic concept of Renault's supplier map	184
6.3 Toyota global purchasing (1)	192
6.4 Toyota global purchasing (2)	193
7.1 Promotion cost per car by monthly trend in the last four years	212
7.2 Comparison between the US Big Three and Toyota in competition over quality and cost (1997–2003)	223
8.1 Automobile market in five ASEAN countries	233
8.2 Shifts of the automobile manufacturing units of ASEAN and industrial development	237
8.3 Complement of AICO arrangements	239
8.4 Outline of Toyota's components complementation plan 1990	243
8.5 Outline of Mitsubishi component complementation in ASEAN	243
8.6 Shifts in automobile sales units in four ASEAN countries	247
8.7 Comparison of monthly vehicle sales units with the previous year after January 1997	247
8.8 Prospects of regional mutual complements/divisions of work toward AFTA 2003	249
8.9 Transition of the automobile market in Thailand	253

<i>List of figures</i>	ix
8.10 Export performance of Thai Toyota	254
9.1 Schedule for decreasing tariffs for China's automobiles and their parts	272
9.2 Expansion of the leading foreign-affiliated automobile makers in China	277
10.1 Share of engine technologies in new light vehicles, 2000–2030	310
10.2 The hypercar	310



## Tables

1.1	Productivity-related indices for two US and two Japanese automobile makers	<i>page</i> 14
1.2	Trends for the two companies each of US and Japan for production equipment, tangible fixed assets	21
1.3	Trends in average monthly wages of eleven automobile makers in the US and Japan	24
1.4	Trends in wages of UAW standard union members	25
1.5	Trends in US–Japan labor and capital distribution rate	25
1.6	Japan–US comparison of wage labor productivity	26
1.7	Labor time required per vehicle as per direct and indirect departments	31
1.8	Labor time required per vehicle as per small car automobile and department (direct departments)	32
1.9	Labor time required per vehicle as per model and production process (direct departments)	33
1.10	Labor time required per small vehicle as per process (indirect departments)	35
1.11	Input, output, productivity ratio, related to transportation equipment (1967 = 100.0)	36
1.12	Calculation of US and Japanese labor costs for a subcompact vehicle	42
1.13	Estimated per-vehicle employee costs for Ford and Toyo Kogyo in 1979	43
1.14a	Quality comparison of US automobiles versus certain imports	45
1.14b	Ratings of body and mechanical repair	46
1.14c	Customer loyalty – percentage who would buy same model again	47
1.15	Seven factors affecting productivity – comparison of technology, management, and organization	48
4.1	Restructuring of five Japanese auto makers (1993–1996)	96

<i>List of tables</i>	xi
4.2 Factors for increase and decrease in profits for Japanese auto makers in fiscal year 1993	98
4.3 Major business indicators of Honda	126
5.1 Component procurement strategies (Big Three)	147
5.2 Worldwide sales ranking of automobile component manufacturers, 1995–1997	156
5.3 M&A of the automobile component industry, 1995–1997	158
6.1 Classification of parts and suppliers	172
6.2 The contents of related special functions in the main category for parts	173
6.3 GM, Ford, Daimler–Chrysler’s strategies for suppliers	178
6.4 Two strategic alternatives	183
6.5 Business climate of the main parts of production in-house/outsourcing of European auto makers	186
6.6 Parts-procurement policies among European auto makers	189
6.7 Names of plants and countries of supplier parks in Eastern Europe	191
7.1 Ranking of ability of ten leading auto makers (2001)	222
7.2 Sales of the best ten auto-parts makers in the world	226
8.1 Automobile market in thirteen Asian countries	232
8.2 Comparison of BBC and AICO plans	240
8.3 Summary of parts production capability of each country (1990–1996)	245
8.4 Summary of intensive production prospects	246
8.5 Trends of Japanese automobile manufacturers after the currency crisis	248
8.6 A list of export destinations of Thai Toyota	255
8.7 Thai Toyota – outline of IMV project	255
8.8 Thai Toyota – contents of IMV project	256
8.9 Thai Toyota – self-support project (a part of IMV project)	256
9.1 China’s leading groups of companies around 1993 – the main data of the automotive industry and the data after that	267
9.2 Automotive-related parts of investment incentive	271
9.3 Production models and number of the leading foreign-affiliated automobile makers	278
9.4 List of auto parts which are mainly supported	289
9.5 Demand forecast for China’s automotive market in 2015 (10,000)	291

10.1	Projected growth of new driveline technologies (thousand new vehicles per year)	305
10.2	A comparison of the average fuel consumption for cars made by makers in the US	311

## *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