Competition in the 1990s

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The Society of Automotive Analysts

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Introduction. The past twenty years have witnessed dramatic changes in the worldwide automotive industry. These changes have been prompted by a number of significant factors, including more demanding customers, sweeping globalization, shifting international, political, and economic environments, and rapid advances in technology. One of the most profound aspects of this change has been the emergence of the Japanese vehicle industry as a major competitive force in North America. Competition between the Japanese and traditional manufacturers will be a major definer of the automotive environment of the 1990s, as it was of the 1980s. However, there are already clear signs that this competition will be fundamentally different from the past, and we turn now to consider some of those changes.

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The NAMs. Initially, the Japanese strategy relied on imports from Japan. This, in turn, has been followed by a twin strategy of imports and local production. These new entrants have essentially become fixtures on the North American automotive scene and should no longer be viewed as transplants, but perhaps more appropriately as New American Manufacturers, or NAMs. The expansion of the Japanese production base into North America was initially prompted by political pressures to "build where you sell," and later accelerated by the strengthening of the yen against the dollar. Pressures for local production included such policy demands as the voluntary restraint agreements (VRA), voluntary export restraints (VER), and significant "jawboning." The relatively rapid and dramatic moves to establish manufacturing facilities are illustrated by the fact that NAM capacity now exceeds 3 million vehicles.

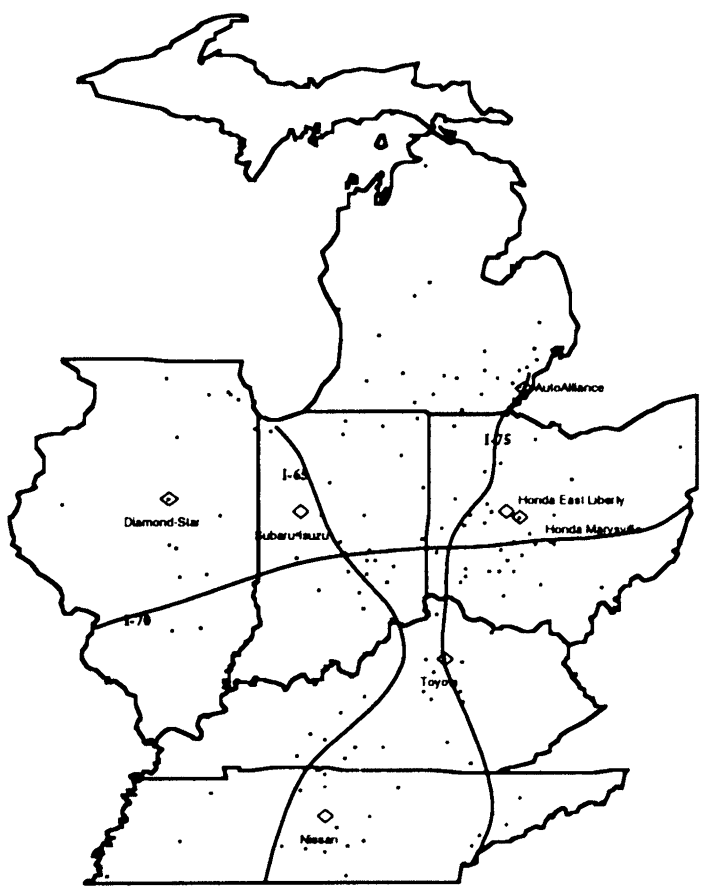
By 1993, 53 percent of total Japanese passenger car sales in Canada and the United States were locally sourced. In many respects, this pattern of increasing localization is very similar to the long-term strategies of General Motors and Ford with respect to their international operations in Europe.

We believe the general view of many here in America—including the traditional automotive manufacturers, labor, and political leadership—was that as the Japanese moved production to North America, they would find themselves on a more level playing field. Despite these optimistic expectations, things did not quite work out that way. Instead, as the Japanese established new facilities, these operations quickly became benchmarks for the traditional U.S. industry and, in some respects, even for Japanese production in Japan.

There is little question that the Japanese often found production away from their homeland very uncomfortable, and were severely stressed by a number of factors, including characteristics of the American labor force, the challenge of long supply and decision-making chains, and discomfort with a different culture. Nevertheless, the role of the NAMs has become one of the most important stories in America's long industrial history. They have fundamentally altered the production landscape and prompted a degree and pace of change not seen since the early days of this industry.

In addition, a large number of Japanese suppliers have followed their industrial partners to North America, and have established a significant collection of component, material, capital equipment, and parts facilities across the industrial heartland, now numbering nearly 350 companies. Some of these operations have been developed exclusively by Japanese companies, while others have been joint ventures with partners here in North America. Exhibit 1 displays the location of the NAMs and new entrant suppliers in the central region of the United States as of 1992.

Exhibit 1
NAM and New Supplier Location



Source: OSAT Japanese Automotive Supplier Investment Directory (5th Edition).

NAM Effects. These new facilities have had many effects, ranging from a major impact on overall and local auto industry employment to providing a model for the traditional American manufacturers (or TAMs) to emulate. The employment impact of the NAMs remains a highly contentious issue. Certainly these new facilities, ranging from small supplier operations to large assembly plants, employ a large number of American workers. As of 1992, these operations employed nearly 120,000 people. Exhibit 2 shows the distribution of this employment across various types of facilities.

Exhibit 2
NAM 1992 Employment by Facility Type

Facility Type	Number	Employment	Employment Percent of Total
Assembly	8	26,600	22.7
Materials/Capital Equipment	70	27,400	23.4
Components	271	62,950	53.8
Total	349	116,950	99.9

Source: OSAT Japanese Automotive Supplier Investment Directory (5th Edition).

These new jobs are a significant and positive benefit from these Japanese NAMs. However, the competitive challenge posed by the NAMs has resulted in a triple-barreled employment impact on the North American economy and the traditional manufacturers (TAMs) and their suppliers. The first is the overall loss of supplier jobs because the North American content of the NAM produced vehicles is still, on average, considerably below that of the TAMs. Second, the competition from these new entrants has dramatically accelerated productivity improvements within the TAMs and their suppliers. The effect of these developments, combined with the increased competitiveness of imports, has been a dramatic reduction in the total number of jobs in the North American automotive industry (NAMs, TAMs, and suppliers) over the past decade. We estimated this loss at nearly 250,000 jobs, or more than 18 percent, from 1978 through 1990, in our work for the Automotive Select Panel.

A third factor, the geographical distribution of the NAM job creation and displacements, further exacerbates these problems of job loss since the gains and losses are typically in different communities and regions. This results in shifts of jobs as well as losses, as workers in NAM facilities have directly replaced workers in the traditional industry because of the shift of production associated with shifts of market share.

Those who forecast that the establishment of the NAMs would alleviate the nagging U.S. automotive trade deficit with Japan have also been disappointed. In fact, that deficit increased sharply in 1985, as NAM production passed 200,000 units, and has remained remarkably stable ever since. To be sure, NAMs have played a role in the decrease of Japanese vehicle imports, measured in units, but their high import content has increased the size of the parts deficit. The increased parts deficit, combined with the higher value of Japanese vehicle imports as the manufacturers have pursued an upscale strategy, results in a persistently high level of Japanese imports measured in dollars. At the same time, if the creation of NAMs was expected to increase U.S. vehicle and part exports to Japan, that trend is only beginning.

Capacity Rationalization. The international automotive industry today finds itself facing an interesting and very complex dilemma. There are too many companies building too many car, truck, and van models and components for the current market. In fact, we may have reached the point that we are no longer providing optimum value to consumers here and elsewhere in the world. Production volume per nameplate or model continues to decline, denying the industry economies of scale which, in turn, can lead to reduced value for consumers. We have discussed the prospects and potential for rationalization in this industry for many years, but it is clear we are near the threshold where something has to give. This is true wherever we look in the world.

Rationalization, in fact, is not just in our future, it is already well under way. Every automotive manufacturer has at least one relationship or partnership with another manufacturer, and many have multiple alliances. We have all seen the incredibly complex world map of the various manufacturers' connections with one another. And suppliers are rapidly following

suit. The question today, we think, is how long the dating game will continue before the industry enters the more serious marriage game? All of the ingredients are in place for a spectacular few years, intriguing for the analysts and challenging for industry participants.

Competitive Changes. The entrance of the Japanese manufacturers, European manufacturers, and foreign suppliers into the North American business environment has dramatically changed the nature of competition. The genesis of some important competitive advantages for these new entrants lies in their very newness. As we well know, these manufacturers and suppliers have generally sought out regions removed from the traditional manufacturing centers. A basic site requirement was a pool of intelligent and eager-to-learn potential employees. The relative youth of the NAM employees compared to the traditional manufacturers and suppliers itself yields a highly significant advantage in terms of health care and pension costs. Our work for the Automotive Select Panel suggests that TAMs, in 1990, paid over $600 more per unit for their employees health care than did the NAMs, while TAM pension costs were more than three times as high.

Certainly, a very important part of the competitive advantage is based on the fact that workers in these operations are carefully selected from a large applicant pool to match the special requirements of a modern production system. In many instances they are not experienced automotive workers, but they do have high potential for learning the principles of modern manufacturing operations. The functional illiteracy rate within this group of employees is essentially zero percent. This means that traditional domestic manufacturers and suppliers are in effect competing against an all-star team every day of the week. In contrast, traditional manufacturers and suppliers hired most of their employees many years ago, for an older manufacturing paradigm that put minimal importance on individual literacy and competency. In fact, in a typical U.S. manufacturing facility (auto and non-auto), the functional illiteracy rate

today may be as high as twenty percent. The significant economic development assistance provided by state and local governments through mechanisms ranging from tax abatements and new roads to training funds confers another important advantage on the NAMs.

An often neglected consideration in the emergence of the NAMs and new entrant suppliers are secondary effects that are neither well understood nor documented. One of the more important of these reflects the relatively high wages of these new auto jobs, so that NAMs and their suppliers are generally able to attract the best workers in the local labor market. While this is a desirable advantage for them, it often creates serious concerns and problems for established employers in the region since they may lose a significant fraction of their very best employees in a relatively short period of time.

The purpose of these comments is not so much to dwell on the past or even the present, but to envision the future impact of the Japanese industry principally, but the European industry as well, establishing manufacturing capacity in the United States and Canada—and now perhaps also in Mexico. Despite the pain domestic manufacturers and suppliers have suffered, there are some important positive benefits from new entrant competition that should endure over the long term. One of the most important of these is a new understanding of how best to design and produce motor vehicles. New entrant Japanese facilities have also succinctly demonstrated that it is possible to build vehicles with world-class quality with American workers and an excellent management system. NAM operations in North America have sparked positive and important learning in the traditional industry, including :

- Continuous improvement strategies and efforts
- Just-in-time production systems
- Lean production and its variations
- Participatory management and employee empowerment
- Soft technologies as drivers of product quality and process efficiency
- Supplier integration
- Systems thinking

However, it is important to note that there is relatively little that is truly new in the production systems brought here by the Japanese, because all of the features of the system have been applied over the years in selected North American operations. Unfortunately, they were neither generally accepted nor broadly deployed. It is also important to recognize that the basic tenets of the Japanese management philosophy are not grounded in the uniqueness of the Japanese culture nor in advanced technology, but more in common sense. Indeed, common sense makes good sense, and that has been amply demonstrated by these learning examples throughout America.

Certainly one of the most important lessons that traditional American manufacturers and suppliers have learned is that they cannot directly adopt Japanese methods and approaches, but must integrate the basic elements of Japanese production systems into the unique product, process, cultural, and geographic dimensions of their own operations.

Challenges to the Japanese Industry. There is no question that if we consider the international industry during the 1980s that the Japanese manufacturers, with their production at home and market advances throughout the world, were the leaders. In fact, a common assumption was that the Japanese owned the future. They did own the 1980s, but these are the 1990s, and some dramatic changes have occurred in the last few years. To be sure, the Japanese are still a powerful force in the industry. They have demonstrated excellence in their products and production system, and in other important industry performance dimensions. They have established credible operations here in North America and will continue to be a factor over the long term.

However, one of the fundamental strengths the Japanese possessed in the 1980s was a strong domestic business environment in Japan—a market of over 7 million annual sales, largely isolated from the rest of the world. This provided a solid base for the Japanese to build an export as well as an offshore production machine. This basic business environment of the 1980s made the Japanese formidable competitors; but, again, we are now in the 1990s, not the

1980s. If we look at Japan today, we find the business environment fundamentally altered—not just by a simple cyclical change, but by a basic restructuring. And that will require redesigning the existing production system to mesh with the new business environment.

Consider some of the important features of the 1980s in Japan: inexpensive capital, relatively low currency value, generally supportive public policy, and sustained growth over a 20 to 30 year period. The loss of this continuous growth in the 1990s alone mounts a formidable challenge to the Japanese industry. Continuous growth can provide enormous advantages, with regular freshening of the labor force (maintaining a relatively low average age, an important determinant of Japanese wage costs), predictability in all factors of production, and numerous other benefits. In effect, growth can cover a great many sins—even sins within the legendary lean production system. But the business environment has changed. Continuous growth has ended, as, for both economic and political reasons, the Japanese can no longer use exports to grow or maintain home production levels, and, by definition, a system that is operating at less than maximum capacity is no longer lean. Their cost of capital is now at world levels, and the dramatic escalation in the value of the yen has shaped a new competitive world—one requiring a new competitive philosophy.

As we look out over the short- and mid-term, the significant excess manufacturing capacity in Japan has thrown the proverbial monkey wrench into a world-class machine. This structural change in Japan raises a key question with regard to the NAMs: how important has the Japanese manufacturers' domestic efficiency and success been in supporting their export of capacity and products to other areas of the world? Will the problems confronting Japanese companies in Japan alter the competitive situation of the NAMs? A second development, and one that may be even more important, is related to the dramatic resurgence of the traditional domestic industry here in North America. The Americans have been slow learners over the past 10 to 20 years—but they have learned, and are now dramatically improving their competitive skills.

We might compare the Japanese and American industries to two people whose ideal weight is 150 LB. They are now facing a changing environment, and must adapt their actual weights to these new circumstances. The old American environment actually permitted a weight of 250 LB in the past, but can now only support 150 LB. In the last few years, the American has reduced his weight by some 50 LB. He is still overweight, still needs a diet, but is making progress and is on his way to becoming a lean, mean auto-producing machine. On the other hand, the Japanese weighed 160 LB, although his old environment could easily have supported over 200 LB. But now the Japanese environment will only support a person less than 150 LB, so the Japanese must also lose weight to survive. However, there is little fat there, so the Japanese will lose muscle and bone, while the American still has fat to lose.

Competitive Revival of the TAMs. There is ample evidence of the resurgence of the traditional domestic manufacturers and suppliers in this country, whether we look at dramatic improvements in product quality over the 1980s and early 1990s, cost disadvantages that have converted to cost advantages, or product development and execution capabilities that are gaining momentum.

The history of the Japanese manufacturers' growth in North America reveals little that will help forecast the future. There were three primary factors that led to significant Japanese market expansion here. Early on, Japanese products offered consumers a substantial price advantage. This was followed by suddenly important fuel economy advantages, bringing them significant market growth during the 1970s. And finally, superior quality led to yet another share increment in the 1980s. Today it appears unlikely that these three factors can sustain another burst of market growth. If the Japanese makers' reputations for quality and stylish products are undamaged, there is now essentially quality and fuel economy parity. The price advantage has turned by 180 degrees—from roughly a $2,000 advantage for the Japanese to approximately a $2,000 advantage for an equivalent domestic product. In effect, some of the key Japanese cards have already been played, and the question now is whether anything

remains in the deck that might re-establish their growth trend of the 1970s and 1980's. The American train is accelerating as its competence builds, the Japanese train has slowed, and thus the closing velocity is now greater.

One need look no further for evidence of absolutely dramatic change than what has occurred at Chrysler over the past few years. In the late 1980s and early 1990s, most of us believed that the potential for Chrysler's long-term survival was minimal without a wealthy international partner. Thus an industry survey we conducted jointly with Ernst & Young in 1991 rated Chrysler the least competitive of eight leading car companies, and the only one whose competitiveness would further erode by the year 2000. The change at Chrysler seemed to come about suddenly, but numerous changes and efforts preceded it. In a sense, the Chrysler transformation resembles a complex chemical reaction, where if only nine components are present, nothing happens, but the addition of a tenth yields a tremendous explosion. The tenth ingredient at Chrysler, in our judgment, was the introduction of the platform team concept that put the principle focus on their products as a system. The results of this effort are already history.

Ford has also scored a number of product successes, notably its Taurus/Sable midsize passenger cars and the Explorer sports utility. It has taken a 50 percent share of Mazda's Flat Rock assembly plant, and now plays a substantial role in its management. At the same time, it has increased its active participation in the management of Mazda, and is providing important assistance in Mazda's attempts to redress the product proliferation trap it stumbled into in the 1980s—a strategy Mazda cannot sustain in the 1990s.

Another emerging example of such dramatic change is the turnaround at General Motors. GM's turmoil has been front page news for a number of years, ranging from massive plant closings to the emergence of Inaki Lopez as the guru of supplier productivity improvement and price reductions. After immense pain and suffering, the General's ship has turned, is gaining momentum, and is about to provide a further demonstration of the capability developing within the domestic industry. One measure of this change will be the return to significant profitability,

based less on expanding sales than on dramatic cost reductions. General Motors should achieve a cost reduction in North American operations of between $3,000 and $4,000 per vehicle by the mid-90s. This is approximately a $20 billion turnaround, and is spectacular for the automotive industry, where unit cost reductions are more typically measured in nickels, dimes, and quarters. These cost reductions will come from a number of sources:

- Capacity reduction—as much as $1,000 per car
- Improved automotive component operations—as high as $1,000 per car
- Application of design for manufacturing and assembly—$500 or more per car
- Quality gains affecting warranty, waste, and scrap—$500 - $1,000 per car
- Marketing costs—$500 or more per car
- Improved product development system—$200 or more per car

These numbers come from a macroeconomic analysis of the company, rather than a micro analysis, and are already emerging in published numbers. For example, J. T. Battenberg, Group Vice President of The Automotive Components Group, announced an almost $2 billion cost reduction over the last two years. This cost reduction amounts to approximately $400 per car, and much more is yet to come.

Some of the most important elements in this resurgence of the traditional North American manufacturers is based on learning from the Japanese and the application of the basic tenets of lean production. Others have come from a better understanding of labor, management, and American culture and the importance of working collectively toward a common goal. Another source is the growing recognition of the fundamental importance of knowledge and the pursuit of common processes, systems, and components.

The new leadership philosophies of management in the traditional domestic automotive industry are now more akin to coaching rather than commanding. In our judgment, this is an excellent long-term leadership philosophy to guide these businesses into the next century.

Furthermore, it is becoming evident that the positive changes so evident within the TAMs are also developing throughout the traditional supply base, although this is often much less visible to students of the industry.

Still, the playing field is not truly level and may never be so between competitors and partners as they operate across national boundaries. The traditional domestic companies' older work force and higher cost health care and pensions provide competitive advantage to the NAMs, just as the high dollar value of the Japanese yen and fundamental restructuring in Japan provide competitive advantage to the TAMs.

Our recent Delphi forecast of automotive trends provides some interesting perspectives on competitive issues facing the industry, particularly between the Japanese and traditional domestic manufacturers. Panelists believe that the present significant advantage of the Japanese companies in product development time will erode, but that still they will retain a modest advantage by the year 2003. While the TAMs are expected to decrease their U.S. sourcing of engineering, the NAMs are expected to increase their engineering sourcing here over the next decade. However, both sets of companies will retain their principal identities as American and as Japanese companies.

Summary. Clearly, the NAMs and their supply base are, in most respects, now permanent players on the North American production horizon. They will continue to provide a challenging benchmark for traditional producers and suppliers, while at the same time finding that the traditional companies are providing an important benchmark against which they must measure themselves. At this point, it is very difficult to pick winners between the American and Japanese automotive leagues, but it is clear that, ultimately, the teams will all pursue both domestic and international titles. Indeed, the next few years promise to be exciting times at the old car park, as the 1990s promise tighter races than we saw in the 1980s.