



TARUN KHANNA

RAJIV LAL

MERLINA MANOCARAN

Mahindra & Mahindra: Creating Scorpio

India's Mahindra & Mahindra may have done the unthinkable. The company has broken the unspoken rule that says automakers must design, engineer and test their own vehicles while spending hundreds of millions of dollars in the process.

—Automotive Industries Cover Story, October 2002

At the CNBC Autocar Awards reception in January 2003—an event some call the Oscars of the Indian automobile industry—the Car of the Year 2003 was awarded to Scorpio, a sports utility vehicle (SUV) manufactured by Mahindra & Mahindra Ltd.(M&M). In a contest that boasted top nominees including the Mercedes Benz E-class and the Toyota Camry, Scorpio's win came as an affirmation that M&M, traditionally a manufacturer of rural and army vehicles and farm equipment in India, could compete with global automakers in the urban automobile industry.

In the 18 months after its launch in August 2002, M&M sold nearly 35,000 Scorpio vehicles, making it a major player in the mid-price utility vehicles (UVs) segment. Priced at US\$14,500¹ Scorpio was noted for its competitive value and stylish look. In addition, with the blurring of the car and UV boundary in India, Scorpio was seen as a significant player in the mid-size passenger car segment.

Two years prior to Scorpio's entry, M&M had launched Bolero, a hard-top UV that was a refreshing of an old model. Aimed at transitioning M&M's image from rural to urban, Bolero was a hit in the urban market but was subsequently repositioned as an off-roader suitable for the semi-urban and rural markets.

With only one offering in the Indian urban market, M&M embarked on an ambitious global plan in 2003 with market testing and launches in Italy, Uruguay, Russia and South Africa, among others. Given its low production capacity (relative to global automakers) and the lack of an established brand presence in these countries, the strategy was expected to take time to reap profits. Meanwhile, the Indian passenger car market was growing at approximately 30% annually and was swamped with new and proposed models from global and domestic automakers. With this in mind, M&M insiders continued to debate the extent to which the company ought to focus on expansion in the global SUV market, versus building a full-line automobile company within India.

Professors Tarun Khanna and Rajiv Lal and Doctoral Student Merlina Manocaran prepared this case. HBS cases are developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

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The Global Automobile Industry

The global market for automobiles in 2003 was concentrated in the U.S. and Western Europe although it was forecasted that the highest growth rates for 2004–2006 would be seen in Asia and Latin America. Within emerging markets, China was a key attraction—Chinese auto sales grew 70% in 2003 and a further 40% in the first half of 2004.

On the manufacturing side, the industry was dominated by the “Big Three” of Detroit (General Motors (GM), Ford and the DaimlerChrysler Group), the “Big Two” in Europe (Volkswagen (VW) and Peugeot) and Japanese players (Toyota, Nissan, and Honda). While Renault still trailed the “Big Two” in Europe, the company’s profits and image had been improved by its 1998 acquisition of a stake in Nissan and its subsequent spectacular turnaround led by Carlos Ghosn. Recent years had also seen the increasing dominance of the Japanese automakers—Japan’s three largest automakers commanded nearly a quarter of the U.S. market and, in 2003, Toyota bumped Ford off the second spot in global sales.

The automobile industry had undergone two significant shifts since the first car was built in the late 1800s. In the 1920s, Henry Ford’s mass production techniques allowed workers to focus on specific tasks which reduced production time and slashed costs. In the 1950s, Toyota implemented its lean production system which emphasized “just-in-time” delivery of components and immediate repairs to faults in the production line. The Toyota system was an improvement over mass production and when Japanese automakers built factories in the U.S. in the 1980s, the lean production system was gradually adopted by U.S. automakers.

Beyond the manufacturing process,² the Japanese model was unique in its emphasis on close working relationships with suppliers (the *keiretsu* model sometimes involved partial ownership of suppliers). Toyota focused on close proximity to its suppliers and in the 1990s, the average distance between Toyota’s assembly plants and its internal-parts suppliers was 10 miles (in comparison to GM’s average of 350 miles). In addition, Toyota and Honda often created supplier contracts that spanned the lifetime of the model and requested suppliers to send their design engineers to work at the manufacturers’ offices for 2–3 years.

In comparison, U.S. automakers emphasized low costs over developing long-term supplier relationships—GM, for instance, wrote contracts that allowed it to shift to a less expensive supplier at a moment’s notice. Suppliers of U.S. automakers sometimes complained of being left out of the cost discussions and of implicit promises for new business that was not followed through. A 2003 survey of manufacturer-supplier relationships in the U.S. rated Toyota and Honda as the most preferred companies and the stronger supplier relationships was a one of the reasons why Toyota and Honda enjoyed shorter production periods of 12–18 months, compared to the U.S. average of 2–3 years. When Chrysler adopted an American version of the *keiretsu* model in the late 1980s, the company reduced its average time to develop a new model to 160 weeks (from 234 weeks in the 1980s) and cut costs by up to 40%.

The 1980s also saw the setting up of Japanese facilities in the U.S. (following Japanese export restraints) and the increasing significance of the market for small cars, which the Japanese dominated. By 2003, the Japanese automakers were making the highest profits per car, with Nissan, Toyota and Honda reaping between US\$1,400–US\$2,400 for every car sold. In contrast, GM and Ford were making US\$178 and US\$48 per vehicle while Chrysler was losing US\$496 on every car it sold.³ The profitability of the U.S. automakers was hampered by the burden of pension plans and healthcare costs for its workers. In contrast, Japanese automakers in the U.S. steered clear of Detroit and moved south, beyond the reach of the United Auto Workers, one of the largest American labor unions.

While most automakers focused on dominating their domestic markets with a range of vehicles before moving abroad, companies like Suzuki and Land Rover chose to expand globally within a niche segment. Suzuki, a Japanese loom-manufacturing company, started manufacturing motorcycles in the early 1950s and progressed to small cars and trucks in the next decade. When the mid-1970s saw a domestic recession and a fall in the demand for low-powered cars, Suzuki responded not by expanding to other segments within the Japanese market but by pushing exports of its small cars to foreign markets. A joint venture (JV) with GM in the early 1980s led to a subcompact car designed for the U.S. market and by 1984, Suzuki cars were sold in over 100 countries.

Similar to Suzuki's focus on the small-car market, Land Rover (originally part of the U.K. Rover group) chose to concentrate on the UV market where it developed its niche for rugged vehicles used in the military and rural areas. Within five years of its launch in the U.K. in 1947, 80% of Land Rovers were exported to third world countries where its ability to cover rugged terrain was valued. In addition, over half of the Land Rovers sold were to military customers (this trend persisted: in 2004, the largest fleet of Land Rovers was owned by the British army).⁴ While the company moved upmarket with the more stylish and high-priced Range Rover (also a UV) in 1970, the focus remained within this segment. In 1994, BMW of Germany bought the Rover group but the Land Rover company (then the best part of the Rover group) was sold to Ford in 2000 to become part of Ford's Premier Automotive Group (which includes Jaguar, Aston Martin and Volvo). Among Land Rover's offerings in the U.S. were Freelander, LR3 and Range Rover, priced between US\$28,000 and US\$74,000.

Regardless of the particulars of their global strategies, by 2004, automakers realized that the China piece could not be ignored. The Chinese automobile industry enjoyed significantly higher profits (10% margins compared to the international average of 2–5%)⁵ although this was due to high prices—production costs in China were still 15%–20% higher than in developed countries, due to lack of scale and poor labor productivity.⁶ By 2003, China had 32 car manufacturing companies, nearly three times the number it had in 2002 and a year later, it was the world's fourth-largest producer of vehicles (after U.S., Japan and Germany), having overtaken South Korea.

To encourage knowledge transfer to domestic companies, the Chinese government restricted global automakers to 50% JVs with local automakers. Approximately 90% of passenger cars sold in China in 2004 were manufactured by Sino-foreign JVs, the largest of which were Shanghai Volkswagen (SVW) and Shanghai GM (SGM), both partnerships with the state-owned Shanghai Automotive Industry Corp. Group (SAIC).⁷ The overlapping interests of domestic companies and the weak protection of intellectual property rights (IPR) in China was a frequent complaint among global automakers. In 2003, GM charged that the Chery QQ (a mini-car manufactured by a domestic company in which SAIC held a stake) resembled GM's Chevrolet Spark, but no action was taken.

While the state-backed JVs targeted the higher end of the market (typically cars priced above US\$12,000⁸), private automakers sought to supply cheaper, no-frills cars for the masses. Among these was Geely Automobile Holdings Co., the largest private car-maker in China. The listed company was a subsidiary of the Geely Group which manufactured refrigerators and made its fortune in the motorcycle market. In 1998, Geely began manufacturing low-priced cars and by 2004, the company offered seven models (including the first Chinese-designed sports car) priced between US\$3,600 and US\$18,000. With 99% of its sales in the below-US\$10,000 category, Geely planned to focus on inexpensive cars and follow the path of domestic, privately-owned motorcycle makers who overcame the dominance of foreign JVs to control 80% of production.

By 2004, Geely had 4 production facilities, over 600 dealers and 109 service-and-spares-parts centers throughout the country. Still, with sales of approximately 80,000 units in 2003, Geely was a small player with only 4% of the market.⁹ The company targeted sales of 125,000 units in 2004 and

had announced investments to increase its plant capacity from 160,000 to 650,000 by 2007. In addition, Geely planned to spend a further US\$42 million on its R&D centre (which had worked on nine models in 2003 alone), to develop new models and shorten its development cycle by 90%. Despite its claims of local design capabilities, however, it was widely reported that Geely's cars resembled models by other makers (specifically, Daihatsu and Citroen).

In general, several characteristics distinguished global automakers from smaller manufacturers. First, the global reach of larger players allowed them to transfer technology across countries, thus maintaining low costs. Toyota, for instance, moved its dies from Indonesia where it manufactured Toyota Kijang, to India for the manufacture of Toyota Qualis (a multi-purpose vehicle (MPV)). Second, global automakers increasingly relied on "platform engineering," the building of several models from one base, which again allowed a more efficient distribution of costs. The most famous example of this was Volkswagen's strategy of platform sharing across the group—e.g., Octavia (a medium-sized car) was based on the VW Golf platform and equipped with a Golf engine.

Also, global automakers commonly manufactured a standardized vehicle for several emerging markets that were too small individually. Fiat, for instance, developed a similar base car for the Indian and Brazilian markets, given comparable country conditions. The downside to this was that local buyers sometimes preferred customized cars—Ford's first Indian car, Ford Escort, was largely standardized from previous models and suffered poor sales. Subsequently, Ford India introduced the Indian-customized Ford Ikon—to tailor the car to the Indian customer, a product manager even sat in the back seat wearing a turban (a head covering worn by some Indian men) to check height specifications. Such attention to detail helped Ford India regain its footing in the Indian market: 18,600 units were sold in 2004,¹⁰ making it the ninth best-selling car in the country.

The Indian Automobile Industry

The Indian automobile industry started when the first car was imported in 1898, although it was 30 years later that the first car was assembled in the country by a wholly owned subsidiary of GM. Until the early 1980s, the industry was dominated by two main players—Hindustan Motors (manufacturers of the first Indian car, Ambassador) and Premier Automobiles Limited (manufacturers of the Fiat range of cars). As a former British colony, Indian roads were plied with British models that were frequently outdated—the Ambassador, for instance, was based on the Morris Oxford and did not have its design updated until 50 years after its launch in the 1950s.

The industry in 2003 could be broadly divided into five segments based on price ranges (see Exhibit 1). At the lowest price point was the micro-hatchback (segment A), the smallest cars that made up almost 24% of the automobile market. This segment was largely dominated by Maruti Udyog Limited (MUL), a JV in the early 1980s between the Indian government and Suzuki to manufacture small cars. The MUL 800, launched in 1983, was in fact a turning point for the Indian car market—at US\$4,130 (then) it was the most affordable car on the market and for the first time, cars were seen as an affordable purchase by the masses.

The second segment, the ultra compact hatchbacks (segment B), was the other dominant category in the market. Unlike Segment A which was largely the domain of domestic players, segment B was peppered with existing and planned foreign models. In 1998, Hyundai Motor Company of Korea introduced Santro, an economy car with 55 bhp and priced at US\$6,600—the model had been a significant threat to MUL's Zen which delivered 50 bhp at US\$7,800. In addition, both GM and Toyota had announced plans for mini-cars, with the Spark and U-IMV models respectively.

Perhaps most significant was an announcement in 2004 by Tata Motors that it planned to launch a car at half the price of a Maruti. TELCO was a subsidiary of the famous Tata Group, India's largest industrial conglomerate, which started as a textile firm in 1868 and had expanded to span 80 companies in seven sectors. The Tata brand was a household name in India, with products and services ranging from consumer goods (including tea and coffee) to insurance and information technology services.

Established in 1945, Tata Motors boasted of a product range covering passenger cars, MUVs and light, medium and heavy commercial vehicles. The company had a strong presence in both domestic and over 70 foreign markets. The company's foray into the passenger car market, however, only began in 1998 with its introduction of Tata Indica, the first almost-fully indigenous car, which was initially priced at US\$6,300. While the first version was plagued with technical problems, the subsequent upgrade (Indica v2) enjoyed phenomenal success locally (with over 80,000 units sold in 2004) and was exported to the U.K. under a JV with the Rover Group.

Beyond the two lowest-price segments, the automobile industry was dominated by foreign players, with the exception of Tata Indigo, a medium-size car based on the same platform as Tata Indica and priced at US\$9,300. Global automakers commenced operations in India after the liberalization of the Indian economy in 1991,¹¹ initially via JVs which then gave way to independent operations (see Exhibit 2 for the top global automakers in India in 2004). Since the Indian market was heavily weighted at the lower end of the price range, the market in 2003 still belonged to MUL, Hyundai and Tata Motors.

There had been an increasing demand for UVs with 18% and 35% growth in 2003 and 2004 respectively. While UVs were previously rural vehicles, the introduction of new stylish models allowed this segment to overlap with passenger cars and SUVs had gained popularity in urban areas. The total UVs sold as a percentage of total cars and UVs was approximately 17% in 2002–2004. In 2004, Toyota was the major player in this segment, with sales of 31,898 units of its Qualis. Local players included Tata's Sumo (a popular low-end UV) and Safari (a mid-priced SUV), and M&M's Bolero and Scorpio.

Despite the growth of the car and UV markets, the Indian vehicle landscape was dominated by two wheelers. Sales of motorcycles and scooters accounted for approximately 79% of vehicle purchases and at 206 people per vehicle (compared to the Asian average of 32 people per vehicle¹²), there appeared to be tremendous potential for the Indian car and UV markets. Exhibit 3 shows the sales of individual vehicle segments in India for 1999–2004 while Exhibit 4 shows the production volumes of cars and MUVs for the same time period.

Having crossed the symbolic 1 million mark in passenger car sales (both domestic sales and exports) in 2004, the Indian automobile market had enjoyed significant growth since the 190,732 cars sold in 1993. Apart from the significant increase in the number of models available and the increase in disposable income from India's improving economy, various reasons had contributed to the expansion. Domestic interest rates declined to a 30-year low and there was an increasing acceptability of purchasing vehicles on credit. In addition, the improvement of road networks and the recent reduction of excise taxation to 25% (from 32%) encouraged sales of cars among the growing young population. The auto industry had also begun to make inroads into overseas markets—vehicle exports (including two wheelers) exceeded US\$1 billion in 2004 with 479,000 units shipped.¹³

As a net oil importer, the choice between a diesel and petrol engine was a significant one for Indian buyers. The UV segment was dominated by diesel engines because the vehicles in this segment had high fuel consumption and diesel sold at approximately two-thirds the price of petrol.¹⁴

Between 2001 and 2003, the share of diesel-fueled cars (dominated by Tata Motors) increased from 13% to approximately 20% of the total car market.

The Mahindra Story

Founded in 1945, M&M initially imported and assembled Willys Jeep kits (under collaboration with Willys Overland Corporation, now part of the DaimlerChrysler group) before progressing to manufacturing UVs in 1954. Two years later, the company was listed on the Bombay Stock Exchange. In the next two decades, M&M built its image as a manufacturer of light commercial vehicles (LCVs) and tractors, first with the International Harvester brand, and then via its own Mahindra name in 1982. Since 1983, the company had been the top-selling tractor brand in India (the world's largest tractor market) and in 1994, Mahindra USA, a wholly owned subsidiary of M&M was set up to capture global sales. With 20% of its tractor sales outside India, M&M was one of the largest tractor companies in the world, along with Kubota Tractor Corporation of Japan and Deere & Co. of U.S. In addition, M&M was one of the major players in the soft-top and low-end hard-top UV segments, with its target market in the rural sectors of India.

Along the way, M&M also entered into technical collaborations with Peugeot (for the manufacture of diesel engines and transmissions) and Tong Yang Moolsan Co. Ltd., a Korean manufacturer of agriculture machinery (for the manufacture of tractor transmission assemblies). In 1995, the company entered into a JV with Ford to manufacture the Ford Escort for the Indian market. The manufacturing agreement was dissolved in 1999 but the experience afforded the company its first taste of the passenger car industry.

In 1991, Anand Mahindra, a third generation family member was appointed deputy managing director of the group. Armed with an MBA from Harvard Business School, he set about changing the image of the company to ensure it remained competitive in the newly liberalized India. By 1997 when he was appointed managing director, the group had undergone extensive business process reengineering, resulting in the core activities of UVs, LCVs and tractors remaining within the flagship company while all other activities (financial services, hospitality, etc.) were spun off into separate entities.

As vice chairman of the group (his uncle, Keshub Mahindra, held the Chairman position) Anand Mahindra was keen to propel the company towards world-class status and Scorpio was a key element in this ambition. "Scorpio was firstly the key to changing our external image," he said. "Investors saw us as an old engineering company and Scorpio was the final coup de grace in our evolution to a modern company. But above that, it was also the catalyst that made the company move towards becoming world-class. Suddenly we became aware that we could achieve great things."

Alan Durante, executive director and president of the Automotive Sector added:

Since Scorpio, we have improved our processes and productivity tremendously—we've increased production from 65,000 vehicles two years ago to 117,000 vehicles [in 2003] . . . our workforce productivity increased so much that personnel costs as a proportion of basic dealer price was down from 12% to 6% . . . everyone was amazed that a 55-year-old company could deliver a product for the urban consumer that competed with MNCs.

The Story of Scorpio

The story of Scorpio began in 1997 during the restructuring of M&M. As part of the process, a new 120-member team called IDAM (short for Integrated Design and Manufacturing) was formed to focus on product development. The team was headed by Dr. Pawan Goenka who had joined M&M's research centre in 1993 after 14 years with GM's engine research centre in Michigan. According to Dr. Goenka, once the team conducted extensive market research on customer needs and potential growth, there appeared two alternatives to pursue: either refresh current products (UVs sold as people-carriers and designed for the rural market) or create a brand new product within the people-moving sector (still targeted at existing rural customers).

It was only in 1998 when the first clay impressions were made that the team realized the stylish SUV on their hands could be positioned for the urban market. Since the project scope had changed from a rural to an urban vehicle, costs had to be redefined and new market research was conducted to ascertain customer expectations. Part of the shift was market driven, as explained by Dr. Goenka: "In 1997, it was impossible to imagine selling a vehicle at US\$13,000. But by the time we launched Scorpio, we could price it above [US\$13,000] because people were willing and able to obtain loans." Since the late 1990s, increased competition among finance companies had translated to lower rates and longer loan tenures; this, together with an increasing acceptability of using financing to purchase vehicles, had boosted vehicle sales.

Prior to the plan for Scorpio, Anand Mahindra had approached Ford with a proposal to do joint research and development work within the (then) existing JV, but was turned down. "The best thing they did was to ignore me," he said, "because it forced us to invest in our own platform and technology." Still, the initial cost of the plant, estimated at US\$120 million in 1998, was the largest single investment made by M&M and was a significant risk for a company with no experience in the SUV market. In retrospect, Anand Mahindra said that it was "miraculous" that the Board approved the project, and he credited Keshub Mahindra for his foresight in supporting Scorpio. The investment was funded by M&M's internal funds, including proceeds from a US\$115 foreign currency bond issuance in 1996.

Beyond the financial significance of the project, the concept of designing a vehicle from scratch to meet the needs of the customer was new to the company. Previous vehicles had simply involved refreshing older models developed via JVs and with little market input. In addition, M&M's image in India, while established, was geared towards the rural demand for rugged, tough vehicles. In the words of an advertising executive, "The name Mahindra was always associated with a jeep."¹⁵

During the five years that it took to launch Scorpio on the road, M&M needed another offering to help the image transition and to test the urban UV market. With an investment of US\$4 million, M&M refreshed an existing line of hard-top UVs (sold under the Armada name) and launched the updated vehicle as Bolero in 2000. Priced at US\$11,100 and with a 72 bhp engine, Bolero was positioned at the upper-end of the cheapest segment of UVs. Within the first year, the vehicle registered sales of 7,777 units, with an increase to 13,052 in 2004. Subsequent to the entry of Scorpio, however, Bolero was repositioned for the semi-urban and rural markets. In fact, Bolero's footprint within the top 20 cities shrank from 40% to 20% in 2004¹⁶ which left Scorpio as the only urban offering from the company. Exhibit 5 shows the distribution of UV sales across M&M vehicles.

At the time of launch, the major player in the urban UV market was Toyota Qualis. Tata Motor's offering in the mid-price segment, Tata Safari, was thought to be too expensive and recorded sales of only 4,000 units in 2004 (although Tata Sumo, a UV in the cheapest segment, was a keen rival of M&M's Bolero—Sumo recorded sales of 28,000 in 2004). In July 2004, GM launched its Chevy Tavera,

an SUV that competed directly with Scorpio—with sales of 2,700 units in three months, it remained to be seen whether Tavera's presence would diminish Scorpio's market share.

Creating Scorpio—The Details

IDAM The 120 people on the team were divided into 19 cross-functional sub-teams for design and development, testing and validation, marketing, manufacturing and supplier development. The team was solely responsible for launching the car and the small size of the team allowed for extensive team integration. Johnny Mapgoankar, the chief of Strategic Sourcing explained: "We were seated in the same area so if I needed to talk to someone, I would just walk over to his desk." The leaders also sought to foster team culture by the common IDAM uniform which even Alan Durante would wear when he visited to receive updates.

While the previous JV with Ford had given M&M some experience on running an auto team, the company believed it could improve on previous processes with IDAM. Dr. Goenka said, "On a macro level, Ford and GM would have done the same for team integration. But on a micro level, there was a difference in this team. We had the highest degree of integration with the entire team reporting to one person."

With a relatively flat hierarchy, the teamwork allowed for immediate translation of market research to the design and engineering of Scorpio. A key part of IDAM's role was engine development and the team worked with AVL (an Austrian company with expertise in powertrain engineering), to develop an engine with 109 hp that was then the best in its category in India. Although the project set high performance standards, the close working of the sub-teams meant that target costing could be applied more effectively—when the cost was exceeded in one area, the team could easily identify solutions to maintain the project's budget. In addition, the age-group of the team was purposely kept young to encourage innovation in the design process.

Market research Unlike offerings by global automakers which traditionally contained little customization, Scorpio was designed with the Indian customer in mind. IDAM spent six months holding product clinics with owners of vehicles from similar segments, conducting qualitative research in trend-setting areas and evaluating opinions of various automotive experts. Some of the results were surprising—noise and vibrations, for instance, was not on the team's priority list before surveys showed that consumers were willing to pay for attention to such detail. Image frequently appeared as a crucial factor—Vijay Nakra, deputy general manager of Marketing summed the Indian market with customer's quote: "No one sees my house but everyone sees my car, so I need to make an impression [with this purchase]."

Such attention to local taste was also catching on among other automakers at the time Scorpio was designed. The Ford Ikon, launched in 1999, was specifically tailored for the Indian customer, a shift away from Ford's global car concept of the early 1990s. Similarly, Toyota replaced the rear sliding windows on its initial Qualis (which had been adapted wholesale from Toyota Kijang sold in Indonesia) after noting customers' dissatisfaction.

In addition to customer needs, M&M was aware that the product needed to be of world-class status to enable exports. While Indian environmental regulation tagged behind developed markets—vehicles in Indian metros were only required to comply with Euro II (emission standard for cars primarily in the European Union), the Petrol version of Scorpio was made to comply with Euro III (a higher emission standard which was then the existing requirement in Europe¹⁷).

Sourcing Given its lack of expertise in designing a vehicle and the need to keep costs low, M&M employed a unique technique in auto manufacturing—they turned over a significant part of the process to suppliers. All the major systems were designed and engineered by suppliers, who also carried out the testing, validation and materials selection. M&M's involvement was limited to specifying performance targets and costs, and acting as an integrator in bringing together the components to create the final product.

In doing this, the company steered away from the conventional route of global automakers that performed all design in-house and obtained negligible engineering input from suppliers. In designing the air conditioning system, for instance, M&M conveyed the temperature drop required over time, rather than the number of air vents needed—this allowed the supplier to use prior experience in determining the most cost-effective system, instead of delivering the system specified by the automaker.

The collaborative efforts with suppliers extended beyond the initial specification of targets. Johnny Mapgoankar felt that working with suppliers throughout the process helped cement a relationship of trust which made economic sense:

If they could not deliver on a contract, we were happy to renegotiate. Whenever they returned to us with increased costs, we cooperated with them to find a solution that worked within the budget. The process was initially difficult because they were not used to auto companies listening to their advice . . . but over time they realized that we wanted to cooperate. We later realized that suppliers themselves would approach us with cost-savings!

The strength of this relationship was evident by the end of the project when instead of convening meetings for minor changes in the contract, a phone call between the relevant people was all it took to reach a new agreement.

Unlike global automakers that had stringent policies to use specific suppliers, M&M was more flexible in their choice of partners. Often, the company looked East instead of West for cheaper components and allowed suppliers to choose their own collaborators. The suspension system business was given to Korea's Samlip Industrial Co. Ltd. which had never designed a complete suspension system before but who worked with Korean and Japanese experts to develop one for Scorpio. When M&M hired Lumax Industries (the largest supplier of automotive headlamps in India), it gave them the freedom to choose the designers. Instead of working with their usual Japanese partners, Lumax selected a Korean company that provided the same expertise at lower cost.

Since the volume requirements were small—only 12,600 Scorpions were manufactured in the first year—M&M was in a weaker bargaining position than other automakers. Johnny Mapgoankar explained: "GM uses one supplier for each model but we don't have the same volumes." To enlist Lear Corporation, the world's leading automotive interior supplier, M&M consolidated the seating business of all its vehicles and gave them the total interior work for Scorpio, a unique opportunity for the company. Randall Carron, Lear's senior vice-president, Asian OEM division explained the new role of his company: "[Scorpio] was the first time that we were . . . going to make everything."¹⁸ Lear later set up exclusive manufacturing facilities next to the Scorpio plant in Nashik.

Another part of the story was luck and market timing. Dr. Goenka explained, "We chose to enter when there was very little product development here and all the suppliers were hungry for business." The Indian auto industry was facing excess capacity in 1996–1997 when various Tier 1 suppliers (who directly supply automakers¹⁹) had followed global companies to India, only to be disappointed with the low volumes. Since these suppliers had committed facilities to the country, many were willing and able to cater to Scorpio—the German Behr Group (manufacturers of heating,

ventilating and air-conditioning systems for cars), for instance, already had facilities in India when they were approached for Scorpio. "They had huge capacity and were looking for business. [In return] we had German engineering at Indian cost," said Dr. Goenka.

Manufacturing Dr. Goenka said: "We spent US\$120 million to set up the facility which could make 45,000 cars—this was a huge investment for us, but less than what other automakers would spend." For instance, when Ford constructed its new plant in Chennai (South India) in 1999, the set-up cost the company US\$400 million for a capacity of 100,000 units. Exhibit 6 shows the breakdown of the cost of investment for Scorpio, and estimates of similar costs for a global automaker.

In addition, the company was more flexible in the partners they chose to set up the facility. Dr. Goenka explained that the tight budget led to partnerships that other automakers would overlook: "We were more cost conscious than other companies—we hired Korea's Wooshin Systems Co. Ltd. to set up our body shop when they were quite unknown . . . most MNCs have strict policies about using only certain partners—we were certainly flexible."

Further savings were possible because of the fewer people hired and the low manpower cost for engineering development in India. Dr. Goenka compared Scorpio's US\$6 million personnel costs to an MNC's typical cost of US\$200 million (for full product development): "We only had 120 people for five years [at US\$10,000 per person]. An MNC would have had 400 people for the same time [at US\$100,000 per person]." In fact, when Tata Motors launched its first passenger car, Tata Indica in 1999, the product development alone cost US\$38 million since the company hired an Italian firm for the design process.

Finally, M&M rigorously managed costs at the testing stage. While MNCs typically built 200 prototypes (at 15–20 times the cost of the vehicle), M&M only tested 75 units, at 2–3 times the cost of the vehicle. Alan Durante felt that Scorpio had an advantage of doing specific variants at lower costs because the company was not bound by stringent policies. Global automakers had specific policies (usually across countries) on the number of prototypes, testing and validations required for each variant. Did this flexibility mean the product quality of Scorpio was compromised? "We don't think so," said Dr. Goenka. "There was a law of diminishing returns—we may have achieved 97%–98% of their robustness at one-third their cost."

Although the assembly line in Nashik was built to manufacture up to 100,000 vehicles a year, M&M did not plan to produce more than 45,000 vehicles a year. The small production targets were a reflection of under-estimation of the market which the company later regretted, given the market's positive demand for Scorpio. Meanwhile, both GM and Toyota (whose Indian operations could manufacture 30,000 units and 45,000 units respectively) announced plans in 2004 to extend their facilities for increased volumes.

Labor agreements were another consideration in setting manufacturing targets. Trade unions in India, which were commonly organized by company rather than industry, placed the burden on the automaker to ensure smooth relations with workers. When production began in 2002, the plant rolled out only 800–1000 vehicles a month. Between then and October 2004 there was gradual ramp up and new agreements helped to increase the production to 3000 per month. While M&M did not have to deal with significant internal labor issues, strikes in the Indian auto sector were not uncommon—in 2002, Toyota's sales in India fell 14% after production was temporarily halted by a labor strike.

Beyond the company, automakers were susceptible to strikes in supporting industries. In June 2004, Ford India and Hyundai suffered loss of production days when a week-long strike at the Chennai port held up shipment of auto parts. M&M itself was affected by a truckers' strike in August 2004 which threatened to stop production when it affected the supply of components.

Marketing the product Bolero's launch in 2000 was used as a trial opportunity for various marketing activities including the use of media, the development of a brand and the planning of the launch itself. Work on Bolero commenced in 1998 and the tagline "Break Free" was chosen to illustrate the sporty image of the vehicle. Still, M&M realized that Bolero's positioning at the lower-end of the UV market meant it could not compete with most urban cars and a different marketing strategy was required for Scorpio.

Once the team was focused on creating an urban SUV, the results of the market studies showed that what the customers wanted was distinctly different from the existing perception of M&M. Rajesh Jejurikar, executive vice president of Sales and Marketing, and his team created brand identity prisms in 2000 (see Exhibit 7), and extensive publicity work was required to bridge the gap. In particular, the team looked to GM's experience with Saturn for lessons on building the customer's vehicle ownership experience.²⁰

Naming the product was not as straightforward as previous vehicles. On one hand, the company wanted to capitalize on M&M's established presence in India, which guaranteed continuity of Scorpio and the availability of auto parts. On the other hand, the company recognized that the Mahindra name was identified with rural vehicles. By the end of 2001, the team finally settled for a shadow endorsement strategy: rather than Mahindra Scorpio, the vehicle was called "Scorpio from Mahindra" with the last two words in smaller print.

Significantly, the team chose to position Scorpio as a car rather than a UV, partly because the boundaries were themselves blurring, but also because the size of the UV market (although expected to grow) was small. Using advertising phrases such as "Car Plus" and "Luxury of a Car, Thrill of a SUV," Scorpio was meant to appeal to those who were considering a car but wanted the added driving power of an SUV. This strategy was subsequently copied by other automakers—in 2004, Ford launched Ford Fusion in India, which was described as a cross between an SUV and a saloon.

Prior to Scorpio's launch, the team held a press-driven event in June 2002 to sell the positives of the car to auto experts and journalists. The event created publicity for the functional elements of the car and its attractive price point (Scorpio was initially priced US\$1,600 cheaper than Toyota Qualis), leaving the television advertisements to sell the yuppie image. A further showcase of Scorpio crossing 29 Indian states in 29 days was used to highlight the durability of the car for heavy travel.

Distribution Since setting up new dealerships for the initial projected volumes was costly, the team capitalized on existing dealers while differentiating Scorpio from the company's other products. All dealerships in major urban areas were required to have separate outlets for Bolero and Scorpio, thus reinforcing the message that the vehicles had distinct identities from previous M&M products. In areas with lower sales potential, Bolero and Scorpio shared showroom space with other M&M vehicles, although the sales areas were still separated visually by use of color scheme and décor.

The distribution strategy was also updated to take into account the new category of customers expected to visit the outlets. Dr. Goenka explained that the type of customer M&M was targeting for Scorpio was different from the usual customer of a pick-up truck, hence Scorpio outlets had to be upgraded and staffed with personnel that were able to handle queries and cater to the urban market. By end 2003, Scorpio and Bolero were sold at 80 outlets nationwide, all of which (with the exception of the first outlet in Mumbai) were owned by the dealers. The outlets also handled after-sales service and procurement of spare parts.

Global Ambitions

Of the 1,600 vehicles sold by M&M overseas in 2004, only 181 of these were Scorpio. Alan Durante believed the low exports were related to the time needed to establish a new market, but the company was ambitious in its global plans for Scorpio and Bolero.

By mid 2004, over 100 vehicles had been sold to Sri Lanka, Nepal and Bangladesh, especially to the public sector. In the Middle East, M&M signed a memorandum of understanding with a state-owned company in Iran, which had a high-end SUV but no vehicle for the masses. A further 40 Scorpions were supplied to Kuwait following an official launch in August 2004.

In Uruguay, M&M launched Bolero as Mahindra Cimarron (loosely translating to “a thing of the wild”). Although Uruguay had a small population, it was a strategic launchpad for Latin American countries, given low customs duties for vehicles exported out of Uruguay. “The advantage of Uruguay was they had road conditions that were comparable to India,” said Alan Durante. “The country also did not have an automotive industry, and the government was keen to explore opportunities with us. We received very positive feedback from Argentinean and Brazilian dealers at the launch so this should help us enter the Mercosur²¹ region.”

In Europe, Scorpio was launched as Mahindra Goa to avoid the conflict with Ford’s Scorpio in the region. “We had an Italian distributor who wanted to install the Peugeot engine and sell Scorpio there, so we agreed,” said Dr. Goenka. Eurasia Motors, M&M’s importers in Europe, had tie-ups with Peugeot for the sourcing of engines, hence this low-risk strategy required no investment by M&M.

In July 2004, M&M became the second Indian automaker (after Tata Motors) to venture into South Africa. With a target of 4,000 units annually for Scorpio and Bolero, M&M stated it would consider an assembly plant at a later date, should volumes justify the investment. Meanwhile, the South African entry was via a local JV that coordinated import, distribution, after sales service and supply of spare parts. Although the South African market was small by world standards—37,000 were vehicles sold in 2003—the country represented a strategic target for the rest of the African continent.

The Challenge for M&M

In 2003, Anand Mahindra articulated the company’s global goal—within three years, each M&M company had to derive 20% of its revenue from outside India. To this end, the extensive drive to sell Scorpio and Bolero abroad focused on developing M&M’s UV niche on a global scale. In an industry where global automakers like Toyota and GM were identified with more than one type of vehicle, the question was whether M&M could become a global name while playing in just one segment. In addition, did it matter that M&M had not yet planned forays into the U.S. (still the world’s largest automobile market) and China (the world’s fastest growing market)?

In defending the global niche strategy for the company, Anand Mahindra pointed out that there was a gap in the market for rugged UVs which Indian vehicles could fill, given their proven capabilities on domestic roads. In fact, in 2004, the company received an e-mail from an American GI who had used the Mahindra 550 (a soft-top jeep manufactured for the army) while stationed in Afghanistan and was impressed with its performance. Having driven the vehicle for over 60 hours in four days, the GI said it was easier to drive than the hummer, and wrote to ask how he could buy the Mahindra vehicle in the U.S.

The alternative to the niche strategy was for M&M to concentrate on expanding its product range within the Indian market, where it already had an established presence. “The automobile industry

has undergone a death of scale,” said Anand Mahindra, explaining why the company did not feel the need to produce volumes comparable to global automakers. While it was true that the industry had progressed to a lower volume threshold for profits, the success of Scorpio and Bolero could be undermined by the entrance of larger players that enjoyed cheaper costs and could translate those savings to lower prices. To this point, Anand Mahindra responded: “The Indian R&D costs per unit are probably the lowest in the industry, and this makes us particularly competitive.”

Since passenger car technology in India was traditionally acquired by JVs with global automakers (in contrast with the largely indigenous development of heavy vehicles), M&M’s independent design and its subsequent awards by CNBC, BBC World’s *Wheels* and *Business Standard Motoring* (an Indian auto magazine) made it a unique achievement in the market. The question was whether this success could be replicated on a global level or whether M&M needed to follow the traditional path of automakers that grew domestically first.

Exhibit 1 Indian Passenger Car Market

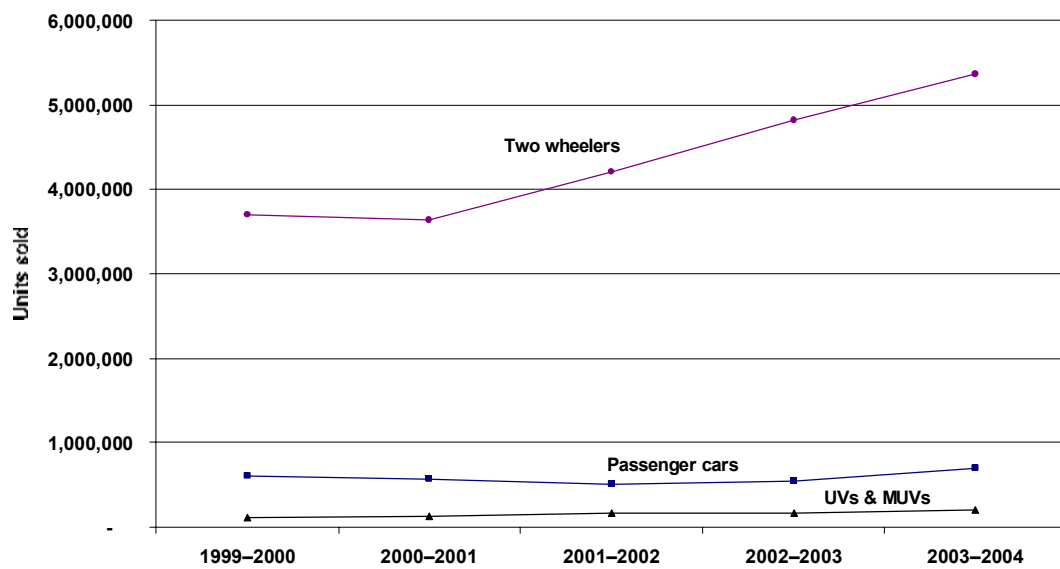
Segment	Vehicle Type	Price Range (Rs million)	Price Range (US\$)	Models	Growth 2004 (estimate)
A	Micro-hatchback	0.25–0.35	5,500– 7,700	Maruti 800, Maruti Omni	16%
B	Ultra-compact hatchback	0.35–0.45	7,700–10,000	Tata Indica, Hyundai Santro, Fiat Palio, Maruti Zen	29%
C	Compact Sedan	0.45–0.90	10,000–20,000	Hyundai Accent, Honda City, Ford Ikon, Tata Indigo	37%
D	Sedan	0.90–1.50	20,000–33,000	Octavia, Honda Accord, Hyundai Sonata, Toyota Corolla	40%
E	Luxury cars	> 1.50	> 33,000	Mercedes, BMW	166%

Source: Mahindra & Mahindra.

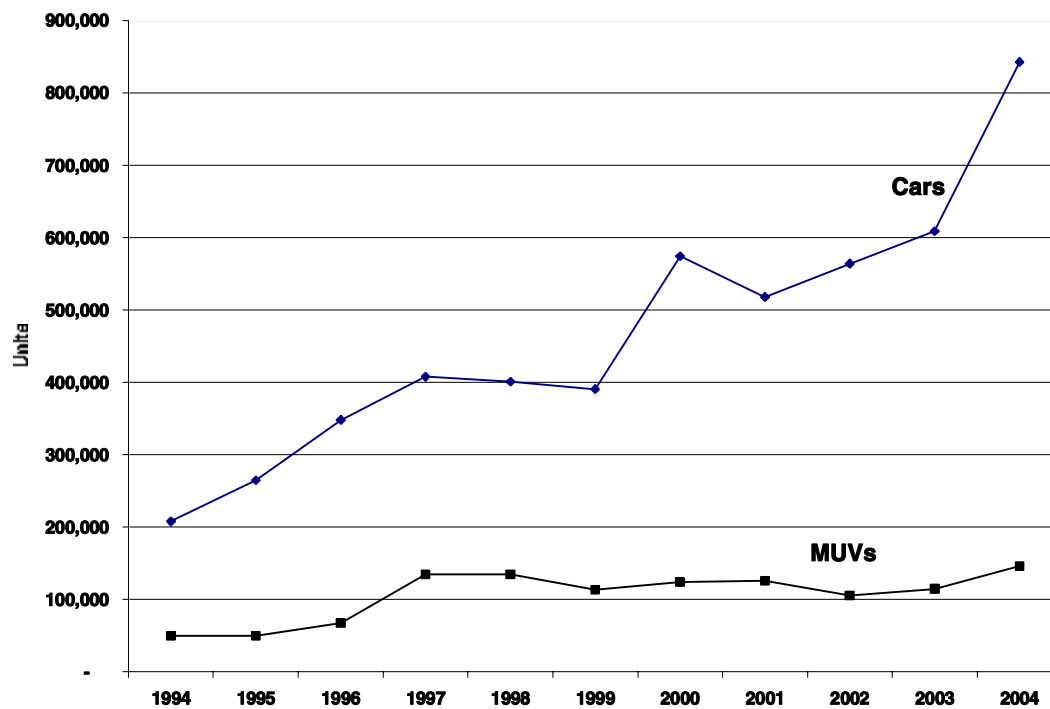
Exhibit 2 Top Five Global Automakers' Sales in India for FYE March 2004

Manufacturer	Passenger Car Sales (units)	Passenger Car Market Share (%)	UV Sales (units)	UVs Market Share (%)	Total Market Share (%)
Hyundai	129,774	17.10	0	0	13.7
Toyota	10,481	1.4	31,898	17.2	4.5
Ford Motor Co.	21,719	2.9	0	0	2.3
GM	17,883	2.4	0	0	1.9
Volkswagen	5,923	0.8	0	0	0.6

Source: Mahindra & Mahindra.

Exhibit 3 Indian Market—Domestic Sales Trend

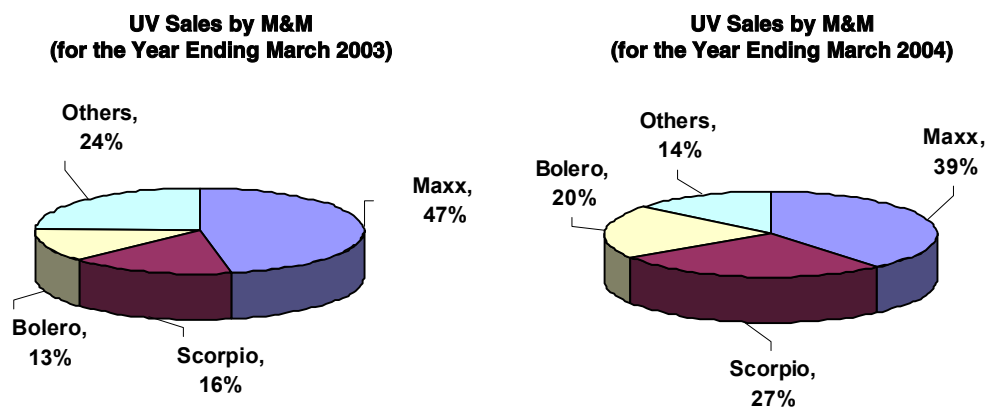
Source: Casewriter created from data taken from Society of Indian Automobile Manufacturers (SIAM) Web site, <http://www.siamindia.com/General/domestic-sales-trend.aspx>, accessed January 11, 2005.

Exhibit 4 India's Automobile Industry- Production Volumes

Source: Casewriter created from data taken from the Automotive Component Manufacturers Association of India (ACMA).

Note: Financial years refer to FYE March.

Exhibit 5 M&M's UV Sales^a



Source: Mahindra & Mahindra.

^aMaxx is a hard-top UV targeted at the commercial segment.

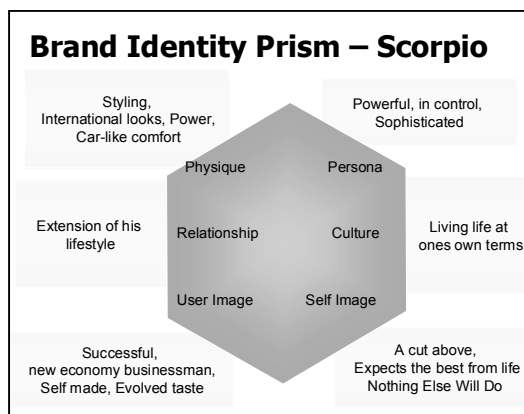
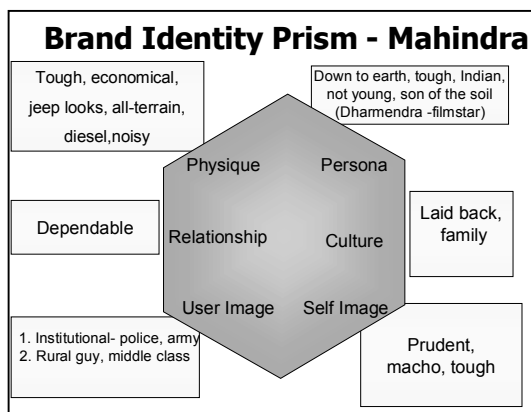
Exhibit 6 Cost of Investment for the Scorpio Plant

	Scorpio^a	Estimates for global automakers^b
	Million US\$	Million US\$
Dies	25	24
Press shop	20	41
Vendors for tooling and rare cases engineering	20	54
Body shop	11	24
Prototyping and testing	10	20
Model variants	10	20
Assembly line improvement and testing	8	12
Personnel overhead	6	20
Consultants	5	12
Plant infrastructure and utilities	5	62
Total	120	289

Source: Mahindra & Mahindra.

^a For expansion of an existing plant, full-scale design and execution of a new platform.

^b For new plant and partial development of an existing platform.

Exhibit 7 Brand Identity Prisms, M&M

Source: Mahindra & Mahindra.

Endnotes

- ¹ All prices are approximate only as vehicle prices vary between Indian cities and based on content.
- ² The next two paragraphs were derived from "Building Deep Supplier Relationships," *Harvard Business Review*, December 2004 and "How Chrysler Created an American Keiretsu," *Harvard Business Review*, July 1996
- ³ "The New European Order," *The Economist*, September 4, 2004.
- ⁴ For more information on Land Rover's history, please see "Land Rover North America, Inc.," HBS Case No. 596-036 (Boston: Harvard Business School Publishing, 1995)..
- ⁵ "Auto sales slowdown a little bump on the road," *Shanghai Daily*, September 13, 2004.
- ⁶ "Global Automobiles: The Chinese Auto Industry," Goldman Sachs Report, February 21, 2003.
- ⁷ SAIC manufactured over 600,000 cars in 2003 (an increase of 57% from 2002) and entered *Fortune's* list of the world's largest companies that year.
- ⁸ The Chinese passenger car market was roughly divided into two segments with US\$12,000 as the separating price. However, by 2004, the boundaries of the two segments were quickly blurring. Fiat's Palio and SGM's Sail dropped from above US\$12,000 to US\$8,400 within three years as companies competed more aggressively. "Auto sales slowdown a little bump on the road," *Shanghai Daily* September 13, 2004.
- ⁹ "Made in China," *Asia Inc.*, August 2004.
- ¹⁰ All financial years of Indian companies in this case refer to financial year ending March.
- ¹¹ Various reforms were undertaken in 1991 in an attempt to shift the economy from a socialist structure envisioned by the first Prime Minister Jawaharlal Nehru towards a capitalist society promoting private enterprise.
- ¹² "Automotive Sector Analysis (India)," World Markets Research Centre, June 11, 2004. Comparative figures are 66 people per vehicle in Indonesia, 112 people per vehicle in the Philippines, 170 people per vehicle in China, and 12 people per vehicle in Thailand.
- ¹³ "India Industry: Exports of automotive components cross US\$1bn mark," *ELU ViewsWire*, June 9, 2004.
- ¹⁴ The price of diesel was US\$0.51 per liter vs. the price of petrol of US\$0.79 per liter in Delhi in June 2004.
- ¹⁵ "Inspired!" *Business Line*, September 23, 2004.
- ¹⁶ "Bolero parks more numbers in Mahindra's UV," *The Economic Times*, July 6, 2004.
- ¹⁷ In 1999, Euro III replaced Euro II as the emission standard for cars introduced in the European Union. This was expected to be superseded by a higher emission standard, Euro IV, in 2005. At the time of writing this case, most emerging markets still required only Euro II compliance: China only introduced the Euro II requirement in July 2004.
- ¹⁸ *Automotive Industries* cover story, October 2002.
- ¹⁹ The industry consists of Tier 1, Tier 2 and Tier 3 suppliers. Tier 1 suppliers manufacture automotive parts directly for automakers. Tier 2 suppliers manufacture components for Tier 1 suppliers and Tier 3 suppliers supply raw materials for manufacture of components. These definitions are extracted from the "Standard and Poor's Autos and Auto Parts Glossary," December 23, 2004.
- ²⁰ GM introduced Saturn (a small car) in the U.S. in 1990, at a time when GM was perceived to deliver poor quality in the small-car market. Within three years of its entry, Saturn ranked among the top ten-selling models in the U.S. and had earned the third-highest customer satisfaction rating in the J.D. Power & Associates survey. By 2004, however, Saturn's aging models and poor design had dented its image and created losses, and GM was seeking help from its European designers to refresh the line. For more information on GM's experience with Saturn, please see "Saturn: A Different Kind of Car Company," HBS Case No. 795-010 (Boston: Harvard Business School Publishing, 1994).
- ²¹ Mercosur is a free trade area consisting of Argentina, Brazil, Paraguay, and Uruguay.