R&D: Suppliers engineer new relationships with Big 3

By Tom Henderson
staff writer

There was a time just three or four years ago when David Cole, who directs the office of the Study of Automotive Transportation for the University of Michigan, didn't think the U.S. automotive industry was capable of changing fast enough to survive foreign competition.

Now, though, he sees the industry thriving well into the next century, thanks to better built cars, leaner corporations and a work force that is better trained, harder working and less hostile to management.

The key, of course, was to build better cars. It was no longer just enough for "made in Detroit" to serve as the major advertising. The American consumer showed very quickly in the '70s that if Japan or Germany built better cars, a Japanese or German product would end up in the driveway.

And one of the keys to building better cars was to change the relationship between the car companies and their suppliers. The suppliers needed to become more equal in the relationship as car making became more sophisticated. The car companies had to realize they could build better cars if they didn't do all their own research and design.

The result? Much better American cars, healthy profits by automakers and their suppliers and a building boom in the Detroit area by suppliers scrambling to move their research and design facilities closer to their markets. (See related story.)

As we lost our brawn, and factory jobs moved south and west, we regained our brains. Suddenly, the Detroit area is the place to be for auto-related theory, design and research.

"You can't do it long distance anymore," said Dick Simmons of Birmingham, the procurement strategy manager for Ford Motor. "Having a salesperson (located) here who refers all questions long distance to people in other states just isn't going to work anymore."

IN THE OLD days, or up until the early '80s, the parts business worked roughly like this:

If the auto company needed a new widget, its engineers designed it and then the company took bids for X-number of widgets. How the widget fit into the whole process was none of the supplier's business. How he managed to get his suppliers or his employees to make the widget was his problem.

Now, though, much of the research and design responsibilities have shifted to the major suppliers, who do the engineering and designing themselves, to better fit their manufacturing processes. And more often than not, a systems approach is used. Instead of just building widgets that will later be assembled in a seat, the major supplier may build the whole seat as an integrated unit.

That cuts down on the number of suppliers and the chances for inefficiency or bad design. It greatly increases the engineering capabilities of suppliers, who either expand their R&D facilities or take increasing advantage of engineering service firms.

Very quickly, the rule of thumb has become: If Ford or Chrysler or GM doesn't build a part in house, they no longer engineer it and design it. They are even farming out design work that used to be done exclusively in-house, including work on the chassis, transmission and engine.

"The old system resulted in a great many inefficiencies," Cole said. "There's a truism that if you're running an organization, you pay attention to the highest thing you do. If you build a car, you tend to focus on the whole car and not on the engine or a bracket. But if a supplier builds brackets, he'll do a very good job of focusing on brackets. . . . You do what you do best. The guy who pays attention to small things is better off building small things."

THE NEW SYSTEM closely resembles that in place in Japan. Engineering and technical capabilities are primary selection factors for auto companies choosing first-tier suppliers, with those first-tier suppliers in turn helping out their suppliers with design and manufacturing assistance.

The benefits to the car companies include vastly pared white collar staffs and a better, more cost-efficient product. Suppliers are happy because they are in on design from the beginning, instead of coming in at the tail end of the process merely to supply manpower and machinery.

Said Jack Withrow, Chrysler's vice president for product development: "With Chrysler having approximately 70 percent of our product manufactured outside, it only makes sense to bring the manufacturing people of that 70 percent into the design process. . . . As we do that, what is beginning to happen is that those suppliers — not just our suppliers but our partners — are developing engineering capability of their own. And they're saying, 'Hey, look, it's more efficient if we engineer it, engineer the product at the same time we engineer the (manufacturing) process.'"

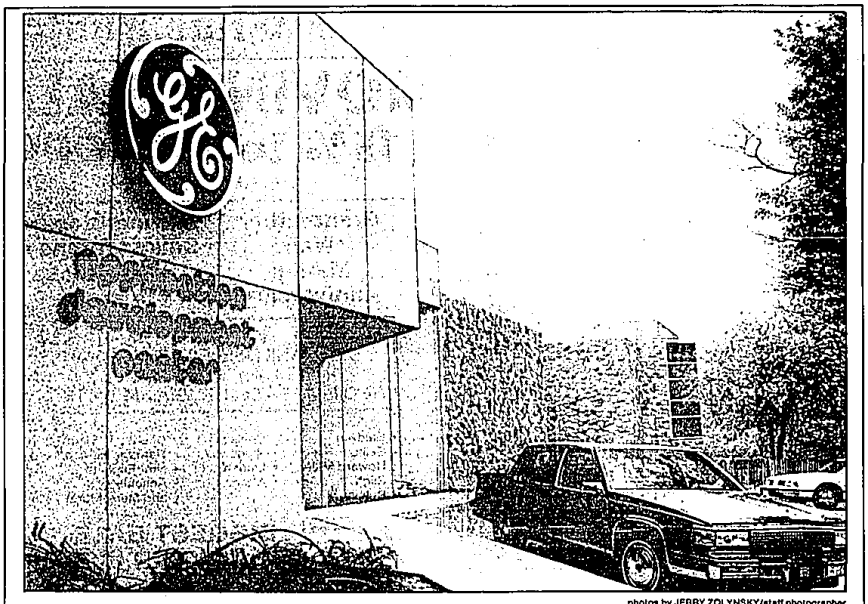
"The supplier is in the best position to develop a design either on his own or in conjunction with our engineers that is compatible with his manufacturing process. He's not making compromises trying to marry someone else's part to his manufacturing process," said Simmons of Ford.

AS THIS NEW system has scrambled into place, research and development facilities have gone up in suburban Detroit seemingly as fast and as often as office centers and strip shopping centers.

The profusion of scientists, researchers and engineers has made southeastern Michigan "the Silicon Valley of the Midwest," according to Paul Sichert of Budd Co., which has just announced a joint venture with ITT Automotive to design and build a modular door as part of the systems approach to car building.

General Electric, through various divisions, plans to do some $650 million in auto-related business this year, a figure that would have seemed fanciful when GE built the first car headlight in 1912.

The current GE facility in Southfield is currently undergoing an expansion of nearly 60,000 square feet, the third expansion for the facility since the mid-'60s.



photos by JERRY ZOLYNSKY/staff photographer

General Electric is adding a $10 million, 60,000-square-foot expansion to its Southfield operation.

High tech spurs building boom

A worker checks out flooring material for the new lobby area of the GE expansion.

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Automation Alley is a loosely defined region of southeastern Michigan and includes Livonia, Troy, Southfield and Ann Arbor.

The London Economist calls it Automation Alley and says it is the hot spot in the world of high-tech engineering and design. David Cole, director of the Office for the Study of Automotive Transportation at the University of Michigan, says it is "where the action is."

"It" isn't Route 128 in Boston, nor is it Silicon Valley in California. "It" is a loosely defined region of southeastern Michigan and includes Livonia, Troy, Southfield and Ann Arbor. "It" — Automation Alley — has grown out of auto companies' response to growing foreign competition.

Faced with losing their dominance, American car companies changed the way they did business in general and the way they did business with their parts suppliers in particular. Their demise was averted; Automation Alley is part of the rebirth.

It wasn't too long ago that, with just a little imagination, you could hear the death knells for the U.S. auto industry. Chrysler was bedridden and on life support. American Motors was a car company in perhaps name only, with very little product. Ford trucks were known for their rust. GM cars wasted fuel and the doors didn't close right. Fit and finish were terms that Japanese firms used to sell *their* cars.

The car industry here was dying — everyone knew it — and so was the city and the state. People flocked for places like Houston and Tampa Bay, and bumper stickers asked that the last one to leave Michigan to turn out the lights.

Yet, just years later, the area is undergoing a tremendous boom with the influx of research and design facilities by auto suppliers and by the expansion of existing research and development facilities.

So new is the high-tech boom that the numbers crunchers are just getting around to digesting some of the facts and figures.

"The research data base is not there, yet," said Alan Baum of the Industrial Technology Institute at U-M. No one knows, yet, what the impact has been in terms of construction costs of new or expanded facilities, the numbers of local workers hired, the numbers of highly trained scientists and engineers who have been transferred into the area, or the financial impact on Detroit, suburban and state economies.

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Residential growth levels off

West Bloomfield paced all Oakland and Wayne County communities with the issuance of residential building permits in 1987, while for the ninth straight year Rochester Hills issued the highest number of single-family permits of any community in the southeast Michigan seven-county region.

With 1,461 total permits, West Bloomfield trailed only Clinton Township, which led southeast Michigan with 1,548 permits in 1987, according to figures released by the Southeast Michigan Council of Governments. The data were collected from the counties of Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw and Wayne.

Sterling Heights (1,351), Rochester Hills (1,102), Farmington Hills (973), Novi (824), Shelby Township (802), Southfield (788), Ann Arbor (647) and Auburn Hills (495) round out the top 10 in the region.

The numbers reflect a slight increase of a little more than 1 percent in the issuance of permits for new dwelling units that include detached single-family, two-family and multi-family units.

According to SEMCOG, this marks a leveling off of the growth trend that began in 1983. Increases in both mortgage interest rates and the region's unemployment rate, along with fluctuations in the prime interest rate, may have contributed to the leveling off of permits issued, according to the agency.

WAYNE AND Oakland counties experienced a decrease in permit issuance in 1987, but Oakland County still led the region's counties in both single-family and multiple-family permits issued. Excluding Detroit, Wayne issued 3,184 permits in 1987, down from 3,336 in 1986. Oakland issued 9,852 permits in 1987, down from 10,120 permits in 1987.

West Bloomfield issued permits for 537 single-family houses, eight two-family units and 916 multi-family units for a gross total of 1,461. Eleven demolitions took place in the township.

In Wayne County, Westland set the pace with a gross total of 464 building permits issued for 118 single-family homes, eight two-family dwellings and 338 multi-family units. Six demolitions took place. Livonia, with 414 permits, and Canton Township, with 396 permits, were second and third in the county, respectively.

Residential Building Permits Issued 1987

	Single-family units	Two family units	Multi-family units	Total
Westland	118	8	338	464
Livonia	294	2	118	414
Canton Twp.	302	6	88	396
Plymouth Twp.	145	0	0	145
Garden City	9	0	6	15
Redford Twp.	12	0	0	12
Plymouth	1	0	9	10