



Dennis DesRosiers

The Thirty Year Itch: How Change Takes Time in the Auto Industry

"But to tear down a factory or to revolt against a government or to avoid repair of a motorcycle because it is a system is to attack effects rather than causes; and as long as the attack is upon effects only, no change is possible. The true system, the real system, is our present construction of systemic thought itself, rationality itself, and if a factory is torn down but the rationality which produced it is left standing, then that rationality will simply produce another factory. If a revolution destroys a systematic government, but the systematic patterns of thought that produced that government are left intact, then those patterns will repeat themselves in the succeeding government. There's so much talk about the system. And so little understanding."

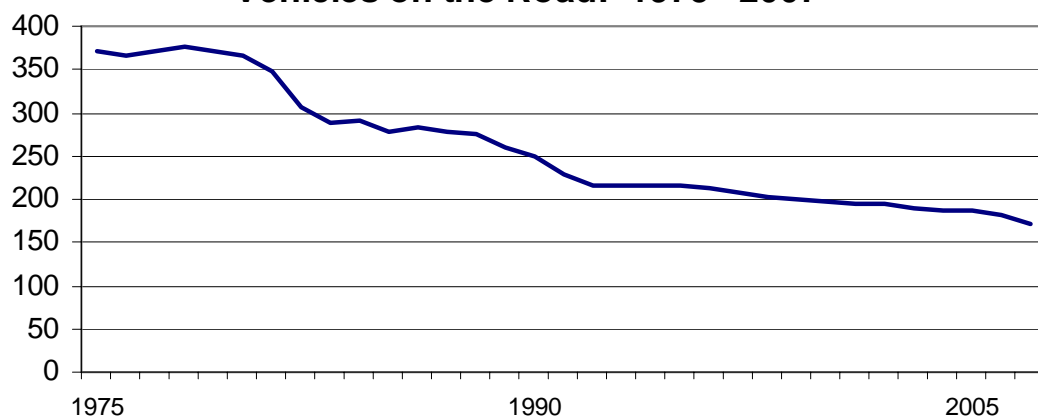
- Robert Pirsig, *Zen and the Art of Motorcycle Maintenance*

The recent history of the auto industry has shown that major changes - the earth-moving, paradigm-shattering sea-changes that separate one era from another - take thirty years. This observation is unscientific, but it tries to answer many of the questions bubbling to public consciousness about perceived heels-dragging or slow-wittedness on the part of the Detroit Three automakers. It also hints at the hurdles faced by these companies as they attempt to salvage a future from the financial and reputational ruin delivered to them in past months.

This "thirty years" figure was not plucked from thin air. Glance at the broad outlines of postwar automotive history, plot the beginnings and ends of the big periods, mark watershed events with pushpins; the bookend

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**Number of U.S. Motor Vehicle Deaths per 100,000
Vehicles on the Road: 1975 - 2007**



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dates we assign to certain issues tend to be thirty years apart.

Safety, efficiency and emissions

Take safety. Judging from the many ways in which modern cars protect their occupants, it's tempting to say that improvements in raw crashworthiness have been immeasurable. But ah! - One need only compare the number of vehicles in operation with the annual rate of highway fatalities to measure the fruits of ratcheting NHTSA policies and CAD/CAM engineering. By 1994, the safety revolution was well-underway, with new cars sporting - at minimum - one airbag, standard shoulder belts and a superstructure designed to collapse in a specific, repeatable, injury-mitigating fashion. With 188.7 million vehicles on the road in that year, 31,998 people died in passenger car or light truck accidents (this figure does not include deaths related to motorcycle or other non-car/truck collisions).

In 2007, fewer people - 30,401 to be exact - died in car crashes. This reduction in fatalities came about despite a radical increase in the number of cars on the road, the number of people driving those cars,

and the number of miles those cars were being driven. Last year, nearly 241 million vehicles were registered in the United States, and those vehicles were spread out amongst an even larger group of drivers than existed in 1994. Automobile safety hasn't simply been improved; it's been revolutionized.

If the 1965 publication of Ralph Nader's *Unsafe at Any Speed* is considered "Day One" in the era of modern automotive safety, you can make a strong case that it took thirty years for the industry to absorb the message.

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For about fifteen of those years, automakers fought the regulations and did what little they could within the constraints of long product cycles and depleted development budgets. By 1980, the most visible effects of the previous decade's safety rhetoric were big bumpers and padded dashboards, but technology and corporate willpower were finally catching up with regulatory stipulations.

Early airbags systems emerged on selected GM cars in mid-

1970s pilot programs, made occasional appearances on high-end European cars in the 1980s, then spread like wildfire through the early 1990s. By 1995, many vehicles had crumple zones, dual airbags, shoulder belts in all seating positions and available anti-lock brakes. The safety promise demanded by Ralph Nader in 1965 had taken thirty years to realize, but it was essentially complete by the late-1990s. The wide gulf between 1994 and 2007 highway fatality rates came about not because of specific advancements unveiled in (or around) those specific model years, but rather through the gradual replacement of old vehicles with safe ones. By 2007, even the oldest cohort of used vehicles had amongst its number many with a substantial amount of modern safety engineering.

In the sphere of fuel efficiency and vehicle emissions, thirty years seems to have been the rough interval between recognition and full absorption. When these two issues reared their heads in the late-1960s and early-1970s, neither had been major design considerations for American vehicle manufacturers. GM, Ford and Chrysler waged a halfhearted battle on these fronts during the early years of efficiency legislation, downsizing from massive to merely-large cars

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and fitting their still-carbureted V8s with air injection pumps and all manner of lean-burn tinkery.

It was only fifteen years after the recognition of these problems - as the third and fourth generations of post-recognition products began to hit the roads - that efficiency and emissions were addressed through weight reduction and electronic engine controls. It took a further fifteen years to arrive at the present situation, where vehicles are 99 percent cleaner than their 1980s counterparts. As mentioned previously in this space, this reduction in harmful emissions has been coupled by an increase in fuel efficiency and a concomitant increase in overall safety and performance - quite a spectacular achievement, given the fact that these social policy goals work against one another.

Why does change take so long?

Change takes time for the reason touched upon in the above quote; direction may be altered, but unless everything - including the motivation behind the change - is changed, real change is either impossible or molasses-like.

Molasses-like describes the 30 year interval between technological and ideological automotive eras. Right here - right now - the Detroit Three are requesting aid that may be tied to unrealistic engineering targets. They are already beholden

to a regulatory schedule that requires a fleet average of 35 MPG by 2020. Given the amount of time that the current system needed to move the needle one or two percent in the right direction, such pie-in-the-sky targets are backbreaking and Sisyphean.

Internal combustion technology has reached something of an endgame. Few tricks remain hidden in the pipeline for the advancement of IC efficiency. At the same time, hybrid and pure-electric technology remains too expensive for integration in mass-market, high volume

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vehicles. They are sold at a profound loss and exist in manufacturers' lineups for their PR - not profit-making - potential.

As Pirsig wrote, the patterns of thought that produced the present situation cannot be left intact if we do not want history to repeat itself. Everything must be rethought in this broken business: corporate culture, union ethos and involvement, production, distribution, retail - and most

importantly - the product itself. The modern automobile, despite all its advancements, is a product of archaic institutions that has been grandfathered into a new world by the tidal forces of historical inertia. We now stand at a turning point.

This "thirty year" issue is very relevant to the current debate in North America about whether - or how - to fix Detroit. There are a dozen or more elements of the basic Detroit Three business model that need to be addressed, starting in the design studios and extending to the dealer body. If any politician believes that these core problems can be addressed by March, they are sadly mistaken.

Fortunately for all parties, it appears that the fifteen year denial stage is behind us, but with most of the other issues, the Detroit Three are perhaps halfway through the remaining fifteen year period. The lesson: Government decisions must be long-lensed. **DAR**