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The technological evolution of the automobile

By Help Desk

Al Gordon

To get a perspective on the ways in which technology has crept into all aspects of our lives, let's take a look at the evolution of one prominent high-tech product — the automobile.

Warning to younger readers: I am a baby boomer, so this piece will invoke '60s-'70s "muscle" and "pony" cars, to which contemporary drivers will have much the same reaction as my generation did to hearing our elders describe crank-starting a Model T Ford. Just bear in mind that in some future time, your kids will groan about hearing you discuss your tricked-out Honda Civics or whatever.

Cars provide a lesson in how technology is not always about breakthroughs but often is a matter of gradual evolution. Change in any one model year may not be spectacular, but after years of those changes, the automobile is radically transformed from being largely a mechanical device to a mechanical and electronic product.

Compare my first car — a "Bullitt" green 1968 Ford Mustang (Google "Steve McQueen" if you don't know the cultural reference) — to my current one, a red 2004 Toyota Solara. I would put the differences into three basic categories:

*** Features that are common now but were then considered wild luxuries.** Air conditioning, for one — since New England is a cold-weather region, there was no perceived need for costly and unreliable auto a/c. Power windows and door locks were similarly things to be found only on luxury cars. Power steering, automatic transmissions, FM radios, seat belts, and bucket seats were just becoming standard items.

*** Technologies that once were avant-garde and now are taken for granted.** Fuel injection, front wheel drive, radial tires — even passenger-side mirrors were available in the '60s in some "foreign"

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cars (which generally meant European back then) or in sports cars and hot rods. But they were not part of the U.S. mainstream. Whereas the "luxury" items above were favored by automakers as profit-margin enhancers, Detroit flat out hated many of these technologies and resisted their introductions because of the massive product redesign and retooling they would require.

*** Technologies that simply did not exist then.** Air pollution control features did not start appearing until after the Clean Air Act Amendments of 1970. Front air bags, much less the side-curtain units, were the subject of an epic battle between the industry and regulators, and years would pass before they were widely adopted. Less controversial in their subsequent entry into the marketplace but just as nonexistent in 1968 were such things as antilock brakes, traction control, vehicle stability control, CD players and changers.

Looking back at the various cars I have owned, one of the constants has been that options I dismissed as unnecessary and too expensive when I ordered a car almost inevitably were something I bought without a moment's thought on my next one.

These days navigation systems probably are the "on the verge" feature. Geek that I am, I invested in one for my Toyota. But it wasn't cheap, and the technology is not as evolved as it might be — especially facing the challenges of Massachusetts's roadways. Still, it has kept me from getting lost on numerous occasions, and my guess that as the technology evolves and real-time traffic and weather information get integrated into the package, we someday will wonder how we ever got around without it.

Of course, one of the biggest differences in my first car and my current one is the brand. In the '60s Detroit iron ruled; Japanese cars were laughable. Now...

Technology, in fact, was a major factor in the role reversal. Japanese automakers were quicker than Detroit to find better solutions for the fuel economy, pollution control, and vehicle safety requirements that reshaped the automobile in the '70s. This technical prowess wasn't necessarily more important than quality, price, and other economic considerations, but it was one key reason why Americans started looking seriously at Hondas, Toyotas, and Datsuns (Nissan's original U.S. market name).

If there is a larger lesson to be learned from this is it is that adapting to change is a fundamental ingredient for success in today's economy. Yes, it is true that General Motors and Ford carry pension and health-care burdens that put them at a vast disadvantage to the Japanese manufacturers, especially with respect to their North American operations.

But in the end, it is about who builds the best cars at the best price — and that means seeing innovation in the product, not just in the advertising slogans.

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