

The hybrid trap

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Tesla car stock on March 26, 2018. Credit: Matthew Modoono/Northeastern University

You know you're sailing into the wind when your theory suggests that the Toyota Prius may end up being a business mistake. But innovation expert Fernando Suarez isn't the type to take the easy downwind course.

Suarez, Northeastern's Jean C. Temple Professor of Entrepreneurship and Innovation, contends that Toyota's mileage icon could well be an example of "the hybrid trap." It's not that the Prius is a bad car, or even an unprofitable venture—his point is that following a hybrid strategy leaves industry leaders playing catch-up with more aggressive startups.

"Most established corporations follow the hybrid approach because it gives them peace of mind, said Suarez. "It allows incumbents to convince themselves that they're responding to [technology](#)-driven transformation in their industry when, in fact, they're losing ground."

In his recent article in MIT's Sloan Management review, Suarez chose to use the the Prius as an example precisely because it has an impressive sales record.

"I know it's a little counterintuitive," he said. "But although hybrid products may succeed in the short-term, they limit innovation by being tied to a dying technology. This ultimately leaves them playing catch-up."

By hedging their bets with hybrids, established companies slow innovation and give new entrants the time they needed to get a foothold in the market.

The electric car

Suarez pointed out that it was General Motors that released the first all-electric car—12 years before the first Tesla hit the market.

In 1996, GM established a lease program in California for its new EV1. Customers, many of them celebrities like Tom Hanks and Mel Gibson, loved the car. Gibson even told documentary filmmaker Chris Paine that the first time he drove his EV1 he "felt like Batman."

"The car was fast and sexy. It was fun to drive. It had everything," said Suarez.

But the all-electric EV1 proved to be a threat to GM's gas-powered divisions and for a variety of reasons (see the award-winning documentary "[Who Killed the Electric Car?](#)"), GM pulled the EV1 from the market in 2002.

Although the auto industry was not ready for the electric car, the technology could not be ignored, so Toyota and others poured development money into gas-electric hybrids. Recognizing the opportunity, an entrepreneur named Elon Musk founded the Tesla car company in 2003. Its mission was to commercialize the electric car as the vehicle of the future.

Suarez said that established companies often make the mistake of approaching [new technology](#) from the perspective of the existing technology.

"They fall back on learned patterns, which slows development," he said. "When you are serious about going the route of new technology, you have to rethink all of your designs and processes."

By slowing the process of radical innovation, Suarez said auto industry gave the upstart, Tesla, the time it needed to raise money, build manufacturing systems, and create a distribution plan, thus squandering the huge advantage they had as established companies.

So while the big car companies pumped resources into hybrids, Tesla released its all-electric roadster in 2008. Four years later, it released the Model S, which was a surprise success and is now the gold standard for [electric cars](#) in America. Meanwhile, the automotive giants still have their electric cars on the drawing board.

"It's no coincidence that Toyota produced the world's first hybrid car and will probably be one of the last to have an all-electric car on the market, 2019 at the earliest," said Suarez.

Part of a pattern

The transistor was invented in America in 1947, but it didn't produce a revolution in the electronics industry until a little known Japanese company began using them to mass-produce pocket-sized radios.

Before the Sony revolution, radios were bulky and relied on vacuum tubes that had to warm up before the radio could operate. American companies took the hybrid approach, substituting transistors for vacuum tubes, but otherwise leaving the rest of the radio unchanged. The new products didn't have to warm up anymore, but they were still bulky tabletop devices.

In contrast, Sony fully embraced the new technology by treating the small size and low power demands of the transistor as an opportunity to redesign and miniaturized every part of its radios. The result was a revolutionary radio that fit in the palm of your hand. Suddenly, music could travel with people everywhere—and everyone wanted a piece of the fun.

Suarez offered other examples of the hybrid trap.

Kodak was crushed by the digital photography revolution—even though the first digital camera was invented by a Kodak engineer in 1975.

"Fearing a negative impact on its highly profitable film business, Kodak introduced a hybrid product, the Photo CD, which flopped," said Suarez. "It was bulky, expensive, and did not optimize either technology. When Kodak finally joined the digital revolution in the late 100s, it was too

late."

Kodak declared bankruptcy in 2012 and emerged a year later as a much smaller company.

Suarez also cites the Blackberry—another industry leader that lost its edge by using the hybrid approach to game-changing technology. Blackberry responded to the iPhone revolution by adding a touch screen, but insisted on including its signature keyboard as well. In just four years, Blackberry plummeted from undisputed industry champion to having a single-digit market share.

The prevailing view

Suarez is building off the theories Harvard Business School professor Clayton Christensen put forth in his groundbreaking book, *The Innovator's Dilemma*. Christensen argued that the reason disruptive technology kills so many established companies is not bad management or an inability to adapt, but because they are confined by a fiduciary duty to their existing customers and investors. Because game-changing technology initially appeals to only a niche market, it won't appeal to most existing customers or have the high profit margins required by corporate investors.

Christensen expanded on his theory in 2013 when he coined the phrase "hybrid innovation" to describe the way large companies can combine existing products with new technologies to extend the life of their flagship products.

Two years later, two business professors at Brigham and Young University published an article in the *Harvard Business Review* that outlined seven ways existing companies can use the hybrid approach to remain relevant in changing times.

In *The Prius Approach*, co-authors Nathan Furr and Daniel Snow contend that the hybrid car is an example of how a successful bridge technology can help established companies manage a long and difficult transition to new technology. They acknowledge, however, that hybrids tend to be temporary half-steps.

They cite the Microsoft Surface as [hybrid technology](#) that breathed new life into the company by combining the compact size of a tablet with the computational prowess of the dying PC. Another example is the hybrid approach some companies have taken to cloud computing, combining the convenience of the cloud with the high-security option of on-site storage.

They identify seven categories of successful hybrid innovation, ranging from blocking upstart companies to exploratory hybrids intended to test the waters for new technologies.

Innovation among the giants

Suarez conceded that not all hybrids are folly. But in today's rapidly evolving world, he believes the hybrid approach is more often a trap that can damage or destroy industry leaders.

"If you're aware of the trap, then you're more likely to experiment fully with the innovation," he said. "It's not about betting the house on new technology. But if you go hybrid as a way to make your company feel comfortable, that's the trap. Unfortunately, that's what most incumbents do."

He noted that some large corporations do both, simultaneously improve existing products and experiment with innovation. One way to do this is by establishing independent startups or teams within the corporate structure. These semi-independent entities are encouraged to work

independently of the corporate hierarchy to fully embrace innovative technologies.

"The cost of experimentation is marginal for a big company like Toyota or GM compared to a startup like Tesla," he said. "Even if the experimentation doesn't work out, it would just be a rounding error for a [company](#) that size.

"It's not a question of whether being big makes you clumsy. It's a question of what you do when you are big."

Provided by Northeastern University

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