

Sometimes, Less Innovation Is Better

by Scott Berinato

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City University of London professor Paolo Aversa and his colleagues documented every innovation on more than 300 Formula 1 race cars over 30 years and then cross-referenced that data with information on F1 race results. They discovered that in certain situations, more innovation led to poorer performance. Their conclusion: sometimes, less innovation is better.

Professor Aversa, defend your research.

Aversa: It started with the observation that in some races, no-frills cars, meaning those that didn't innovate beyond F1's minimum requirements, were doing well. My research partners—Alessandro Marino of LUISS University, Luiz Mesquita of Arizona State, and Jaideep Anand of Ohio State—and I then took it to a higher level and ran statistical models on 30 years' worth of races. And it was clear that innovation didn't always lead to better results. When we mapped the relationship between the two, we got an inverted U, showing that increases in innovation initially helped performance but after a point began to hurt it. But the real breakthrough was seeing that in certain circumstances, less innovative cars performed better. And average drivers were winning with average cars.

HBR: Why would less innovative cars perform better?

We think it has to do with the environment around the innovation. If you have a complex product, like an F1 car, and are in a turbulent market, your instinct might be to innovate—to invest in getting ahead of all the change. But your chances of failing with an innovation in a

dynamic, uncertain environment are very high. Often, it seems, it's better to wait until things are more stable and let others who are busy innovating during times of turmoil fail.

That's what happens in F1?

Yes. Here's an example. In 2009, F1 announced that teams could compete using hybrid technology. This was exciting but generated great uncertainty. No one had raced a hybrid at the F1 level before. But most teams dove into reengineering their cars to take advantage of hybrid technology. There was deep investment in innovation.

One team didn't innovate—one owned by Ross Brawn, a legend in the business. Before he'd purchased the team, it had been failing, so it was short on cash. Instead of investing in the new technology, Brawn's team just built a really solid, basic race car. With Jenson Button, a driver who had finished 18th the year before, it blew away everyone racing the superinnovative hybrid cars and won the championship.

Maybe it was luck—or a good year for the driver?

The math we ran afterward suggests it wasn't. Also, once the hybrid technology started to stabilize—once it wasn't so uncertain—Brawn invested in it, and guess what? His team, rebranded as Mercedes, won again. He waited until the technology was better understood.

The team that didn't invest in radically new technology won the championship.

But how do you know you're in a turbulent environment?

A time of turbulence is mainly defined by three factors. One: the magnitude of change. How much is the industry changing compared with other times? Two: the frequency of change. How often are changes coming at you? And three: predictability. Can you see changes coming? The most important of these is predictability. You can absorb almost any change you can see coming. But if predictability is low, and either frequency is high or magnitude is large, you should scale back innovation until things get more stable. Certainly if all three are working against you, you should innovate less.

F1 seems so specialized. Does this really apply to other businesses?

We already use this framework in other fields. Think of any complex product: a cell phone, a drug. We've seen that anytime exogenous forces or shocks to the system happen in their markets—for instance, a new set of regulations or a major political shift—innovators tend to lose. Sudden changes create instability that seem to beg for innovation, but it's probably better to sit tight and focus on execution and efficiency.

How Turbulent Is Your Industry?

Innovating in an industry in turmoil can be perilous. To evaluate how uncertain things are in your industry, ask these questions:

Magnitude of Change

Are any of the forces that shape competition undergoing a radical shift?

Is the industry experiencing major changes in its structure, technological standards, or competitors?

Are regulations stable?

Are there major fluctuations in demand or prices?

Frequency of Change

Does the industry change before you've fully implemented an innovation?

How many changes has the industry experienced in recent periods?

Are competitors continually releasing innovations?

Are they releasing innovations much faster than you are?

Predictability of Change

Can you foresee how industry forces will change?

We can apply these three factors to lots of industries. In fashion, magnitude is generally moderate—styles, materials, and so forth keep coming back in cycles. Frequency is steady, seasonal. But predictability—knowing what the next big thing will be—is wildly low. Think about music formats: The frequency of change is increasing, but it's still not that often—vinyl was around for decades, CDs were around for years. But magnitude is massive when changes take you from something like a CD to a streaming service. And predictability is really low now.

We've applied these principles to everything from beer to finance and, of course, F1 racing.

Push the envelope in a stable market, but focus on efficiency in an uncertain one.

Are executives surprised to hear you say, "Maybe you shouldn't be innovating so much"?

We wouldn't put it that way. F1 teams really have one product, the race car, but most companies have a portfolio of products. So we look at their different markets and think about where they should be scaling back innovation because of uncertainty. I would never say stop

Can you predict when the next changes will happen?

Was there a pattern in competitors' recent moves?

Can you influence the nature and timing of future industry events?

innovating altogether. I would say maybe push the envelope in this stable market but scale back and focus on efficiency in that market.

Why did you study F1?

I'm the son of an engineer. I've always loved Formula 1. I've driven race cars myself and helped design a car and build a team. Since I was

a kid, I've watched the races with my father. It's this amazing sport where it always seemed like the most cutting-edge cars would win. But I noticed that sometimes the lackluster cars with mediocre drivers and low budgets won. And we'd argue about why that was. My father thought it was luck, but I thought it was something else. I said to him, "Someday I'll prove you wrong."

So basically you're settling a bet with your dad.

It wasn't easy, either. We had to amass blueprints to document data on six elements of the cars subject to innovation, like chassis, tires, and aerodynamics. We also had to find out if cars were updated each season. Then we graded each element's innovativeness on a scale of 0 to 3, where 3 was radical innovation and 0 was little to none. And we vetted that with engineers.

You were really committed to proving your dad wrong.

I showed him the paper. He liked it. He gave me credit for winning that argument. It only took me 20 years.

Where else do you want to take this research?

We're looking at other effects of turbulence. Specifically, we want to understand how it affects the likelihood that managers will create partnerships and alliances. There are lots of ways to look at what happens in times of instability. The chase goes on.

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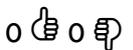
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Stijn Lefebure 2 days ago

The problem in racing lies in the reliability of new innovations and not necessarily in the concept of the innovation (eg McLaren moter this year, or Nismo in Le Mans). The rules on the other hand where clearly defined upfront and remain stable. Perhaps the business risk for innovators is in the changing of the rules. For example platform isolation, often deliberately triggered by laggard firms joining forces around a different/cheaper standard (Betamax, HD-DVD, Minitel).

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