
The imitator's dilemma

By [Henrich Greve](#)

I have enjoyed the book “The Innovator’s DNA” by my INSEAD colleague Hal Gregersen with Jeff Dyer and Clayton M. Christensen. It made me recall the earlier book “The Innovator’s Dilemma”, and realize that part of my own research has been on a complementary issue. These books document the difficulties in maintaining and directing innovation efforts, and one possible response to them would be to say: Why bother innovating if I can wait for others to innovate and focus on being the best at implementing the innovation?

Imitating successful innovation efforts is a possible strategy encapsulated through terms like “Fast Follower” and “Second-mover Advantage.” Indeed, in his famous paper “Footnotes to Organizational Change” Jim March suggested that innovation is an act of altruism because the odds of any specific innovation being beneficial are so low that it is better to wait for others to make innovations and cherry-picking the best.

I think this argument makes sense. But, it comes with an important qualification because cherry-picking the best innovation isn't as easy as it seems. Innovations don't come rolling out of some laboratory (or garage) with an attached “price and benefit tag” that says exactly what it costs to adopt them and what benefits they have. Instead, innovations are highly uncertain at first. The uncertainty can only be reduced through adoption or use, or through information gained by observing others who adopt and use them. But this might mean that it is not the second-mover who has the advantage, but perhaps the third-mover or tenth-mover. Or maybe it is the first-mover after all? The longer the wait, the more certain the evaluation is, but the more other adopters will be around to have experienced the innovation and learnt how to build competitive advantage with it. This is the imitator's dilemma: How much uncertainty is acceptable when evaluating an innovation that could produce competitive advantage?

To answer this question, consider first how firms often are faced with a choice of product or process innovations made by others and with highly uncertain benefits. This is in part because the centres of innovation are equipment and material suppliers to the industry rather than firms in the industry. The use of composites in aviation, new chip designs in computing and communications industries, computer-controlled tools in custom manufacturing, and transaction processing systems in many service industries are technological changes in which suppliers have much of the technology design and implementation capabilities, but firms still need to assess independently whether the benefits for them are high enough to justify adoption. The problem is compounded by the fact that neither party has the full information – suppliers don't fully understand the end user; buyers don't fully understand the innovation. No wonder the decision is difficult, making the first adoption highly uncertain – as well as the second, third, and so on. And of course, the adopters are competitors, and would not normally share information about the costs and benefit of adoption.

Is there any evidence that there is an imitator's dilemma? Let's take one study I did on innovative ship designs in the merchant shipping industry. One innovation was the post-panamax container ship, which is a larger and more cost effective container ship than previous designs. The other was the double-hull oil tanker, which is less likely to spill oil than the earlier single-hull design. The first innovation improved costs, while the second was needed for compliance with new rules that were being put in place. In retrospect, they are both seen as obvious choices. Post-panamax container ships are now used in all routes with sufficient demand for the capacity they give, and new orders for container ships are steadily increasing the size as shippers become more comfortable with the operation of these giants (current orders are triple the size of the original post-panamax ships). Double-hull oil tankers are nearly universal because single-hull tankers are locked out of many markets by law or by insurance costs. But here is the evidence of the imitator's dilemma: It took more than 10 years for the post-panamax ship to even start the upturn in the diffusion curve that shows wide-spread acceptance. For the double-hull tanker, it took 9 years. Because ships have life-times of 20+ years, the early adopters had time to build their market position and experience operating them that is equivalent to nearly the half-life of these assets.

One could say that the slow adoption isn't evidence of any dilemma, because it only shows that managers were slow to realize the benefits, perhaps

because of irrational fears or lack of information. To address this argument, I made a study on fast ferry designs. These were another innovation seen as having high potential because high-speed ferries could be a viable competitor to other modes of transportation (including air travel) over certain distances. Now the commercial benefits of fast ferries are known to be much less than originally thought because the fuel costs rocketed with the oil prices, while maintenance costs of these advanced designs were high. But, if we compare the initial spread of fast ferries it looks much like those of post-panamax container ships and double-hull tankers: initially a slow trickle, followed by an upswing 7 years after. The only difference is the collapse of orders that followed the upswing in fast ferries. These days, the second-hand market is a good place to get a fast ferry because many of the original buyers are selling them at a discount.

How do we know that reduced uncertainty behind the benefits were behind these effects on orders? Here are some reasons to suspect it was. Firms with headquarter locations near each other were faster to realize the benefits of post-panamax ships; firms with network connections to similar suppliers were faster to realize the benefits of double-hull tankers. Firms with headquarter locations near prior adopters of fast ferries were early to realize that the benefits of fast ferries were low. So in sum, those best placed to observe actual benefits and costs were the fastest to act (or, to know that not acting was better). This is a clear demonstration of uncertainty as the source of the imitator's dilemma. It also suggests that the ability to observe others is the solution to the imitator's dilemma. Although having the best innovations gives competitive advantage in the short run, being able to consistently tell good and bad innovations apart gives competitive advantage in the long run. That advantage is realized by firms who localize for information advantage, or who make effort to learn about innovations when they are not well placed to assess them.

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