
The Science of Successful Start-Ups



By Chiara Spina , INSEAD

Entrepreneurs who test their business ideas like scientists stand a better chance of making it.

In the competitive world of business, entrepreneurs have long sought novel formulas such as the Business Model Canvas and the Lean Start-Up Method in their quest for success. The most potent tool, however, might be one that's centuries old: the scientific approach.

From a series of experiments involving 759 start-ups across industries in Milan, Turin and London, my colleagues* and I found that companies that embraced the practice of rigorously formulating and testing hypotheses consistently outperformed their peers. They were more likely to weed out unviable ideas early on, pivot to more promising directions, and generate more revenue.

This study is built on a [smaller one](#) from 2020 and was recently [published](#) in *Strategic Management Journal*. Both papers have also been [featured](#) in *Harvard Business Review*. Replicating studies is a crucial way of validating and extending initial findings. Our latest study not only reinforces the original

findings but also provides deeper insights into the effectiveness of the scientific approach in entrepreneurship.

The scientific entrepreneur

What does it mean for a start-up to "use the scientific approach"? At its core, it's about treating business ideas as hypotheses to be tested, rather than gospel truths to be defended.

Importantly, our study demonstrates that this scientific mindset can be taught. It was the entrepreneurs who received training in the following steps that showed measurable improvements in their decision-making and business outcomes.

1. **Start with a theory:** Begin with your strongest intuition, but be prepared to test alternative theories if necessary.
2. **State your hypotheses:** Clearly articulate your specific individual assumptions about your business idea.
3. **Validate your hypotheses:** Design experiments to test your hypotheses.
4. **Refine and retest:** Continuously refine your theories based on experimental results.

Take MiMoto, an Italian electric-moped sharing service that participated in the study. The start-up's initial hypothesis was that college students rushing from class to class would be their primary market. But when they placed mopeds near an urban campus, they quickly discovered that usage was spread evenly across age groups, with a particular concentration among professionals with unpredictable commute patterns.

Armed with this data, MiMoto's founders went back to the drawing board. They developed a new hypothesis – that young professionals, particularly lawyers constantly shuttling between client meetings, would be their ideal customers. This pivot, grounded in empirical evidence rather than gut feeling, set the company on a more promising path.

Another participant in our study, sustainability-focused venture Osense, likewise avoided wasting time and resources on their envisioned product – a peer-to-peer rental platform – after collecting data that indicated it would tank.

Instead, by rigorously testing their hypothesis, Osense's founders pivoted quickly to a more promising idea: a platform for tracking scope 3 (indirect) carbon emissions. After just 10 interviews with sustainability managers, nine of which were overwhelmingly positive, they knew they were onto something big.

The power of pivoting

In fact, one of our key findings is that scientifically minded entrepreneurs are more likely to pull the plug on dubious projects, and hence less likely to go belly-up. By recognising when an idea isn't working, founders can redirect their efforts to more promising ventures, avoiding the sunk cost fallacy that plagues many start-ups.

There is more to this point. Founders using the scientific approach in our experiment were more likely to make one or two major strategic shifts, and less likely to never pivot or pivot endlessly. This suggests that scientific thinking leads to more focused and deliberate changes, rather than erratic flailing or stubborn adherence to a failing model.

Two key mechanisms likely underpin these positive effects. The first is *efficient search*. This refers to founders' higher efficiency in searching for possible solutions, thanks to being better able to prioritise ideas that are more likely to be successful.

The second mechanism is *methodic doubt*. Scientific founders tend to have healthy scepticism and are more likely to critically examine their assumptions and identify potential pitfalls.

Strikingly, the impact of the scientific approach was particularly obvious among the more successful ventures. Of the top 25 percent of revenue generators in our latest study, those using the scientific method made an average of €28,000 more than counterparts in the control group over the course of the experiment. For the top 5 percent, the difference was €492,000.

While the scientific approach can significantly increase a start-up's chances of success, it doesn't guarantee a smooth path. Failure is still a possibility, but even failed experiments provide valuable lessons. Success in entrepreneurship may be less about unwavering belief in a singular vision, and more about the disciplined, systematic testing of ideas.

Our research could benefit not just entrepreneurs. For investors and policymakers, it offers a potential framework for evaluating and supporting new ventures. The hypotheses may be brilliant, but it's rigorous testing and willingness to adapt that will ultimately lead to success.

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About the research

["A scientific approach to entrepreneurial decision-making: Large-scale replication and extension"](#) is published in *Strategic Management Journal*.