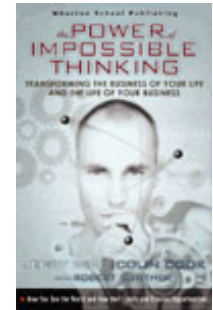




## What's Behind the 4-Minute Mile, Starbucks and the Moon Landing? The Power of Impossible Thinking

Published : July 14, 2004 in [Knowledge@Wharton](#)

Impossible thinking. It is what put men on the moon, allowed Starbucks to turn a commodity product into a powerful global business and permitted Roger Bannister to run the four-minute mile. While not every “impossible thought” can become a reality, very often the greatest obstacle to transforming our organizations, society and personal lives is our own thinking. This may seem to be a simple idea in theory – that what we see and act upon is more a product of what is inside our heads than out in the world – but it has far-reaching implications for how we approach life and decision making. In a new book entitled, *The Power of Impossible Thinking: Transform the Business of Your Life and the Life of Your Business*, Wharton marketing professor [Jerry Wind](#) and Colin Crook, former chief technology officer at Citibank, present a process for “impossible thinking.”



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This process starts with the recognition of the power of “mental models” but then offers practical approaches to challenges such as: How do you know when to jump to a new model? What do you do with the old models after the revolution? Where do you discover new models? How do you make sense of the world in an environment of overwhelming data? How do you transform your organization and the thinking of others? How do you harness the power of intuition? In a Q&A with Knowledge@Wharton, the authors offer their insights into these questions.

**Knowledge@Wharton:** What are some examples of the ways mental models create or limit opportunities?

**Wind:** We discuss a number of examples in the book. Howard Schultz’s creation of Starbucks, Oprah Winfrey’s transformation of the talk show, the “strategic inflection points” that Andy Grove used to dramatically change Intel, all depended on challenging and transforming the current mental model. Over the past few years, the music industry lost tremendous amounts of revenue by clinging to an old model of delivering albums on CDs. In contrast, Apple Computer became a significant entertainment player by rethinking the model with the iPod and the 99-cent songs of iTunes. With fast, complex changes, making sense has become an essential skill for managers. As John Seely Brown, former chief scientist of Xerox and director of the Palo Alto Research Center, once commented, “In the old world, managers make products. In the new world, managers make sense of things.” Our book is focused on how to do this better.

**Crook:** The recent 9/11 report shows that passengers on the planes that hit the World Trade Center and Pentagon appeared to act based the experience of past hijackings. Passengers and crew knew from this experience that cooperating with the hijackers presented the best chances of survival. They viewed what was happening through the filter of this model. During the 9/11 attacks, the hijackers made announcements that reinforced this impression. But once the passengers of Flight 93, which crashed in

Pennsylvania, received additional information via cell phones from friends and family watching news reports, they were quickly able to shift their thinking. They recognized these hijackers were operating from a different model. They were using the planes as missiles against targets. With this shift in thinking, a group of passengers on Flight 93 was apparently able to take heroic actions to stop these plans, and the plane crashed without reaching its target. Changing our thinking creates powerful opportunities for action. But to take those actions, the passengers first needed to change their hypothesis about what was going on.

**Knowledge@Wharton:** How has your own thinking changed based on work on the ideas in this book?

**Crook:** One of the core issues is that we are not just data driven but we are hypothesis driven. This is a very important distinction. We often think we are data driven. The facts are the facts. The world is how we see it. There are big debates in neuroscience right now about the nature of the brain – for example, the brain as a computer versus an evolutionary-based, biological system. While the new neuroscience research that looks into how the brain works is very interesting, and we examine it in the book, our focus is much more on what we need to do about it. We don't get into a cosmic debate about the real nature of the brain or the universe. Instead we look at: What are the practical implications? How do we need to change our approaches to decision making?

I now look at the underlying hypotheses in any situation. What do I think about this? Do I have a hypothesis to make sense of it? Have I examined this hypothesis or have I just looked quickly and said 'I've been there and done that' and just move on. Don't rush to judgment and be much more mindful about the process. Once we know that the world is shaped and filtered by our own thinking, we recognize the need to constantly test our hypotheses against the world.

**Wind:** This work has reinforced the need to examine the models that are shaping our thinking. Take the four-minute mile. Before 1954, it seemed to be a physical barrier that humans could not cross. It was impossible. Then Roger Bannister broke this barrier on a British track. Within three years, 16 other runners had also cracked the four-minute mile. Was there some breakthrough in human evolution? No. What had changed was their thinking. Bannister showed it was possible. We think the barriers are in the world, but often they are in our own minds.

To challenge your thinking, you need to interact with diverse people and be able to see the potential wisdom of weird ideas. For example, when open source software pioneers such as Richard Stallman first spoke to researchers at IBM, the idea that software should be free, "like air," appeared ludicrous. It was antithetical to the notion of propriety software that IBM and every other business in the industry was following. But IBM ultimately became one of the biggest backers of open source programs such as Linux and Apache because instead of rejecting this radical model, the company found a way to build a business around it. We need to keep an open mind and approach life as a series of experiments. We need to observe the experiments happening around us and create new ones. Instead of accepting the world as we think it is, we need to keep testing it to find out what it is and what works.

**Knowledge@Wharton:** What makes these hypotheses or mental models so difficult for humans to recognize and change?

**Wind:** It is amazing how malleable memory and perception can be – much more than we think. For example, in one research study subjects were standing at an airport ticket counter. The ticket agent pretended to drop something, ducked behind the counter and a different person finished the transaction.

Many of the subjects didn't even recognize the change had been made. We tune out big chunks of the environment. In another study, subjects were asked to count the number of times players with white shirts passed a basketball in a video. Most of the subjects achieved a fairly accurate account of the passes, but only 42% saw something more important. A person in a black gorilla costume walks right into the center of the action, beats his chest and moves off. More than half the subjects were so engrossed in the task at hand that they couldn't see the gorilla. An entire gorilla, right in front of their eyes! It is very sobering to think about. Our models and attention create blinders that limit what we see. What gorillas are moving through your field of vision right now that you fail to see?

**Crook:** This is also shown in neuroscience research. Neurologist Walter Freeman discovered that the neural activity due to sensory stimuli disappears in the cortex. It disappears. We are not really seeing what we take in. This stimulation flows into the brain, and it appears to evoke in its place an internal pattern, which the brain uses to represent the external situation. We think we see the real world, but we actually see what's already in our own minds. If we are not aware of the power of these internal models, we may just accept what we think we see as reality. This can be limiting, and sometimes even dangerous. We become very comfortable and dependent upon our current mental models. Changing them opens us up to great uncertainty and risk. Most people are risk averse, so we tend to stay with what we are comfortable with, even if it causes increasing problems.

**Knowledge@Wharton:** What are some practical approaches to addressing these challenges that you discuss in the book?

**Wind:** If you get the message that what you see is what you think, and understand it, what does that mean? In the book, we consider practical steps to change your thinking and the world. The first step is to become much more explicitly aware of why you see the world the way you do and what that implies. Second, you need to test the relevance of your current mental models against the changing environment. Do they still fit? If you need to change models, you need to generate new models and develop an integrated portfolio of models. Third, you need to overcome inhibitors to change by reshaping the infrastructure that supports the old models and changing the thinking of others. Finally, you need to quickly generate and act upon new models by experimenting, using intuition and continuing to assess and strengthen your models.

**Crook:** Changing the world is much more challenging than coming up with new thinking. For example, we all adapt our thinking at different rates so this often leads to so-called "adaptive disconnects." You can see this in differences between the developed and developing world or within organizations between the views of different disciplines such as marketing and operations. The challenge is to learn how to bridge across these differences that separate one person's view of the world from another's. As we point out in the book, you also have to look for the investments that tend to reinforce the old models. For example, once the United States and Soviet Union agreed to end the Cold War, they still had armies and weapons systems designed around this mindset of Superpower conflict. We are still in the process of restructuring and retooling for a changed world. Or to take a more personal example, if you quit smoking, you have to address the way your life might be organized around smoking breaks and a cigarette in the evening. It is not enough to just change your thinking; you have to also address the practical infrastructure and routines that support the old mental model. Old habits are comfortable and not easy to change.

**Knowledge@Wharton:** The world is becoming so much more complex. We are bombarded by an avalanche of information, 24/7, and this sometimes makes it harder to figure out what is going on. How can we make sense of the world in the light of such complexity?

**Crook:** One of the ways we can deal with this is through a process of zooming in and zooming out. If you can alternate your focus between the detail and a broader view, you can see the detail *and* the context, the trees *and* the forest. There are some approaches, such as the government's Total Information Awareness initiative, based on the idea that if you gather every available piece of information – and so much is now available through electronic channels – you'll be able to make better sense of what is going on. Even setting aside the privacy issues, is this hypothesis correct? During the data mining boom, many companies created huge data warehouses without gaining much knowledge from the effort. By zooming in and out, as we discuss in the book, we have an opportunity to benefit from the information that is out there but also put it into a broader context. We can use the information to test our hypotheses. One very innovative way to do this is suggested by the practice of Extreme Programming (XP). This is an approach to software development where a pair of programmers works on a single project. One is focused on the details. The other is looking at the bigger picture. For example, is the software actually solving the problem of the customer? They switch between these roles. And even though it requires twice the staffing, which seems inefficient, it actually produces better programming faster than a traditional model of a programmer working alone. This approach is a response to the need to handle both the very specific line-by-line detail of programming and at the same time satisfy the needs of a complex, often large-scale business problem.

**Knowledge@Wharton:** If you look at the dot-com bubble, many people embraced a new view of the world and scorned those who didn't "get it." A few years later, however, the revolution was a bust and people went back to focusing on ROI. If you are open to transforming your thinking, how do you avoid being swept away by the latest fad?

**Wind:** This is a very important question, and one that we address in several areas of the book. First of all, the view implicit in your question is that the Internet turned out to be merely a fad. This is not true. Many organizations – look at Dell or Amazon or Schwab or others that are less visible – transformed themselves in fundamental ways by harnessing the power of the Internet. On the other hand, the companies that got into the worst trouble were the ones that saw this as an either/or proposition. First they were against the Internet, and then they jumped in completely. The attitude of conducting small experiments and creating a portfolio of models can help to minimize the risks of switching models, especially if you test the models before investing too much in them. It is not a great revolution but rather a series of small experiments that leads to larger investments. You also need to create a portfolio of models and use the one that works best for a particular situation. We still use handwritten notes in the digital age – sometimes they work better than e-mail or word processing. And even while motor vehicles have replaced horses in many areas, we still find people on horseback for urban policing, recreation and even guiding missiles in the mountains of Afghanistan. When a new model emerges, it often becomes dogma. People see it as an absolute transformation or revolution. This is what happened with the Internet – it was going to take over everything. We need to resist this tendency and see new models as part of a portfolio of ways to think about the world, a portfolio that we can draw from in addressing the particular challenge at hand.

**Knowledge@Wharton:** Your subtitle "transform the business of your life" implies that you look at more than just business issues. What are some examples of this?

**Crook:** Mental models are as important to our personal lives as they are to our professional lives. They also affect how we approach broader social issues. For example, the approach to nutrition and dieting has changed dramatically in the past few years. Atkins and other low-carb diets have turned the traditional food pyramid on its head. The understanding of the role of cholesterol in food versus what we produce ourselves has also changed fundamentally. More debates about these approaches will no doubt continue, but our mental models about health, conditioned over many years, need to be adjusted in light of changing

scientific evidence of what a balanced diet really means.

We also examine a shift in the view of inner city markets, which are typically ignored by businesses even as U.S. companies are racing to serve the developing world. What happens if we think about these inner city markets as “domestic emerging markets”? Think about the opportunities this shift in thinking creates.

**Wind:** In the book, we discuss the example of a vice president of a company who uses headhunters and a systematic search process to find executives for her firm but seeks a life partner in her personal life by going to a singles bar and depending upon chance. She has a process that works so well in her business life that she doesn't even consider for her personal life. It is because of the different hypotheses she holds about dating and her personal life. What if she challenges these hypotheses as others have done by using dating services and other systematic approaches? What new opportunities does this open up? On the other hand, as part of the business interview process, having a dinner or drink can often reveal more insights than a formal structured interview. So all the hypotheses need to be put on the table and tested. Anytime we seek to change our lives, we need to look at the underlying mental models across all aspects of our activities.

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