You believe today’s leaders should keep the following mantra in mind at all times: ‘What appears to be the problem, isn’t.’ Please explain.

That’s the first part of a longer mantra, which goes on to say, ‘What appears to be the solution, isn’t. What appears to be impossible, isn’t.’ It’s something I learned from working with Toyota for eight years. Here’s the thing: we solve dozens of problems every day, but the vast majority of them don’t require deep thinking; they are routine in nature and demand nothing more than a reactionary work-around — one we’ve undoubtedly used in the past. But because we solve so many challenges this way, we tend to use the same approach when tackling more complex problems.

We mistakenly pose the question ‘What should we do next?’ before asking ‘What is possible here?’ We want a solution, but we don’t have the patience to wait for the optimal one, so we favour implementation over incubation. We might throw some resources at the problem and move on, or tweak a previous solution and fit it to the current situation; but we fail to look more holistically at the challenge, and the result is that we often miss out on the best, most elegant solution. Complex problems are, by nature multidimensional, and they resist obvious, surface solutions. As MIT’s Peter Senge has said, “Human endeavours are systems. We tend to focus on snapshots of isolated parts of the system, and wonder why our deepest problems never get solved.”

You have identified seven ‘fatal flaws’ of thinking, and the first three are the most common: leaping, fixation and over-thinking. Please describe how they play out.

I group these under the heading ‘Misleading’, because the lazy part of our brain can lead us into comfortable ruts and mental roadblocks that prevent the kind of mindful thinking that allows us to solve problems creatively. Leaping is when we immediately jump right to solution mode. By far, this is the most prevalent thinking flaw I see. We have been so conditioned through formal
education to seek the right answer as quickly as possible that it has become a hard-wired behaviour. All of those ‘Why?’ questions we incessantly asked when we were younger lose priority over the years. Unfocused brainstorming has become our go-to creative problem solving process; the problem is, it almost never works, and does little more than produce top-of-mind ideas—nearly all of which fail to solve the problem.

Fixation is my umbrella term for our general mental rigidity and linear thinking — our ‘go-to’ mindsets, blindspots, paradigms, biases, mental maps and models — that make it easier for us to make it through the day, but harder for us to flex and shift our perception. The term itself comes from what psychologists call ‘functional fixedness’. Our brains are amazing ‘pattern machines’, constantly making, recognizing, and acting on patterns developed from our experiences and ‘grooved’ into our brains over time. While following those deep grooves makes us more efficient, it also makes it tough to — as the Apple tagline goes — ‘think different’.

Over-thinking is at the other end of the thinking spectrum from leaping. It can be thought of as our knack for creating problems that weren’t even there in the first place. Over-thinking is a rather deep bucket filled with a host of variations on a theme: over-analyzing, over-planning, and generally complicating matters by adding unnecessary complexity and cost.

Based on your work with Toyota and other organizations, you have developed a fix for leaping: ‘framestorming’. Please describe how it works.

The difficulty with the Leaping flaw is that not enough time is devoted to properly framing whatever issue you’re grappling with. If I have learned anything from facilitating problem-solving sessions, it is that we will be largely unsuccessful in attempting to shut off the deeply-embedded Leaping impulse, and we should not even try. We will make far more progress if we redirect and channel the ‘instinct to act’ into behaviour that feels like brainstorming — but actually involves generating questions instead of answers.

In practice, framestorming is just that: simply injecting a step into the problem-solving effort focused on quickly generating multiple ways to frame the problem, using prompts such as Why?, What if?, and How might we? In other words, instead of seeking answers right away, you come up with questions right away, before launching into ‘solutioning’.

Describe the role of ‘attention density’ in all of this.

I was especially keen to understand the underlying causes of Over-thinking and why it is so prevalent, so I spent time with a well-known neuropsychologist, Dr. Jeffrey Schwartz, who uses mindfulness to treat Obsessive Compulsive Disorder. He gave me a catchy primer that I could use to understand how patterns are formed in the brain: ‘neurons that fire together, wire together’. What turns that neural spark into a brain pattern is focused attention, referred to as ‘attention density’. The denser your attention is, the more likely a specific habit will be wired into your brain. Repeatedly focusing your attention on something strengthens brain circuits — which explains how learning to ride a bike becomes automatic, and why many habits are so hard to break.

The fact is, attention can work for or against you. When you focus your attention on a strong and enduring brain circuit, it can slow you down — or even shut you down. Athletes and other performers experience this as ‘choking’: what has become automatic through years of practice can suddenly become crippling under pressure when too much attention is focused on it. In other words, thinking too much can indeed be detrimental.

Whether we want to admit it or not, we all make assumptions. What is the best way to surface them?

Every solution — no matter how perfect it first appears — carries with it certain assumptions, leaps of faith or implicit conditions
for success. If these are not attended to — teased out, made transparent and tested — they can turn out to be the Achilles heel in your great idea.

In my experience, simply making a list of assumptions doesn’t work for most people, for a few reasons. First, our assumptions are so ingrained in our thinking and thus so hard to identify (this is the Fixation flaw at work) that it takes a good tool to lend a bit of objectivity. Second, most people tend to list ‘known’ things for the sake of ease and to avoid the risk of looking uncertain. But an assumption, by definition, is something unknown and un-tested — a guess. And that’s scary for most of us; we fear the unknown, and we are reticent to bring it up and make it public.

I learned the most powerful technique for not only surfacing assumptions but also turning them into an advantage from [former Rotman School Dean] Roger Martin, who I consider a mentor. His approach amounts to a single but powerful question: What must be true? This question is a real mind-opener, which explains why Roger has used it for over 20 years. Answering it produces a fairly robust set of conditions for success, which represent educated guesses about the future. The task then becomes one of identifying the things that you’re most worried might not be true — and thus represent obstacles and barriers — and constructing experiments to test the guesses.

Tell us a bit about the two flaws of mediocrity: satisficing and downgrading.

These two are close cousins. Satisficing is a term Nobel laureate Herbert Simon coined in his 1957 book, Models of Man. It’s the combination of satisfy and suffice, and refers to our natural tendency to glom onto what’s easy and obvious and stop looking for the best or optimal solution — the one that resolves the problem within the given goals and constraints. Too often, we over-compromise and sub-optimize, accepting the halfway solution and relying on our ability to push it forward. Unfortunately, when it comes to complex problems, that usually amounts to a rather Herculean but useless effort, akin to pushing water uphill. By thinking less, we end up working more.

Downgrading is my term for when we formally revise our stated ambition in a distinctly downward or backward direction, committing what amounts to pre-emptive surrender, which, in a kind of perverse way, enables us to do what we really want to do — which is declare victory. No one likes to lose: we all love to win. But by definition, there is only one true winner. So, in order to feel like a winner, we will back off the original goal and tell ourselves a happy but fictional story of triumph. Politicians are masters of this, but unfortunately, it happens all the time in business too, and it can result in wholesale disengagement, which is detrimental to any effort.

Tell us about the ‘Not-Invented-Here’ flaw (NIH), and your fix for it: ‘Proudly Found Elsewhere’ (PFE).

NIH is defined as an automatic negative perception of, and visceral aversion to, concepts and solutions developed somewhere else — somewhere external to the individual or team — often
resulting in an unnecessary reinvention of the wheel. It means ‘If I/we didn’t come up with it, I/we won’t consider it,’ and ‘I/we can do anything you/they can do, better.’ The expression of NIH is always the same: shutting out another person’s or group’s idea immediately and without due consideration, merely because they came up with it. The next time you’re in a lobby waiting for the elevator to go up to your office or hotel room, count how many people hit the Up button even though they can see that you’ve already pushed it. That’s NIH in action.

PFE is the term Procter & Gamble’s innovation group came up with to refer to the executive mandate by then-CEO A.G. Lafley to source fully 50 per cent of P&G’s innovation from outside or external entities: startups, small companies, researchers, inventors, etc. Steve Jobs never suffered from NIH. If he had, he might never have even considered visiting the Xerox Palo Alto Research Center (PARC) in 1979 and seen what he almost immediately recognized as the future of personal computing: a graphical user interface PARC had developed, designed to look like a desktop and convert traditional computer command lines and DOS prompts into icons of folders and documents that a user could point to and click open by using something Xerox called a mouse.

In fact, Jobs openly embraced PFE, to the point of quite literally adopting Pablo Picasso’s quote that “good artists copy, great artists steal.” When he took the Xerox interface for Apple’s use, he later boasted that “we have always been shameless about stealing great ideas.”

Tell us a bit about the ‘outsider effect’ on creative problem solving.

Most people find other people’s problems much easier to solve than their own, and psychologists believe this may be due to simply being too close to our own problems. Studies exploring the impact of mentally distancing the imagination from the immediate context have shown what’s now called the ‘outsider effect’ as playing an important role in our ability to creatively solve problems.

In one of the more recent studies, researchers gave two different groups of undergraduate Psychology students a creative generation exercise which they termed a ‘linguistic skills task’: list as many examples of modes of transportation as you can think of. There was no time limit, the instructions emphasized that there were no right or wrong answers, and responses could be “as commonplace or as creative and out of the ordinary as you like.” They split participants into two groups: ‘spatially distant’ and ‘spatially near’. The spatially-distant group was told that the task was designed by students enrolled in an Indiana University-sponsored program called Study Abroad Program in Greece. The spatially-near group was told that it was designed by local Indiana University students.

This seemingly irrelevant twist made a world of difference: the group that was told the task originated in Greece generated significantly more, and more original, examples of transportation modes than did the group that was told the task originated nearby. “Furthermore,” write the study authors, “relative to those who believed the generation task was from Indianapolis, participants exhibited greater cognitive flexibility when they believed that the task was from Greece.”

In other words, those who imagined themselves in a distant and foreign land weren’t limited by what they knew to be true of local transportation, and were free to list chariots, carriages, Vespas and the like. Thinking about getting around Greece instead of Indianapolis opened their minds and invoked the outsider effect.

The researchers concluded that mentally distancing oneself from the source of the problem can have a dramatically positive influence on creative performance. The good news is, there’s a simple technique you can use to flip on the outsider effect: talk to yourself in the third person, as if you were in fact someone else: ‘Matt, don’t over-think it.’

‘Not-invented-here’ is defined as an automatic negative perception of concepts and solutions developed somewhere else.
As researchers at the University of Michigan Self-Control and Emotion Lab explain it, using the third person engages the cerebral cortex, which is your centre of thought. Meanwhile, using the first person engages the amygdala, which is where fear emotions reside. Toggling between the two moves you towards or away from your sense of self and its myriad emotional attachments. The greater the psychological distance, the more self-control you have, in turn enabling you to think more clearly, objectively and creatively.

Harvard’s Ellen Langer’s once said to you, “As soon as you realize that an issue looks quite different from another perspective, take that perspective.” Why are these words so powerful?

As you know from interviewing her several years ago, Ellen — who literally wrote the book on Mindfulness — is a brilliant researcher, writer and artist. I happen to believe that her advice to me holds the very key to winning the ‘brain game’, which I define as the interplay between the biological brain and the conscious mind. The essence of her message is that there is always another way to look at any situation, and failing to override the brain’s mental inertia by consciously looking for those perspectives is not only a loss in the ‘brain game’; it is utterly mindless. **RM**

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**Matthew May** spent eight years as the creative advisor to Toyota, an experience that enabled him to write a book about its innovative methods and launch a speaking career. His most recent book is, *Winning the Brain Game: Fixing the Seven Fatal Flaws of Thinking* (McGraw-Hill Education, 2016). He holds an MBA in Organizational Design from the Wharton School of Business.

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**The Seven Fatal Flaws of Thinking**

1. **Leaping**
   Leaping to solutions, jumping to conclusions or brainstorming in an instinctive or reflexive way almost never leads to an elegant solution to a complex problem.

2. **Fixation**
   Fixation is the umbrella term for our deeply-grooved thinking patterns — mental models, mindsets, biases, assumptions — that can make it hard for us to ‘think different’.

3. **Over-Thinking**
   Over-thinking is the art of complicating matters, and causing problems that weren’t even there to begin with, which we tend to do because our brains abhor uncertainty.

4. **Satisficing**
   Satisficing is Nobel Laureate Herbert Simon’s term for our tendency to glom onto solutions that are easy and obvious, thus failing to solve our problem in a creative way.

5. **Downgrading**
   Downgrading is a close cousin of satisficing and is a formal revision of a goal in what amounts to preemptive surrender, simply so that we can declare victory. No one likes to fail.

6. **Not-Invented-Here (NIH)**
   NIH means ‘if we didn’t come up with the idea, it won’t work’. We naturally reject, stifle and dismiss ideas simply because we didn’t think of them ourselves.

7. **Self-Censoring**
   Self-censoring is the mindless act of rejecting our own ideas, usually out of fear, before they ever see the light of day. It is the deadliest of the fatal thinking flaws, because it stifles creativity.

— From Winning the Brain Game: Fixing the 7 Fatal Flaws of Thinking