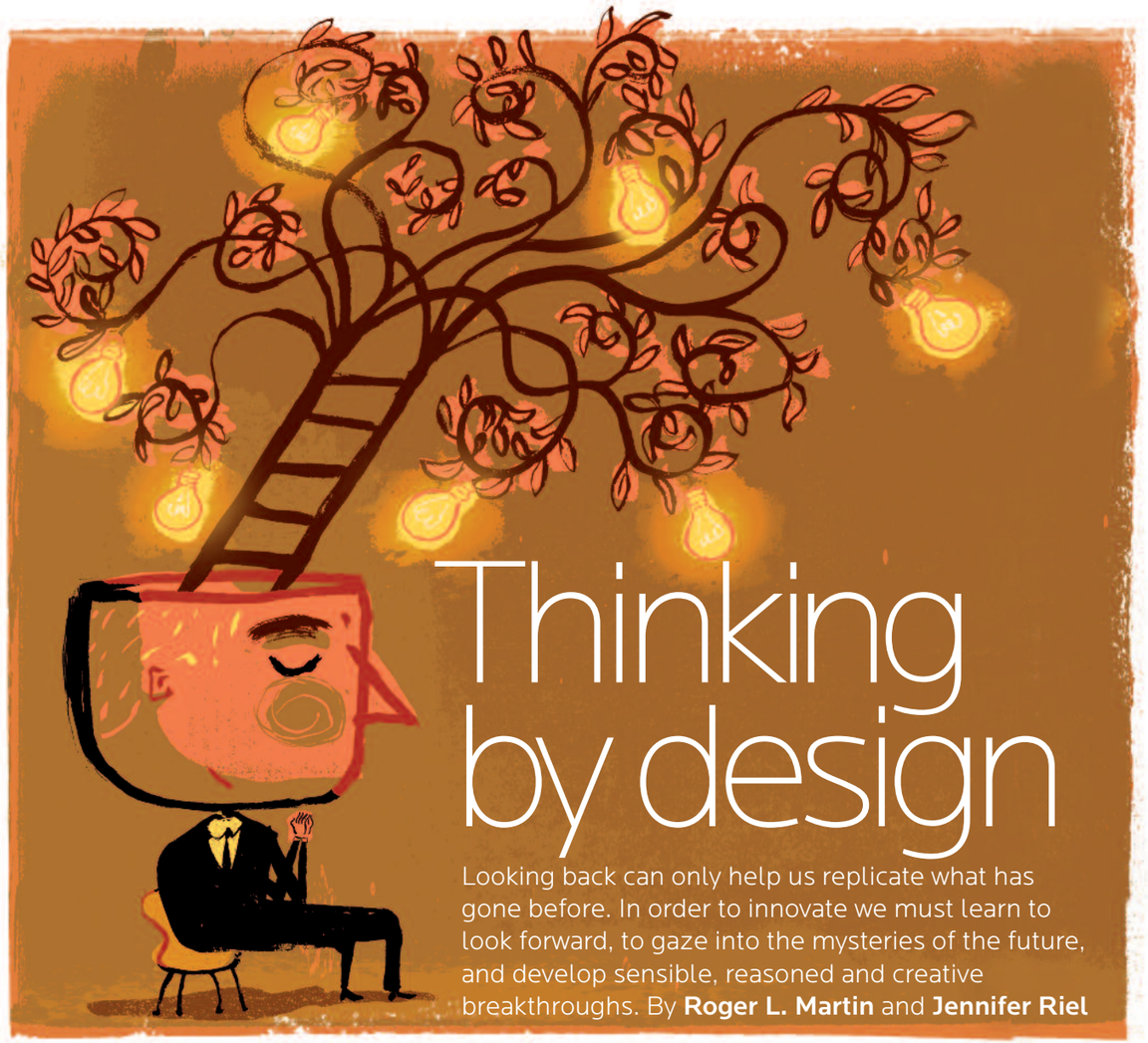

Thinking by design

Looking back can only help us replicate what has gone before. In order to innovate we must learn to look forward, to gaze into the mysteries of the future, and develop sensible, reasoned and creative breakthroughs. By **Roger L. Martin** and **Jennifer Riel**

Leaf through an annual report, or listen in on an analyst call, and eventually the word innovation is bound to pop up. Whether it is a bank seeking to innovate on its service model, a packaged-goods company trying to create new consumer products or a retailer wanting to streamline its supply chain, innovation is the catch-all, cure-all touted by management – the ultimate key to future success. But if so many companies publicly set innovation as one of their most important goals, why are they typically so bad at it? Why are so few companies able to build and maintain an innovation-friendly culture? And why are we at such a loss to replicate successful models of innovation effectively over time?

These are the hard questions that face the strategy community – and the real challenge that lies before us: how can strategists help enable innovation for their clients and businesses? Right now, it looks like the answer is that they can't – or at least that they don't. The painful fact is that many strategy consulting firms and strategy departments raise more obstacles to innovation than they break down.

Ironically, the very tools and skills that have fuelled the tremendous growth of the strategy industry over the past 30 years are those that limit our effectiveness at enabling innovation. It boils down to our deep and abiding love for spreadsheets.

Spreadsheets are the main symptom of our obsession with analysis, data and proof. The notion that good management is driven by good measurement runs deep because the act of measurement provides security; if we know enough about something to measure it we almost certainly have some control over it. So our impulse is to get as much data as we can and analyse the heck out of it. No wonder we are so good at analysis.

Analysis paralysis

The problem is, once we have quantified everything we can, we tend to throw the rest away. However comforting it is to stick with what we can measure, we run the risk of expunging something really important. What's more, we won't see what we're missing because we don't know what it is that we don't know. By sticking only to what we can measure, we confine ourselves to a small and constrained world; we become prisoners of a reality we've unknowingly constructed around ourselves.

Hold on, you may say – what's so wrong with analysis? Without proof, how is definitive action possible? If the scientific method is flawed, does that mean we will be stuck in the Never Never Land of gut instinct and blind guesses, which is hardly more attractive?

We find ourselves choosing between the two prevailing models for value creation today. One says that the world can be understood only through analytical thinking, through the gathering, testing and rigorous analysis of data about the world – data that yields reliable results that can be replicated again and again.

Analytical thinking is defined by quantitative data, deductive and inductive proofs and repetition. We find it well enshrined in the boardroom and in business classrooms the world over. But the problem is that we can't demonstrate how any new idea came into the world through the studious application of analytical thinking. Analysing the past and crunching the existing numbers can do nothing more than extrapolate the future from the past. So if you stick to measuring what you can already measure, it is impossible to create a future that looks any different from the past.

In opposition to analytical thinking sits intuitive thinking, adherents of which argue that true value is created through an almost mystical process of knowing without reasoning. Intuitive thinkers care little for past data and reliable, replicable results. They want to generate a solution that incorporates personal judgment and qualitative variables to achieve an answer that best addresses the problem at hand.

Intuitive thinking is defined by gut instinct and insight. It is the bastion of artists and creative geniuses who can't – or choose not to – define their methodology. The problem is that it can't be replicated. Leaving innovation to intuitive thinkers is a dangerous business – as there is no methodology behind it or way to shorten the odds on success or failure.

The consulting industry is firmly entrenched on the analytical side. But the prescription is not to simply flop to the other extreme. No, between these two extremes – analytical and intuitive thinking – is a fruitful middle ground called design thinking. Design thinking is a combination of analysis and intuition that allows us to move knowledge ahead most productively.

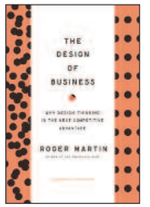

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Figure 1: Seeking the middle gound

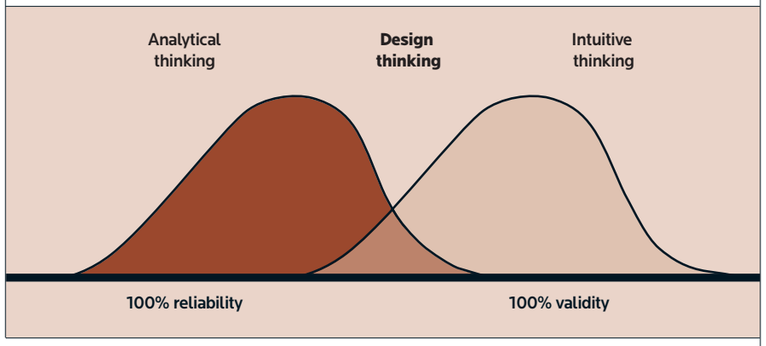
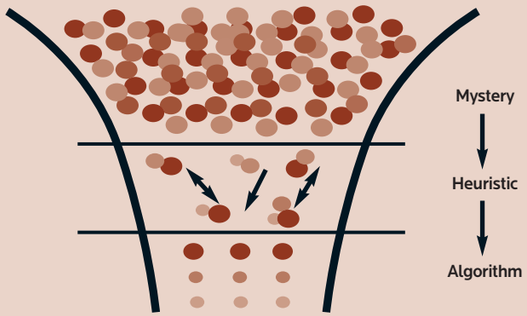


Figure 2: Three stages of innovation



Instead of embracing the idiom "if you can't measure it, it doesn't count", consider another tack: "If you can't imagine it, you will never create it". The future is about imagination, not measurement. The real value that strategists can bring to an organisation is the ability to help the client imagine. That is the holy grail of design thinking – the creation of something new and better than anything that currently exists. But to create such a new idea, client and strategist must be willing to take the time to stare into mysteries.

Demystifying the problem

When we begin to be troubled by a problem, we really have no idea where to start in solving it. To start thinking about that mystery, we have to include as many variables as possible – to look as far afield as we can – in order to find an answer. It is complicated and time-consuming. Why is it so complex? Because we don't know what we don't know.

Consider one of the oldest mysteries to perplex humankind – why things fall down. Our ancestors had many theories about this mystery – objects were pushed down by an outside force, they were pulled down by a kind of magnet, it was the work of the gods, it was magic. It was a confounding mystery for centuries; some objects fell quickly, some – like birds – didn't fall at all. Our ancestors were flummoxed and had to consider many possibilities in their search for answers.

Gradually, though, people begin to see a way out of the confusion. They develop a way of thinking about a mystery that helps them make some sense of it – a rule of thumb that lets them leave out some of the myriad features of the mystery and focus on a problem of a more manageable size.

In the case of why things fall, scientists began to conjecture that it wasn't magic at all, but a particular kind of force that pulled objects earthwards – a force that became known as gravity. They left a swathe of other theories behind and came to focus on this heuristic. With a heuristic comes a tremendous advantage. Instead of fumbling around in the dark, you have an efficient way to allocate your resources – an incomplete but helpful theory about the way in which to think about the problem.

Structured thinking

Knowledge moves from heuristic – a rule of thumb for thinking about a problem – to an algorithm. An algorithm is a more structured way of thinking about a problem – it is a fixed, solution-generating formula.

And so it was with gravity. At the heuristic stage, we had a loose notion of a universal force that made things fall. We would eventually develop a set of precise rules for understanding why and how things fall – and at what rate (32 feet per second squared). Newton's law of universal gravitation gave us a step-by-step method – a formula – that allows us to calculate precisely when a given object dropped from a given height will reach the ground.

The algorithm is even more efficient than the heuristic. We gain tremendous efficiencies as judgment and nuance are eliminated. That efficiency is a positive thing, because it can free us up to focus on the next mystery. Unfortunately, all too often we focus our attention on honing and refining our existing heuristics and algorithms (building ever-better spreadsheets to do so) and very little on moving knowledge to the next stage. This tendency to double-down on our existing heuristics and algorithms leaves us open to getting blindsided by those who advance knowledge and reap the efficiency rewards ahead of us. So this simple model – that we advance knowledge consistently through these three stages (mystery to heuristic to algorithm) – is the path of innovation, in science and in business.

The only way to move knowledge ahead effectively and repeat the process over time is to embrace thinking that moves knowledge from stage to stage. Then it is a matter of a commitment to re-examining the mystery, or to seeking out new ones.

A logical leap

The problem with staring into mysteries is that there is no general rule to apply, no pool of past data from which to ferret out meaning. Our standard approaches fail in the face of outliers and anomalous findings, so we must turn to a different form of logic: abductive logic, the logic of what could be.

Posited by the US pragmatist philosopher Charles Sanders Peirce, abduction is a way of thinking whereby we assemble the bits of information that seem relevant and try to infer the best explanation. By taking this 'logical leap of the mind' to explain perplexing information, we give innovation a shot.

Mike Lazaridis, co-CEO of Research in Motion (RIM), makers of BlackBerry, blends this approach with traditional analytics in all of his research and development. Before the BlackBerry, RIM made pagers. It was a reasonable business but Lazaridis saw greater potential in the notion of a portable email device – even though there was no data to suggest that consumers wanted one. How could there be? It didn't exist yet. But the logical inference Lazaridis saw was that portable email would be far richer and more valuable than numeric or even alpha-numeric texts, so he took the leap.

More recently, Lazaridis wanted to extend the BlackBerry to a rich new market: consumers. He told his team: "Build me the best BlackBerry you could ever build. Define the ultimate BlackBerry." He did not ask them to follow rigorous market testing or accepted industry rules. He asked them to imagine. They came back with smaller and smarter consumer-friendly designs. These models, the Pearl and the Curve, would become RIM's biggest-selling products.

Asking what could be true – making a logical leap into the unknown – is vital to creating a culture that fosters innovation. The notion of taking the space to imagine, of contemplating answers in the absence of hard-and-fast proof, is unsettling. On that front, the best thing a company can do is productively turn the future into the past. That is, design small experiments, predict outcomes and see what happens. That is the true path to innovation. ■

"Asking what could be true – making a logical leap into the unknown – is vital to creating a culture that fosters innovation."

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McDonald's: from mystery to algorithm

How does this play out more explicitly in a business context? Consider a ubiquitous example: McDonald's. As the McDonald brothers started out in the restaurant business, they really had no idea what kind of restaurant would be successful – or how the changing culture in the 1940s and 1950s would change the way in which Americans ate out. They stared into the mystery and developed a heuristic – the quick-service restaurant. They took their existing BBQ restaurant, simplified their menu and dropped the drive-in format in favour of an ordering window to make the meal quicker and easier for their customers.

This model was quite successful and replicable on a small scale. But it required the brothers to be highly engaged in running their heuristic – in applying judgment and thought to the process of how to run and improve their restaurants.

Then, along came Ray Kroc – who had sold the brothers the five-at-a-time milkshake makers that had helped them hone their heuristic. Kroc saw the opportunity to move McDonald's to a precise algorithm. He bought out the brothers and developed systems for everything – the cooking methods, the store selection process – everything. Judgment and bias were removed until anyone with knowledge of the algorithm could run it efficiently.

Along the path from mystery to heuristic to algorithm, McDonald's gained enough efficiencies to become a massively successful global chain. But rather than turn its attention to new mysteries or even to re-examining the original mystery, McDonald's focused on honing and refining its algorithm. This left it open to getting blindsided by anyone who found a new and interesting path out of the mystery – which is precisely what happened to McDonald's in the 1990s, as competitors like Subway began to eat their lunch (so to speak).