

“Strategy Needs Creativity” by Adam Brandenburger*,¹

1. Being Different

In a competitive world, successful enterprises are ones that find ways to be different from their rivals. This proposition is almost an axiom of business. It is taught in business schools and, as far as it goes, it is correct.

But being different is easier said than done. It is also almost axiomatic that there is no shortage of smart, well-informed players out there in the world of business. The increasing interconnectedness of the world likely makes the challenge of standing out from the competition even harder. True, interconnectedness means that the opportunities to deploy knowledge are greater than ever. At the same time, though, it is very hard to gain an edge when so many people have access to the same information.

Albert Einstein said: “Creativity is seeing what everyone else has seen, and thinking what no one else has thought.” His words give us the key to being different. Many people may see more or less the same things, but it does not follow that everyone then has to think the same thoughts. The recipe for the successful strategist is: Think differently from other players. Of course, thinking differently is not enough. To out-compete the competition, the strategist has to think both differently and better. Out-thinking the competition in this sense is the job of the business strategist.

There is more to what Einstein said. Seeing the same but thinking differently is his definition of creativity. So, if we follow Einstein, we conclude that successful strategy must involve harnessing one’s creativity. Strategy making is not a machine. It is creativity exercised in a particular direction. Strategy needs creativity.

2. New is Needed

Traditionally, business strategists have focused on developing and using frameworks to help them understand the landscapes on which their organizations operate. One of the clearest statements about the value of this activity comes from Andy Grove, the legendary CEO of Intel for many years. In his 1996 book *Only the Paranoid Survive*, Grove presents his Six Forces framework, which asks us to consider the power and vigor of customers, suppliers, rivals, entrants, providers of substitutes, and complementors (providers of complements). This framework is a dashboard for the business strategist, whose job it is to monitor these forces and be alert to large changes in any of them, since these can spell success or disaster for the organization.

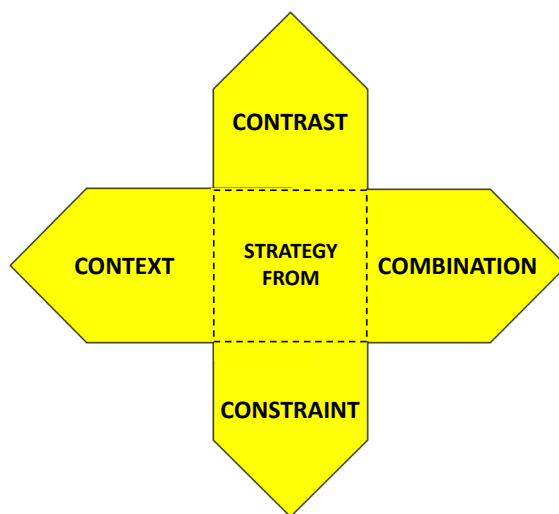
Strategists who are doing a good job monitoring the landscape will be highly alert to threats to the organization, but will not, by monitoring alone, be equipped to come up with the cleverest and more effective responses to such threats. Nor does monitoring the landscape, in itself, push strategists to think about game-changing opportunities that will help them out-

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run rivals. Strategists need to go beyond appreciating the situation and take the essential step of creating new strategic options for themselves. Whether for purposes of defensive strategy (protecting one's business) or offensive strategy (making bold new moves), a creative mindset is needed in order to generate new possibilities.

3. Mindset, Map, and Method

Finding the right mindset is always the most important step towards effective action. But mindsets are greatly helped by additional concrete guides to action. So, after mindset comes a map to help the creative strategist find promising new ideas. Our map indicates four directions in which to look for creative moves with high strategic impact. The four directions are: strategy from contrast, strategy from combination, strategy from constraint, and strategy from context.



We will look at the 4C's map in detail and examine how each direction works, and we will look at examples of strategies in each of the four directions.

After a mindset and a map come more specific methods for generating new strategies. It would be naïve to think that there are precisely definable methods for sparking one's creativity — whether in the domain of business strategy or in any other creative domain. So, the methods we will propose take the form of some prompts to try and perils to avoid in one's own organization. They are guides not algorithms. We will suggest some guides for each of the four directions in the 4 C's map.

4. Strategy in Four Directions

Creation, in its most fundamental sense, means bringing something entirely new into existence. Likewise, creativity is, by definition, about moving away from what already exists. Often, creativity is more or less defined this way — as an act of challenge or rebellion, breaking with what has gone before. This is obviously central to creativity, but it is not the whole picture. Experts on the subject of creativity talk about various other inputs to the endeavor. Strategists who want to think creatively need a framework to help them remember and apply a number of these inputs. The 4 C's map is designed to help strategists do exactly this.

Let's look briefly at the 4 C's and then consider each of them in more detail, including examples of how they work.

The first "C" is contrast. The strategist should seek out moves that constitute a sharp contrast with convention. Being on the lookout for such moves offers a tangible way to try to break from the status quo. The second "C" is combination. Steve Jobs famously said that creativity is "just connecting things," and many break-through moves in business come from connecting products or services that had not been thought of as usefully connected before. The third "C" is constraint. At Google, Marissa Mayer proclaimed that "creativity loves constraints," and, indeed, creative strategists look at limitations and constraints in their organizations and turn them into strengths. The final "C" is context. Context is key because it influences how one thinks and acts. For this reason, we say that changing contexts can even be king when it comes to having new thoughts. Adapting ideas from one context to another can be a powerful way to find new strategies.

Strategists need new thinking, but simply waiting for inspiration to strike is not the answer. They must search actively and creatively for new ideas. The 4 C's map proposes four directions in which to look for new strategies.

5. Strategy from Contrast

Perhaps the most prominent current practitioner of strategy from contrast is Elon Musk. He takes a status quo and directly contradicts one of the assumptions underlying it. The result is a move that contrasts sharply with convention. Thus, in the early days of the Internet, few people thought it could be safer to transfer money online compared with the old way of sending checks or money orders via mail. But Musk bet the future on exactly this shift when he merged his online bank X.com with an online payments startup called Confinity (founded by Peter Thiel and three others) to form PayPal. Today, Musk's venture SpaceX is working to change spaceflight from publicly-funded, fixed-schedule, one-time rockets to the exact opposite, namely, privately-funded, on-demand, reusable rockets.

These moves involve a very direct contradiction of status-quo thinking. Online payments are safer than offline, not less safe. Spaceships should fly many times, not once. Strategy from contrast is made actionable by this kind of thought process. Each assumption underlying the status quo is examined and the implications of negating each of these assumptions worked out.

Contradiction is one logical operation to perform on the status quo. Another is inversion. The value chain in an industry is conventionally oriented one way — with certain players in the role of suppliers and other players in the role of customers. Inverting the value chain yields new business models that contrast with convention. For example, the traditional model in academic publishing is that researchers are suppliers, providing the outputs of their research to journals (and being paid in the currency of dissemination of their work), and journal subscribers are paying customers. Pioneered by science publisher BioMed Central in 2000, a new inverted ("author pays") model takes advantage of the economics of the Internet to make access free, while requiring authors to pay to get an accepted paper

published. Now, authors are customers (paying to get their ideas out there) and readers can be thought of as suppliers (supplying an audience and being paid via open access).

The charitable sector is another place where value chains have effectively been inverted. Traditionally, donors have been seen as suppliers of financial resources which fuel a charity's mission. DonorsChoose.org is an example of a newer model that treats donors a lot more like customers. The organization puts up a 'storefront' of requests posted by schoolteachers around the U.S. who are looking for materials they need for their (often under-resourced) classrooms. Donors can choose which requests to support and receive photos of the school work that their money has supported. In effect, they are 'buying' the satisfaction of seeing a particular classroom before and after. Adopting customer-centric thinking towards donors has become common practice in the world of charities.

Reversal of order is still another operation to perform on the status quo. In retail, the traditional model was to start with a flagship store and then add satellite locations. The flagship was often in the center of a big city, and satellites were added in surrounding suburban locations. Now consider pop-up stores. In some cases, these conform with the old model — they are like mini-satellites. But there are also cases in which the pop-up is the contrasting strategy of starting with a smaller footprint and then, if that is successful, adding a larger footprint later. The Soho area in New York has become a testing ground for this strategy. Samsung opened a pop-up in Soho in 2013, which it later expanded to a full retail outlet. The pop-up reverses the old order of things: Instead of starting large and then adding small, start small and then, perhaps, go big.

Coming back to the power of contradiction, consider an industry that offers a highly bundled and expensive product or service. The opposite of this strategy is to offer an unbundled version. There is a chance that a segment of the market — perhaps, a very large segment — will prefer to get a specific subset of the bundle at a better price. Unbundling is currently a big move in higher education. Universities offer a highly bundled and expensive product called the degree program. Typically, students cannot take just one or two courses but must enroll in a full program. A prominent example of unbundling is General Assembly, founded in 2011 as a co-working space and now with campuses in six countries. General Assembly offers coding courses, as well as courses in digital marketing and even strategy. Its unbundled offerings contrast with the bundled offerings of traditional business-school programs.

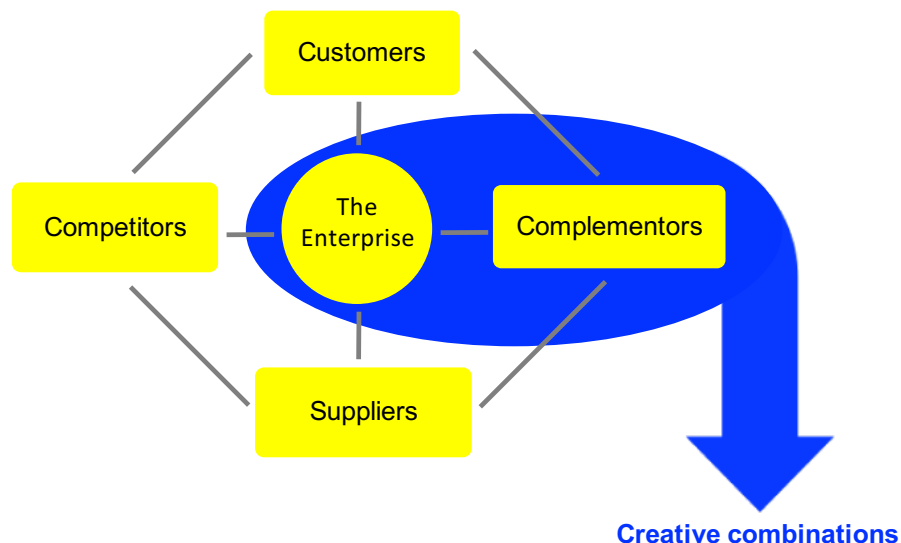
Whether via contradiction, inversion, reversal, or some other maneuver, strategy from contrast looks in a precise way at the logic underlying the current status quo and then tries changing that logic. Here are some action items for strategy from contrast in the form of two prompts to follow and a peril to avoid. (Relevant sources and suggestions for further reading can be found at the end of the article.)

Strategy from Contrast	
Prompts	Look closely to come up with contrasting moves -- identify the conventional thinking in your business and try contradicting, inverting, or reversing this thinking. Deliberately disturb an aspect of your and your team's normal work pattern in order to break up ingrained assumptions.
Peril	Businesses need predictability in their systems in order to deliver consistent products and services. The desire for predictability can crowd out contrasting ideas.

6. Strategy from Combination

One way in which Einstein practiced “thinking what no one else has thought” was through what he called the “combinatory play” of ideas. In one of his famous thought experiments, he combined the idea of a ride in an elevator (a rather new technology back when he was writing) with the idea of a journey to outer space (where humans have yet to travel), to come up with his theory of gravitation.

In business, too, creative and successful moves can come from combination. The world of complementary products and services is one important arena in which these moves are seen. A good example is the complementarity between products and payment systems. Thus, the Chinese social media platform WeChat (owned by Tencent) includes an integrated mobile payment platform called WeChat Pay that enables users to buy and sell products within their social networks. In other combining moves, both Tencent and Alibaba (which owns WeChat Pay competitor Alipay) are now partnering with overseas payment firms to enable retailers in other countries to accept their mobile payment services.



The general case is illustrated by the Value Net, which depicts a business together with the other players with which it interacts.² On the vertical axis are suppliers and customers. On

the horizontal axis are the business's competitors and also another group of players, overlooked in many traditional strategy frameworks, called the complementors. The complementors are other businesses that provide complementary products or services to the business in question or are complementary users of resources. Products and payment systems are complements. So are two compatible platforms, which is why BMW and Daimler have announced plans to combine their mobility services — car sharing, ride hailing, car parking, electric vehicle charging, and tickets for public transport. (Shared R&D into the future of mobility would make BMW and Daimler complementors with respect to the upstream, too.) Presumably, with this move, the two German automakers hope to mount an effective counter-attack against Uber and other players who are encroaching on the traditional car industry.

Apple and Nike are complementors, starting with their 2006 introduction of the Nike+iPod Sport Kit, which enabled Nike shoes to communicate with an iPod for steps tracking. More recently, there are versions of the Apple Watch that come with the Nike+ Run Club app fully integrated. Nest Labs and Amazon are complementors. Nest's intelligent home thermostat is valuable on its own, but becomes more valuable when it can deploy voice control via Amazon's virtual assistant Alexa. Likewise, Alexa becomes more valuable with the added functionality of being able to adjust the temperature via a connected Nest. Every business can potentially benefit by scanning its landscape to identify potential complementors and then looking for creative ways to coordinate with them.

New technologies are a big source of combinatorial possibilities. AI and blockchain come together naturally to protect the privacy of the large amounts of personal data needed to train algorithms in sensitive areas such as healthcare, and people can also be paid via tokens for providing such data. Blockchain and IoT (the Internet of Things) come together in the form of sensors and secure data in decentralized applications such as food supply chains, transportation systems, and smart homes, with automated insurance layered on top in the form of smart contracts.

The classic strategy of vertical integration is a combining move — a vertical rather than horizontal move as with complements. Marking a watershed moment in the entertainment business, in 1962 the Hollywood talent agency MCA acquired the studio Universal Pictures. Forward integrating into movie and TV production, and with its roster of famous clients (including Doris Day, Cary Grant, and Alfred Hitchcock), MCA became the leading supplier of programming to the then-still-young medium of TV. In 2016, the talent agency WME-IMG made a similar move to combine talent and production by acquiring the mixed martial arts league Ultimate Fighting Championship (UFC), which had been its own client.

Strategy from combination involves looking for connections across traditional boundaries, whether it is combining product and service, two different technologies, the upstream and the downstream, or other ingredients. So, again, the creative strategist must challenge the status quo — this time, by thinking not just outside the box, but across two or more boxes at once.

Perhaps today's biggest combination of all is the one emerging between humans and machines. Some commentators see the future as more competition than cooperation

between humans and machines, with humans losing out in a lot of areas of economic life. Garry Kasparov, the former world chess champion, has a different view. After losing to IBM's Deep Blue in 1997, he initiated centaur chess, in which each team is a human-computer combination. Kasparov has explained: "Smarter computers are one key to success, but doing a smarter job of humans and machines working together turns out to be far more important."³ Back to business, the ability to find creative combinations of humans and machines is surely going to mean the difference between success and failure in many industries in the future.

Strategy from Combination	
Prompts	Form groups with diverse expertise and experiences and brainstorm new combinations of products and services, in both horizontal and vertical directions. Think co-opetition — look out for ways to coordinate with complementary products, not only for ways to defend against competing products.
Peril	Businesses often manage for and measure profits at the individual product or activity level. But for combinations, broader system-level thinking and measurements are needed.

7. Strategy from Constraint

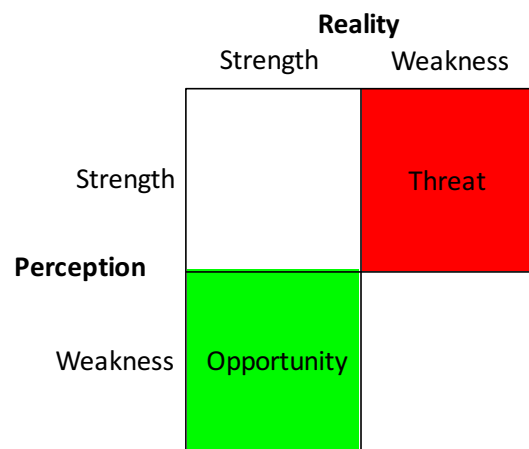
The world's first science fiction story *Frankenstein* was written when its author, Mary Wollstonecraft Shelley, summering on the shore of Lake Geneva during an unusually cold and stormy summer of 1818, found herself trapped indoors with only her imagination to exercise. Artists know a lot about constraints, even profound ones such as serious setbacks in their lives that they turn into moments of greater self-expression and creativity. In business, too, creative thinking accepts constraints and limitations and turns them into opportunities to exercise the imagination.

That constraints can aid creative work and strategy making may seem a bit paradoxical. Lift a constraint and any action that was previously possible is surely still possible, and likely more is now possible. But this misses the point that there is not just one way to think in a given situation — and a constraint may prompt a whole new line of thinking and doing. Of course, a kind of Goldilocks Principle must apply. Too many constraints will choke off all possibilities. But few constraints may not always be optimal either. It seems there is a notion of having just the right number of constraints to spur creativity.

Tesla has not lacked financial resources in entering the car industry, but it does not have the traditional asset of a dealership network. Rather than get into the business of building such a network, Tesla has turned what might conventionally have been seen in the industry as a constraint into an opportunity. It has chosen the different approach of building Apple-like stores with salespeople on salary, and it also sells cars online. This actually positions Tesla advantageously relative to competitors whose dealers might be conflicted in promoting electric vehicles over their existing sales base of internal-combustion vehicles. In particular,

Tesla controls its pricing directly, while buyers of GM's Chevrolet Bolt, a competing electric vehicle, have encountered large price differences across GM dealers.⁴

This attitude toward constraints in business is very different from that suggested by the classic SWOT analysis. Traditionally, the strategist is supposed to identify the strengths, weaknesses, opportunities, and threats impinging on an organization. Appropriate actions to exploit strengths and opportunities, or to mitigate weaknesses and threats, are then formulated. Thinking in terms of strategy from constraint is different. The strategist again starts with what appears to be a limitation or weakness but does not take the situation at face value. Instead, the strategist asks if, viewed or used differently, this weakness can, in fact, be turned into a strength. A constraint plus imagination may yield an opportunity.



There is a flip side to strategy from constraint. Just as it may be possible to turn an apparent weakness into a strength, it is possible that an apparent strength turns out, on closer inspection, to be more of a weakness. Rather than opportunity, this poses a threat. This possibility often increases in likelihood over time, as the assets that enabled a business to succeed in an existing environment turn into liabilities when the environment changes. For example, big retailers traditionally thought in terms of moving product out the door, and, to this end, they needed large physical footprints with on-site inventory. Among the many changes that retail faces today is the rise of the “guideshop” — the term used by the menswear retailer Bonobos — where shoppers try on items, which are then shipped to them or which they can subsequently order online. The traditional retail layout now becomes more a liability than an asset.

Business strategists must be on the lookout for constraints that promote imagination and new strategies. But they must also guard against the flip side. Resources that are in good supply and that might, at first blush, appear to be strengths may actually be sources of weakness. The business strategist must be aware of this possibility, too.

There is a further step in thinking about strategy from constraint, which is to ask if we might even benefit from self-imposed constraints on our organizations. (Artists do something similar when they choose to work within the constraints of a particular medium.) The famous Copenhagen restaurant Noma adheres to the New Nordic Food Manifesto

(emphasizing purity, simplicity, beauty, seasonality, local tradition, and innovation) penned by its founders. It marks an extreme — and highly successful — instance of a strategy adopted by numbers of restaurants and food businesses around the world to work only with local suppliers. Commitments to supply-chain practices (other examples include adherence to labor or environmental standards) can be a powerful route to establishing a superior position in the eyes of customers. Self-imposed constraints can also spur innovation. In the early 2000s, the Audi racing team asked itself the question of how to win Le Mans if its cars couldn't go faster than the competition's.⁵ This led Audi to develop diesel- vs. gasoline-powered racers, which required fewer fuel stops, and its new cars won Le Mans three years in succession (2004-2006). In 2017, Audi set itself a new constraint — and a new ambition — which is to build winning all-electric racers for the new Formula E (= electric) championship.

Strategy from constraint comes in various forms. Some constraints are imposed on an organization. These might be constraints of history or market position or lack of resources. Other constraints are consciously self-imposed. In all cases, creative strategists use constraints to advantage.

Strategy from Constraint	
Prompts	List the 'incompetencies' rather than competencies of your organization — and test if these weaknesses can, in fact, be turned into strengths. Even consider deliberately imposing some constraints yourself in order to encourage people to look for new ways of thinking and acting.
Peril	Businesses that are successful face fewer obvious constraints, and lazy thinking can result. Every business should practice 'lean thinking.'

8. Strategy from Context

Evolution has already solved a lot of problems. An entire field, biomimetics, is devoted to finding solutions in nature to problems that arise in engineering, materials science, medicine, and elsewhere. To find a clothing fastener that does not jam (as zippers are prone to do), look to the burrs from the burdock plant, which propagate by attaching themselves to the fur of animals via tiny hooks. This is the origin of Velcro, invented in 1941. Today, the gripping mechanism of geckos is being studied to come up with good solutions for how robots can pick up objects ranging from coffee cups to space debris.

This is a classic problem-solving technique. Start with a problem in one context. Look to another context where there is an analogous problem that has already been solved. Then import the solution into the first context. Just like good problem solvers, creative strategists know that shifting contexts can be a powerful stimulus to having new thoughts.

Intel did this when it went outside its normal business context to come up with its famous Intel Inside logo in the early 1990s. The goal was to turn Intel microprocessors into a branded product, in order to speed up consumers' adoption of next-generation chips and, more broadly, to improve the company's ability to drive the PC industry forward. The idea of a branded ingredient was well-established in certain consumer product sectors — famous examples included Teflon and NutraSweet — but had not been tried in the world of technology. Intel studied the consumer product examples and imported the same idea to the hi-tech sector via a novel advertising campaign, successfully branding what had previously been an invisible component inside a computer.⁶ In the 2017 Interbrand ranking of the world's most valuable brands, Intel came in at number 15, just one place behind Disney.

Context switching can be across industries, as in Intel's case, or even across time. The development of the graphical user interface (GUI) for computers was the result of a step backwards in a sense — from the text-based context in which programming had grown up to thinking about the highly visual eye-hand environment in which young children operate. Now, some AI researchers are engaging in a similar context switch by looking to how children learn in order to build similar processes into machine learning.

Stepping into the future might be the ultimate shift in context. But, short of that, there are well-established techniques for trying to get a glimpse at least. This is the purpose of lead-user and extreme-user innovation strategies, which ask companies to shift their attention away from mainstream customers and look for people who are using their products in unexpected ways, or employing them in especially demanding environments, or even designing their own versions. These pieces of data about where the edges of the market are today can signal where the mainstream of the market will be tomorrow. Extreme sports such as mountain biking, skateboarding, snowboarding, and windsurfing make good examples. Aficionados led many of the innovations in these areas, starting back in the 1950s youth-culture era, and big manufacturers then added cost efficiencies and marketing to take these innovations mainstream.⁷

The lesson for all strategists is the importance of escaping from seeing the world only the way it looks from the vantage point of their own organizations, and the need to jump into the varied contexts of other players who may be inventing the future. This same imperative is put into action when organizations decide to place critical functions such as R&D in locations that may be far away from headquarters but are close to clusters of innovative activity. This is the well-known story of putting innovation labs in the tech hub of Silicon Valley, or the biotech hub in Boston, or elsewhere, depending on one's business. But this is not just a strategy for large companies. Startups, too, need to put themselves in the best context to learn and grow. The hardware accelerator HAX, located in Shenzhen, hosts hardware startup teams from 22 countries. By moving to Shenzhen, these startups are able to tap into the high-speed ecosystem of the "hardware capital of the world" and increase by an estimated four times the rate at which they cycle through iterations of their prototypes as well as benefit from the extensive experience of local engineers in design and manufacturability.

Strategy from context can mean taking a solution to a problem found in one setting and bringing it, more or less as is, to another setting. It can mean uncovering entirely new thinking about problems (or opportunities) which one had not even considered, by going and finding pioneering people who are ahead of the game. It can mean literally moving one's business, or part of one's business, to another location to find needed know-how and answers. At bottom, strategy from context is about not being trapped in a single narrative about how one's world works. It is a commitment to look up and ask where outside of "business as usual" one might find new impetus to one's thinking and doing. Artists know the importance of looking up, especially when they are blocked in their work. They know the importance of making a change — perhaps, something as simple as getting up from one's desk and going for a walk — to get new inspiration. Likewise, creative strategists should be ready to step out of their accustomed environments and go learn from elsewhere.

Strategy from Context	
Prompts	Explain your business to an outsider in another industry — fresh eyes from a different context can help uncover new answers and opportunities. Shift your own vantage point to engage with lead users, extreme users, and innovation hotspots wherever they are found.
Peril	Businesses need to focus on internal processes to deliver on their current value propositions. The pressure to focus internally can get in the way of learning from the different contexts in which other players operate.

9. The Creative Imperative

Creativity is fun. It engages our playful side. Creative ideas delight us. We are creativity-seeking creatures. Creativity is also an imperative. Whether it is an audience for ideas, for art, for products and services, or even for entire business models, winning that audience's attention requires standing out from the competition. To stand out — and to do so in a way that matters to the audience in question — involves harnessing our creativity. Business strategists need to be in the creativity business, just like everyone else seeking ways to break away from the crowd. A formula for being a creative business strategist would be suspect, but a framework can help. The 4 C's framework — strategy from contrast, combination, constraint, and context — is designed to help business strategists harness and extend their creative capabilities.

FURTHER READING:

Strategy from Contrast

1. Adam Grant, *Originals: How Non-Conformists Move the World*, Viking, 2016, Chapter 1.

Examines a number of attitudes and behaviors which can get in the way of our efforts to be non-conformists who challenge the status quo.

2. Melissa Schilling, *Quirky: The Remarkable Story of the Traits, Foibles, and Genius of Breakthrough Innovators Who Changed the World*, PublicAffairs, 2018.

Uses the stories of eight famous people, Elon Musk included, to ask what makes certain individuals highly successful and prolific innovators.

3. Charles Duhigg, *Smarter, Faster, Better*, Heinemann, 2016, Chapter 7.

Describes the famous Disney method for managing the creative process and, in particular, the technique of engineering a disturbance to a team's structure in order to provoke new thinking.

Strategy from Combination

4. Adam Brandenburger and Barry Nalebuff, *Co-opetition*, Currency/Doubleday, 1996, Chapter 2.

Introduces the Value Net to expand the traditional map of the business landscape to include complementors, who are providers of complementary products and services or complementary users of resources, and gives examples of coordinating and combining with complementors.

5. Austin Keon, *Steal Like an Artist: 10 Things Nobody Told You About Being Creative*, Workman Publishing, 2012.

Counters the prescription to try to be completely original and instead recommends collecting many existing ideas and then trying to combine and re-mix them in one's own distinctive way.

6. Garry Kasparov, *Deep Thinking: Where Machine Intelligence Ends and Human Creativity Begins*, John Murray, 2017.

Describes ways in which machine calculation and human creativity can work together to produce conceptual breakthroughs in chess and beyond.

Strategy from Constraint

7. Adam Morgan and Mark Barden, *A Beautiful Constraint: How to Transform Your Limitations into Advantages, and Why It's Everyone's Business*, Wiley, 2015.

Identifies four types of constraints — constraints of foundation (missing what is assumed to be a basic element for success), resource (being limited in money or people), time (operating against a deadline), and method (having to work a certain way) — that challenger brands have turned to their advantage.

8. Youngme Moon, "Break Free from the Product Life Cycle," *Harvard Business Review*, May 2005, at <https://hbr.org/2005/05/break-free-from-the-product-life-cycle>.

Proposes three strategies for transcending the product life cycle: constrain oneself to eliminate some product features in exchange for simplicity ("reverse positioning"), force oneself to give up the accustomed category for one's product and find a new one ("breakaway positioning"), and accept the limits to acceptability of a new product and find a way to 'onboard' consumers ("stealth positioning").

9. Barry Nalebuff and Ian Ayres, *Why Not? How to Use Everyday Ingenuity to Solve Problems Big and Small*, Harvard Business Review Press, trade paper ed., 2006, Chapter 3.

Argues for an approach to problem solving that proceeds by hypothetically relaxing all actual constraints, finding the ideal solution in this case, and then re-imposing the constraints to find a solution as close as possible to this ideal.

Strategy from Context

10. Giovanni Gavetti and Jan Rivkin, "How Strategists Really Think: Tapping the Power of Analogy," *Harvard Business Review*, April 2005, at <https://hbr.org/2005/04/how-strategists-really-think-tapping-the-power-of-analogy>.

Decomposes analogizing across contexts into identifying the target problem, searching for a source problem via similarity mappings, and selecting a candidate solution to be applied to the target problem, and goes on to explain how anchoring and confirmation bias can lead to poor analogizing and how to avoid these pitfalls.

11. Eric von Hippel, *Democratizing Innovation*, The MIT Press, 2006.

Reviews the rise of user-centered (and sometimes open-source) innovation in both software and hardware products and argues that many companies could benefit by providing development toolkits and other aids to their lead user-innovators.

12. Roger Kneebone, "Discovery Through Doing," *Nature*, 542, February 16, 2017, p.294, at <https://www.nature.com/articles/542294a>.

Demonstrates the power of thinking across very different contexts with the help of examples where techniques from the worlds of craftspeople and performers (e.g., glass-making and puppetry) have been imported into the world of medicine to improve practices there.

Endnotes:

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² The Value Net was introduced in Adam Brandenburger and Barry Nalebuff, *Co-opetition*, Doubleday, 1996.

³ Garry Kasparov, *Deep Thinking: Where Machine Intelligence Ends and Human Creativity Begins*, John Murray, 2017, pp.5-6.

⁴ Eric Van den Steen, "Tesla Motors," Harvard Business School Case 9-174-413, December 2015; "How Tesla's Turning Weakness into Strength," posted 03/24/17, at <http://www.barrons.com/video/how-tesla-turning-weakness-into-strength/D8CC59A8-B7CE-4649-B332-CE1D072B4EC2.html>.

⁵ Adam Morgan and Mark Barden, *A Beautiful Constraint: How to Transform Your Limitations into Advantages*, Wiley, 2015, pp.59-60.

⁶ David Yoffie and Michael Cusumano, *Strategy Rules: Five Timeless Lessons from Bill Gates, Andy Grove, and Steve Jobs*, HarperCollins, 2015, pp.82-85; Richard Tedlow, *Andy Grove: The Life and Times of an American*, Portfolio, 2006, Chapter 13.

⁷ Sonali Shah, "Sources and Patterns of Innovation in a Consumer Products Field: Innovations in Sporting Equipment," Sloan Working Paper #4105, Massachusetts Institute of Technology, 2000.