Planning Under Uncertainty—Is There Any Other Kind?

(Peter Compo, Working Paper, Summer 2021)

Let's stamp out the phrase *planning under uncertainty*.

Not because planning under uncertainty isn't essential; of course it is, and that's why it is such a common topic. We should eradicate this phrase because there is no such thing as its opposite: planning under certainty. All planning, strategizing, leading, decision-making, investing, or any effort to shape the future are performed under uncertainty. Without uncertainty, no strategist would have a job. So, any guidance about planning under uncertainty, no matter how wise, encourages leaders to treat uncertainty as a special case of affairs that can be safely ignored when designing strategies.

No one needs encouragement to ignore uncertainty because dealing with uncertainty is difficult. Dealing with uncertainty means giving up outdated strategy approaches that depend heavily on prescriptive lists of goals and plans based on a predicted "most-likely" future. All strategies are at the mercy of multiple possible futures, whether a business chooses to consider them or not.

Complex adaptive systems are non-linear and inherently uncertain and every business is a complex adaptive system. Dramatic structural changes emerge with no central planning or intent, even after long periods of stability, creating potent new stressors in the ecosystem, including black swans.[1] Structural changes can quickly render value propositions obsolete, and they can also present unexpected opportunities—think Zoom benefitting from the coronavirus-driven staying at home.

[1] The term structural was used by Richard Rumelt in "Strategy in a 'structural break'," McKinsey Quarterly December 2008.

There are three particular habits of thinking that encourage leaders to treat uncertainty as a special case that can be ignored:

- Uncertainty is relevant only during turbulent times,
- Some businesses are immune to uncertainty, and
- Uncertainty can be washed away with metrics.

By eliminating these habits, leaders can move toward a mindset in which "planning under uncertainty" is always the case, and we never have to say it again.

1. Turbulent versus Calm and Successful Times

We tend to associate uncertainty with turbulent times, not calm, successful, or normal times, whatever "normal" means. The result is we squander the best opportunity to plan for turbulence.

The corona pandemic is a cruel reminder of how reality can be far different from what we imagine or forecast. As is typical, multiple causes set in motion the worst-case black swan impacts for businesses. The arrival of the virus coincides with an overheated stock market and high debt levels.[2] For some companies, special causes exacerbate secular ones. Boeing must endure the pandemic havoc wreaked on the airline industry on top of the company's 737 MAX mess that has cost them billions. Hopefully, as the pandemic is studied, we will discover the multiple aggravating causes that enabled it and do our best not to repeat them.

The number of COVID-19 cases in the west began to explode in early March 2020, and the US stock indices dropped about 30% in three weeks, starting on February 19. Also in March, the use of the word "uncertain" nearly quadrupled in the *New York Times* business section from the average appearance of the term in the previous six months.[3] Similarly, the instances of "uncertain" nearly doubled in September 2008, the month of the Lehman

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[2] https://fred.stlouisfed.org/graph/?id=GFDEGDQ188S,#0
[3] https://www.nytimes.com/search/?srchst=nyt

Brothers bankruptcy setting off a 50% market plunge over seven months. Only after March 2009, when the market started to return, did the appearance of "uncertain" decline.

Yet, despite so much discussion of uncertainty, investments made during the worst of the liquidity crisis generally yielded higher returns than investments made during the "normal" times before or after. Higher returns also followed investments made during the nadir of the 2002–2003 dot.com crash, and any other historical crash, because over the longer term, markets have always gone up.

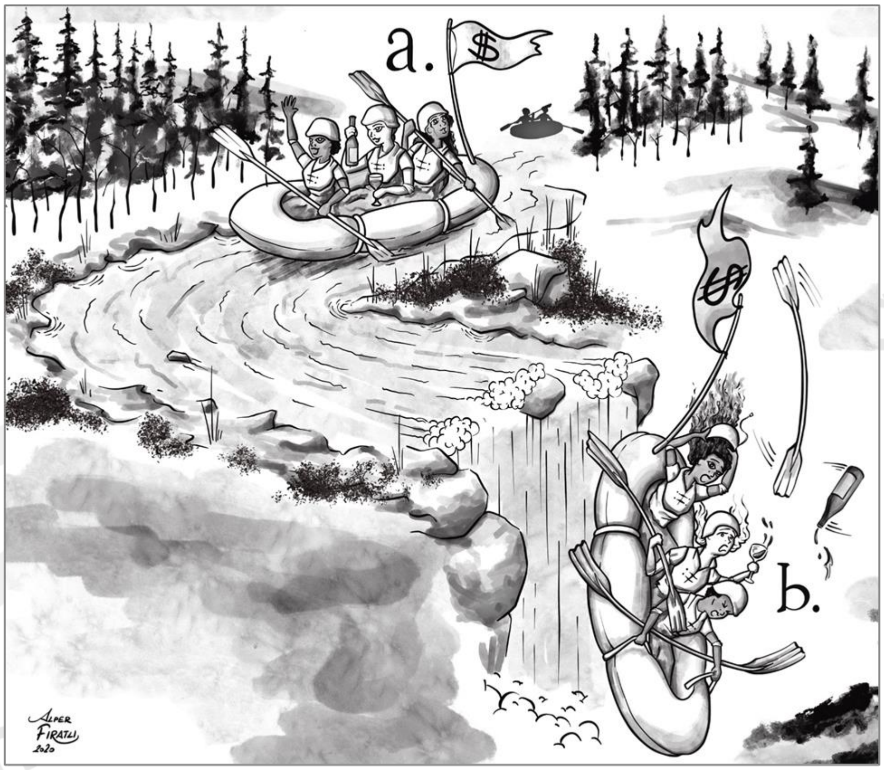

Fig 1. When is the future for these ladies uncertain—at a. or b.?

Imagine rafting down a whitewater river for the first time. When would navigating the waters be predictable and normal? A tranquil stretch of the river could just as well portend there will be no whitewater ahead as it could warn that turbulence is coming; waterfalls usually follow calm water. Similarly, a turbulent stretch can just as well be followed by more rough whitewater as by tranquility. And what would a stretch of moderate whitewater turbulence predict? Is this normal? Who knows? The truth is that no condition of the river indicates what is to come, except that it is unlikely the raft would crash down a waterfall for long. Along a river, or in a business, it is wrong to equate turbulence, crisis, and volatility with uncertainty, just as it is wrong to equate calm—or supposedly "normal" times—with certainty.

To what extent the coronavirus will change society is unknown, and no one can be sure whether investments made during the crisis will pay off as they have in the past. But the future was just as uncertain in the months before the crisis. Perhaps more so, because most people were oblivious to what was coming.

It's easy for the media and consultants to get people's attention during turbulent times when fear and anxiety are in the air. Uncertainty is something from which to profit and crises create the opportunity for significant change.[4] But the best time to start strategizing about how to take advantage of opportunities is not while crashing over a waterfall. Waiting for crises promotes hero culture. So instead of counting stock options or reading glowing press clippings when gently meandering down a tranquil stretch of river, use this precious time to face the uncertainty of the future.

2. Supposedly Predictable Industries

Leaders may neglect adaptivity believing their company or industry is immune to uncertainty and structural change. A September 2012 Harvard Business Review article *Your Strategy Needs a Strategy* by members of the Boston Consulting Group (BCG), opens with the words, "The oil industry holds relatively few surprises for strategists." The authors state that oil companies can develop detailed long-term supply and demand perspectives that allow them to "devise upstream oil extraction plans that may stretch 10 years into the future." They continue, "The classical approach works for oil companies …because their strategists operate in an environment in which the most attractive positions and the most rewarded capabilities today will, in all likelihood, remain the same tomorrow."

Yet, the energy sector overall has returned only 39% over the last ten years, dramatically underperforming the other ten S&P 500 sectors.[5] Materials, the next weakest performer,

[4] See for instance, (SCHOEMAKER, Profiting from Uncertainty: Strategies for Succeeding No Matter What the Future Brings, 2012),
[5] https://www.barrons.com/articles/you-may-be-surprised-which-stock-market-sector-has-been-the-hottest-in-the-past-year-51570273500

returned 146%, while Consumer Discretionary returned the best, 417%. By March 2020, ExxonMobil, the largest US oil company, had lost over 50% of its market capitalization (while the S&P 500 gained 65%), falling from 1st in the *Fortune 500* to 26th, now tied with Netflix. Other major oil companies performed similarly. In February 2020, Goldman Sachs downgraded ExxonMobil to *sell*, claiming there is no compelling case to own the stock.[6] And in early April, with crude prices at historical lows,[7] ExxonMobil faced the possibility of credit downgrades, dividend cuts, and reduced CAPEX spend as the pandemic obliterates energy demand.

The oil industry is experiencing structural changes: the rapid growth of fracking and the flood of natural gas, the inability of OPEC alone to stabilize prices aggravated by conflicts with Russia, the growth of renewables and electric vehicles, and socially conscious investing driven by climate change awareness. ExxonMobil may make a big comeback and prove Goldman Sachs wrong, but to say that the oil industry—or any industry—"holds relatively few surprises for strategists" can be right only in hindsight.

The changes in the oil industry may be modest compared to the ups and downs faced by software companies. But if you are captaining an oil tanker that takes a mile and a half to turn around and two miles to stop, then ten years is the short-term horizon, just like months are the short term for a speedboat software company that should be able to make a 180 in fifty feet.

BCG teaches that companies in industries like software need to up their adaptivity game, stressing the importance of "reading and responding to signals faster than your rivals do," and "capitalizing on technological leadership to influence how demand and competition evolve." But unless the objective of a business is to cash cow (a perfectly reasonable objective, but what CEO would admit to it?), can any business in any industry at any time be exempt from this advice?

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[6] https://www.cnbc.com/2020/02/03/goldman-downgrades-exxon-to-sell-says-theres-no-compelling-case-to-own-the-stock.html
[7] https://www.eia.gov/dnav/pet/pet_pri_spt_s1_d.htm

Some believe that ExxonMobil has a bias against accepting change in the energy industry.[8] Century-long success, coupled with the knowledge that oil and gas aren't going away anytime soon, may create inertia against planning to do anything but stay the course. If ExxonMobil leadership had taken to heart the reality of multiple futures, they might have included more optionality in their strategy frameworks.

3. There Ain't No Data from the Future

The digital revolution has enabled the use of more and more feedback metrics. By demanding more metrics, leaders may see themselves as more disciplined and less biased. While improved metrics techniques may improve short-term predictions, industry and market changes don't happen smoothly and continuously, so short-term clarity for some period may not translate to the prediction of black swans, tipping points, or structural changes. Uncertainty cannot be measured away. Metrics look backward, as opposed to models (including artificial intelligence models) that aim to give insight into the future utilizing feed-forward thinking.

Starting in the 1980s, Dell Computer Corporation pioneered many industry practices, including direct internet selling, mass customization, targeted segments, and supply chain brilliance leading to minimal assets and working capital—a magnificent business story. In March 2005, Harvard Business Review published *Dell Execution*, an interview of Michael Dell and then CEO Kevin Rollins. Their confidence was through the roof. In addition to claiming that a Dell manager who loses money "becomes a pariah," and mocking the companies working on mobile and tablets as "not shareholder focused" (Apple's iPhone and iPad would launch in two and five years), they extolled the virtues of their metrics:

> *…we defined a complete set of management principles, with metrics, to the nth degree. … This financial data is in real time, so our people know if there's a problem. … We also have incredibly accurate and detailed*

[8] Greg Muttitt, ExxonMobil's Outlook for Energy: Forecast or Fantasy? *Oilchange International*, 2014

> *information about a whole range of things. That level of transparency makes it difficult to hide a problem. ... We began to rigorously measure days of sales in inventory and stamp it on the forehead of anybody who had anything to do with development, purchasing, or manufacturing. ... Any Dell presentation will have lots of data. ...*

A few months after the interview, Dell's stock price reached its high of $40/share. Within a little more than a year, it was down to $20, on its way to $8. After eight years, over which the NASDAQ grew 65%, Michael Dell and Silver Lake Partners paid a 50% premium to take the company private.[9] There were closures of Dell sites and layoffs of thousands of workers. As happened to ExxonMobil and the energy industry, structural industry changes battered Dell: the commodification of desktops, laptops, and peripherals; the rise of mobile and tablets; and competitors copying their business and supply-chain models.

The plethora of metrics proving "success" helped blind Dell. Their brilliant execution was on an obsolete strategy framework. Rollins and others reportedly tried to convince Michael Dell to be more adaptable by diversifying, but to no avail.[10] It is hard to see structural change coming; it is that much harder when looking rearward. Just as a bridge may deteriorate to an unrepairable state before data shows that cars can no longer drive over it, the foundations of a business can deteriorate before the metrics catch it. Dell's data was—following Nassim Taleb's description of the calamity of data—toxic.[11]

At what point was Dell planning under uncertainty? Dell's future was probably much more certain as they were falling back to earth and becoming just an excellent company, no longer one of the greatest of all time.[12] One can be data-driven to the max, but there ain't no data

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[9] DELL.com website, retrieved 10.20.2014
[10] https://finance.yahoo.com/news/dell-almost-acquired-emc-2002-002725809.html
[11] In The bed of Procrustes: Philosophical and practical aphorisms, 2016, p77, Talib says, "The calamity of the information age is that the toxicity of data increases much faster than its benefits."
[12] DELL seems to be thriving as a private company. Michael Dell and his partners in 2015 made the largest single acquisition to date in the technology space by purchasing the data company EMC for 67 billion dollars. (https://techcrunch.com/2015/10/12/dell-buys-emc-for-67b-in-largest-deal-in-tech-history/) Also see Gartenberg, Michael Dell gambled billions and saved his company — but can he do it again? *The Verge*, 2018)

from the future, only models. An adaptive strategy framework assumes the models of the future will likely be wrong, which encourages rafting down the river with eyes wide open.

Can we all see a bit of ourselves in Dell's story when we are successful? (Perhaps without the sixteen billion-dollar fortune that Michael Dell accrued.) "Is it not always at those points at which we reckon ourselves unassailable, that we are most vulnerable?" asked Professor John, whose world was disintegrating in David Mamet's play *Oleanna*.

No Need to Fear

In their recent article, *How Leaders Delude Themselves About Disruption*, members of the late Clayton Christensen's consulting company Innosight, emphasize that leaders truly fear making the proactive changes needed to avoid disruption.[13] (Of course their also paper applies to destruction of a company's value proposition by other causes than disruption.) But rest assured, accepting that *all* planning is done under uncertainty does not mean proactively destroying all that is good today in fear that it will soon become worthless, or throwing away all forecasting and conventional wisdom. It also doesn't mean taking forever to plan for every possibility (which would be impossible) or planning only for black swans (which would be a mistake because more-likely scenarios would be excluded in the strategy). You can even choose to ignore certain scenarios of the future because designing for them is simply too costly.

Accepting that all planning is under uncertainty advocates for vigilance and using adaptive strategy approaches to become sensitive to vibrations, during both turbulent or calm and successful times, even when doing so seems counter to intuition or need. Accepting the universal existence of uncertainty advocates putting stressors on oneself before the world does it for you. Hopefully, then, there will still be time to do something about it.

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[13] MIT Sloan Management Review: Magazine Spring 2020 Issue—Disruption 2020