MOONSHOTS:

Achieving Breakthrough Innovation in Established Organizations

Embracing a transformative goal is one way to move a legacy business from the brink of disruption to a new business model.

by Anita M. McGahan

IN THE FIELD OF MANAGEMENT, the term 'moonshot' has emerged to describe a breakthrough goal on a five-to ten-year horizon into the future. The idea is that a moonshot represents a goal *so compelling* that it motivates virtually all stakeholders to strive toward its achievement — despite the difficulty and complexity of the path to success.

In Silicon Valley, the term is reserved for only the most important innovations: The microprocessor was a moonshot, as was the first personal computer (the Apple II), the World Wide Web and **Apple**'s iPhone. **Google** has famously invested more than $800 million in moonshots like autonomous vehicles, creating tens of billions of dollars of market value for the company.

The question is: Can an established organization that has been successful in a legacy business adopt this approach? Despite many studies showing the value of setting long-term goals on the model of a moonshot — including fascinating books by former **Pepsi** and **Apple** CEO **John Sculley**, and **Lisa Goldman** and co-authors — relatively little has been written about a process for developing a breakthrough goal at this level.

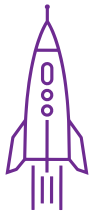
In this article, I will offer some insights on a process for developing a moonshot for an organization that seeks to address industry disruption by developing a fundamentally new business model.

A Historical Concept

Moonshots get their name from U.S. President **John F. Kennedy**'s 1962 speech announcing that his country would seek to put a man on the moon and return him safely to the earth — and that this goal would be accomplished by the end of the decade.

A number of management strategists have analyzed this speech, which is widely heralded as among the most compelling in history, to identify what made it so memorable, important and unifying. Their conclusion: What made the Moonshot ambition stand out was its simplicity, clarity, significance and technical feasibility.

Speaking at Rice University in Houston in September 1962, President Kennedy sold the moonshot idea on arguments that harkened back to the very foundations of the U.S. as a 'frontier



A moonshot is a route to renewed leadership under radically new technological and cultural conditions.

state.' The stakes, he argued, reflected the most essential and important purpose of government, which he framed as 'assuring peace in space.' Kennedy aligned the aspiration to put a man on the moon with a principle espoused by the pioneers that gave life to the U.S. centuries earlier: Harnessing technology in the interests of freedom.

The Moonshot speech was also backed by a detailed evaluation of the chances of success. The President's advisors had determined that, while the precise route to putting a man on the moon within a few years was unknown, the technology existed to make it happen. The stakes for Kennedy were competitive: During the Cold War, the competition between the U.S. and the USSR would occur on technological terms that viewed space as a new frontier.

Members of government sitting with Kennedy in the hot stadium at Rice University that day were well aware that the President sought to motivate a large spending program that would require Congressional approval. And yet even small children listening to the speech could clearly understand the power of the achievement, should it occur: A man on the moon!

It is these characteristics of the Kennedy moonshot speech that strategists use to craft a moonshot: The goal must be essential to continuity of purpose; motivated by ambition and competition; inspired and visionary. A moonshot for a successful established company can be route to renewed leadership under radically new technological and cultural conditions.

The Roots of Disruption

The idea of *disruption* originated with theoretical concepts put forward by economist **Joseph Schumpeter** in the 1930s, 40s and 50s, which were developed by scholars of technological change in the 1960s, 70s and 80s. These ideas were rooted in Schumpeter's observation that, in many industries, when technological advances created the potential for business-model innovation, pioneering firms that had achieved leadership in their industry were often unable to adapt.

The idea of disruption advanced considerably in 1997, with the publication of Harvard Business School Professor **Clayton Christensen**'s *The Innovator's Dilemma*. The key idea in that book — which had its roots in prior work by Prof. Christensen with **Joseph Bower** and **Richard Rosenblum** — is that the leading customers of large organizations often *discourage* large companies from adapting technologically. These companies focus on creating the most value for their key customers, and as a result, neither large companies nor their customers have an interest in disrupting a system that is working for them. By contrast, disenfranchised customers — who are not benefitting from the established system — have the greatest interest in breakthrough innovation.

These ideas are often expressed through the S-curve, such as the one in **Figure One**. The vertical axis represents value creation in an established industry such as mainframe computing, landline telephones, retail video rental, traditional photographic film, paper newspapers, defined-benefit pension management — or any other business that is (or was) established and generating revenue.

Different scholars model value creation in this model differently. I find the most useful definition to be the one offered by **Adam Brandenburger** and **Harborne Stuart**, who describe value creation as 'the difference between total customer willingness-to-pay and total supplier opportunity costs.' The key insight here is that value creation reflects the translation by the industry of inputs into valuable outputs. The horizontal axis represents time or, in some models, the cumulative investment in research and development in an industry.

My own 2004 book, *How Industries Evolve*, describes the technical elements of this definition in further detail. The S-curve shape shows that industries generally begin in an entrepreneurial phase, in which value creation remains relatively low for a period of time. Once a breakaway firm emerges, the value created by the industry may rise relatively quickly, especially as the industry evolves to serve a mass market. Maturity occurs when the pace of new value creation hits a point of diminishing returns. This occurs because an industry's structural capacity to generate new value is capped by the very insights that led to its breakout in the first place.

For example, the same systems that were developed in the 1920s to support the emergence of the modern automobile industry ultimately become limited in their capacity to create new value. There is only so much value that can be created through

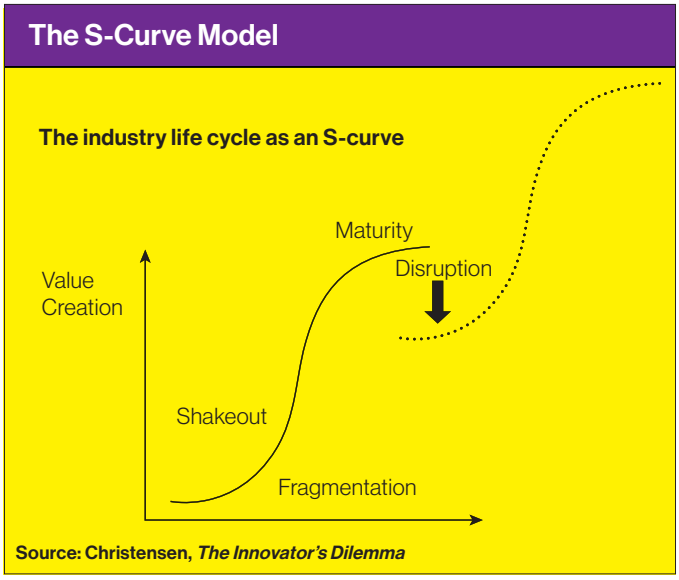


FIGURE ONE

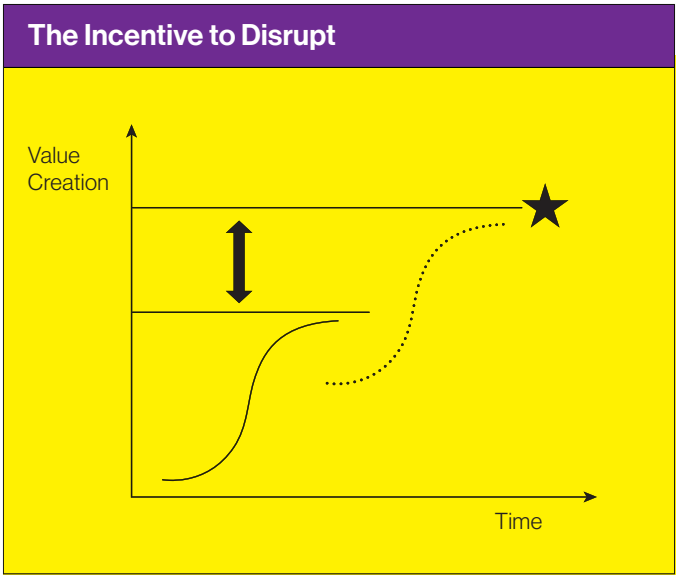


FIGURE TWO

the sale of motorized vehicles powered by combustion engines sold through franchised dealerships, manufactured in plants with histories of adversarial management-union relationships, and supported by a constellation of related industries, such as gas stations, roadway construction and maintenance, repair facilities, etc.

An important characteristic of industry maturity is that firms focus intensively on managing their costs, which they normally keep low by becoming large enough to achieve economies of scale in the processes that generate goods and services. Leading companies in mature industries create value for large numbers of customers precisely because they have become routinized and rationalized. The emergence of interlocking systems of relationships, incentives, regulations, activities and assets perpetuates the industry structure precisely because large numbers of stakeholders are enfranchised in its success.

So, in short, why does disruption occur? Because of the potential for breaking through the limits on value. Mature industries are based on approaches to value creation constructed a generation prior to their maturity, which means that they incorporate ideas that are widely accepted, but increasingly outdated. It is aging ideas, not technologies or incentives *per se*, that cause the potential for disruption.

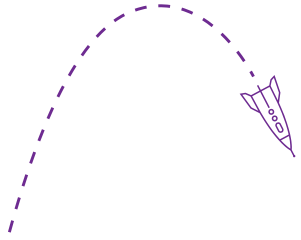
The incentive to disrupt, depicted in **Figure Two**, reflects the potential to achieve a major increase in value creation using ideas, technologies and approaches that break through the limits on value creation. The potential arises because of the accumulated compromises that customers, suppliers and even the industry itself have made due to the increasingly-outdated approaches baked into the established industry structure.

The opportunity for a major breakthrough may rest on technological advances, but the breakthrough becomes motivated in particular by an awareness that a new business model is enabled by technology — new ideas enabled by technology that create so much more value than the established approach that it is worth going through the 'pain' of disruption.

This pain reflects that the early phases of disruption are normally unprofitable and fraught with risk. Indeed, a very high percentage of entrepreneurial ventures fail — by some estimates, more than 95 per cent. The skills of successful entrepreneurs include building early wins that can draw important attention and resources to the venture; failing early, when failing becomes inevitable; and learning from failure for future iterations. Because failure is so pervasive, the first buyers of products and services may be saddled with expensive and outdated lugs. The absence of regulation and supporting infrastructure creates other types of risk as well, including that products produced by the industry and jobs offered to employees are dangerous.

But if the current regime is bogged down by too many accumulated compromises, the payoff to successful disruption is considerable. Pioneering firms that achieve the status of 'breakaway leaders' become legendary, often driving so much value creation that their early owners become wealthy beyond precedent. These are high-risk, high-return enterprises. Established industries fall into disarray as leaders that once took their longevity for granted become threatened with large losses of revenue and even bankruptcy; just think back to **General Motors**, **Kodak** and **Blockbuster Video**.

Organizations that successfully accomplish moonshots have one thing in common: they are business-model innovators.



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Facebook, **Netflix**, **Google** and **eBay** integrated technological insights into ways of delivering *so much value* to their stakeholders that they became iconic. But it is not inevitable that the breakthrough in value be accomplished by a newcomer or a technology company. Increasingly, established companies are finding ways to make moonshots happen by pushing through the limits baked into their industry structures. **Kaiser Permanente**, **GE**, **Zipcar**, **Charles Schwab** and **JP Morgan Chase** have reinvented themselves to drive large-scale increases in value creation that benefit not only these companies, but also their customers and suppliers.

Disrupting yourself to achieve a breakthrough is among the most difficult challenges that a successful company can face. The process of transformation in the organizations that succeed begins with a carefully negotiated and constructed goal—a moonshot — and then continues with the relentless and uncompromising pursuit of that goal, in collaboration with both new and old stakeholders.

The transition path from the *established business* to the *innovative model* requires years of painstaking work to renegotiate contracts, settle old problems, and build trust and capability. But the work is worth it, precisely because the breakthrough in value yields a large-scale improvement on fulfilling the organization's mission.

Accomplishing this kind of breakthrough requires discipline, commitment, and a mission-driven sense of purpose — all of which characterized of Kennedy's vision for reaching the moon by the end of the 1960s.

The Concept of Future-Back

In a 2013 HBR.org article entitled "What a Good Moonshot is Really For", **Scott D. Anthony** and **Mark Johnson** explained how adopting a 'future-back' planning horizon is integral to the idea of the moonshot. Let's take a closer look at what that means for the strategy process.

We are learning that the process is most successful when the moonshot is a loosely held, flexible expression of how the organization can create value through business-model innovation. Kennedy's argument for why the U.S. should invest in sending a man to the moon rested on the idea that the nation's very purpose would be fulfilled by the achievement of this goal — and that the nation would be put in jeopardy by its failure.

For any organization, the moonshot must rest on fulfillment of its mission and an awareness of what technology can deliver on a five- to ten-year horizon. Why five to ten years? This time horizon is a rule of thumb rather than a hard-and-fast requirement. The idea is that it usually takes this long for something major to happen at the level of a system. In fact, implementing the change in its entirety may take much longer than ten years; but five-to-ten years is usually sufficient for a breakthrough. In 1962, Kennedy set the goal for the end of the decade, and it was July 20, 1969, when **Neil Armstrong** stepped off the Eagle into the Sea of Tranquility.

Because business-model innovation is an experimental process, and because unknowable technological changes may occur over the planning horizon, it is impossible to specify the details of a moonshot with precision. What you need to be is *directionally correct about the details* — to be about 75 per cent right — to get started on a conversation about business-model innovation with critical stakeholders.

The next step is to identify steps that take you out of the gate toward achieving the goal. Most established organizations cannot simply step away from their current commitments and successes — and 'building a bridge as you walk over it' carries the risk of being consumed by the day-to-day operational problems that characterize established business models under the stress of becoming outdated.

This stress cannot be overstated. Any CEO of a public company that must deliver on earnings targets — especially if the organization carries debt and employs a large workforce — faces unbelievable financial and operational pressure to drive value out of its established business models. For a leader who has been charged with stewarding a successful organization into the future, it is simply impossible to simultaneously lead responsibly and walk away from the legacy model.

Yet, at the same time, CEOs must find a way to deal with the encroaching reality that the ideas that led to the success of their organization — the technologies, business models and ecosystem architecture around the firm — are becoming outdated. Because the problem of innovating at scale is so conceptually challenging, it can easily become swamped by the problems of making

payroll and fulfilling customer contracts and dealing with short-term regulatory matters and other critical operational demands.

So, how do you get out of the gate?

What is needed is both *a vision for a new system* and *a process for migrating from the current system to the new one.* Theories from the fields of entrepreneurship and strategic management offer insight on how to move forward.

As tempting as it is to contemplate the range of changes that would make the current system better, that is not the best place to begin. The reason is that, if you try to build a bridge to a future that you haven't yet envisioned, then you will get stuck soon after you begin. Instead, you need a clear vision for *what is possible*, based on new ideas, technologies and processes.

Roughing out the implications of the moonshot for the ladder of capabilities, conversations and commitments that the organization will need is enough to get started. Unforeseeable changes will inevitably require adjustments on the path toward realizing the goal, but what is needed in the beginning is to cultivate a shared understanding of what is possible, in principle, to inspire and guide change. Once that happens, refining the moonshot becomes a conversation — a process — that the leadership team can return to periodically.

Once the moonshot has been envisioned and the path has been roughed out, how do you move forward? The answer depends on the specific situation facing the organization, of course, but three critical principles normally emerge.

1. **THE LEADERSHIP TEAM MUST FIGURE OUT HOW TO ALIGN THE INTERESTS OF INTERNAL AND EXTERNAL STAKEHOLDERS WITH THE TRANSITION PATH.** A breakthrough business model will inevitably raise questions about the roles of committed stakeholders — including employees and suppliers — that may not initially have the capabilities, interest or intention to participate in the moonshot. How do you get these stakeholders on board? It is critical at the early stages of a transformation to identify peoples' frames of mind; their issues and concerns; and the expectations of everyone who will be integral to the change. In my studies of transformation, I have found that great leaders tend to talk at least as much about how the change will benefit core stakeholders as about the change itself.

General Electric's Moonshot

In 2005, former **GE** CEO **Jeff Immelt** announced that he was shifting the company to producing energy-efficient, ecologically-friendly products, starting with a major investment in a program called 'Ecomagination.' At the time, GE was not a likely candidate to focus on environmentally-efficient products: The company was widely believed to be one of the biggest corporate polluters in the U.S. Skeptical observers dismissed Immelt's announcement as a PR ploy designed to greenwash the company's poor environmental record.

A true commitment to the Ecomagination moonshot required GE to reengineer its entire product line for energy efficiency, including clothes dryers, lightbulbs and jet engines. Targets were set to double its $700 million research and development investment in clean technology; to turn a projected 40 per cent increase in greenhouse gas emissions to a one per cent reduction by 2012; and to cut its use of water by 20 per cent by 2012.

Ecomagination succeeded well beyond its initial targets. By 2010, GE had invested $5 billion in clean tech R&D, and by 2015, the program had generated more than $200 billion in sales. GE beat its environmental targets by a wide margin: By 2015, it had reduced greenhouse gas emissions by 31 per cent and water usage by 42 per cent. Moonshot achieved.

- from *The Moonshot Effect: Disrupting Business as Usual* by Kate Purmal, Lisa Goldman and Anne Janzer

Find Your Moonshot with Five Questions

1. How are the limits to value creation in your business model anchored in ideas from the past?
2. What new ideas — enabled by current technology and the aspirations of the next generation of leaders in your organization—have the potential to shape breakthrough value?
3. What are the implications of your organization's mission, values, and purpose in light of these new ideas? If your organization were unconstrained by the past, what would be the best way to fulfill its mission over the next five to ten years?
4. Working with key stakeholders, can you identify an aspirational, inspiring, inspired goal on a five-to-ten year horizon that will stretch the organization but that, if successful, will cement its leadership for the future?
5. Is the goal sufficient to drive stakeholders to renegotiate their engagement with the organization on new terms? Is there enough value in the goal to go around?

Motivating change is a complex and harried business that tends to be most successful when the leadership team operates with both integrity of purpose and compassion about the discomfort that change inevitably causes.

2. **THE TRANSITION PATH SHOULD BE SEEN AS AN ECOSYSTEM AND PLATFORM PLAY.** This idea is a kind of amplification of the insight at the heart of *The Innovator's Dilemma*, which emphasized the role of previously-disenfranchised customers in the innovation process. The key here is to recognize that your best customers, suppliers, employees and managers are likely to be disrupted if the business-model innovation is successful. Some partnerships simply may not be sustainable on the terms of the past, and as a result, new relationships, commitments and connections are critical to the process. Establishing a path toward the achievement of a moonshot requires identifying these stakeholders and seeking their support and engagement, even if this step upsets and concerns key constituents from the past.

3. **SUCCESS REQUIRES SHREWD CONTRACTING AND INVESTMENT.** For the approach to be sustainable, *creating* new value must be accompanied by a carefully-crafted strategy for *capturing* value in the organization. I am not suggesting that investment can be avoided; quite the contrary. Companies seeking business-model innovation must be prepared for a period of investment of resources to build the capabilities necessary to accomplish the transition. But if this investment is not accompanied by a thoughtful, well-designed and strategically insightful approach to contractual arrangements, it will not be sustainable, because an organization cannot persist in investing without eventually achieving a fair return on the investment itself. Great transformational companies such as Netflix, Apple and JP Morgan Chase all struck deals over time that reflected the risk and effort that went into the process itself.

In closing

In the end, the essential elements of the Kennedy Moonshot are the same elements that are needed to accomplish large-scale change in an established company: First, the case must be made that the current system is broken in fundamental ways; the feasibility of a new system must be assured, but held in the background, given that its precise facets will depend on the resolution of uncertainties in the future; the potential improvement to value creation must be significant and visible; and the case must be made that resources on a large scale should be deployed to assure its achievement.

A goal is only a moonshot goal if it is lofty enough to motivate scientific and organizational achievement through difficult technical and administrative barriers, and widely embraced by everyone in the organization. Above all else, the downside risk of not changing must be made crystal clear.

The good news is, you don't have to travel to the moon to experience the moonshot effect: A moonshot is not defined by its distance from Earth, but by its distance from business as usual. ***RM***

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