

The Final Puzzle: Seeing the Deal and Dealing With the Unforeseeable

“Always bear in mind that your own resolution to succeed is more important than any other one thing.”

–Abraham Lincoln

I started my career in the early 1980’s as a research engineer for NASA – a job that brought me an enormous amount of pleasure and the opportunity to work with, and learn from the “best of the best” in this country’s aerospace industry. However, by the late 1990’s the Agency that I had loved since I was a kid had changed so dramatically for the worse that I decided to leave it for a second career in private industry.

A lot of things contributed to NASA’s decline. But in my mind there was really one very critical element – a nearly complete stripping from the Agency’s management structure of *vision and leadership*. During NASA’s heyday of the 1960’s it had grown tenfold in size and had accomplished the almost-unthinkable task of evolving the technology of spaceflight from the first 15 minute sub-orbital “hop” of Alan Shepard in 1961 to the spectacular first landing on the moon of Neil Armstrong and “Buzz” Aldrin in 1969. NASA was able to accomplish this for two reasons: 1) it was driven by a clear vision,⁴⁶ and 2) its management team consisted of people who refused to be defeated by failures.⁴⁷

⁴⁶ On May 25, 1961, President John F. Kennedy announced before a special joint session of Congress the dramatic and ambitious goal of sending an American safely to the Moon before the end of the decade. [<http://history.nasa.gov/moondec.html>]

⁴⁷ *Failure is not an Option: Mission Control from Mercury to Apollo 13 and Beyond*, by Gene Kranz, Berkley Trade (2001)

When I started my career in the early 1980's, the remnants of this Apollo-era NASA were still there. But by the late 1990's, I had seen a blurring of vision combined with a changeover in the management chain from success-driven leaders to bureaucrats who were more driven by personal career ambition than the success of the organization. The net effect on that once-great Agency was to strip it of its capacity to perform miracles like it had in the 1960's. The net effect for me was to strip me of my desire to be part of that organization.

In the final days of my tenure with NASA and at the very time that I was becoming acutely aware of the critical role that leadership and vision plays in an organization, I happened to find a printed copy of a presentation by Colin Powell entitled "A Leadership Primer" thumb-tacked to a bulletin board at NASA's Jet Propulsion Laboratory. The presentation was one that Powell had given after his retirement as the Chairman of the Joint Chiefs of Staff under the first President Bush, and while he was on the public-lecture circuit prior to becoming the Secretary of State under the second President Bush.⁴⁸

This presentation was a collection of eighteen lessons that the retired, four-star general had learned were key to effective leadership and management.⁴⁹ As I read through them, I could identify many specific examples within NASA where a lack of vision coupled with poor leadership abilities directly violated one, or several of Powell's eighteen leadership lessons. By the time I finished reading through the list, my decision to leave the Agency was final – I was convinced that I had no future in an organization that was stagnant due to lack of vision and leadership.

Why do I drag you through this particular episode of my personal life? Well, up until this point in the book, I have deciphered *The Inventor's Puzzle* into five pieces, and explored these pieces with enough detail that you are now much better equipped to develop a business plan and build a team that can execute the plan. At this point, I want to talk about two final aspects of product innovation business that are critical to your success and that will consume many hours of thoughtful contemplation and deliberation after you actually launch the enterprise. Addressing

⁴⁸ *My American Journey*, by Colin Powell with Joseph E. Persico, Random House (1995)

⁴⁹ For reference, I have included Gen. Powell's lessons on leadership at the end of this book.

these final aspects of the problem – constructing your end goal and finding the means to deal with unanticipated issues and challenges – constitutes a puzzle in and of itself and one that ultimately will define your success in product innovation business.

To start the discussion of this final puzzle, I can think of no better example than the one I lived through with NASA. Out of this highly capable institution populated by elite and talented individuals, I saw polar opposite results: programs that were successful in spite of unbelievable challenges, and those that were failures despite an unbelievable network of support. What caused such dramatically different outcomes? At the risk of over-simplifying a complex issue, I contend that the most significant factor separating success from failure was the presence, or absence, of vision and leadership.

One thing that you can count on in the small business world is that *there is not one thing that you can count on!* Life in small business moves quickly and challenges come from multiple directions. You can plan for and address all of the issues presented in this book, but this alone is not sufficient to ensure your success. Those who succeed are also responsive, aware, creative, and capable of turning any bad circumstance – no matter how stark – into a path forward.

I once heard the leader of a startup medical-device company state that “the main requirements for being a CEO in a small company are: 1) a willingness to eat airport food, and 2) an ability to survive multiple, near-death experiences!” Indeed, success in small business is not just the end result of a carefully planned effort, success is the end result of a carefully constructed vision that has been adopted by an expertly led, well-managed, and very capable organization that refuses to fail.

In the last chapter I discussed how to build such a capable organization. In this chapter, I will discuss how to set that organization, and yourself, up for success by creating the right vision and establishing the right leadership principles to convert that vision into an *esprit de corps* among your team that will see the team through the inevitable difficult times ahead, and will instill in that team, and in you, the confidence to persevere even when times get tough.

You have to fail in order to succeed

There are many reasons why NASA should never have succeeded in landing twelve men on the moon in the late 1960's and early 1970's. Indeed, during that same time frame, a group of equally brilliant scientists and engineers in the former Soviet Union saw their own attempted moon missions fail miserably and their program collapse in despair while NASA took its own failures in stride and pressed onwards to prevail in what is arguably the greatest engineering achievement of the 20th century.

Why did NASA succeed while the Soviet space agency failed? Personally, I don't believe it was because of superior intellect, larger budgets, or some kind of political or ideological advantage. I think it was simply because everyone in the U.S. space program from the President down to the lowest technician absolutely demanded success, and believed that to be successful you had to experience and learn from failures.

Have you watched the movie "Apollo 13?" If not, then you can forget about all of the other movie references I have made if you will go out and buy a personal copy of that movie and watch it right now. There is one particularly pivotal moment in the movie when mission control manager Gene Krantz⁴⁷ (portrayed brilliantly by Ed Harris), frustrated by the steady stream of bad news, asks his colleagues to identify "what is working on the crippled spaceship?" It was at that critical moment, and driven by the solutions-oriented approach that defined Krantz's leadership style, that the process of rescue for the mission began and the path towards successful return of the crew was established. *It was at this moment, that NASA turned a tragic failure into an unbelievable success.*

A hidden paradox in the business world is that the most successful businesses have failed miserably at one or more points in their history. Indeed, the secret to their ultimate success is in their ability to work through their own failures and press on with the advantage of very valuable lessons they learned.

In the 1960's NASA was dominated by a corps of leaders who, in the spirit of Gene Krantz, did not fear failure – they anticipated it, planned

for it, and when it happened, they worked through it and learned from it. For Gene Krantz, failure of the mission, failure to succeed in the ultimate challenge of putting a man on the moon “was not an option.” However, and as dramatically shown in the movie “Apollo 13,” failure of a subsystem, a planned procedure, or an individual to succeed in his assigned task, was a daily occurrence. If failure was not an option for Gene Krantz, I guarantee that he would not have been the manager of NASA’s mission control. Failure was his daily companion, and success over failure was his ultimate achievement!

In the military world, this mentality might be described as “losing a few battles in order to win the war.” Indeed, it should not be surprising to know that Gene Krantz and much of the NASA management team, as well as all of the astronauts, in the 1960’s were ex-military and very well disciplined in this principle! If you have military training, you should also accept this principle as instinctive. If you don’t, then you can watch “Apollo 13” and read Colin Powell’s Leadership Primer at the end of this book, and I think you will begin to appreciate the principle.

In my view, this is the simple reason why the United States beat the Soviet Union to the moon. More importantly, this will be the reason that your enterprise will ultimately be successful – that you and your team accept *a priori* that the best-laid plans will change and that, to be successful, you absolutely must become adept at expecting the unexpected and dealing with the inevitable challenges and “failures” along the way. If things will go wrong, if failure is almost a guaranteed daily companion in the world of product innovation businesses, then how do you deal with this and ultimately succeed?

Dealing with Predictable and Unpredictable Failures

1. Understand how and when *predictable* failures are most likely to occur and develop *contingency plans* to put in place in the event of such a failure (i.e., always have a “plan B!”)
2. When unexpected things go wrong and you have no obvious plan forward, be ready to develop a new path forward in *real time* – right now, without hesitation.

The following two sections will discuss these two steps to deal with potential failures. First, I will talk about what can be done to anticipate predictable failures and how you can avoid such failures through proper planning. Second, I will talk about the unexpected crises that inevitably occur in all small-business enterprises, and what you can do to resolve these effectively as they occur.

Anticipation and planning – the keys to avoid predictable failures

George Santayana, the early 20th century Spanish philosopher once wrote: "Those who cannot remember the past are condemned to repeat it." This phrase and the numerous variations that we hear and repeat daily provide the main impetus behind my own love for the study of history. I am not drawn to the rote memorization of historical dates and facts, but rather the interpretive study of historical figures and events. I find in these people and their experiences a wealth of insights into the present and perspectives on the future. By this point in the book, you have doubtlessly figured out that I like history, and hopefully you have come to appreciate how looking backwards in time is a good way to see the path forwards.

Inspired by such an historical perspective, in this section I want to talk about *predictable* failure scenarios for small product innovation companies – the somewhat common ways in which such companies fail. More importantly, I want to discuss how such failures can be avoided through proper planning. In general, these predictable failures do not depend greatly on the particular product or market niche being served by the company. Rather, these failures tend to result from the basic evolutionary process that all companies undergo, and the essential dynamics of interacting with other companies within the business world. So the discussion here assumes no particular type of product or market, and should apply reasonably well to all products and markets.

First, I wish to talk about the potential predictable failure scenarios that result from inadequately addressing any of the five pieces of *The Inventor's Puzzle* described within this book. Indeed, as explained in Chapter 1, these five pieces of *The Inventor's Puzzle* were specifically constructed to address potential predictable failures that typically occur

in product innovation businesses. By definition, addressing these issues thoroughly and adequately in your own enterprise is certain to help you avoid many of the usual scenarios in which such businesses tend to fail.

Failure to adequately address the five pieces of *The Inventor's Puzzle* described within this book will likely lead to a failure of your enterprise – either immediately, or more likely down the road and after you and your investors have made a substantial investment in the enterprise.

For example, assume that you didn't do a good job of understanding what the customer wanted in your product (i.e., you failed to adequately address the issues described in Chapter 3), you will experience a predictable failure in your business after you have gone through all of the other steps (Chapters 4 through 7) and introduced a product in the market that simply isn't bought! This is a very late-stage failure that was rooted in an early-stage miscue.

Similarly, if you fail to secure a solid IP position around your product (Chapter 4), but succeed in all other issues presented in Chapter 3 and 5 through 7, you can expect to fail after you have introduced a very successful product and when the competition learns that they can steal your ideas and make money with them! This is an even later-stage failure that would have also been rooted in an early-stage miscue.

Alternatively, if you fail to lay out a proper product-development program (Chapter 6) or build the right team (Chapter 7), you can expect your enterprise to fail at some point within the product-development process, usually when you encounter a technical snag that was not anticipated and results in intolerable cost growth or outright failure of the design. Finally, if you fail to secure proper funding at any phase of your enterprise (Chapter 5), you can expect your enterprise to fail the instant that the last funding increment dries up!

In addition to the model offered within this book, I also would like to point you at two other well-known business models that have achieved a degree of success in helping entrepreneurs avoid predictable failures. The first alternative model is not specific to product innovation

companies, whereas the second model is very specific to product innovation companies. I feel that both models, in addition to the five pieces of *The Inventor's Puzzle* offered here, provide a very comprehensive and complete view of the potential predictable failures that you might experience.

In 1990, Ichak Adizes introduced the concept of the *Corporate Lifecycle*,⁵⁰ as a model to describe how businesses grow, develop, and in some circumstances, fail. Although not written specifically for the product innovation business sector, the Adizes *Corporate Lifecycle* model overlays nicely on a product innovation startup, in that the company must evolve substantially from the moment of conception of the invention through all stages of product development, market introduction, and recurring sales and support.

In his book, Adizes explains how and why corporations grow and die through the stages of the corporate lifecycle. His analysis of each stage allows one to determine: 1) where the organization is now within its lifecycle, 2) what will be required to maintain the organization health within the current stage, and 3) what kinds of obstacles, perils, etc. can be expected as the organization moves into the next stage of its lifecycle.

One common failure scenario that Adizes describes occurs when the organization outgrows the management team by moving into a stage of development beyond which the management team has the experience to effectively lead. In such a scenario the management team often reacts by nudging the organization backward in its evolution path and towards a state that is more familiar and comfortable with which to deal. Of course, such a move generally stifles the growing organization and halts its progress, which can lead to failure if left unchecked.

I will leave you to read Adizes book as a means to explore other specific failure scenarios that he describes; and here I will simply reiterate a few of the general points that he makes. First, Adizes identifies four critical

⁵⁰ *Corporate Lifecycles: How and Why Corporations Grow and Die and What to Do About It*, by Ichak Adizes, The Adizes Institute, (1990)

factors (performance, administration, entrepreneurship, and integration) that must be kept in balance while managing the company. Second, Adizes shows that the proper balance point for these factors will always be changing even within a single lifecycle stage because of internal and external forces that can bring about failure. Finally, Adizes states that, in order to avoid failure, the CEO or other business leaders must constantly be aware of what that ideal balance between these factors should be, and they must anticipate and plan for evolution of this balance point.

A third model that deals with corporate failure, and that is much more specific to the world of product innovation businesses was written by Geoffrey Moore and entitled *Crossing the Chasm*.⁵¹ The essential thesis of Moore's book is that *mainstream* – high-volume – customers are generally cautious against buying new products that are very different than products they have purchased in the past. Indeed, any market can be divided into a few categories from the *early adopters* who will readily grab onto anything that is new and flashy, to the *late adopters* who will only buy a product many years after its first introduction, and after it has become the new market standard.

The main conclusion of Moore's book is that most product innovation businesses fail because they only market to the small segment of *early adopters* and fail to fully understand the needs of the dominant and much larger remaining segments of the market.

Moore provides several specific examples of new products that failed simply because they never *crossed the chasm* of market acceptance from the *early adopter* mentality of “I will buy anything that is new and different” to the *late adopter* mentality of “I will only buy something new when it is the last resort.” Although sales to the early adopter market could be significant and worthy of pursuit, in and of itself, Moore's main

⁵¹ *Crossing the Chasm: Marketing and Selling Disruptive Products to Mainstream Customers*, by Geoffrey Moore, Collins Business Books (2006)

point is that ignoring the mainstream markets will lead to orders of magnitude lower sales and value growth in your intellectual property.

Certainly, the failure scenarios that are described in both Adizes' and Moore's books are later-stage scenarios – meaning that they are failures that your enterprise would not likely experience until it is well into the advanced stages of product development or marketing and sales. Nevertheless, these books both define root causes of these late-stage failures that start at much earlier stages of the startup enterprise. For example, Moore's book makes it very clear that your very early market-analysis work must address both the segment of people who will happily buy your product and the segment who will only buy it reluctantly. If you are to become most successful, you need to have something that even the reluctant will buy!

I heartily encourage you to read these additional books and talk more with other small-business experts about their experiences with failure scenarios. Don't let the discussion of business failure scenarios dissuade you from launching your own enterprise. Rather, let it help you improve your plans so you can eliminate or minimize the possibility of *predictable* failures in your enterprise. Then you can move forward with confidence and focus your daily attentions on those unexpected challenges that are almost certain to occur. Going back to a quote that I shared earlier in this chapter, a key qualification for the successful CEO is an ability to survive multiple, "near-death" experiences! Let's talk now about those sudden, "near-death" experiences that might not be easy to predict.

Judgment and action – the keys to deal with unpredictable challenges

First, I want to be clear that I am not going to, nor would it be possible for me to describe all of the possible daily challenges that you might encounter in your business. Challenges will come from many sources, and the most problematic sources of your challenges will be very specific to your product and market. In other words, the things that will be most confounding to a software-development company might be very different than those for a company making children's toys. So the