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INTRODUCTION

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CHAPTER 1

An Introduction to Innovation Fatigue

“Ingenuity should receive a liberal encouragement.”

Thomas Jefferson



Exhibit 1.1 Are there better paths to avoid fatigue in the maze of innovation?

Conquering innovation fatigue begins with understanding the journey of innovators at a personal level. It begins with recognizing the “fatigue factors” they face and then seeking for solutions to help them reach success. A useful metaphor for the innovator’s journey

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is that of the immigrant. In nearly every nation, there is a history of tension between established citizens and newcomers. The newcomers generally lack resources, don't understand how "the system" works, and struggle to understand the language of the natives. They may be ridiculed for their different ways and mistrusted by those in power, but the newcomers who persevere and conquer often reshape history and create prosperity for generations to come.

In the world of business, the brightest minds seeking innovation are sometimes like immigrants standing on a strange new shore, filled with visions of success but often facing harsh barriers. Who can they trust? Where should they go? How do they find shelter and protection? In fact, many great innovators like Nikolai Tesla, the father of the electric age, were literal immigrants who faced severe challenges in realizing their visions. Though each story is unique, there are several common classes of "innovation fatigue factors" that hinder individual and corporate success in innovation today as in the past. Understanding and overcoming these barriers is vital not only to individuals—whether corporate employees, university researchers, lone inventors or entrepreneurs—but also to corporations and nations themselves.

Innovation is the successful translation of new concepts into economic value and the process of creating and realizing value from that which is new. Whether it's a technology, product, process, or method of doing business, innovation goes beyond invention and discovery to involve the social aspect of changing behaviors such as how we eat, shop, dress, or drive.¹ The pathway from an idea or invention to broad change in society is often complex and multifaceted, like the journeys of immigrants as they become established in a new land.

For inventors and entrepreneurs, there are always risks, delays, and pains on the route to innovation, but greater success and speed is possible with the right approach and the right help. Our goal is to help prospective innovators, entrepreneurs, and corporations succeed sooner, more visibly, and more profitably (for those who care about profits). Innovation fatigue can be conquered.

Common Innovation Fatigue Factors: An Overview

Few things make creative people wearier than empty talk about innovation. Leaders may boast of innovation, but a different impression arises when one talks to frustrated and alienated inventors, or surveys

the missed continents of opportunity that were somehow circumnavigated. Some of them may sincerely seek innovation but lack the know-how to make it happen. How do we find real success in innovation?

Are companies facing innovation fatigue? Based on our experience, yes, many are. Supporting evidence comes from several sources, including a 2007 study by Boston Consulting Group/*BusinessWeek* polling 2648 senior executives. BCG reports that “top executives worldwide are more upset than ever about the slow pace of innovation at their companies.”² Also reported is that only 46 percent of the executives are happy with the return on their innovation investment, and only 66 percent rank innovation as a top-three priority, down from previous years. Many who would like to increase the pace of corporate innovation find their innovation engines sputtering. What’s going wrong?

One concerned CEO is Jean-Pierre Garnier of GlaxoSmithKline. He speaks of the “innovation malaise” in the pharmaceutical industry and blames declining R&D productivity for the massive erosion in shareholder value in pharmaceutical stocks, where share price on the average plummeted from 32 times earnings to just 13 over a few years.³ Other industries such as IT, industrials, and discretionary consumer products have shown steady erosion in shareholder returns over the past decade.

Many publications praise various organizations for their commitment to innovation based on actions and statements from those at the top. While leaders are talking innovation, our interviews and experiences sometimes show that their prospective innovators are beset with “innovation fatigue.” Leaders often fail to understand the frustrations of innovators in the organization. As a result, the actual innovation performance of many organizations may be far below their potential, contributing to the statistics indicative of innovation fatigue.

In our discussions with inventors and entrepreneurs over the years, we have found persistent themes about the disincentives innovators face. In general, we find that fatigue factors can be grouped into three broad categories pertaining to individuals, organizations, and external factors.

1. People Fatigue (Fatigue from the Way People Act)

“People fatigue” includes the personal flaws of individuals, including inventors and those they work with. Greed, for example, can result in theft from the inventor, while excessive demands from

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the inventor can also block progress. Arrogance or excessive pride from others can result in the “Not Invented Here” (NIH) syndrome that can shut down opportunity, while the same flaws in the inventor can hinder the cooperation needed to work with allies.

We recognize that all fatigue factors ultimately reflect some aspect of human nature, though it may be implemented at the corporate or governmental level. Nevertheless, we assign fatigue factors to the people category when they arise from one-on-one interactions with individuals in which an undesirable trait of one party tends to destroy potential success of an innovation or discourage future innovation.

2. Fatigue Factors in the Organization (Strategy, Culture, Actions)

Many fatigue factors arise from strategies, policies, and cultures in an organization. We focus on corporations, though some of the principles apply to other entities as well. We consider, for example, the impact of errant metrics or poor decision making in evaluating opportunities. There are also process-related fatigue factors due to structures and systems in corporations. For example, weak performance management systems and incentives can contribute to innovation fatigue. At the strategic level, “open innovation fatigue” results in many missed opportunities. One of the most critical issues for corporations, though, is the tenuous thread that links the “will to share” of the creative employee to the intellectual asset engines of the corporation. When trust is breached or other discouragements befall prospective innovators, innovation engines can quickly shift into neutral, unbeknownst to management. Factors that make innovators feel devalued are one part of this problem. We address these issues and suggest solutions.

3. External Fatigue (Factors in the Environment)

Beyond the fatigue factors that arise from individuals and organizations, a host of external factors can contribute to innovation fatigue. These environmental factors can include barriers to protecting and exploiting one’s intellectual assets (IA) arising from patent systems, legislation, regulation, and other aspects of government policy. Also included are roadblocks to open innovation such as barriers to university-industry cooperation from legislation and tax policy.

Within the scope of these three classes of fatigue factors, we explore nine specific fatigue factors:

Nine Leading Fatigue Factors**People Fatigue:**

1. Theft of the invention and exploitation of inventors.
2. Innovator deficiencies (e.g., unreasonable expectations, impatience, unhealthy pride).
3. The NIH syndrome (“Not Invented Here”).

Organization-Level Fatigue (Strategy, Culture, Actions):

4. Breaking the will to share (loss of cooperation from the innovation community).
5. Fundamental flaws in decision making and vision.
6. Open innovation fatigue (corporate barriers to external innovation and collaboration).

External Fatigue:

7. Patent pain: barriers to intellectual property protection.
8. Regulatory pain: challenges in policy, regulation, and law.
9. University-industry barriers.

The factors can be grouped as shown in Exhibit 1.2, illustrating that similar themes occur in each of the three main categories of fatigue factors. Whether at the individual, organizational, or external level, factors can be grouped in terms of threats to intellectual property and trust, barriers to collaboration, and flaws in judgment and behavior (including corporate and governmental behaviors or policies). The classifications are not crisp, for some fatigue factors can cross groupings and categories, but these groupings may be helpful in analyzing innovation barriers and finding solutions.

To conquer invention fatigue, we must understand the impact of fatigue factors at the people, organizational, and external levels, recognizing that whatever the level, the harmful impact is on individuals, whether inventors or entrepreneurs, whether self-employed or within a corporation or institution. This requires not only understanding the fatigue factors that beset innovators, but first understanding the personal incentives that drive innovators.

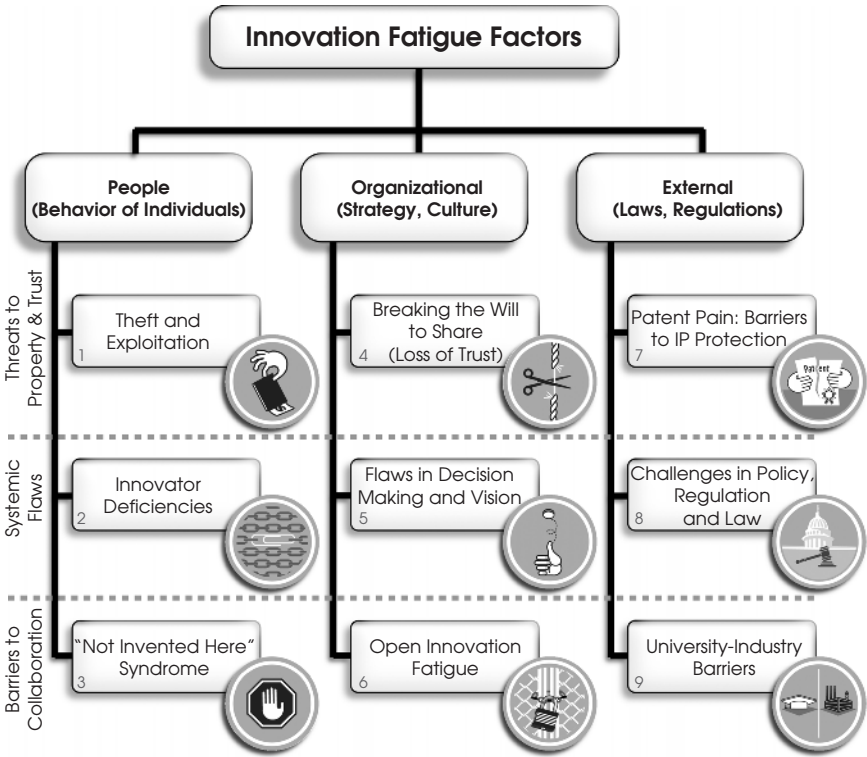


Exhibit 1.2 Grouping of leading fatigue factors

Incentives and Innovation: It's Not Just About Profit

We are passionate about innovation, for it is much more than a source of profit: it is also a source of fulfillment and even joy to the innovator and others. Joseph Schumpeter, in his economic surveys of innovation and entrepreneurship, spoke of motivations such as the “will to conquer” and the “joy of creating, of getting things done, of simply exercising one’s energy and ingenuity.”⁴ But where there is joy and victory, there can be anguish and fatigue. All three of us have experienced the joys of innovation success and the bitterness of innovation setbacks as various “fatigue factors” are encountered. A missing element in much of the literature on innovation, in our opinion, is the personal voyage that individuals experience, including individuals on teams within corporations, as

they seek to bring an idea into reality. The fatigue factors that cause weariness and frustration, the energizing factors that give encouragement and hope, the personal drive to move forward in spite of resistance, and the joys and sorrows of innovation throughout that journey must be understood if we are to keep innovation alive and build healthy cultures of innovation.

The profit motive is only a part of that picture. Even seemingly modest inventions can end up contributing to the quality of life, or may contribute to larger ends such as saving lives and preventing crime. The desire of the innovator to make a difference, even if it is just seeing a new product on the shelf, is a surprisingly common sentiment. While many of us desire financial returns, for some inventors, a higher inspiration fuels their passion. Ben Markham is one such individual.

EmpowerPlaygrounds and the Light of Innovation

Ben Markham is the innovator behind an exciting new venture that is transforming lives in Africa. The inspiration occurred while Ben and his wife were living in Ghana on a humanitarian and religious mission after he retired from a long career as a chemical engineer at ExxonMobil. Ben observed that the children of West Africa rarely had toys to play with and school classrooms were frequently quite dark. Many school buildings were simple concrete shells with few windows and no electrical power, often far too dark for effective education. One day he saw an article about a rotating ring device for pumping water from shallow wells. He wondered if playground equipment such as a merry-go-round could be designed to produce electricity from children at play. As he discussed his desire to make schools more fun for children, local citizens helped him recognize an even higher priority: education. The students in rural schools were handicapped in their studies by the lack of lighting at home and hands-on experience with mechanical and electrical devices. When they weren't in school, they were expected to be doing manual labor required on the family farm while it was light. When chores ended, it would be too dark to study or do homework. With these handicaps, almost unthinkable in many Western nations where lighting and labor saving devices are taken for granted, the vast majority of rural Ghanaian students are unable to pass the tests required to advance to high school. Future

opportunities for children could be vastly improved by access to lighting and exposure to hands-on science education.

As Ben contemplated this challenge, a “revolutionary” concept emerged: merry-go-rounds at schools could be connected to small wind power generators creating electrical power for recharging portable LED lanterns. Students would control lighting in the school and at home for studying after dark. “It was far more difficult than I thought it would be,” Ben told us.⁵ The technical challenges of generating a steady voltage for charging a low-cost automotive battery involved many factors and several unfruitful avenues. With the help of creative students and professors volunteering their assistance at Brigham Young University-Idaho and BYU in Provo, Utah (Ben’s alma mater), Ben was able to make his invention more practical while meeting high standards of safety and reliability. Ben also insisted that as much as possible be made locally in Ghana.

The basic concept was simple, but as with most innovations, more than just technology is involved. Innovation in the business model is often needed to bring the product or service to life. Ben requires that the headmaster of any targeted school have a reputation of honesty. Further, he found that the leaders of the school need to be committed to the project. He tests for commitment by asking them to write a proposal explaining how they will administer oversight of the lamps, since there may be only 30 lamps for 100 students, for example. Ben has no preconceived right answer in mind, but wants to see the leaders develop a reasonable plan to meet student needs. The very act of preparing the proposal is also a useful measure of commitment.

With the merry-go-round generator as a first invention, Ben founded a charitable organization, EmpowerPlaygrounds,⁶ to deliver the invention to schools. There were other challenges to overcome, including local regulations regarding schools and import regulations that initially threatened to impose high duties on equipment. These external factors have been dealt with, and now EmpowerPlaygrounds is moving ahead to serve additional schools. “*I’m doing this for no other reason than to help the children in Africa,*” Ben told us. What a wonderful motivation for innovation. Their primary need now is for additional funds to continue empowering students across Africa.

The result of Ben’s work has been successful where implemented. Kids love the special merry-go-round and love the freedom to study even when it’s dark. Ben’s vision has now grown beyond

merry-go-rounds. Ben continues collaborating with others in pursuit of further inventions, with the goal of an entire playground of devices that can help provide power for large schools. The merry-go-round alone is helpful for schools of about 100 to 150 children. With his recently developed power-generating swings and zip-lines (pulley-suspended rope cables that allow users to travel from high places to low, creating electricity from a generator attached to a pulley on one end), Ben is well on his way to achieving his vision and experiencing more of the joy that meaningful innovation can bring.

Tesla's Sacrifice

Motives higher than profit fueled the work of another inventor who helped bring light to others. In this case, billions of others. Nikola Tesla, one of the greatest inventors and innovators of all time, ushered in the electric age with his revolutionary vision of efficient alternating current (AC) power. His systems for generating, transmitting, and operating motors and other devices from AC power are the foundation for much of the technology in the modern world. He also was the father of the radio and other wireless broadcast technologies, in addition to generating hundreds of patents in dozens of areas.

After arriving penniless in the United States, this Serbian immigrant from present-day Croatia would face several of the fatigue factors discussed in this book: he may have been denied recognition for important innovations he created for Thomas Edison; he faced intense opposition in his pursuit of AC power from Edison himself; he was sometimes ridiculed by others not only for his foreign appearance and ways but for his “impossible” ideas;⁷ and he even had his personal belongings confiscated by a powerful agency of the United States government—the now defunct Office of the Alien Property Custodian, created by an executive order to deal with purported enemy threats from aliens in World War II. (The confiscation of his property—inspired by rumors that Tesla had invented a death ray—may not have been too troubling to him since it occurred shortly after his death in 1943, but it was a final insult to this great immigrant and an illegal act since he was not an alien but a U.S. citizen since 1891.)

What inspired this immigrant to persist in innovation? Wealth and recognition were not his goal, as he wrote in his autobiography—indeed, his disdain for corporate profits may have contributed to

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Exhibit 1.3 A high honor for Tesla from his homeland of Serbia—printed during a time (1993–1994) when hyperinflation was a devastating external fatigue factor for local entrepreneurs

trouble later in life when he faded from the limelight and died in relative poverty. Rather than wealth, Tesla sought the heroic path of the inventor who makes the world better.⁸ He even voluntarily tore up his contract to spare George Westinghouse the burden of royalty payments to him after the “Current Wars” with Edison left Westinghouse financially strained. He wrote that the betterment of mankind was “the difficult task of the inventor who is often misunderstood and unrewarded. But he finds ample compensation in the pleasing exercises of his powers and in the knowledge of being one of that exceptionally privileged class without whom the race would have long ago perished in the bitter struggle against pitiless elements.”⁹

Corporations, governments, and others sometimes fail to appreciate the intrinsic incentives for innovation that go beyond financial reward. That failure can result in unintended discouragement of innovation as leaders assume all is well as long as financial incentives and written expectations are in place. Sadly, pay can be great but incentives to truly innovate may be absent when the intrinsic incentives are ignored or when trust is breached (see Chapter 7). On the other hand, we are aware of corporate leaders who point to the importance of intrinsic incentives as justification for not offering financial incentives for innovation. This can sometimes be indicative of a culture profoundly lacking in the intrinsic incentives

as well, or one suffering from fatigue factors such as devaluation of the innovator.

For corporate employees, we have found that money *per se* is rarely the driving force for leading inventors, though none have complained about receiving it and it is certainly an enabling factor. Indeed, financial incentives for inventors can stimulate additional innovation or can motivate extra-mile efforts to generate intellectual assets. However, recognition, respect, appreciation from peers, the chance to make a difference in the marketplace, the thrill of seeing a concept take life, the satisfaction of being included in major projects, and many other intrinsic factors play important roles.

Are there other Teslas in our midst whose brilliant potential is dimmed by our unwillingness to listen, cooperate, and help an innovator who thinks with an accent?

Whatever the personal incentives driving innovation, many of the fatigue factors we have outlined above stand as threats to success. Before we explore them in detail, we take one more step in understanding the often overlooked personal interaction of innovators with innovation systems, especially those used in corporations. This exploration will use another metaphor where we offer a twist—and perhaps a few curves—on some traditional models of innovation. Our goal is to build a framework for understanding how innovators, at the personal level, must be considered in the full spectrum of innovation efforts to enhance efficiency and reduce innovation fatigue.

Notes

1. Everett M. Rogers, *Diffusion of Innovation* (New York: Free Press, 1962). Rogers defines diffusion as “the process by which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 4th ed., 1995, 5), as cited by G. David Garson, “Diffusion Theory,” North Carolina State Univ., <http://faculty.chass.ncsu.edu/garson/PA765/diffusion.htm> (accessed Oct. 13, 2008).
2. “Executive Briefing: Is Innovation Boggling Down?,” *Investors Business Daily*, May 29, 2007, A6.
3. Jean-Pierre Garnier, “Rebuilding the R&D Engine in Big Pharma,” *Harvard Business Review*, 86, no. 5 (May 2008): 68-76.
4. Joseph A. Schumpeter, *The Theory of Economic Development: An Inquiry Into Profits, Capital, Credit, Interest, and the Business Cycle*, transl. by Redvers Opie (Brunswick, NJ: Transaction Publishers, 1983, orig. in German, 1934), 93.

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5. Ben Markham, interview by Jeff Lindsay, Sept. 12, 2008.
6. See www.EmpowerPlaygrounds.org.
7. Margaret Cheney and Robert Uth, *Tesla, Master of Lightning* (New York: Barnes and Noble, 1999), 13.
8. *Ibid.*, vi.
9. Nikola Tesla, *My Inventions: The Autobiography of Nikola Tesla* (Williston, Vermont: Hart Brothers, 1982), as cited by Wikipedia contributors, "My Inventions: The Autobiography of Nikola Tesla," *Wikipedia*, http://en.wikipedia.org/wiki/My_Inventions (accessed Nov. 16, 2008).