



On The Frontier

Views From The Leading Edge

Breaking the Innovation Funding Deadlock ©

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If you've ever read any of my blog posts, you know that I'm an inventor and I tend to have some radical new ideas. One of these is a new kind of solar energy not requiring large arrays of expensive solar collectors. It can nonetheless produce tremendous amounts of power, operating day or night and in cloudy weather.

Beyond its potential to revolutionize the solar industry, this technology can also be used for very efficient desalinization plants, alleviating a growing shortage of fresh water around the world. Such facilities could produce virtually unlimited amounts of potable water using the sun's energy.

The concept is as simple as it is revolutionary. It involves tapping solar energy stored in the Earth's atmosphere. Like the airplane, which was presaged by the natural flight of birds and insects, conversion of solar energy stored in the Earth's atmosphere is possible because storms already do it.

These storms oftentimes release mechanical energy in the form of wind, electrical energy in the form of lightning and enormous amounts of desalinated "fresh" water as rain. The secrets of flight and reliable solar power were both on display in the natural world a long time before humanity finally took notice.

This technology is no pipe dream. Over a long developmental period I built and tested many of the critical components needed to harness this new source of power. Out of necessity, theoretical models were developed and experimentally verified to facilitate engineering of components and systems. Independent experts evaluated certain applications of the technology, concluding that the devices are scientifically sound and can be built.

Along the way, I coined the term "aerosolar" to describe the process of harnessing airborne solar energy. This word, an amalgam of the Greek "aer" meaning "air" and the Latin "sol" meaning "sun" (literally; "air sun"), is a descriptive term for a concept that is enormously broad in scope.

Aerosolar technology embraces fixed facilities, portable self-contained systems and even mobile power sources. And like other forms of solar energy, this power source has no carbon emissions and can greatly reduce dependence on fossil fuels.

Unlike most inventions that are limited to a single genre of use, there are literally hundreds, if not thousands of different applications for this new technology. It can be used in cars and trucks, airplanes and trains, ships and electric generating plants (for both permanent and for emergency use) and more.

Aerosolar power can also be used alone or in hybrid systems embracing conventional technology. There is hardly any area in industry and commerce where this technology can't be applied.

Given the high stakes of the current economic and environmental situation, you'd think there would be a path to my door worn 3 inches deep in my concrete sidewalk by potential investors.

Unfortunately, the only visitors seem to be chirping crickets. If you've looked at some of the other articles I've posted or linked to, you'll see that the traditional pattern of disbelief and refusal by capital sources to fund radical new technological invention is being woven in this case and many others as well.

Although evidence documenting the folly of dismissing this kind of innovation is overwhelming, the lessons of history are time and again ignored and dismissed as "irrelevant".

Each new case is treated as though it is unrelated to nearly identical mistakes made over and over throughout recorded history. Again and again the events play out as before, each time without the benefit of any consideration of these well-documented mistakes of the past.

Tremendous progress has been made with very small amounts of money thus far. This was achieved by targeting developmental areas where large sums of money were not required. This small, low-cost research program pursued over many years has yielded enormous cumulative results.

But there comes a time when adequate development capital is needed and nothing an innovator can do will mitigate the requirement for funding. Sooner or later every invention reaches the point where absence of funding becomes the main obstacle to success.

In spite of all I've been able to do with very little funding, the time finally arrived where it was necessary to find a source of developmental funding to move the technology into the industrial mainstream. So I began to explore every conceivable option.

Many people subscribe to the mistaken notion that a truly good idea will win through to final success, regardless of any obstacles. The catch phrase often bandied about is: "No idea is as powerful as one whose time has come." That line of thinking is utter nonsense. The truth of the matter is that only those inventors who are somehow able to raise the needed capital against all odds will succeed.

The rest fail, not necessarily because the technology they have is no good, but because there is simply no money to reach the point where the idea can no longer be suppressed. Frankly, in the matter of raising capital for disruptive innovation, purchasing a lottery ticket is more likely to yield results than approaching investors.

It is instructive to examine the role of patents in some detail because this is one area where the absence of funding can guarantee suppression of new innovation. Without a patent, there is no financial incentive to invest in or deploy a technology and it languishes

So what's the big deal? Just file a patent application and move on, right?

Wrong. From my own experience and research conducted by John Seabrook, ("ANNALS OF INVENTION - The Flash of Genius", The New Yorker January 11, 1993 and "FLASH OF GENIUS and Other True Stories of Invention", St. Martin's Press, 2008, both by John Seabrook.), the cost of obtaining a single patent will range between \$20,000 to \$30,000. And that's right now. This cost only escalates with time as the fiat currency used in most countries inflates away its value.

This also leaves aside the money needed to defend patent rights against predatory interests, patent trolls and outright piracy. Patent defense is far more expensive than the patent itself ranging in cost from a million dollars (USD) to even vaster amounts, so high in some cases as to be almost beyond belief.

Expenses of this magnitude are much more than a typical innovator, who is already burdened with ruinous technology development costs, can spare. And that sum is just the cost of one patent, not the many needed to fully cover a broad concept and related, even greater expenses.

Large corporate interests and those who prey upon them have hijacked the patent system in the United States and other Western countries. Defense of a new patent against infringement by those who would wrongfully appropriate the technology out of arrogance or greed can reach seven to eight figure ranges.

And the time scale of such litigation can exceed the twenty-year span of the patent itself. Corporate predators and individual pirates ply their trade in a court system that seems specifically designed to promote abusive litigation and deny justice.

Large multinational corporations and their patent attorneys have learned how to pervert the patent system quite effectively, constructing intellectual property thickets consisting of thousands of incremental patents in a process known as “patent flooding”.

These patents exist for the sole purpose of attacking any new patent to force either its invalidation or a cross-licensing deal favorable to the attacker. Many incremental patents are technically ineligible for issuance because they don't satisfy the test of obviousness but are granted because skillful corporate patent lawyers exploit flaws in the patent examination process.

And as if an innovator did not have enough to worry about with corporate intellectual property thieves, wily patent pirates also troll for information to help them lay their traps.

The resulting patents they file are often referred to as “paper patents” because they are not intended to build new technology. Such patent applications are not based on innovative creativity but on assessments of trends in technology. Their purpose is to extract money from unwary companies or individual inventors.

In order to protect an invention during the early development phase, it becomes necessary to adopt a stringent policy of secrecy while the technology is brought to the point where commercial application is imminent after which all these patent costs can be accommodated.

This means that most early-stage investment is prevented because the first thing that is demanded by a would-be funding source is a virtually unrestricted disclosure of the technology.

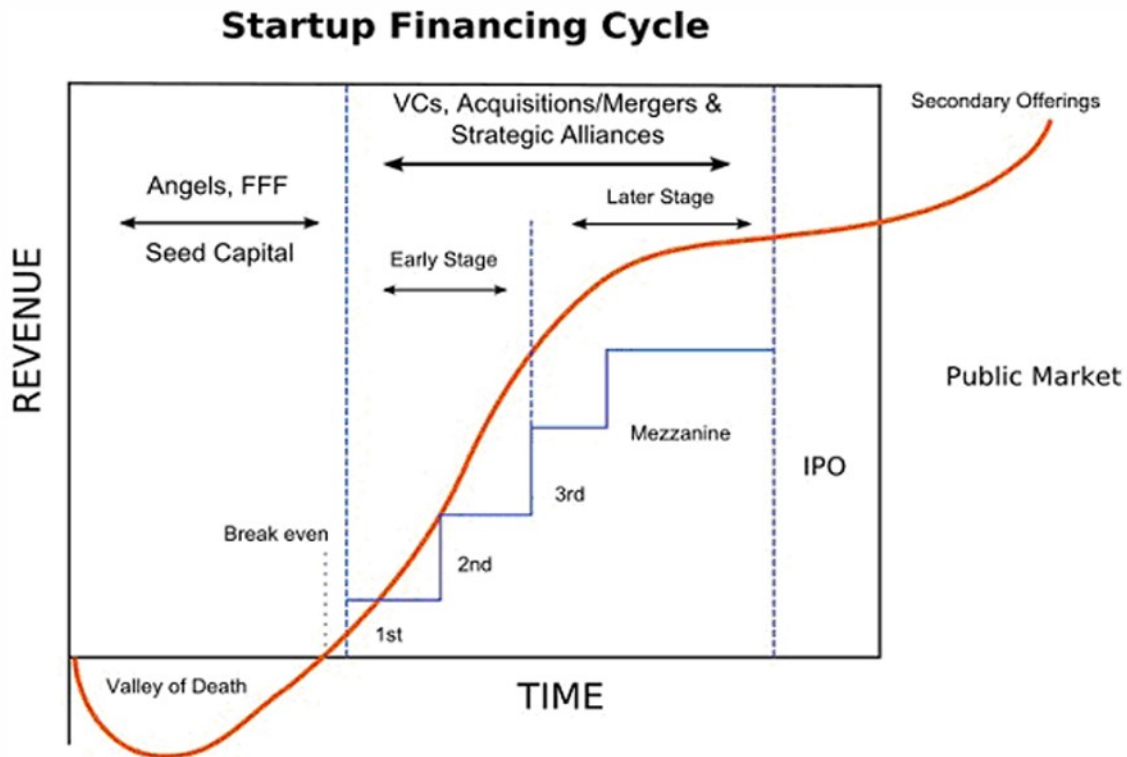
The only viable course of action open to an inventor is to construct scalable prototypes that are designed to provide spectacular demonstrations of the capability of new technology without the necessity of revealing how it works. At that point even the most conservative investor can see that something is going on which cannot be duplicated by existing technology.

Since investors, like most people, are motivated by greed and fear, once the lure of profits overcomes concern that the technology won't work, funding is much more likely.

But to get to that point requires exiting the early low-budget development phase. Funds must be secured in order to construct prototypes that can obviously be commercialized in order to break the deadlock. It is a classic chicken and egg problem.

Believe me, I've tried virtually every way possible to get investment funding to make this transition. Proof-of-concept devices just won't cut it. Nothing short of a working production-level prototype that scares the hell out of the industry it is applied to can break this logjam. And even that is problematical.

The single biggest barrier to successful innovation is this transitional funding problem. It is so well known that it even has a name. In the venture capital industry it is referred to as the “valley of death”. This is the point in the technology development cycle where the initial funding is insufficient and yet where the technology has not yet reached the point where it can generate capital itself.



The “Valley of Death”
http://en.wikipedia.org/wiki/File:Startup_financing_cycle.svg

Although a new variable recently entered the picture it is still not enough to overcome this inherent funding problem. During the 2008 elections (and even before that), politicians for the first time began to raise large sums of campaign money using the Internet.

This is retail politics at its best. For the first time it became possible for underdog challengers to match the funding levels of well-heeled incumbents, special interest groups and corporations.

Numerous small contributions from the public make this miracle possible. Barack Obama raised about half a billion dollars on the Internet this way during his successful presidential campaign.

Here is a funding mechanism that seems to have the potential to provide enough money to break the innovation funding deadlock.

Using this method, an inventor might well be able to raise enough money to build that all-important watershed prototype.

Suitable precautions have to be observed, of course. The recent economic debacle on Wall Street has inflamed passions to the point where a beggar with a tin cup could well be at risk of being hauled off to share a cell with the likes of "Bernie" Madoff.

But donations over the Internet are a well-established method of raising money, at least among politicians, so it seems reasonable to pursue this option. Or is it?

Unfortunately, this method of raising capital has turned out to be difficult, if not impossible for an innovator to use.

The technique requires a marketing effort so extensive as to be unavailable to the typical inventor or micro-business. And even worse, some venues require that all the money be returned to contributors if the effort falls short of the goal by even one dollar, saddling innovators with even more debt.

There is no going back, recapturing a simpler time when it was possible to "bootstrap" innovation through its application in a business enterprise.

We can only go forward into an uncertain future. Do we continue on the current unsustainable path, or do we take another way? We face a choice at this moment in history.

If we choose wisely, the benefits will be "paid forward" to generations of human beings yet unborn as well as all the other inhabitants of this small blue planet and many more beyond as humanity expands into the universe.

Choosing the wrong option, however, will ensure stagnation and decline. The problem here is that humanity always seems to take the darkest path as dictated by the usual unreasonable expectations and shortsightedness.

And right now things don't look like we are on the right path.