

# Venturing Your Concept

## Product development methodology 2

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Now that we have an idea on the table, what do we do next? This of course depends on our expectations as well as the idea itself. Licensing may be our best choice. For our purpose here, however, I assume we will venture a device all the way to market, that it will be around for awhile, and is something the typical handyman can conceive and make from scratch, given the tools and materials. It is also an apparatus that the owner will want to use and rely on for several years before replacing. Because of its long expected market life and vulnerability to competition, our device must be patented to secure and maintain a market. So how do we proceed?

Our initial question must be, will our concept work as visualized? On the way to proving functionality, we expect to encounter complications—a downside. However, more often than not, complications are opportunities for improvement and even brand new concepts—an upside. Done right, a product development cycle will reveal extensions of the original concept as well as new opportunities. Edison showed this repeatedly, as have others. The keys here are to think creatively all along the venture path while looking for opportunities. Invention breeding invention can be an ongoing process.

A successful development will depend on the mindset of the innovator(s) as well as the rules of the free enterprise game. Given the basic concept, how do we use our creative juices to achieve the very best result we can for a given market while we maximize returns to our bank account? At the same time, how do we provide a base for the best possible patent coverage and ensure marketability?

Let's start with our own attitude. How enamored are we with our concept? Being enamored is a little like being in love to the point of being blind to serious incompatibilities with the other person. Being enamored with what is essentially a business venture is a recipe for disappointment. Many inventors are in fact in love with their own ideas. That is not all bad, of course—we all tend to do it—it just gets in the way of the development process. The “enamor trap” is the most common bias inventors face. Unfortunately, most of us are blind to our own biases.

Developing an original takes as much creativity as creating an original—and more energy. If we are unbiased, we find it easy to look for problems needing attention; we can clearly proceed on a development course based on knowledge,

logic and experience instead of blind emotion. A healthy enthusiasm with reality checks is the key.

As we mentioned last month, a new product is about 90% perspiration, 10% inspiration. The development cycle is the perspiration part. Building and optimizing a device, apparatus, or mechanism involves testing models. Testing in actual field trials is preferred, but not always possible, of course. Nevertheless, we need to generate information on functionality—how well the concept works. For market acceptance we must provide serviceability, reliability and useful life. Failure to perform enough testing to certify market worthiness is to court disaster. Personal safety and environment are also primary concerns, along with customer satisfaction. For the latter, price and aesthetics must be right. And we must provide product support to gain customer loyalty.

Equally important is a forecast and test of the market. But we can make our own quick “value assessment” before we even start, by using the magnitude of the ratio = (Revenue x probability of success) / (total investment). Higher is better, of course. Ratios above five are as rare as they are interesting. Ratios less than two should be looked at carefully. This ratio, as with other measures, can be no better than the numbers we put in. Web sources for preliminary evaluations of ideas include:

- <http://www.innovation-institute.com> — Wal-Mart (Fee with report)
- <http://www.USpatentlaw.com/evaluation.htm> — Neustel Law Offices (Free)

Record keeping is always good procedure. In practice it will rarely be needed beyond the minimum of tracking progress and status. But when it is, big bucks can be involved. I recommend using a bound notebook, signing and dating each entry in sequence and having each page witnessed and dated by someone who understands the project. Records are also essential for determining who invented what whenever a team is involved. Each originator of an enabling idea for a claim must be listed as an inventor in the patent application. Failure to do so could invalidate our patent. Remember, co-inventors each have equal rights—including giving out a free license—which can lead to problems. My preference is to have each inventor assign commercial rights to a single person or entity in return for adequate consideration or share. This is one simple way to insure smooth sailing for our development.

To obtain strong patent coverage, we must reduce an idea to practice by making an article and trying it out. Then we look for improvements and try them. We repeat this process until our design seems optimal or until resources are exhausted. This final design becomes the preferred design when drafting the disclosure for a utility patent. And we should already have the seeds of ideas for the next generation or new idea in hand.

Development and venturing benefit from a team approach. A team may be as simple as a cook and food server or as complex as a vast laboratory or even an industry. The key is assembling the right team. Teams that do best employ the power of dialogue. That means communicating openly and freely without defensiveness with all ideas thoughtfully considered. Dialogue is the top rung of the communication ladder. A simple edict is the lowest. Debate and dialectic rungs lie in between. Dialogue wins just about every development race, because the best thinking of the entire team is available to all. A command and control organization can be no better than the boss, and that is not good enough. So we must find creative and open colleagues who share our goals and are not defensive. How to identify such people will be the subject of a future column.

As a development proceeds, practical issues increasingly involve the real worlds of manufacturing and marketing. In practice this means we must keep an eye on all aspects of venturing during product design iterations. We must be able to sense how to trade performance for cost and how this will affect the market—insight helps here. Knowing the inner nature of our market economy is the key—another reason to use a team approach.

Timing is often a critical factor. Early-to-market often means sustained dominance. We hope a patent will issue in time to keep the copycats at bay. A rule of thumb for US patents is that they take two years or more to issue. Beware of the patent that is allowed as written, without a rejection; you probably did not claim enough. Let the PTO draw the line. No amount of legal talent can tell us ahead of time where that line will be drawn.

Additional issues are product quality and consistency. Identification of the critical quality measures during development will facilitate implementation of an effective manufacturing system. It may be as simple as a test of functionality or as complex as multiple acceptance tests backed up by a ton of statistics and a paper trail a mile long going back to part suppliers and their suppliers. If performance will be critical to selling a concept, then that issue should be addressed during each stage of a development. *We are essentially qualifying a product and a process whereby it is made.* Process and input material variations induce product variations, often in subtle ways that may take advanced experimental procedures to ferret out. Such procedures are often required where new materials, energy conversion, or chemical reactions are involved. I will address this issue also at a future time.

Additional “cook book” questions to be asked routinely during developments: Will our invention be for local or world markets? Will it meet industry standards and those of society? Can it be manufactured safely with consistency? How much capital will be needed and where can it be found? What is the return on investment in percent and time to break even? What resources will be needed for the entire cycle to market? Will it have a positive effect on society? Will it become an in-thing?

We must continually ask, “Do these answers impact our development plan?” and we must react accordingly. *In developing a product, the planning process has more value than the plan itself, as the best path forward is forever changing in response to the latest information.* To follow a fixed plan is to court the enamor trap mentioned above. To paraphrase Jeff Bezos (Amazon.com), no plan survives its encounter with reality. Did Edison stay with his commercial plan for direct current electricity too long because he was enamored with his own creation?

It pays to do the right things early on. We can learn to do them well in due course. It also pays to have an after-action review for insight into our next venture. It is not the mistakes we make, but what we learn from them that enhances our ability to innovate.

Next issue will focus on the intertwined subject, process development.

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