Challenges in Implementing a Value Innovation Portfolio

Making Innovation Count

A Framework for Measuring the Creative Contribution to Product Development

By Sheila Mello, Ron Lasser, Wayne Mackey, and Richard Tait
Product Development Consulting, Inc.

Thomas Edison's quote "Anything that won't sell, I don't want to invent. Its sale is proof of utility, and utility is success" sums up the notion that innovation must have a purpose. Innovation is a creative process, yet creativity alone is not justification for innovation in the business world. (Other realms of human endeavor, such as pure science or philosophy, may have different yardsticks by which to assess the usefulness of innovation.)

We believe that value to the customer is the metric to use when assessing the fruits of your innovation efforts and we make this argument in our book, *Value Innovation Portfolio Management -- Achieving Double-Digit Growth Through Customer Value*. Although innovation by its very nature involves doing things that have never been done before, it is possible to establish a framework for evaluating -- and optimizing -- innovation. This article describes that framework.

Innovation in Context -- Where Does it Fit?

In general, the innovation process precedes the more structured product development process. Innovation, as we define it, might begin with an employee's *aha!* moment in the shower before coming to work. The employee might be inspired with an idea for a totally new technology, a completely new way of providing a service, or even a new way of selling, as in the case of Dell Computer, which pioneered the idea of customers specifying build-to-order systems online.

The inspiration then enters two distinct phases. The first, which we refer to as *ideation,* is the process of filtering the idea. The company examines the shower inspiration to see if it makes sense and to determine whether it's a viable strategic and market fit that the company wants to back with an investment. During the second phase -- *incubation,* in our parlance -- the company begins to spend money to determine whether the idea is feasible. Both phases occur prior to the idea's incorporation into a specific product. After incubation, the idea moves into whatever process the company uses for product development, and the innovation phase ends.

As we explain in *Value Innovation Portfolio Management*, successful companies seek to cultivate innovation in the context of what customers value while at the same time not stifling the creativity that can lead to breakthrough ideas. Thus, innovation becomes part of the interplay among customer value, corporate strategy, and investment decision-making.

What's Wrong With Current Measures of Innovation?

The problem is not that companies don't measure innovation today. Every company does, in one way or another. Most innovation metrics, however, are immature. Either they are takeoffs on regular product development metrics or are based on a single company's past experience. Since neither approach uses objective facts about what succeeds and what doesn't, you might as well close your eyes and throw a dart at the wall to determine how to encourage innovation that leads to successful products.

A robust innovation maturity model needs to address both the ideation and incubation phases, as well as a critical third piece: the management system that enables innovation to be successful (see Figure 1). Without the right controls, funding, and processes to bring an idea from the employee's shower to the customer, a company may fail even if the rest of the innovation system is strong.

As with any metric, it's important to understand that the act of measuring doesn't actually solve problems. It does, however, provide information so leaders can make more informed decisions, giving everyone not only an accurate view of where they stand, but what they have to do to improve.

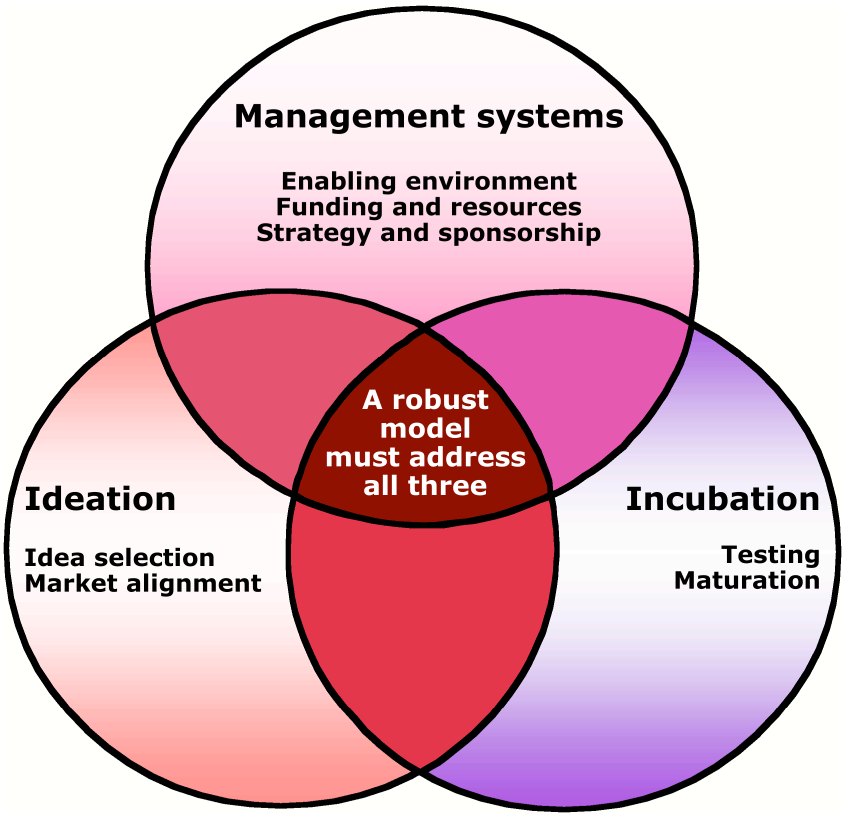


Figure 1: A robust innovation maturity model addresses the critical area of management systems as well as ideation and incubation.

Who Needs an Innovation Framework?

Companies whose bottom lines are driven by innovation are good targets for applying an innovation framework such as the one developed by IBM and PDC (more on this to follow). For example, in the heyday of deregulation, power companies were looking for innovative ways to differentiate themselves and increase profitability. Now that deregulation has receded as a business force in the power industry, these companies have returned to core businesses, and probably would not be good candidates for applying an innovation framework. In contrast, many of the technology and service companies that weathered the economic downturn of 2000 and 2001 by cutting R&D budgets probably emerged with far fewer products in the pipeline than is healthy. They needed to pump up the volume, but how? Using an innovation framework would have allowed them to get more products into the pipeline not simply by investing randomly but by spending that money in ways that made sense strategically and minimized risk.

IBM decided to tackle the problem of measuring innovation directly. Through work with its Emerging Business Opportunities (EBO), IBM realized it couldn't treat the development of completely new products and technologies the same way it treated ongoing product development. The EBO initiative introduced a different set of rules. For example, it's impossible to create a clear business case or an accurate market projection before knowing the breadth and depth of a technology's potential use. So best practices in the EBO phase were designed to supplement traditional business analysis and market projections with efforts like technology diffusion studies. One of the goals of IBM's EBO phase is to grow revenue by finding the potential breadth and depth of a new technology's application. That information, combined with the current market size of the potential applications, gives insights into the relative value of a new EBO.

Still, even an innovation leader like IBM, which realized the right way for EBOs to go, had no objective way to measure the many processes involved. So IBM's corporate EBO process architects contacted PDC. With 16 years of client work and a database of innovation best practices, we were able to provide the hard data to help IBM sort out what works and what doesn't. What *are* the key elements of innovation? What differentiates success from failure?

Although many people believe that real breakthroughs come from the lone entrepreneur working in a garage, PDC's research shows that larger companies have a greater need to control the innovation process. In IBM's case, for example, the company had no trouble generating ideas, whether from its own staff or through acquisition. The challenge was getting the *right* ideas into the system and then rapidly turning them into profitable products -- finding that elusive control mechanism.

The Nuts and Bolts of the Model

PDC developed the innovation maturity model in conjunction with IBM during 2003, using both proprietary and public research. The model is divided into five parts and covers 30 aspects of innovation. Why 30? We wanted enough to provide meaningful information, but not so many points as to make the model cumbersome. According to Dave Coughlin, Executive Consultant for IBM's integrated product development

team, "We had lots of discussion about what were the key elements that the model needed to cover. Originally, we started with 80, then cut it to 60. We still felt that was too many."

People simply won't use any model that requires special training or setup, so we kept the model simple. "We spent time taking surveys from other organizations," says Tom Luin, Business Transformation Architect and another key team member. "They took an hour or two to complete. We knew most executives wouldn't put in that much time. Ours takes about 15 or 20 minutes, and that has proven very useful. Almost everyone agrees to take that amount of time to answer 30 questions with multiple choice answers."

The model is supported with an Excel spreadsheet including dropdown answers. It begins with an introductory section that summarizes the company or business unit being studied and asks about its relative success in innovation. This information is used to sort the data and statistically correlate individual elements to success. Each of the next three sections asks ten questions, to which there are five possible answers. These sections cover management system, ideation, and incubation. The final section is an automatically generated report showing, in chart form, where a company stands in relationship to the rest of the company and to other companies.

The five potential answers to each question in the management system, ideation, and incubation sections describe five specific items that characterize a level of maturity. It's important to note that all the answers are based on *real* and *demonstrated* practices at companies. This means that although you might look at the highest level and say, *we could do better than that*, you'd be attempting something that no company has achieved in the real world. Likewise, the lowest level may not be as bad as it could get, but it represents the worst that any company is doing in the real world. The key to establishing a relevant baseline is using objectivity in answering the question.

As with any other benchmarking scenario, no single company will achieve the highest level in every area. That would be an unrealistic goal, like taking the gold in every Olympic event. The value of benchmarking is that it points out where your weaknesses lie, so you can take steps to address them. Using the reporting section

at the end of the tool to map your company against the database for all other companies can be particularly revealing.

Using the Tool - A Portfolio Management Example

There are a couple of steps to using the tool. First, someone with a fairly high-level view of an organization or project fills out the questionnaire, which usually takes 15 to 20 minutes. Then the company goes through a process called *calibration*. This involves a small group of people, usually between four and 15, reviewing the answers to achieve consensus. Calibration is a significant element of the process, because it ensures that everyone who answers the questions understands them in the same way and ensures that everyone comparing himself or herself to the database is looking at a single version of the truth.

Interesting -- and potentially distorting -- things can happen if a company skips the calibration process. In PDC's work with clients, we have discovered that approximately 20 percent of the answers change in some way as a result of the calibration process (which sheds a less-than-flattering light on traditional benchmarking questionnaires without calibration built in). Tom Luin of IBM agrees. "Using individual answers, we can come up with something that's *fairly close* to accurate. The collaboration step allows everyone to come to a consensus about what the answers are for their business unit. You eliminate the extreme viewpoints. It's a team-building exercise as well. Everybody gets to say what's important to him or her. It's a very useful organizational construct." We also have found that simply knowing others will review their answers causes people to answer questions more thoughtfully, although of course there is no way to measure the effect of this.

Let's look specifically at one area of the ideation section, portfolio management, to see how the process works. The following five answers to the question about how you handle innovation portfolio management, as with any other section, are based on real company experience and range from poor to excellent. Here's the basic idea, with answers ranging from worst to best:

1. Funding is ad hoc or "creative." There is no central portfolio management.

2. One or two people do portfolio management. It is centralized, but proposals must be justified and rejustified as funding often moves from one project to another based on short-term goals.
3. Portfolio management follows a process, usually annual, but data about potential projects is either incomplete or not credible.
4. Portfolio management is process- and data-driven, but adjustments are made based on short-term events.
5. Portfolio management is process- and data-driven and regularly adjusted, with clear tie-ins to business and technology strategy.

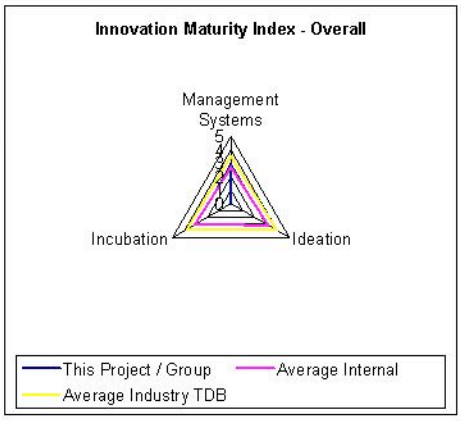
In general, most companies will probably find themselves starting at level 3. (See Figure 2.) They have some sort of a process in place, but individual projects offer wild projections about potential success, showing off the proverbial hockey stick in management presentations. This makes executives highly skeptical of the data, which makes it hard for them to justify decisions. The benchmarking exercise has revealed that the company needs better data to advance to the next level.

It's usually best to target improvements one level at a time. However, the process also can reveal that you might want to jump ahead faster than that -- if, say, your company were at a level 2 and others in your industry were at level 4. Again, measurement doesn't solve the problem for you, but it tells you the size of the problem and how much to worry about it, allowing you to put resources where they can do you the most good in your marketplace.

The process also can be used within a company. Interestingly, one company we worked with allowed different internal research organizations to compete for dollars. If a particular group were mature in an area, it would get more money. This made for a healthy internal competition. Once you can measure how well a research organization does research, then you can give people incentives to improve.

Reports - {with demo-only data in yellow}

Overall	This Project / Group	Average Internal	Average Industry TDB
Management Systems	3	2.7	3.52
Ideation	0	3.2	3.91
Incubation	0	3.1	3.75



Mgt. Systems	This Project / Group	Average Internal	Average Industry - TBD
A1) Vision & Goals	3	2.7	3
A2) Sponsorship	2	3.2	3.5
A3) Focus	4	3.1	2.9
A4) Communication	4	2.7	3.2
A5) Protected Funding	3	3.2	4.1
A6) Incentives	3	3.1	4.2
A7) Standards	2	2.7	3.9
A8) Metrics	2	3.2	3.5
A9) Knowledge Mgt.	3	3.1	3.7
A10) Subject Matter Experts	4	3.1	3.2

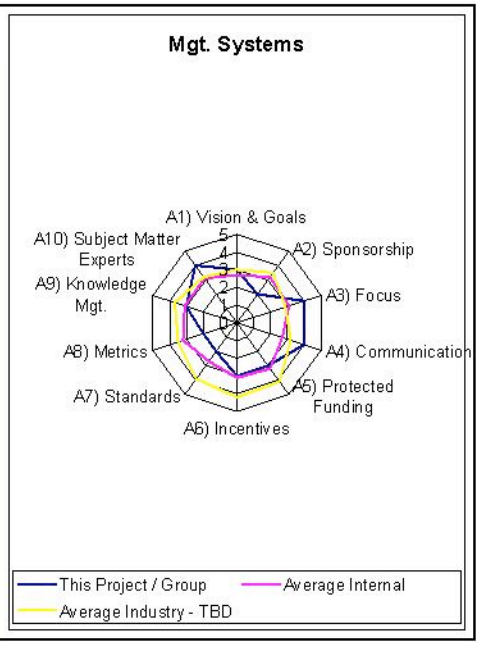


Figure 2: A sample report comparing a particular project or group to internal and industry averages

How an Innovation Framework Can Help You

To figure out whether your company could benefit from innovation measurement, you first need to determine the strategic importance of innovation to your company. Is innovation a central competitive factor in your industry, or is the market driven by other factors? If innovation *is* significant, are you satisfied with the efficiency of your R&D efforts, or are you wasting R&D dollars chasing the wrong innovations? Finally, take a hard look at your current innovation process and how well it measures the critical elements. If your process has room for improvement, you may benefit from a

formal assessment of your company's innovation maturity. This isn't an easy road, but it can transform your business from one in which innovation is just a marketing buzzword to one in which innovation drives revenue growth.

PDC is an internationally recognized product development consulting firm. We focus on optimizing processes throughout the life cycle, from strategy to product retirement. Fortune 500 and other high-growth companies look to us for an "inch-wide, mile-deep" approach that yields measurable and lasting improvement.

Product Development Consulting, Inc. (PDC)
84 State Street Δ Boston, MA 02109 Δ (617) 723-1150
www.pdcinc.com