Interview with Bob Cooper
Creator of the Stage-Gate® Idea to Launch Process

Bob Cooper is emeritus Professor of Marketing at McMaster University, DeGroote School of Business, and ISBM Distinguished Research Fellow at Penn State University's Smeal College of Business Administration. He is the father of the Stage-Gate process. Bob is an extensive researcher in the field of product innovation management. He is the author of eleven books and over 120 articles on new product management. He divides his time between his two places of residence: Toronto, ON, and Sarasota, FL. He can be reached at robertcooper675@gmail.com

Interviewed by Doug Berger, Managing Partner, INNOVATE LLC. doug@innovate1st.com

Doug: Bob, it's been 6 years since our last interview. You continue to do research and work with leading companies. How has your thinking evolved? Where are the data and your experience indicative of some new emerging trends?

Bob: I had a serious concern during our last interview that has been subsequently reinforced about the lack of bold innovation in product development, particularly in the U.S. The kind of innovations that built the country and built entire industries seems to be lacking … with a few exceptions. Our research shows that an increasing proportion of R&D money is going to renovation projects instead of innovation. Companies seem to be more focused on tweaking their current products than creating genuine, new products -- the types of new products that built these companies and entire industries in the first place. Those days seem to be gone for too many firms.

Now assuming a company has decided to get back to basics in innovation and devote a significant amount of time, money, and energy to true product innovation rather than just renovations and tweaks, the next issue is where do you get the big, bold ideas? We have done some research into this topic and have looked at about 25 different methods of getting breakthrough ideas, in addition to using traditional brainstorming methods or attending various offsite events held by consulting companies.

We find that the most popular methods are not necessarily the most effective in terms of getting breakthrough ideas. The voice of customer tends to be a very prolific source of ideas. Yet, one of the most effective but least popular sources of breakthrough ideas is ethnography, camping out with customers. If you want to really understand gorillas, you don't run a couple of focus groups on gorillas, or conduct a survey. You buy a backpack and tent; you move into their habitat, camp out with them and learn what makes them tick. The really

good in-depth research, spending a week at a customer's factory, their kitchen or their office place is much more profound research that yields many more breakthrough ideas and systems solutions.

Doug: What would be number two on your top ten?

Bob: Number two, and a very close second to ethnography, is pre-planned site visits to the customer by a cross-functional team from your company. This is particularly appropriate for B2B product developers. A team of three people, for example, somebody from technical, from marketing or product management, and perhaps a salesperson, visit the customer site, meet a group of key purchase influencers, and spend a considerable amount of time going through a fairly detailed interview guide with them.

The questions in the interview guide are not the direct, simplistic questions like, "What do you want in a new product?" That's a naïve question. The answer you get is a description of your competitor's product and at a price ten percent less than your current price. The probing kinds of questions should be, "What do you do with this product?" "Why do you do it that way?" "Can you think of a better way?" "What really angers you about the product?" "What are the most significant drawbacks when you use the product?" "What does the product let you do (its benefits)?"

You can then take this problem or opportunity information back to your development group to conceive solutions. Don't expect the customer to tell you what they need – to define the innovative product. Often they don't know until they see it in front of them. It is your job to understand their innermost desires, needs, problems, and challenges, and then to translate these into a proposed solution which you can present to the customer.

Doug: From the R&D point of view, companies often come up with something that is a new technology for which there is not an immediate, obvious market application. What has been an effective practice of actually finding market entry points for that kind of technology?

Bob: You are describing another source of ideas, which we found to be moderately effective, namely technology-driven ideas. A person working away in the lab comes up with an, "Ah-ha! We can do this." Sometimes these new technologies are even disruptive. We found that these technology-driven and disruptive technology-type projects are moderately effective as a source of breakthrough ideas.

The big problem with this route is that often you have solutions in search of problems. Thus, we have created an alternate process called the "technology development process" similar to stage-gate, but designed for scientists and tech development initiatives. For example, 3M's normal stage-gate process (its New Product Innovation process) is employed to develop new products. But for scientists doing fundamental research, aiming to create new technology that could then spawn multiple new products, 3M has a different methodology, called NTI, New Technology Innovation. It forces this technology development team to spend time doing something they rarely do … talk to some potential users and consider potential problems that the new technology might solve, and determine the value of the technology to the user.

In other words, before you move too far and into heavy spending, scientists need to get out into the field and talk to some potential early adopters to find

out what they think, how they might use this new technology, how they see the value that this technology could yield. That seems to be an effective way to drive technology into commercial ideas. We call this method Stage-Gate-TD for technology development.

Doug: Let us follow the trail from the big idea into a big commercial opportunity. What have you been learning over the last couple of years about this area?

Bob: Big ideas are born and all too often, like grapes growing on a vine, if they don't get picked, they wither and die. You really do need a pathway to get those ideas off the vine and through the fuzzy front end of the process. In the case of radical ideas, bold ideas, ambitious ideas, that early process can be very, very harrowing. There can be so many pitfalls and traps. We call it the 'valley of death.'

At the beginning when the idea is born, people have all kinds of enthusiasm. The idea is so shiny, new and wonderful. Then as it starts moving along, new facts are found. "Gee, it's going to be a lot more expensive to do than we thought." "Gosh, the technology is a little more of a challenge than we had imagined." "Wow, the market is not quite as developed as we had believed." Surely, and often not so slowly, management enthusiasm drops precipitously to the point where there is almost no support for the project anymore.

So three or four months into the project, the idea is almost dead – another victim of the valley of death. If you get through that valley of death and things start to pick up, then a proper business case can be put together, and the concept moves into development. But that phase between the big idea and getting it worked up as a commercial development initiative is deadly.

Doug: So we have the big potential idea, although not yet ready for a development cycle, and the business case for the idea at the outset is just ill-defined. What practices are companies using to shape the idea into an investable business concept?

Bob: We are seeing some newer approaches. The jury is still out on some of these so I'm a bit reluctant to highly recommend them. One group we are working with in Europe, a highly innovative company, has their regular stage-gate process called Accelerate to Market. Then they have a new process called Breakthrough to Market – this is for projects where the market is not well defined, the customer need is fuzzy, and the technical solution is not clear at the outset. What they have done is set up six-month sprints. The idea goes to a senior management group, who agree that this is a breakthrough project. They look for a volunteer to run the project, and put a small team on it: "You have six months. Go for it. Sprint as fast as you can. And in six months, be back here with something that is demonstrable to relevant business stakeholders. That means at least one significant customer has seen it and put their blessing on it. Also, you have got to demonstrate it to us."

This company has borrowed a page from agile software development, although the software sprints tend to be four to six weeks, not six months. But the point is that this firm protects the breakthrough team through the valley of death. Most important, no project reviews, no Go/Kill decisions, and no gates for the first six months. At the end of six months it's, "Show us what you have that works."

The product often breaks all of the regulatory, safety and other rules, but the customer knows that. They know it is also an experimental project. At the

end of six months, one of three things happens. Number one, senior management kills it right away. Number two, they give the team another six months. Or number three, they say, "You've got enough here. You have defined the market, the value proposition and the technology. Now it's time to put the project into our regular product development stage-and-gate process."

This European company has run three or four projects like this, and they have achieved some successes.   The point is that they are trying to get the project through that very, very sticky and difficult valley of death.

Doug: Are there other approaches besides the 6-month sprint?

Bob: I see other companies putting incubation centers into the early stage of their stage gate systems. Often the best ideas are the most fragile. So companies build in a new stage that precedes the idea screen. Out-of-the-box ideas arrive and enter an Idea-lab where there's a core of very open-minded and creative people who help develop the idea further. They incubate the idea, let it breathe, let it grow legs and gain robustness so that it can be taken to a business unit and have a chance of surviving the first gate decision-point. That is a second approach we are seeing.

There are other approaches we see. For example 3M's "projects on the side" which are unofficial, not-formally-approved projects, are allowed to proceed without much scrutiny until the developer has something he or she can show management. Many firms are working on trying to get good ideas through the valley of death!

Doug: I now have a business case with customers, products, and preliminary financials. The concept has some legs. What are the new practices for commercialization?   Bold concepts don't necessarily have at the outset a mature market. There is still an enormous amount of external uncertainty and perhaps market evolution that will happen.

Bob: Obviously with bolder more innovative projects, estimates of how large the market is or the long-term potential are highly uncertain. The value proposition to the customer is not clear because customers may not even know what the value is to them until they start using it and realize, "Hey, it's got a lot more value than I thought."

The other key uncertainty is the technical. The dominant technical solution, the one that the market will eventually settle on, may not be immediately apparent in the early days of this project.

Thus instead of relying on a linear, step-by-step phase process like most companies, what we are seeing for these more embryonic or bolder opportunities is an iterative type of idea-to-launch system.

We cannot ask customers what they are looking for because they don't know. So, traditional market research does not work. But when you put something in their hands and let them play with it for a while, they'll figure it out. Then when you engage them some days later, they will be able to give you much more in the way of informed answers. Thus companies create a series of "build, test, feedback, and revise" iterations or spirals with the customer all the way through the process. These spirals or iterations thus confirm customer liking, obtain feedback from the customer to revise the product design, and also help validate the technical solution. These spirals begin even before development begins with a virtual prototype. Then the project goes into

development, and the spirals continue, including a crude working model that the customer can play with, a rapid prototype, and so on. Each version of the product getting closer and closer to the final product, ready for traditional beta tests, field trials, or in-home tests.

Doug: You are the father of Stage-Gate®. You have had a dramatic impact on the way R&D has become more systematized. Now you are presenting new data and new insights. On a more personal level, what have you been learning? What for you have become new perspectives that were unanticipated a few years ago and now have become mainstream in your own thinking?

Bob: Now mainstream in my thinking but not necessarily in the corporate world is this more iterative, spiral and more experimental approach. Most companies still don't do that, and I'd like to see more of that.

Another area that I have always known but has now really hit me much more front and center is the need for significant culture change within the company in order to do these bolder and bigger innovations. If the setting is wrong, if the culture and climate and management mindset is wrong, it's not going to happen regardless of the process and methods. Critical to bolder innovation is a real passion and desire to do these kinds of projects, to invest more boldly. I spend quite a bit of time talking about this to executive teams these days, and I am getting some pickup.

One of the investment challenges here is that when it comes to bold innovations, your financial forecasts are always wrong. You are either too high or too low, and wrong by orders of magnitude. Thus it's difficult to prepare a reliable business case, and to gain the confidence to make the investment commitment for these types of bolder projects. But now there are methods for making the investment decisions when the data is highly uncertain. For instance, the options pricing approach looks at the project as a series of investment decisions. This is a very different model than, for example, net present value, which is based on an all or nothing decision.

Doug: You have started to do some research with small businesses. What have been some of the insights, learnings, and surprises from working with a different business sector?

Bob: We hear that small business is the backbone of the economy -- that the big corporations have not been particularly successful over the last few decades in delivering the great innovations. The data supports that. However, you cannot jump to the conclusion that all small businesses are necessarily innovative and entrepreneurial, because many are not. The great majority of small companies are also very challenged by innovation. The great innovations coming from small companies that we hear about are really the exception, not the rule.

I think the biggest advantage of the small company is the lack of bureaucracy and the speed of decision-making. That is one thing the larger company should work towards. Through lean methodologies, large companies can work to remove the time wasters, get rid of the blockages, and delete the non-value added work that plagues their innovation processes.

Another advantage of the small company is proximity to the customer. The owner of the company probably knows his or her customers firsthand. Rarely do senior people in big corporations directly interface with customers.

Doug: Any concluding words of wisdom?

Bob: I witness what is happening outside the U.S. with some awe. Eastern Europe, which is a bit like the Wild West, is incredibly entrepreneurial. Their business managers think that the future is theirs. I've also worked in Germany and Northern Europe for the last 25 years and have seen some spectacular improvements in the way that they do product development. And on my trips India and China I've been very impressed. The world is catching up with us and we have got to shift into high gear if we want to stay ahead.

         Bold innovation is the formula that has built American business over the last 150 years. It has built entire industries. It has built famous American companies.   I hope we go back and take a hard look at our roots and realize that true innovation – bold innovation - must be the way forward if we're going to continue to compete in an increasingly challenging world. I say to executives, "Hope is not a method. Commit to bold innovation. Strategically devote a certain percent of resources and a percent of your personal time and energy to those bigger, bolder projects – after all, it's only your future at stake."

Additional reading:

         Cooper, Robert G., "Creating Bold Innovation in Mature Markets," *IESE Insight*, Third Quarter, Issue 14, 2012, pp 20-27.

         Cooper, R.G., "Where Are All the Breakthrough New Products? Using Portfolio Management to Boost Innovation," (forthcoming in *Research-Technology Management*, Sept-Oct 2013)