

## Interview with Gina O'Connor

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Gina O'Connor is Associate Professor of Marketing at Rensselaer Polytechnic Institute's Lally School of Management and Technology. She is also the Academic Director of the Radical Innovation Research Program. She researches, teaches and consults on the topic of managing for breakthrough innovation. The majority of her research efforts focus on how firms link advanced technology development to market opportunities.

She has published more than 30 articles. Three of her papers have won the Best Paper of the Year award at the Journal of Product Innovation Management. She is co-author of the book *Radical Innovation, How Mature Firms Can Outsmart Upstarts* (2000), and

is lead author of *Grabbing Lightning: Building a Capability for Breakthrough Innovation* (2008). Gina can be reached at [ogconn@rpi.edu](mailto:ogconn@rpi.edu).

Interview conducted by Doug Berger, INNOVATE [doug@innovate1st.com](mailto:doug@innovate1st.com)

Doug: Let's set the stage by defining your particular orientation toward breakthrough innovation.

Gina: When I think about breakthrough innovation, I think about technologically-based innovations that can bring whole new performance features to the market: new-to-the-world performance features, or dramatic improvements in features, or drastic reduction in costs. I include the kinds of business model innovations that have already occurred, as well, such as Google or Dell. Generally, business model innovations are enabled by technological innovations. The research question we asked was, "How do companies build a breakthrough innovation capability so that it's sustainable?"

The critical issue with regard to breakthrough innovation is that at the outset there are many unknowns and much that is unknowable about the markets, technology, delivery and the business models. When we manage for breakthrough innovation, we have to manage in a world of high uncertainty and high ambiguity. This has big implications for companies and for successfully commercializing breakthroughs.

Doug: How is the playing field fundamentally different between how most companies spend their research dollars and breakthrough?

Gina: It is important to think about how large established organizations become successful. They are able to grow their market base and maintain their profit picture because they are completely loyal to their current customer base, and they are laser-focused on delivering in an operationally excellent manner. So the predominant culture in most

large established companies is a culture of operational excellence. The corresponding problem is that this culture drives out breakthrough innovation.

In our research, we are considering a sister or partner management system that is tuned to the objective of major innovation. We accepted the well-known elements of any management system to make anything work in the long run. We came to understand that there were one or two elements of the management system that were defined and designed to be in tune with the innovation objective, but the rest of the elements weren't there. The innovation capability tended to last a short period of time, on average 4-5 years, before it was shut down ... for example; experiments to put in place a new venture group or perhaps a change in leadership. If nothing else changes, the innovation capability won't be sustained.

The necessary elements of the management system that we identified through our interviews are as follows:

1. The mandate and the scope
2. Leadership and culture
3. Organization structure
4. Process
5. Governance and decision-making criteria
6. Metrics
7. Skills and talent development.

Doug: So, there is a well-established body of knowledge regarding what must be taken into account in order to build any capability in a sustained way.

Gina: That's exactly right, and what's amazing is the fact that we haven't been able to figure it out when it comes to innovation. There have been many attempts at breakthrough innovation, however only one or two elements of the management system are in alignment and the rest are not.

**Our first key learning is that you have to cover all touch points of a complete management system.**

Doug: What companies have established this comprehensive management system?

Gina: Through our research, we found that IBM's emerging business opportunities group is one, and Corning is another.

Doug: It's interesting that given the far-reaching nature of your research, only a few companies jump out from thousands of global candidates.

Gina: We were doing detailed data collection on this phase of our work between 2001 and 2005. During that period, we watched many companies struggle, including those two. Most just floundered, and some developed greater clarity and got better over time.

**Our second key learning is that the changes in management systems came together into three sets of competencies.** This insight came from the companies we studied and our question, "What was missing in the management system?" Let me describe them and then give you some examples.

**The Discovery Competency:** Discovery is a competency in conceptualization. This starts with a deep expertise in science and technology, which goes outside the company to examine novel science and technology. Then there is opportunity generation and

connecting to the technology being internally developed or through partnerships, with possibilities for commercialization. Finally, there is opportunity elaboration and the articulation of those opportunities in a manner which senior leadership can understand and get behind. So often, people tell us that they had these great ideas but they could not get heard. Discovery becomes broader than R&D.

A further surprise was the degree to which strategic intent was underdeveloped for most companies, as well as the clarity of where they wanted to be. Like Alice in Through the Looking Glass, the overriding sentiment was, "I don't know how to get there because I don't know where I'm going."

Doug: When considering breakthrough in the sense of new businesses, companies need to be prepared for 5 or more years to reach scale.

Gina: Exactly. Then, when you start to dig into those companies, you find that senior leadership's ability to state the company's strategic intent is actually pretty shallow and not well thought through.

**The Incubation Competency:** Incubation is a competency of experimentation. Experimenting with technologies, market applications, business models, and experimenting with strategic intent. As these fledgling opportunities begin to evolve they will move in directions that the company had not considered. Incubation generally involves numerous partners for each business opportunity in your innovation portfolio. Therefore you have resourcing and partnering experiments.

The punch line is that we saw no companies that excelled at this.

**The Acceleration Competency:** Acceleration is a competency of scaling and exploiting. This is getting a business to the point where you have size and predictability. You have sales forecasts because you have repeat customers. You have stable manufacturing yields. You have a solid economic model.

We found in our first study that an R&D team would own the opportunity until it found one or two application areas where the market seemed enthused and in which they could demonstrate the technology. Then it shifted into a business unit, whose job was to take it from there. The operating units are not measured on that so these projects get starved of resources and fall off the priority list in an operating unit environment.

Doug: If the choice is to get that next ten million from a breakthrough innovation based on operating execution, you're always going to invest relative to getting the ten million from your operating businesses.

Gina: We heard from company after company that they need a landing zone for these fledgling businesses; that they need to be able to grow to the point of competing for resources and attention with other business platforms in the operating unit. That is the accelerating capability.

You can see that if any one of these is missing, things fall apart. When we realized Discovery - Incubation - Acceleration (D I A) it absolutely simplified everything.

Doug: What other things in the course of your research really surprised you?

Gina: The weakest link in a management system is talent development. When you start to think about innovation as an emerging business function, innovation can't just be like any other program. It's got to be constant. You build this management system, you

develop this expertise. In order for that to occur, you've got to have career paths associated with innovation. To develop this kind of sophistication, you can't treat it as a development opportunity for high potential leaders. You come in, you do your eighteen months, and then you move on to your next job. That's how it's being treated now, or it's being staffed by volunteer types who love this work. There has not been any sophistication developed around career-pathing.

We learned that people can't move beyond a director level in many companies if they're on the innovation side of the house ... that the path to senior leadership is impossible. If that is the goal, people have to drop out of the innovation groups and move back into the operational excellence part of the business.

Doug: Let's talk about some myths ... widely-held truths about breakthrough innovation that your research has said are not truths. Yet, they are holding back the success of many companies who are going after breakthrough innovation.

Gina: Myth number 1: to believe that breakthrough innovation will happen in a sustainable way if all that you do is allow the culture to make it happen. 3M, for example, is thought about in this way. They have the 15% rule. 3M is legend for the 'make a little, sell a little, and let the thousand flowers bloom' culture. This is great for proliferating innovations but not necessarily great for breakthrough innovation.

Myth number 2: we get breakthrough innovations because we have champions. This is the myth of strong maverick individuals. When breakthrough innovation benefits from a strong champion, a champion without support of infrastructure spends so much time fighting fires that many of them give up and go away. We can build a supportive infrastructure to work with those people as opposed to against them, and breakthrough innovations can happen without a champion. If we have a management system for innovation, then the people who are operating it are doing their job. And so the promotion, the exposure to senior leadership, all of those sorts of things should be done in the same manner as they are done in the system of operational excellence.

Myth number 3: if senior leadership isn't committed, we will not have breakthrough innovation here. We found that if senior management is against innovation as a form of competitive advantage, it's true that they can obviously stomp it out. It's not on their priority list; it doesn't get resourced. However, it's a different situation when senior management is uneducated about it, wants it in their head, and yet hasn't had personal experience with it. This is the case with many senior leaders. We have seen many innovation portfolio initiatives start with middle management.

Doug: In order for it to become sustained, I suspect that it has to be embraced by executive management.

Gina: At some point it has to be embraced. This means you have an education job to do, and we have seen that happen.

Doug: How can you sustain innovation for the long haul if at the outset the top executives of the company are not selected with those attributes in mind?

Gina: This gets back to the development of career-pathing, because right now top executives have come up through the system of operational excellence. IBM has taken a very progressive approach in this area. The general managers all went to Harvard and they sat through Michael Cushman's class on ambidexterity. They read the book on horizons of growth, so they know about the Horizon 1 versus the Horizon 3 kinds of opportunities. They have a vocabulary that they've developed. At a meeting they will say, "Is this an

H1 meeting or is this an H3 meeting?” When I first heard this I laughed because I like most thought, “Either you’re an H1 person, or an H3 person. How can you expect them to switch?” They responded point blank, “If you’re a general manager in our company, we expect you to be able to operate in either world as necessary.” The amount of resources that they devote toward that education and training is extraordinary.

Secondly, and this happens in other companies, the CEO has a trusted second in command, who is very oriented toward innovation. The CEO has a person in his hip pocket with whom he can regularly check out his assumptions. It happens in IBM, Sealed Air, GE, and EM. The two operate like partners, constantly chatting about what we need to be doing for the innovation agenda in the company.

Doug: Since having done research for your latest book, what’s now emerging in this whole area of breakthrough innovation?

Gina: Having innovation is becoming a function in its own right. If you think about the field of marketing in the 1940s and 1950s, there was not a sophisticated marketing function. Most of it rested on the sales force. Sometimes there was an ad budget, and the budget went off and on. Since the mid 1950s, essentially starting with Proctor & Gamble, marketing has evolved and become a very sophisticated function with multiple responsibilities for market research, for sales force management, for brand and for media relations. Many organizations now have a Chief Marketing Office. This is the current point of innovation. If we start to see the critical roles of Discovery, Incubation and Acceleration, and how they must be knitted together, we begin to understand that you need to have a Chief Innovation Officer or a VP of innovation, who is responsible for ensuring the role of innovation in the overall agenda of the company.

Doug: Let me give you an opportunity to talk about your passions.

Gina: My passion is talent development. Breakthrough innovation happens by spinning through many projects, conducting lots of experiments, and thinking strategically. You have very few people and very small budgets much of the time. This isn’t today’s pathway to senior management. When you think about, how do we get this institutionalized? There are a number of things that we’re working on to do that. For example, we’re trying to think about and articulate what career paths could look like, and it turns out that it’s kind of counterintuitive.

Another passion of mine is the programs for innovation that we’re building at RPI. We want companies to send their teams in charge of the innovation agenda and learn how to put these management systems in place, as well as develop their plan for its evolution. We call this “Innovation and Corporate Entrepreneurship.” We ran our first program in December and it was just unbelievable. Five companies came and they all said it made a great impact on them.

