At many universities, tight budgets and limited staff force technology transfer managers to use often incomplete information to make hard, quick decisions about the commercialization potential of intellectual property. Consequently, non-blockbuster technologies sometimes can languish in passive commercialization efforts -- a reality that doesn’t endear TTOs to university inventors. The Office of Technology Transfer (OTT) at Boise State University created its Innovation Team program to address this problem by gauging market opportunities for IP using paid multidisciplinary faculty/student teams.

The team strategy was formulated out of necessity, says Mary Givens, OTT director. Like many TTO managers across the country, Givens runs what is essentially a one-person office. “The Boise State OTT was formed in 2009, and I am the only full-time person devoted to technology transfer,” she explains. “As a new technology transfer office, we needed to leverage our resources.”

So in August 2009, Givens and the university leadership launched the first Innovation Team with the support of a federal grant from the Small Business Administration. That grant allowed Boise State to offer Innovation Team membership as a paid position. Consequently, participation isn’t just one more gratis duty added on top of the myriad responsibilities already burdening faculty members and graduate students.

The primary goal of the Innovation Team program “is to assess the innovation or the invention and determine what its market opportunity is,” says Givens. “So the Innovation Teams assess each invention’s technology readiness level, identifying any gaps between the technology’s current status and industry’s expectations, and evaluate the market opportunity. From that, these teams are able to advise the OTT and Boise State on the potential next steps in the commercialization process.”

In other words, the Innovation Teams “evaluate the university’s intellectual property for commercialization potential and identify ways to get the technologies into the marketplace,” says Kent Neupert, PhD, director of the Center for Entrepreneurship and a professor in the Department of Management in the College of Business and Economics. Neupert is serving his second year as an Innovation Team member.

Boise State currently selects one Innovation Team per year, and the plan is for each team to review four technologies per semester, or up to eight per school year, says Givens. “The program is only limited by budget,” she adds. “We would have more teams if we could because we certainly have more inventions than a single Innovation Team can process during the year.”

**A multidisciplinary approach**

The multidisciplinary Innovation Teams includes four core members: two faculty members (one each from engineering and business) and two graduate students (also one each from engineering and business). As OTT director, Givens is the fifth team member, serving as the team coordinator.

Innovation Teams consist of “individuals who have unique backgrounds in comparison to each other. That is a deliberate plan on our part,” says Givens. “As we look at innovations, each team member brings a different skill set...”
and a different perspective. It helps us challenge each other and the innovation, so we’re discussing broader business considerations and not merely having a technical conversation.”

The faculty members also are “center directors in their respective areas, so they bring an additional organizational dimension to the team,” points out Neupert. In 2009, participating graduate students included an MBA student with an electrical engineering undergraduate degree, an MBA student with a chemistry undergraduate degree, and an engineering graduate student specializing in biomechanics. This year, the Innovation Team’s graduate students “are an engineering student with 20 years of industry experience and an MBA with a political economy undergraduate degree and an interest in sustainability,” he notes.

Choosing projects

In the first year of the program, the Innovation Team itself played an active role in choosing projects, notes Neupert. “We went through the university’s patent, disclosure, and invention portfolio and did a quick analysis of each item in terms of development, uniqueness, and market potential. Then, we selected a first set of patents to begin analyzing more in-depth in terms of the potential applications and market potential.”

However, Givens now tries to look beyond the commercialization aspect alone, steering the team toward projects that will offer a diversity of learning experience among the pool of inventions that the team reviews. “For example, I might pick one in biotechnology, one in mechanical engineering, and one in health sciences. Other factors that might influence project choice include inventor availability.” The Innovation Team can review new inventions or re-investigate inventions that have been in the university’s portfolio for awhile, she adds.

The Innovation Team meetings begin with a crash course on technology transfer. “We introduce the team to the basics: What is intellectual property? What is the commercialization process? And what is our role in that process?” says Givens. “The team members learn essential information about patenting and commercialization.”

This orientation is critical, she says. “We have new innovations every year. We have new faculty every year. And we have new students with different backgrounds every year. Not everyone is on the same page when we meet for the first time, so this period of co-learning is necessary.”

Next, the Innovation Team is introduced to the technology. An important part of that introduction is direct contact with the faculty inventors, Givens notes. “We hear presentations from the inventors. We are able to ask questions, talk about what they see the opportunity to be, and interact with them. There’s a really interesting dialogue because the team members ask questions from different perspectives and bring up issues that the faculty member might not have considered before.”

The meetings with inventors also help the Innovation Team members appreciate the depth of the faculty member’s involvement, says Givens. “The team members learn that we’re not just looking at a patent number. We’re interacting with someone who is a subject matter expert in their field and who has invested perhaps 10 to 15 years of work and passion into this technology.”

The Innovation Team then conducts its investigation. This review includes “the ‘standard’ competitive situation analysis done in a business setting: competitors, substitutes, potential partners for design, manufacture, sales, and distribution,” says Neupert. “As part of that analysis, we meet with the faculty inventor, knowledgeable industry members in the business community, and other people who may provide insights into the technology.”

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The team meets weekly as a group throughout the semester. “There also are sub-team meetings throughout the week, as well as some work that is done independently,” says Givens. In working on specific projects, “we pair the engineering faculty with the graduate business (MBA) student and the business faculty with the engineering graduate student,” adds Neupert.

“At the end of the semester, the Innovation Team gives a presentation to the inventor, the Office of Technology Transfer, the university patent committee, and to our community partners in industry,” says Givens. Those partners typically include local entrepreneurs and angel investors.

The goal of this presentation “is to outline what the market opportunity is, explain any gaps that might be needed to be filled in order for the commercialization process to move forward, and offer some recommendations,” says Givens. “Then, following that discussion, we look for ways to move forward on finding a path to market,” Neupert points out.

**Results show promise**

The Innovation Teams have yet to move a technology fully into the market. However, “we have made progress with several technologies,” says Neupert. “For example, a faculty member in chemistry has patented a sensor that can detect a range of various elements and materials. So far, we have received interest in the technology from organizations such as the Department of Energy, Department of Defense, and several large engineering and construction firms. In another case, we have been able to combine one faculty member’s invention with another faculty member’s software interface expertise to create solutions to identified market needs.”

The program also helps the OTT “determine which inventions or patents should be supported further and to what extent,” says Neupert. “The process of filing, registering, and defending patents and trademarks is an expensive proposition, and in the current economic environment of shrinking university budgets, the Innovation Team assessment helps the university make an informed decision of what support to provide going forward.”

For example, this past spring the team reviewed five inventions. “The Innovation Team determined that two of those inventions were more ready for commercialization than originally perceived. With a third innovation, the team determined there was not enough market opportunity to invest more time and resources in that invention at this time,” says Givens.

“Both outcomes were very valuable to me,” she points out. “With our lean resources, prioritizing which inventions to focus on and move forward is a constant process. So the information and assessment that the Innovation Team brought to that decision-making and prioritization enabled us to move a couple of inventions forward more quickly and allowed us to de-prioritize others that didn’t have the same level of potential.”

Another aspect of the program’s success is the increased discussion among faculty inventors, says Neupert. “Conversations arranged through the Innovation Team meetings have encouraged faculty members to discuss previously unrecognized areas of common interest. We have faculty members from one area talking with faculty members from other areas about their research, inventions, and patents -- an interaction that would not have otherwise occurred. We hope that these conversations will continue on, further developing current projects and coming up with new ideas.”

**Impact on entrepreneurship**

The work of the Innovation Team “has had a significant impact on entrepreneurship in the community,” bringing more attention to the university’s IP portfolio as a source of opportunity for entrepreneurs, says Neupert. For example, the university has made Innovation Team-reviewed technologies available to some graduate MBA courses. “Our New Venture Creation course allows teams of multidisciplinary graduate students to build business plans around the technologies. As part of the course, these teams create fully developed business plans, which include industry analysis, operational considerations, go-to-market plans, identification of partners for product development and distribution, and the necessary financial requirements.
Also, the teams present their business plans to local investors and entrepreneurs as a way to fully vet the technology’s market potential,” he says. “We hope that one of the teams will decide to actually launch a business based on their experience in the course.”

The Innovation Team program also has raised awareness on campus about patenting and technology transfer, says Givens. One faculty member had such a good experience with the Innovation Team that he sent an e-mail to his entire department recommending the OTT as a good partner, she explains. “Feedback like that, with a faculty member reaching out to his peers to vouch for his good experience, is the best I can ask for.”

To add to that awareness, the Innovation Team is helping to develop training materials “to sensitize or educate faculty members about the relationship between patents or inventions and the market for technology,” says Neupert.

“While we are all aware of the potential that university and national lab-derived technology has, many faculty inventors do not consider the commercial application of their inventions early on. Of course, this does not mean that we want faculty to only focus on market-ready research, but rather to plant the seed to consider how a technology might be applied.”

In addition, the team is crafting educational tools “to provide solid understandings of the patenting process, the university’s policies on intellectual property ownership, associated revenue streams and other related issues,” says Neupert. “We are not trying to do away with basic research or promising early-stage research. We are only trying to add application in the market to the list of dimensions that faculty consider when doing research.”

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