



Our Annual Challenge: Pick the Winner Out of 'Eight Great' Business Plans

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Writer Michael Lewis praised serial entrepreneur Jim Clark, founder of Silicon Graphics and Netscape, as having a nose for the "new new thing" -- i.e., an uncanny ability to discern where technology and the economy are headed. For those not blessed with a nose as sensitive as Clark's, attending the Venture Finals of Wharton's Business Plan Competition offers an opportunity to whiff the future by surveying potential startups. It's a chance to see what aspiring, ambitious entrepreneurs believe will be the next big thing. Today's business plans, after all, become tomorrow's companies.



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At this year's competition, healthcare companies, ranging from medical-device makers to a creator of artificial muscles, grabbed five of the eight finalist slots. The other three included a virtual call center, an online mortgage broker and a company that wants to replace credit cards with fingerprints.

The annual Business Plan Competition begins as students turn in brief summaries of business ideas. Over the course of the school year, their ideas evolve into more detailed summaries and then, for 25 semifinalists, full-fledged business plans. Judges winnow those plans down to eight finalists, who are invited to present at the Venture Fair, held this year on April 25.

It's at the Venture Fair where the finalists get their shot at business-school stardom and cash: The winner receives \$20,000. In front of an audience of investors, faculty and students, each team has 10 minutes to outline its plans and then be grilled by five judges for another 10 minutes. This year's judges hailed from Shelter Capital, Savvian, Pequot Ventures, Johnson & Johnson and Quaker BioVentures. The competition, sponsored by Wharton Entrepreneurial Programs, isn't limited to Wharton. It's open to any team that includes a Penn undergraduate or graduate student. The three top finishers receive cash prizes as well as in-kind contributions of legal and accounting services.

Below, in alphabetical order, are summaries of the proposals by this year's "Great Eight." Try to guess which teams prevailed. (The answers are at the end. Don't peek.)

Biometric Payment Solutions

Credit cards supposedly diminish the hassle of everyday transactions, alleviating worries about carrying enough cash or persuading a merchant to take your check. But they have shortcomings, too. They can be stolen: Identification theft cost Visa and MasterCard \$10 billion in 2005, says Vlad Bayer, Biometric's team leader and a Wharton MBA candidate. "That adds 15 cents to the cost of every [legitimate] transaction," he points out. And even if someone doesn't swipe your card, you might accidentally leave it at a restaurant or, worse, lose your wallet.

Biometric would dispense with these worries by replacing credit and debit cards with fingerprints. Specifically, it would install a network of scanners that could read prints at checkout counters and transmit information about them to payment-processing centers. And as anyone who's watched *CSI: Crime Scene Investigation* knows, no two people's prints are alike.

Focus Therapeutics

A problem with chemotherapy drugs is that they attack the body indiscriminately, unable to distinguish between good cells and cancerous ones. And physicians, for their part, have a limited ability to target chemotherapy to organs that need treatment. That's why people on chemo often lose their hair.

Focus Therapeutics would solve these problems in the treatment of liver cancer by combining tiny polymer bubbles with an ultrasound beam. Focus would encapsulate chemo drugs within its bubbles. Once mixed with a saline solution and given to a patient, the bubbles would circulate safely through the body. As they entered the area of the cancer, a physician would break the bubbles using the ultrasound beam, and the drugs would zap the cancer. Margaret Wheatley, a bioengineering professor at Drexel University in Philadelphia, devised the technology, called THERiMAGE.

A typical chemo regimen for a liver-cancer patient requires several days to administer, says Focus team leader Matthew Steege, a Wharton MBA student. "THERiMAGE would take a couple of hours."

Home-Base

Many military spouses are frustrated in their professional lives: They have to move often, and that hampers their careers. In the minds of the creators of Home-Base, that makes them perfect employees.

Home-Base would hire military spouses to staff "virtual call centers" in which the agents work from home, rather than in big, costly offices. The company would then compete in the market for outsourced business services. The Internet enables the creation of this kind of call center, and JetBlue Airways already employs its reservation agents this way. When you buy one of its tickets by phone, you could be speaking with someone working in his or her bathrobe.

Home-Base figures that combining a staff of military spouses with the virtual call center setup would provide a devoted workforce and public-relations edge over call centers abroad. What's more, many government agencies require that their contractors be located in the United States. Home-Base therefore would target government agencies as a key early market.

iBroker

If you have bought a home, a mortgage broker may have ripped you off. At least that's what the team behind iBroker believes. That's why it wants to create "the Expedia of the mortgage industry," says team leader James Thottam, a Wharton MBA student. Expedia is a popular online broker of airline tickets and other travel services.

Numerous websites link borrowers and lenders. But despite what their ads may imply, they don't necessarily give consumers the best deal, Thottam says. Some sell only their own loans. Others act as referral networks and simply pass customers' names to brokers or lenders for a fee. And the typical broker "has complete discretionary power to choose what rate to quote the consumer, earning a higher 'commission' for a higher rate," iBroker points out in its plan summary.

iBroker would submit its customers' credit information to the same loan clearinghouses that most brokers use to generate mortgage quotes. But instead of selectively disclosing fees and terms, it would lay out all loan quotes and their costs, rates and points. "We are talking about bypassing the broker and linking the lenders directly to the consumer," Thottam adds. "You would be able to do your own loan online."

IntelliStem Orthopaedic Innovations

Artificial hip joints seem like a miracle cure, sparing legions of people from disability and debilitating pain. But their sturdiness can cause the bone around them to atrophy, according to the team behind

IntelliStem.

In a normal joint, bone electrically stimulates itself and thus regenerates when it's compressed through weight-bearing activities like walking or standing. But the bone around an artificial implant weakens because the device absorbs much of the energy. Some implant recipients, therefore, have to undergo painful and costly replacement surgeries.

IntelliStem's team leader, Jonathan Danoff, a Penn bioengineering major who is headed to medical school next year, figured out a way to incorporate electrical stimulation into implants by coating them with piezoelectric ceramics. The stress transferred through the implant compresses the ceramic material, and that creates voltage to stimulate bone growth.

In theory, IntelliStem's technology could also enhance the pins and plates implanted to stabilize badly fractured bones. The first trials of the technology, using implants in dogs, are slated to begin soon at the Medical University of South Carolina in Charleston.

Leto Pharmaceuticals

Like Focus Therapeutics, Leto aims to send chemotherapy precisely where it's needed by creating special carriers to transport the drugs to cancerous sites. Its "polymersomes," or polysomes for short, break down safely in the body and are cheap to make. "A drug within a polysome can be targeted, increasing efficacy and decreasing toxicity," says team member Peter Ghoroghchian, a Penn student pursuing dual graduate degrees in medicine and bioengineering. "Any drug can be incorporated within a polysome, and multiple drugs can be incorporated simultaneously."

Penn researchers invented polysomes, and five patents protect the intellectual property underpinning them. Four more are pending.

Though the technology could be used to treat many cancers, Leto would focus first on breast cancer. The market is big, with 200,000 new patients being diagnosed each year in the United States. And current therapies have limitations that polymersomes could overcome.

"Combining several drugs at once is the most effective way to treat breast cancer, but high toxicity has prevented its wide adoption," explains team leader William Shen, a Wharton MBA candidate. "With the polysome, you can combine them and deliver the drugs effectively."

MuscleMorph

Muscles are light, strong and flexible, making them tough to replicate. In many applications today, cumbersome, costly electric motors serve as a sloppy substitute. The people at MuscleMorph have received two provisional patents for a lighter, quieter, more durable motor (or actuator), using technology that features electro-active polymers uniquely able to convert electrical energy into mechanical energy. Their artificial muscles "match the power-to-weight ratio of real muscles," says Rodrigo Alvarez, the inventor and a doctoral student in bioengineering at Stanford University. "They also match the strength, stretch and speed." The team notes that motor technology has not advanced significantly in 50 years.

Their most promising initial application would be prosthetic limbs -- including those used by 1.8 million amputees in the U.S. -- which are often uncomfortable, noisy and bulky on account of their antiquated actuators, says team member Rahul Kothari, a Wharton MBA student. Once the technology was proven with prosthetics, it could apply in any industry with a need for lightweight, durable and comparatively inexpensive actuators.

OrthoLab Technologies

America, on average, is getting older, and with age, comes osteoporosis. Brittle bones can cause problems throughout the body, but they are especially troublesome in the spine since it holds people erect. Combine osteoporosis with other back ailments, and the incidence of spinal fusion surgery is increasing. About 360,000 of the surgeries were performed last year, and that number is expected to rise to nearly 600,000 in 2010, according to OrthoLab's business summary.

OrthoLab's insertion technology would simplify the surgery by allowing a physician to insert and manipulate spinal implants with a single tool. Under current techniques, doctors have to use several instruments. That lengthens surgeries, increasing cost and trauma for patients.

OrthoLab's device, in contrast, allows for "easy and accurate positioning," says team member Jeffrey Tiong, a Penn engineering major. "The surgeon can place the implant in just one attempt, which is less invasive and traumatic."

And the Winner...

The judges awarded first place to MuscleMorph and its artificial muscles. Second place and \$10,000 went to IntelliStem and its enhanced hip implants. The IntelliStem team members, Danoff and Jared Bernheim, are undergraduates and thus were eligible for, and won, the \$5,000 Frederick H. Gloeckner Award for the top undergraduate team. Third place and \$5,000 went to Home-Base and its virtual call centers.

Besides the \$20,000 and in-kind contribution of consulting services, the winning team is invited to enroll in the Venture Initiation Program, the Wharton School's incubator of businesses created by Penn students.

Kothari, of MuscleMorph, calls his team's reaction to the win a combination of "shock and happiness," adding, "We accomplished more than we ever thought we would." He and his teammates have already incorporated as SmartMotion Technologies LLC and are pondering their next steps. "I didn't think this was something that I was going to do post-school," he says. "Now it's become a once-in-a-lifetime opportunity. As the winner from two years ago told us, 'Now the real work begins.'"

Danoff and Bernheim won't be able to devote themselves full-time to IntelliStem for several years. In the fall, Danoff is headed to Pennsylvania State University, where he hopes to become an orthopedic surgeon. "Maybe I will get to implant my devices one day," he says. Bernheim has to complete two more years of school to earn his dual degrees in finance and bioengineering.

Once Danoff leaves for medical school, they will try to run the company virtually. "We have brought in another individual to help us," Danoff adds. "He has done this before. And I'm only going to Hershey [Pa.], which is about two hours away." Danoff notes that he should be able to continue to develop IntelliStem's implants because Penn State requires that its medical students do research to graduate.

David Kreiger and Michael Likhov, creators of Home-Base, also have to complete their degrees at Penn before they can become full-time entrepreneurs. Both are finishing their first year in Wharton's MBA program. When they return to Penn in the fall, they plan to continue to seek ways to integrate their class work and their entrepreneurial aspirations, as they did this year. [Raffi Amit](#), academic director of the Goergen Entrepreneurial Programs, "said that the BPC is a perfect mix of theory and reality," says Kreiger. "We saw that through the whole competition."

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