An iTeams Project Helps with Water Purification Issues

By Sarah Foote

Question: What do you get when you bring a team of MIT Sloan and Harvard students together to work on a project? Answer: An innovative team.

In course 15.371J, Innovation Teams (typically known as iTeams), students are given a real-world project that they must work on collaboratively. The project combines science, engineering, management, and innovative thinking, therefore students with different skill sets and backgrounds are teamed together. Over the course of the semester students attend lectures to learn more about new technologies, the challenges of science commercialization, and the complex entrepreneurial ecosystem that novel ideas must navigate as they move toward the market.

This past fall, iTeams projects included work on a new drug for heart failure, a noninvasive hydration monitor, and a water purification project from DEKA Research & Development – a.k.a. The Segway Company. MIT Sloan students who worked on this project included Mikhail Turilin, MSMS ’10, and Emily Edwards, LGO ’11, along with a Shantanu Agrawal of the Harvard Business School and Matan Mayer from the Harvard School of Design.

Emily Edwards, LGO ’11 and Mikhail Turilin, MSMS ’10.
This was the first time an iTeams project was not paired with a project from an academic lab within MIT, but that did not deter the students from seeking ways to understand and further develop the potential for a water purification device the company had created, but had not yet brought to market. Making sure that everyone has access to clean water is one of the greatest challenges the world faces today, so DEKA created a small (about 3 feet tall) system that can transform the dirtiest of waters into clean, drinkable water. The four students were tasked to find the best ways to distribute the water filter and the ideal markets to do it in.

At the start of the class, iTeam students bid on three projects in order of preference and then are assigned to a project based on their backgrounds. Mikhail said he was lucky that the DEKA project was his first choice and he was interested in working with students with different backgrounds so he could see the project from their point-of-view. “We needed to learn all the technical features of the project, as well as the market, and manufacturing and even financing in order to work on the project successfully. We also needed to understand the markets to see if there was a great enough need for the product,” he said.

The students started by making two assessments – one involving the potential applications of the technology and the other a focused use case assessment formed around how users will use this new technology to change their daily lives by solving a specific problem they face or meeting a need they have.

The team began the project by visiting DEKA's offices in New Hampshire and getting a tour of the machine shop. Although the product had already been designed, DEKA told the students that they would be interested in hearing about design changes that would improve the water filter. The main task for the team was finding the best commercial application for the water filter, because DEKA is a design company and is not involved in marketing research.

The students conducted some benchmarking and looked at other water purification systems. They also researched clean water standards for different countries to understand if any simple modifications would be needed to the core technologies of the DEKA device. Although, the DEKA water filtration system is one of the purest in the world and would meet most countries’ regulations. Mikhail said “This system can take heavily contaminated water and purify it. It is the unique capability of the system. The system can produce about 30 liters of clean water in an hour,” Mikhail noted. They also networked with other people at MIT including Jean Pierre Nshimiyimana, who had previously worked on water treatment projects in Africa.

The team pointed out challenges to the company that included not going over the cost's break-even point—which is the biggest challenge for any technology that requires mass production. “Cost is one of the most important things when it comes to the water filter,” Mikhail said, adding, “We didn’t want to recommend anything that would not be cost efficient, so we went through pros and cons for every scenario we could think of. We also compared the DEKA device to other water filters on the market. Access to energy is needed, but access to a high pressure water pipe is not needed with this system.”

Quote of the Week

“Leaders are made, they are not born. They are made by hard effort, which is the price which all of us must pay to achieve any goal that is worthwhile.” — Vince Lombardi
While benchmarking the water filter against other small and medium size devices, the students found that reverse osmosis filtration system restores only 10 percent of water while 90 percent is wasted, while the DEKA filter saves 75 percent of the water it purifies. Therefore, the DEKA device has a very competitive price per liter point in spite of consuming more energy than other technologies. The DEKA device needs its filter changed every 4-5 years whereas other devices need their filters changed much more frequently. It’s an ideal device for small groups of people for about five years.

At the end of the class students prepared a five-minute presentation for their project companies along with a longer deliverable for their class. The DEKA students recommended four main target areas to test the water filter in. They include: offshore oil facilities, disaster relief, military uses, and the Olympics. World organizations they suggested DEKA reach out to include the United Nations and the Red Cross. The water filter is now being tested in some small markets around the world and is working well.

The price of the device depends on the quantity ordered. While it is too early to tell if DEKA will implement the group’s recommendations, the students enjoyed the challenges of the project. Mikhail noted that his Technology Strategy 15.912 class and the management strategy class he took while a student at HEC-Paris to be especially helpful with this project.

The team learned how to analyze emerging technologies and to plan their commercialization. “It’s an important part of innovation management education MIT is world famous for,” said Mikhail, adding, “Cross-functional teams let us produce deep results and analyze problems from different perspectives. It’s great that an MIT-Harvard collaboration made such an experience possible!”

To learn more about the DEKA water filter visit: http://www.dekaresearch.com.

Leading The Way To Success

By Elizabeth Wagner, BEP/MBA ’10

Professor Fiona Murray, Associate Professor at the MIT Sloan School of Management and HST-affiliated faculty member, defines achieving success in her career as “molding MIT into the center of leading research and education for scientific entrepreneurship which particularly meets the needs of its students and faculty.” She continues to take great strides towards this goal. Recently tenured, and now the new Associate Director of the MIT Entrepreneurship Center, Murray is even better positioned to see her career dreams become reality.

Murray’s career did not originally begin down the entrepreneurial path. After receiving a BA and MA in chemistry from the University of Oxford, she continued in the field of sciences and pursued a doctorate from Harvard University in Engineering and Applied Sciences. Murray returned to England to take an academic position at Oxford in their new business school. In July 1999, she accepted a visiting professorship position at MIT Sloan. Serendipitously, on her flight back to Boston she met her husband.

During the last 10 years at MIT Sloan numerous research topics inspired Murray, and she became interested in government policies and their influences on investment decisions by entrepreneurs and the decisions of research scientists. She explained that her “research agenda examines the conflicts and compromises of shaping the boundary between academic science and the commercial world – especially those wrought by substantial growth in the enforcement of intellectual property rights over basic scientific research.” Currently, Murray’s research focuses on the impact of federal policy on stem cells, gene diagnostics and research tools to better understand the different set of conditions that will allow scientific research, and science-based entrepreneurship to prosper.

Continued on page 4
Although her research is economically motivated, science is a critical component for success. Murray draws on her relationship with HST, her former leadership of the Biomedical Enterprise Program (BEP), and her science background to communicate and work with scientists. “I like working with scientists and engineers…[and have]…an appreciation for science, talking with scientists, and the need for well-designed research.”

When Murray is not working, she spends time with her two children: a five-year old son and a two-year old daughter. Since she and her husband travel quite a bit for work, they have a rule that “at least one person must be in the country at any given time.” Murray finds great joy in being a mother, and plays tennis with her son while frequently debating over who has the better forehand.

Murray’s commitment to understanding the potential of scientific progress in the economy and the role of entrepreneurship in reaching that potential – and her desire to build a stronger bridge between the Sloan School and MIT’s scientific campus have positioned her to help lead the Institute to becoming the principal center of leading education for scientific entrepreneurship. Professor Murray currently teaches HST 971 Strategic Decision Making in the Biomedical Business. Her research has been published in numerous journals including in Science, New England Journal of Medicine, Nature Biotechnology, and the Journal of Economic Behavior & Organization.

Launch of the MIT Entrepreneurship Review

The MIT Entrepreneurship Review (MITER) is officially launching on March 1. MITER is a student-run, online publication focused on thought-leadership in entrepreneurship and innovation. Seeking to be a platform for spotlighting activities and analyzing trends in entrepreneurship at MIT and beyond, MITER will serve the audience of entrepreneurs and investors in innovation-driven businesses.

MITER enjoys the generous support of a prominent Editorial Advisory Board and Operational Advisory Board.

The Editorial Advisory Board includes MIT professors:

Michael Cima  Charlie Cooney  Simon Johnson  Bob Langer
Fiona Murray  Sandy Pentland  Ed Roberts  Scott Stern

Operational Advisory Board members include:

Howard Anderson  Bill Aulet  Bob Buderi  Sherwin Greenblatt
Michael Hopkins  Lita Nelsen  Jason Pontin  Leon Sandler

Continued on page 5
Together, our advisory boards cover the MIT entrepreneurial ecosystem from academics, support programs (Venture Mentoring Service, Technology Licensing Office, and Deshpande Center for Technological Innovation), and MIT associated media outlets.

Content on the MITER website (miter.mit.edu) will be produced by a team of student-editors, student-writers and guest contributors. MITER’s key strength is that its team is composed of students from cross-disciplinary backgrounds. MITER is represented by students from the Biomedical Enterprise Program, School of Engineering, Harvard-MIT Health Sciences and Technology Division, Leaders for Global Operations Program, Department of Physics, Department of Political Science, the Sloan School of Management, and Technology and Policy Program. The founding team of Editors was selected through a writing contest conducted on the MIT campus last fall.

The MIT Entrepreneurship Review was founded by three MIT Sloan students: Erdin Beshimov, MBA ’11, Rob Lemos, MBA ’11, and Eduard Viladesau, MBA ’10, under the guidance of Faculty Advisors Bill Aulet, Fiona Murray, and Scott Stern.

The Chinese Chi-Function, held on February 18, featured a traditional Chinese Lion dance. If you want to know more, MIT has a Lion Dance Club. See http://web.mit.edu/lion-dance/www/. (Photo by I-Wen Hung, MBA ’10)
PSC Internships Available

The Public Service Center (PSC) Fellowships and Internships programs both support MIT students working on capacity-building service projects. Students work with community-focused organizations such as non-profits, schools, and social enterprises.

Opportunities for the summer include an exciting new opportunity to work on the first ever MIT alumni service trip!

- Develop ecotourism and grassroots enterprises in Ecuador and help the MIT Alumni Association and PSC implement the first MIT Alumni Service Trip
- Fundraising, Project Design, Financial Management, Organizational Development for Unity in Diversity Foundation in Tanzania
- Develop business plan for an award winning 501© 3 in Boston
- Develop resources in the areas of food self-reliance, energy self-reliance, and ecosystem health for the Kohala Center, Hawaii
- Design a volunteer program, user-friendly website, and work on community outreach

Find all these and many more at: http://web.mit.edu/mitpsc/showcase/opportunities/index.html.

In both programs, you can:

- Work by yourself, or as part of a small team
- Create a project from scratch, or find project ideas and community partners on our website
- Work locally, nationally, or internationally, with a preference for projects in the Americas

Applications for summer projects must be submitted by noon on Friday, March 19. Applications for spring projects will be accepted on a rolling basis.

Find more information about both programs at: http://web.mit.edu/mitpsc/resources/internshipsandfellowships/index.html. If you don’t find something you like, but still want to propose a project idea, please email Lauren at castrola@mit.edu, to discuss your ideas!

A dazzling sunset over the Charles River.
Undergrads Win at Rotman

The MIT Sloan Trading Room Task Force recently took first place in the seventh annual Rotman International Trading Competition (RITC) hosted by the University of Toronto’s Rotman School of Management in downtown Toronto.

The team consisting of undergraduates Joseph Huan, Benjamin Huan, and Gama Le Bouder, all SB ’11, and Kanjun Qiu, SB ’12, took home $5,000 CAD in the three-day competition which featured 44 teams of graduate and undergraduate students from 39 schools all over the world. Joseph Huan and Benjamin Huan are double majors in Management Science and Electrical Engineering and Computer Science. They also co-lead the MIT Sloan Trading Room Task Force. Gama is pursuing his SB in economics and Kanjun is a sophomore in EECS. Professor Andrew Lo, Director, MIT Laboratory for Financial Engineering, is the team’s faculty advisor. The Trading Room Task Force team has competed in the past, but this is the first time it has won first place.

Professor Lo said, “The MIT Sloan Trading Room Task Force has accomplished remarkable things, of which the recent win at the Rotman International Trading Competition is just one of many examples. We congratulate Ben, Joe, Gama, and Kanjun for this singular achievement and expect great things from them in all their future endeavors.”

Kanjun said winning was a pleasant surprise. “Honestly, until the moment they announced us first, we all thought that winning was impossible. We definitely weren’t expecting to do as well as we did, and it was a great surprise," she said.

The team’s longtime Administrative Advisor Virginia Gifford Reckley said the team can attribute its first place win to a powerful work ethic and solidarity among the four members. “I am overjoyed for them. All of their hard work has come to a successful culmination,” she said.

The top five teams in the competition were: 1) MIT Sloan Trading Room Task Force; 2) Babson College; 3) University of Queensland (Australia); 4) University of Reading (United Kingdom); 5) Texas A&M University.

A second MIT team also competed and was ranked 41st in the competition.
MIT SLOAN FELLOWS NEWS

Clay Christensen Continues

MIT Sloan Students:

Four-part Clay Christensen Lecture Series resumes this week after two super hit lectures in February!

Lecture 3: Thursday, March 4, 4:00 – 6:00 p.m., Wong Auditorium (E51)
Topic 1. Proprietary vs. Open Architectures: How to predict when and why which one of these will become dominant. Will Google Android-Motorola phone disrupt Apple?

Lecture 4: Tuesday, March 9, 4:00 – 6:00 p.m., Wong Auditorium (E51)
Topic: Application of disruption theory to education and health care.

MBA NEWS

Sloan Hoopsters Enter Georgetown Tournament

By Greg Korbas, MBA ‘10

The MIT Sloan MBA basketball team was at Georgetown University from February 13-14 for the 21st Annual Georgetown Ultimate 4 Tournament (http://www.u4.gumbaclub.org/node/1), the largest and longest running MBA basketball tournament in the country. This year’s tournament had 24 teams from all over the country, and MIT Sloan got matched up against Wharton, Texas, and Columbia. We lost to Wharton by 20 in our first game, lost to Texas (a team which included Shane Battier’s (Houston Rockets) brother, Jeremy) by 17 in our second game, and beat Columbia by 29 in our third game, highlighted by a fast break dunk by Spencer Irvine. This is the first time in at least several years that MIT Sloan has sent a team down to Georgetown for the tournament, but we are hoping to make it a regular event that select members of the MIT Sloan Basketball Club continue to participate in for years to come.

The MIT Sloan Basketball Team in action.
MarketLab Yahoo Award Recipients

1st Place  Kosmelink: Jaclyn Loo, Maria C. Olenchuk, Esther Tan, Andreina Toro
2nd Place  BioCell Corporation: Maya Bustan, Kip Pettigrew, Ji-Eun Son, Yuyao Wang
3rd Place  NPR: Tina Jovic, Daria M. Kaboli, Karima Porter, Debby Soo
Honorable Mention  Escada: Blanche Barco, Catherine L. Chew, Awilda Mendez, Hana Peljto, Chia Tsung
Honorable Mention:  Backyard Farms: Joseph E. Corral, Christine Juang, Anna E. Rosenman, Andres A. Marrelli

Congratulations to the MarketLab winners!

Vehicle Lightweighting as a Strategy for Economic Development and Competitive Advantage in India
Speaker: Charles Fine, MIT Sloan

In spring 2010, the Transportation@MIT seminar series continues by drawing knowledge from MIT research that is applicable to transportation. Our goal is to strengthen the community of MIT researchers by sharing information in the following areas: airlines, automation, behavior and economics, energy sources, environmental impacts, logistics and supply chains, networks, propulsion, system control, urban challenges, and vehicles.

This talk takes place, tomorrow, Tuesday, March 2, from 4:00 – 5:00 p.m., 3-270, and is free admission to MIT and the general public. For more information contact Rebecca Fearing, transportation@mit.edu, or visit: http://transportation.mit.edu/events.php.
**Movies Now Playing on Campus...**

*The Blind Side (2009)*

Taken in by a well-to-do family and offered a second chance at life, a homeless teen grows to become the star athlete projected to be the first pick at the NFL draft in this sports-themed comedy drama inspired by author Michael Lewis’ best-seller *The Blind Side: Evolution of a Game*. Michael Oher was living on the streets when he was welcomed into the home of a conservative suburban family, but over time he matured into a talented athlete. As the NFL draft approaches, fans and sports radio personalities alike speculate that Oher will be the hottest pick of the year. Sandra Bullock stars in a film written and directed by John Lee Hancock (*The Rookie*, *The Alamo)*.

Showing on March 6, at 7:00 and 10:00 p.m. in 26-100 and again on March 7, at 10:00 p.m. in 26-100.

*From the Lecture Series Committee website. All movies are just $4.*

**AROUND TOWN**

*Things to do in Boston & Cambridge*

**Vericon**

Vericon is Harvard’s annual science-fiction, fantasy, gaming, and anime convention, featuring many events and distinguished guest speakers. The 10th Vericon will take place March 19-21. Guest speakers include Timothy Zahn, Katherine Howe, and Randall Munroe.

This event takes place at Harvard University, at Sever Hall 113, Harvard Yard, Cambridge. Tickets are just $25. For more information visit: [http://www.vericon.org/](http://www.vericon.org/).

*From the events section of the Boston.com.*
Cold Water Costs

A lot of energy goes into heating water, but did you know that even using cold water consumes a significant amount of energy? Approximately 4 percent of U.S. electricity consumption is used in moving or treating water and wastewater. Allowing a faucet to run for five minutes on cold consumes about as much energy as leaving a 60-watt light bulb on for 14 continuous hours. So, watch your cold water usage!
Source: [http://www.epa.gov/](http://www.epa.gov/).

Did You know...

That Hillary Ross, Administrative Assistant at MIT Sloan’s PhD program teaches Argentine tango?

Hillary grew up in Westchester County, N.Y., learning ballet and ice skating, but modern dance beckoned her once she hit high school. She attended Wesleyan University in Connecticut where she earned a BA in both dance and English.

Following working for a dance troupe in Hartford, she moved to Boston so she could dance professionally. She took a part-time job at MIT in 1989, partially because she heard it was a supportive environment for artists. “I wanted to dance and to work at MIT part-time and have benefits,” she said. She has been an administrative assistant for the MIT Sloan doctoral program for the past eight years.

Hillary explained that ‘modern’ dance can be so many things. As opposed to ballet, which is ethereal and lifted, modern dance is more grounded and is often danced barefoot. “But, it can be very classical,” she added.

She discovered Argentine tango by accident when one of her ballroom dancing partners (she started ballroom dancing for fun) suggested they attend a practice, or practica. “It was held at a studio in Somerville and I walked in and I thought, ‘Wow! I don’t have to stop dancing when I get to a certain age…I can dance when I’m 95. I looked at the dance and said this is it,’” she remembered.

For several years she danced the tango socially, but eventually made a transition from modern dance to teaching tango. She immersed herself in the dance, traveling to Argentina four times over the years for intensive instruction and practice. Tango is at an interesting crossroads right now, she pointed out. The locals in Argentina are uneasy with the modern version, or tango “nuevo” which is gaining popularity against traditional tango. “There is a huge debate going on right now. The old-timers do not believe in the ‘new’ tango. Part of the concern is that some of the traditional tango dancers and teachers are getting old and dying, so what’s going to happen? But, a lot of young people in Argentina are interested in this dance.”

Continued on page 12
A lot of North Americans are interested, too. Hillary uses both traditional and nuevo elements of tango in her teaching (though she thinks of herself as more of a traditionalist), and offers group classes at Springstep in Medford, the Cambridge Center for Adult Education, and Boston University, as well as private lessons. Her students are varied and come in all ages, from singles to couples. “Anyone can learn tango,” she said. “In its social dance form, it is primarily a walking dance. Some people say, if you can walk, you can tango,” she said. There’s also an improvisational aspect to the dance, and Hillary likes to tell her students that, “I don’t want to give you the sentences that you are going to speak on the dance floor. I want to give you the foundation of words, and it’s up to you to put your own sentences together.”

Two years ago, a popular study in the *Journal of Neurologic Physical Therapy* was released that indicated tango could be beneficial for Parkinson’s Disease patients. Hillary’s classes saw an uptick in senior citizens who believed tango was good for the brain. She can’t say for sure if it is, but pointed out that learning any new dance is most likely advantageous since new moves must be memorized and muscles must be limber. However, Argentine tango is “more complicated” than other partner dances which probably lends credence to its reputation as a dance to stave off old age.

Cambridge, Somerville, and Boston all offer a wealth of places to dance tango every night, and MIT’s tango club offers practice nights each week. For more information on Hillary’s classes, see [www.hillaryross.com](http://www.hillaryross.com).

Did you also know that in addition to her dance classes, Hillary is active with local charity efforts? She recently organized a drive that raised $2,000 for Partners in Health (PIH) relief efforts in Haiti through Boston’s Milk Street Café. The Cafe offers “brownie” points to customers for ordering from the establishment, and the points can be used to purchase gifts or donated back to charity. Hillary recently received a notice saying that for every 2,500 points donated back, the Café would make an $80 donation to PIH, a Boston-based, non-profit, health care organization founded in 1987.

According to Hillary, the PhD program had only 1,200 points, but the Milk Street Café said points could be pooled, so she sent out an e-mail to the support staff e-mail lists and the AO query e-mail list, and ended up with 30 contributions for a total of 62,500 points that were sent back to Milk Street for a total of $2,000 for PIH. “I’m really excited about this,” Hillary said. “Donations were from all across MIT and everyone was very generous!”

Hillary has also been active in raising funds for the Avon Walk for Breast Cancer, and is a five-year survivor of the disease. The 2010 Boston Walk will be her sixth walk, and to date she has raised more than $21,000 for the cause.

—Amy MacMillan