

INVENTION

When Alfred Nobel invented dynamite in 1866, his intention was that the explosive would be used in construction. As a result of an accident in his lab, he discovered a way to make nitroglycerin safer and less volatile to handle and it could be easily detonated. He envisioned canals being built faster. He knew that blasting rock, drilling tunnels, building railroads and many other forms of heavy labor would become easier. He patented dynamite, as well as 354 other inventions, and became a very wealthy man.

But Nobel was also a pacifist. His views on peace and social justice were considered radical in his era. When his dynamite began to be used in warfare, Nobel was overcome with guilt. The idea of his invention being used to kill drove him to start a trust fund to promote the peaceful use of science. Upon his death, the bulk of his fortune created the Nobel Prize.



The same type questions that plagued Alfred Nobel in the 1800s are still being pondered by inventors today. **iCyt Visionary Bioscience Inc.**, an Illinois company that specializes in innovative cell measurement and handling technologies, was met with an ethical dilemma earlier this year. The company developed a new technology that sorts cells on a very small level. The invention, a flow cytometer, was intended for agricultural purposes, allowing dairy farmers to select the gender of their calves. However, iCyt realized that their invention had broader applications in human in-vitro fertilization and embryonic stem cell research.

Tim Hoerr, CEO of iCyt, contacted his friend Greg Leman, the director of University Entrepreneurship Initiatives and the Curtis Hankamer Chair in Entrepreneurship at Baylor University. “The project came about because Tim and I have known each other for almost 20 years, have collaborated on some business consulting and maintained a personal relationship,” Leman said. “After telling him about what we are doing with Technology Entrepreneurship and learning about his progress with new technology, we realized it made sense to assist him with a feasibility study.”

by Franci Rogers with contribution from Kristin Todd

The study became two Focus Firm MBA team projects. The first team researched bioethical issues for the company. Rhett Herron, who graduated from Baylor's MBA program in May, was the focus firm team leader.

"The biggest road block in our endeavor was the vast abundance of related information," said Herron.

Their first step, he said, was to study the past. They examined the debate surrounding in-vitro fertilization and embryonic stem cell research from four perspectives: medical, religious, legal and political.

"The most important aspect of research was the incorporation of as many perspectives as possible," Herron said.

Faced with so much available information, and with such passionate debate surrounding the issues at hand, Herron said it was surprisingly easy for team members to keep their feelings from interfering with their task.

"In our initial meeting, it became evident how little each of us really knew about the specific details surrounding stem cell research," he said. "From my viewpoint it was easy for the team to separate this project from our personal beliefs. Each member understood the outcome needed to be based on facts and made a concerted effort to remove any personal biases."

At its conclusion, the focus firm team presented iCyt with a 23-page document, outlining as many sides of the issues as they could.

"In doing the research, it became obvious that there is no perfect solution," said Herron. "In the end, this particular situation boils down to a personal decision by the executives at iCyt. We simply supplied the information to fuel the discussion."

The second Focus Firm team looked at intellectual property and potential markets for iCyt technologies.

Shama Blaney, a second-year student, was a member of that team.

"We also looked at alternatives for using the technology in the forms of nanotechnology, pharmaceuticals and rapid prototyping," she said.

After considering all of the information presented by the Baylor teams, iCyt introduced Reflection in May. They call their invention the most sophisticated droplet cell sorting instrument ever created.

"We are extremely pleased with the partnership we're enjoying with the institutions and esteemed scientists that represent the pre-commercial release Reflection units," said Fredrick Molnar, chief Sales, Marketing and Service officer of iCyt. "Full commercial release of the instrument system will take place in late 2006."

While the invention of new technology can bring about a range of ethical debates, heated debates — and even lawsuits — can occur at the very inception of an idea. Individuals and companies who patent the idea of an invention have come under close scrutiny in recent years.

They are no-so-lovingly referred to as patent trolls. These usually small companies obtain intellectual patents on ideas, with no intention of bringing them to fruition on their own. They neither research the technology nor manufacture products. When a larger company does make this technology a reality, the patent troll threatens litigation seeking royalties or other compensation.

While many see patent trolls as unethical, what they do is perfectly legal. Patent protection gives an inventor the right to exclude others from making, using and selling the patented invention for the term of the patent. Patent owners are legally entitled to charge any amount they wish as a royalty to anyone that wants to make, use or sell the patented invention. Patent owners are also free not to license or make use of the patent at all. And patents are transferable, so the holder of the patent does not need to be the actual inventor.

Although some see intellectual patent holders as the pejoratively-termed patent trolls, others have a slightly different take on the situation. Many are coming to see these companies as the underdogs: little guys taking on big corporations, and winning.



Perhaps the most famous of the recent patent troll tales is that of NTP, Inc., the small Virginia company that threatened to shut down e-mail for millions of people when it brought suit against

Research In Motion Ltd. (RIMM), the maker of BlackBerry. NTP, which has no holdings except for patents, held the patent for the intellectual concept of a wireless e-mail system, a system that RIMM created. Tim Wu, a professor at Columbia Law School, told *Slate*, "It's almost like waking up one day to find out that the guy selling hot dogs on Fifth Avenue actually owns the Empire State Building."

Wu maintains that, although patent trolls are wreaking havoc with the system, they may actually be doing everyone a favor.

"About the best that might be said of trolls like NTP is that they've inspired a serious patent-reform debate," Wu said.

And reform, it seems, is needed. Patent examiners are said to be overworked and pressured to move quickly. Perhaps that's how some inventions come to receive a patent, even though it may be difficult to see how they meet the legal standard of a "non obvious improvement over the prior art."

Take for example the U.S. patent issued to Martin H. Abbott and Kevin T. Amiss in 1995. Their invention? A method of inducing aerobic exercise in an unrestrained cat. That's right: cat exercise.

Their abstract reads, "A method for inducing cats to exercise consists of directing a beam of invisible light produced by a hand-held laser apparatus onto the floor or wall or other opaque surface in the vicinity of the cat, then moving the laser so as to cause the bright pattern of light to move in an irregular way fascinating to cats, and to any other animal with a chase instinct."

So, before Americans weigh in on the ethics of invention, they'll have to ask themselves if they want to pay a royalty every time Fluffy chases their laser pointer.