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BUSINESS

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THE PLAIN DEALER

THE INSIDE TRACK

Most of the major automakers collaborate heavily with each other. **G2**

CHRIS STEPHENS | THE PLAIN DEALER

From left, Warren Goldenberg, Charu Ramanathan and Ping Jia are the officers of CardioInsight Inc., a fledgling medical device maker launched last year by the technology transfer program at Case Western Reserve University.

Case study in tech transfer

Changed university leadership makes **program a priority,** helps drive region's economic renewal

MARY VANAC
Plain Dealer Reporter

It took nearly two decades to develop the technology behind CardioInsight Inc. and to translate it from a laboratory bench to a business.

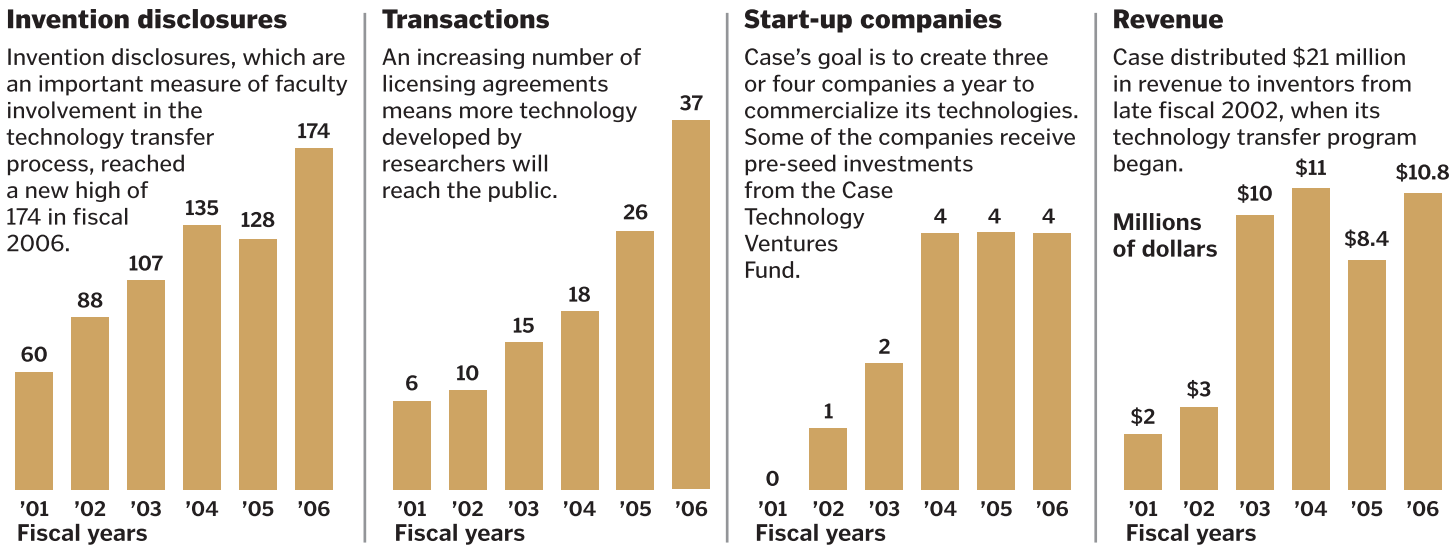
The Cleveland company is commercializing a heart imaging device based on the work of Yoram Rudy, a Case Western Reserve University researcher who has since moved on.

Charu Ramanathan and Ping Jia, the two Ph.D.s who helped start CardioInsight last year, studied under Rudy and helped develop the company's technology.

Now the women are working in a temporary office on the campus of University Hospitals Case Medical Center — across the street from the electrophysiologists who could soon begin testing their device to help patients who have heart arrhythmias or heart failure.

Tracking technology transfer progress

Mark Coticchia took over the technology transfer function at Case Western Reserve University in late 2001. By the next year, Coticchia and his colleagues had developed ways to measure their progress toward commercializing products invented by faculty, staff and students.



SOURCE: Case Office of Research and Technology Management

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Ramanathan and Jia give a lot of the credit for their company's birth to the technology transfer office at Case, which has become one of the most prolific and top-grossing offices among its peers nationwide.

The university's Office of Research and Technology Management was reconstituted under the leadership of Mark Coticchia, who was hired as its vice president in 2001.

The results are striking. Since fiscal 2001, invention disclosures are up almost threefold, licensing deals are up more than six times and license revenue has quintupled.

The office also has helped create 15 spinoff companies since fiscal 2001. That year, the office did not spin off a single company to commercialize Case technology.

Spin-off companies are important to the Northeast Ohio economy because they often create wealth and jobs. Ohio recently began encouraging its universities to commercialize more technologies as a means of developing the state's economy, said Harry Andrist, research and graduate programs director for the Ohio Board of Regents.

Tech transfer is born in 1980

The Bayh-Dole Act of 1980 paved the way for modern technology transfer at universities and other research institutions.

The law created a uniform patent policy among federal agencies that fund research, enabling small businesses and

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TECH

FROM G1

Program helps drive economic renewal

nonprofit organizations to keep title to inventions developed with federal money, according to the Association of University Technology Managers.

"This [law] unlocked all the inventions and discoveries that had been made in laboratories throughout the United States with the help of taxpayers' money," The Economist magazine wrote in a 2002 editorial.

"More than anything, this single policy measure helped to reverse America's precipitous slide into industrial irrelevance," the editorial said.

Yet, technology transfer was a low priority at Case.

"We were doing nothing, essentially, before Mark was here," said John Anderson, the university's outgoing provost and vice president.

"This goes back to the late 1990s [when] senior administration in the university did not believe that technology transfer was consistent with academic values," Anderson said.

Case did have a tech transfer program, but it "wasn't effective and didn't generate revenue," said Joseph Keithley, chairman, president and chief executive of Keithley Instruments Inc. in Solon.

Keithley, who became a Case trustee in 1992, said tech transfer "wasn't a high priority, it wasn't even a medium priority, for the president and provost."

The university's tech transfer activities were done by a few people mostly in its medical and engineering schools. The general counsel's office — which tends to be shy about taking risks — was author of the few agreements to license technology discovered at Case.

"The provost described tech transfer as coming mostly from education of the student body," Keithley said.

That's good, but not good enough, Keithley remembers telling the provost in 1995. That year, Case trustees formed an ad hoc committee to develop the university's tech transfer function.

The first few transfer officers hired were ineffective against administrator resistance, Keithley said.

That resistance began to thaw in 1999 when David Austin was hired as Case president. Austin "put a high priority on research, tech transfer and commercialization of technology," Keithley said. "That was a big step for the university."

With a new president, a new provost and a trustee mandate to develop technology transfer, "we embarked on another search for a vice president of research and technology management," Keithley said.

Tech transfer leader accepts challenge

Mark Coticchia started down the technology path with a bachelor's degree in civil engineering and a master's degree in industrial engineering from the University of Pittsburgh.

He worked in technology management positions at Pittsburgh and Philadelphia institutions for more than 20 years before being hired at Case in 2001. At Carnegie Mellon University, Coticchia helped start that university's tech transfer program from scratch.

Just before his Case job, Coticchia was senior director of tech transfer at Redleaf Group Inc., the pre-seed and seed-stage venture capital firm in Pittsburgh.

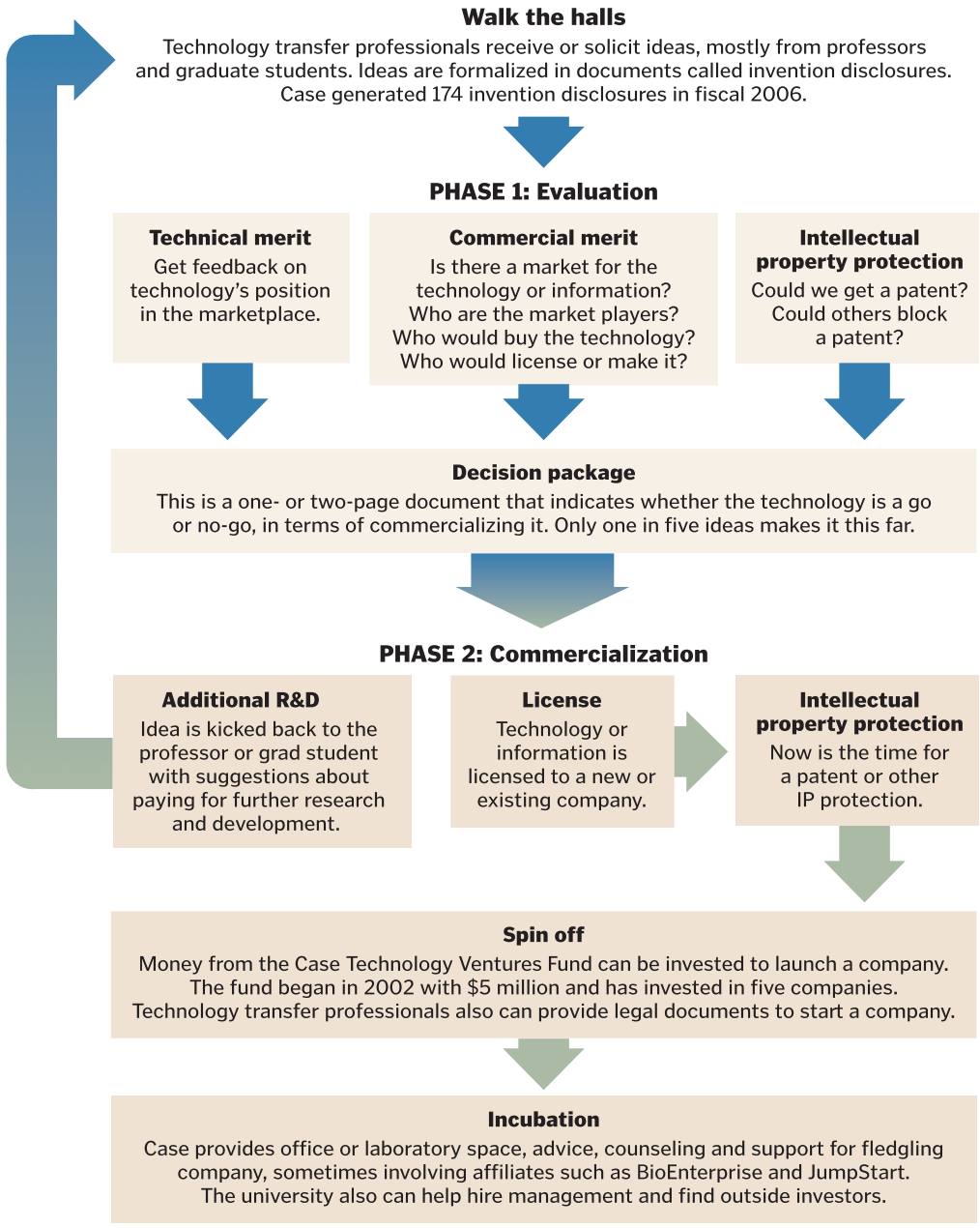
Once in Cleveland, Coticchia saw his challenge as turning around the university's technology transfer program.

"My first year here, I focused on building the tech transfer function," he said. That meant centralizing the function and connecting it to the university's research function. The two now operate under the same roof.

It also meant developing the systems and policies to support tech transfer, and hiring the talent to make it succeed. Coticchia hired business people who had technical backgrounds to license technology.

Transferring technology at Case

Technology transfer professionals at Case Western Reserve University create license agreements and spin-off companies that develop and market the inventions of the university's staff, faculty and students. Fourteen people staff the tech transfer portion of the university's Office of Research and Technology Management.



SOURCE: Case Office of Research and Technology Management THE PLAIN DEALER

He also developed model licensing contracts, began to enforce the university's patents and developed metrics to measure his office's progress.

"Mark was a business guy. He had all of the staff report to him. Then he hired the right people," trustee Keithley said.

Coticchia "also helped change the [Case] culture to show that protection of intellectual property and promotion of intellectual property are both consistent with traditional academic values," said Anderson, the provost.

"The second year here, I focused on the research side of the house, in terms of helping us bring in the major research awards," Coticchia said. For instance, his office helped write the proposals for more than $60 million in Ohio Third Frontier grants in a two-year period.

"Then in the third year, I focused on the regional environment," he said. "We can have a great tech transfer function, but if we don't have an infrastructure in the community to receive and incubate technology, and to help with venture development, a lot of these things aren't going to take hold."

Coticchia helped start BioEnterprise, the bioscience company developer, and JumpStart Inc., the venture developer. Around the same time, the Cleveland Clinic started its commercialization unit, CCF Innovations.

"CCF Innovations, Case Technology Transfer, BioEnterprise and JumpStart, that's what I call the innovation network," Coticchia said.

"We now have 60 professionals doing high-tech economic development work in Northeast Ohio," he said. "That's huge. That wasn't there five years ago."

Light bulbs turn on with Case faculty

Coticchia and his team of 14 tech transfer professionals and 16 research professionals have learned to manage academics' disdain for technology transfer.

"Almost all faculty would love to have their ideas benefit society," Anderson said. "But most, including myself, don't want to be involved in commercialization."

Overcoming researcher resistance is often the first step toward commercializing a technology.

"What I teach our licensing folks to do, when you receive an invention disclosure, go meet that faculty member," Coticchia said. "Find out what their goals and objectives are from a research and teaching standpoint."

After developing a rapport with researchers, Coticchia urges his colleagues to "tell them how you can help them get their research results adopted into society for the public good through commercial means. I've seen light bulbs go [on] with researchers all the time."

In addition to helping society, technology transfer also makes money for the university and its researchers. Since fiscal 2001, Case has generated tech transfer revenues of $45.2 million.

"We've been fortunate over the years to generate surpluses . . . which get plowed back to build the research infrastructure and build our research base," Coticchia said.

The university's revenue-sharing formula: After deducting patent expenses from revenues, "the net proceeds are split 50-50 with the inventors," Coticchia said.

The sharing encourages administrators to participate in tech transfer. "Of the 50 percent that goes to the university, half — or 25 percent of that net — goes to the school where the technology originated," Anderson said.

Tech transfer "also helps us attract and retain faculty, as well as contributes to regional economic development," Coticchia said.

CWRU's tech transfer program

Based mostly on results for fiscal year 2005, Case Western Reserve University's technology transfer program ranked in the top 20 nationwide among 102 research institutions whose research base is $275 million a year or less. The Case program also ranked:

4th for number of companies started to commercialize the university's technologies

6th for licensing revenue

6th for number of invention disclosures received

8th for cumulative number of licenses over life of office

11th for number of executed licenses

14th for licensing revenue as a percentage of research funding

SOURCE: Case Western Reserve University

It all starts with a disclosure

At Case, the transfer of technology starts with an invention disclosure — a document that explains the technology invented. The disclosures are received or solicited from faculty and graduate students, Coticchia said.

Coticchia's team evaluates the disclosures, judging them by commercial merit and protectability. Many tech transfer offices patent the idea at this point, but not Case, which waits to protect an idea until it is transferred as a license to a company.

Then comes a "decision package," which is a one- or two-page recommendation by Coticchia's crew on whether the idea is a go or a no-go, in terms of licensing and intellectual property protection. About 20 percent of the inventions make the cut, Coticchia said.

If the technology is a go, the professionals license it to a company and protect it with patent and other legal means. If it's a no-go, the idea often gets kicked back to researchers with suggestions for funding sources that could help develop it, Coticchia said.

Whether to license a technology to an existing company or start a company to commercialize it is largely dictated by the technology.

"Most of what's discovered is a feature of an existing product," Coticchia said. These discoveries are licensed to existing companies.

But if a technology is "so far ahead of the curve that the marketplace doesn't understand it or grasp it," then a startup company is the likely licensee, said Michael Haag, director of technology transfer and biomedical licensing in Coticchia's office.

A broad-platform technology — one that could be used in a hundred different ways — also could be licensed to a spin-off company, Haag said.

If, however, venture capitalists frown on the technology as a future investment, the Case office won't create a company to commercialize it, Coticchia said.

Incubation services nurture the chicks

Like a mother hen with her chicks, Case helps incubate companies until they're ready to leave the nest.

"We have the capability of taking any opportunity all the way through giving it birth, selecting the first CEO, putting together the management team, sitting on the board, helping grow the company until other investors come along," Coticchia said.

The tech transfer office can provide the legal documents to create a business, as well as find it office or lab space.

"Not only do we have that capability, but through BioEnterprise and JumpStart, we have resources that can augment, complement and supplement our capability," he said.

"We will also provide the advice and counsel and assistance that is really what is needed for venture development," Coticchia said.

Also needed for venture development — getting a company ready for major venture capital investments — is seed money. Case can make small investments in startup companies through its Case Technology Ventures Fund, which started out with $5 million in 2002.

"It's an aggressive, early-stage capital approach that not all tech transfer offices have," Coticchia said.

The approach appears to be working. "Most, if not all, of our companies have received some follow-on funding, which is really a metric of success," Haag said.

Coticchia's group helped CardioInsight, the fledgling medical device developer, in several ways.

Ramanathan, the company's vice president of technology development, and Jia, its vice president of clinical development, approached Case tech transfer professionals in 2003.

"They started advising us how to get things going," Ramanathan said.

Case professionals also gave the researchers information about the university's business plan competition, in which it won third place in 2004, Jia said.

Warren Goldenberg, a partner at Cleveland law firm Hahn Loeser & Parks, was a judge for the contest.

Over lunch with Joseph Jankowski, assistant vice president of biomedical sciences in the Case tech transfer office, Goldenberg agreed to become CardioInsight's first chief executive.

The company was officially launched in August with $250,000 investments each from Case's venture fund, JumpStart and Draper Triangle Ventures, the Pittsburgh venture capital firm.

The tech transfer professionals, including Haag, who sits on CardioInsight's board, also helped the company find an office. There, Ramanathan, Jia and Goldenberg are preparing to start clinical trials of their device at University Hospitals.

"That one, I think, is going to be our little gem, at least in the near future," Coticchia said about CardioInsight. Its device "is revolutionary, and can help society in many ways."

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