

# Creating a new look for the future of medicine

*Logical Images CEO Arthur Papier has the firm on a growth path*

By SMRITI JACOB

**C**opies of Malcolm Gladwell's "The Tipping Point: How Little Things Can Make a Big Difference," are being circulated at Logical Images Inc.

The book's premise—that behavior of small groups of people, upon reaching a critical mass, can eventually influence change—echoes CEO and co-founder Arthur Papier M.D.'s views on the medical diagnostics software company.

"It has been one of the books I've read this year that has a lot of meaning in terms of this business in that you really need ... to reach that tipping point where your base of users is large enough and you have enough evangelists to go out and spread the word for you—and I think we're right at that tipping point right now," says 49-year-old Papier, who also is Logical Images' chief scientific officer.

The company develops image-based point-of-care diagnostic decision support software tools. Its core product, VisualDx, based on a digital library of more than 1 million images from research institutions as well as individual physicians, aims to speed visual recognition and clinical decision making. VisualDx provides physicians and other medical experts with access to images related to different diagnosable diseases, including conditions caused by acts of terrorism.

Based on the influx of government contracts, Logical Images' revenue target for this year is \$10 million, a 567 percent in-



crease from \$1.5 million last year, which was down from \$3.5 million in 2004.

"We had a bump in the road (in 2004) and that is because the military contracts were delayed. They were just signed now and we will be realizing \$3 million in revenue that we

tem, which has grown from five components to 15, at more than 300 sites. The firm also is launching a new product called ReadyRN, a disaster and emergency preparedness handbook for nurses.

"The software is designed to handle visual recognition for different areas and as dermatologists we started in dermatology, but we recognized that the same platform can be leveraged into other markets and other areas of need," Papier says. "If you don't have a need, you don't have a business."

For Logical Images the need is visual identification within health care, in the area of dermatology for identifying skin diseases, ophthalmology for eye diagnoses and others such as pathology and surgery, he says.

"One of the things we recognized early on is that to do this business we need to have two assets that were second to none and one was a knowledge database that allows us to instantly put in any clue in health care and within a second see the pictures that solve your question," Papier says.

## Image database

The other crucial part of Logical Images' software system is its image database. The firm has medical images from major research institutions such as New York University, the University of California at Los Angeles and the University of Rochester. Logical Images also has access

to images from a cornea expert in Philadelphia, a pediatric collection from a doctor in Wisconsin and a set of images from an oral disease specialist in Ohio. All these agreements are exclusive and offer Logical Images commercial rights to these collections.

"Gathering those images is no small matter and they've got a pretty comprehensive methodology for evaluating and making those images really stand out in their system—for someone to go out and

should have seen in 2004, probably in the first two or three quarters of this year," Papier says.

Employment has doubled to 22 staffers from 11 last year. The company this year expects to add at least 10 employees. And, if Logical Images signs more state contracts, total employment could soar to 50 people by the end of the year, officials say.

Logical Images targets hospital systems, public health agencies and related markets. It has placed its software sys-

do that, is doable, but difficult," says John Squilla, a local researcher who has worked with Papier on a few projects in the past few years.

The awakening of the health care industry to information technology is an important factor in Logical Images' favor.

"All of the other industries have already incorporated technology, taken advantage of productivity gains, but that hasn't happened in medicine and our software is a step in that direction and all the activity in the (health care) area is helping create a market for our product," says Michael O'Connor, president and chief operating officer of Logical Images.

O'Connor adds preparedness against bioterrorism and changes to the way health care is financed to the list of factors in its favor.

"Consumer-directed health (plans), that is going to create a further market for our product in terms of a consumer version of our professional tools here in that consumers as they become more and more responsible for the cost of health care will start looking for resources and other sources of information beside their primary health care physician," he says.

In addition to stressing the need for tools to prepare for terrorism acts, state and federal officials recently have been pushing digitization in health care, including the use of electronic medical records. That could open more avenues for Logical Images.

"The insurance companies and government are going to mandate at some point that all health care information needs to be electronic," Papier says. "And the promise for our company is to be the company that has replaced these hundreds of medical atlases that are out there with one unified platform that just seamlessly integrates the electronic health records of the future."

Logical Images already has embarked on that path in the United Kingdom. It has partnered with U.K.-based Adastra Software Ltd. and integrated the VisualDx software into their medical record offering.

"They are now marketing it to their clients in the U.K. that use their (computerized record)," Papier says. "We can do that for other electronic health care record companies."

The company also peddles its products in countries such as Taiwan, India, Italy, China, Brazil and Denmark, through a deal with the Thomson Corp.'s Thomson Micromedex. To push its technology even further, the firm is in partnership talks with large companies such as General Electric Co. and Lockheed Martin Corp.

Papier is unfazed by competitors—companies that provide health care knowledge with point-of-care information tools—but he says they have yet to home in on adding

the visual component to their offerings.

"So competition is when they add visual content, they haven't for the most part done that yet," he says. "I think we are several steps ahead of them. We have unrivaled image access that they don't have access to."

Alice Pentland M.D., chairwoman of dermatology at UR's medical center, says Logical Images' ability to respond to an unmet need has contributed to its recent growth.

"(Papier has) got a terrific mind; he has clearly seen that there is a need out there for better ways of managing images and a way of improving how the knowledge in images can be presented to users," Pentland says. "The world doesn't quite understand it yet, but it's a breakthrough."

### The art of imaging

A New York City native, Papier caught the visual bug early. He earned a bachelor's degree in art from Connecticut's Wesleyan University in 1979 and also did carpentry work for the Solomon R. Guggenheim Museum in New York City.

A friend studying at Columbia University, who was interested in health care, prompted Papier to study the field as well. He began taking pre-medical courses at Columbia and later joined University of Vermont's College of Medicine. He received an M.D. in 1988.

While studying medicine, Papier had the opportunity to listen to a lecture by an influential figure in medicine, Larry Weed M.D., who often is referred to as the "father of the problem-oriented medical record."

"Before Dr. Weed proposed this way of organizing a record, doctors just scribbled illegible notes and didn't explain what they were thinking, what the possi-

ble diagnoses were, what the management was," Papier says. "He proposed an organized way to do this and then went on to found a software company in (1982)."

Papier worked closely with Weed for three years, during Papier's time as a medical student in Vermont.

"Art has a background in medical informatics that goes back, so far back, to Larry Weed. Art's approach to it began before we had all the technology bells and whistles," says Lowell Goldsmith M.D., professor of dermatology and epidemiology at University of North Carolina at Chapel Hill and dean emeritus of UR's School of Medicine and Dentistry. Goldsmith also is co-founder and editor-in-chief of Logical Images.

Papier's post-doctoral training included two years of internal medicine at the Berkshire Medical Center in Pittsfield, Mass. He spent time exploring areas of dermatology, public health and infectious disease. Papier chose to focus on the branch of medicine associated with the physiology and pathology of skin as a medical resident of dermatology at Strong Memorial Hospital. He was trained by Goldsmith, who was chairman of dermatology at Strong then.

"Lowell is an expansive thinker," Papier says. "He knew of my interest in the field of medical informatics and I came to him in 1991 and told him that Kodak had just announced scanning film to digital and he said, 'Great idea, let's go and meet them.'"

Papier and Goldsmith met with officials at Eastman Kodak Co. to get initial feedback on their ideas, including a prototype for medical image databases. Logical Images eventually ended up working with a former Kodaker.

Upon completion of his training in dermatology, Papier moved to Batavia to establish a practice.

"I had an underserved-area commitment to New York State; there was a need for dermatologists in Batavia," he says.

Papier enjoyed his time working in Batavia but realized that rural areas did not have access to specialists like dermatologists. He also began to feel strongly that information technology was a way to improve care.

"It wasn't that the generalist physicians were having difficulty with the rare diseases. They were having difficulty with the diagnosing of the unusual variations of the common diseases," Papier says. "So I had started thinking about what is different between internal medicine and dermatology, and what is different is the instant visual recognition.

"So the idea was born that 'Can we do better than flipping through picture books in health care.'"

## CLOSE-UP

### Arthur Papier M.D.

**Title:** CEO, co-founder and chief scientific officer, Logical Images Inc.

**Age:** 49

**Home:** Brighton

**Education:** B.A., art, Wesleyan University, Middletown, Conn., 1979; M.D., University of Vermont, 1988

**Family:** Wife, Susan; daughters Ariana, 16, and Chloe, 11

**Interests:** Hiking and skiing

**Quote:** "Physicians have been flying by the seat of their pants. They were able to do that 50 years ago when very little was known ... there is no way human beings can keep up with what they need to know (today) and bring that to bear on different patients every 15 minutes in your office."

## An entrepreneur

Papier says he did not expect to found a company to help improve the diagnosis process, but "the idea had a life of its own."

After discussions with experts in graphic design and medical illustration at Rochester Institute of Technology, Papier in 1994 helped established Logical Images' predecessor, Healthscience Visions Inc. The firm in 1999 got its current name.

"We created a CD-ROM—that was before the Internet—that we made 10,000 copies (of) for Glaxo," Papier says. "We realized in '94-95 when we did this that there was huge opportunity in this area of health care information technology. But it wasn't until '98-99 that Lowell Goldsmith and I realized that to do this right we needed to put a team together."

Focusing on large clients was a deliberate decision.

"(We) based that as our business model, that we were going to be going after large clients and not going to go after individual physicians," Goldsmith says. "And now we are beginning to work with people to actually go to the individual physicians, but that was not going to be where we were going to put the energy of the company."

Papier returned to Rochester after spending five years in Batavia. He renewed his relationship with UR, this time as assistant professor of dermatology, after Goldsmith became dean of the School of Medicine and Pentland joined the university as chairwoman of dermatology.

Papier calls Pentland a key mentor who urged him to continue his research and also start a company.

"There's many different ways to fulfill your aspirations and your ideas," Papier says. "I realized that I could combine both and that really was a turning point."

Around 1999, Logical Images approached Nancy Weyl, a local entrepreneur widely known for her efforts to form and grow HealthChex Inc., a medical software company later sold to Equifax Inc.'s Equifax Health Information Services. Weyl agreed to help the company establish itself in the market and joined the firm as president.

"At that point we had a skilled entrepreneur running this company. Nancy understood all the details of getting a company off the ground and so we went from 1999 (of) having no product to launching the product in March of 2001," Papier says.

Logical Images got off the ground without help from venture capitalists. It has managed to stay solvent with help from a group of undisclosed angel investors and its principals.

"When we started this company, we were right in the middle of the craze of the dot-com boom and we put together a company not of 20-somethings, we put together a company of 40-year-old somethings," he says.

"So while companies in the late '90s were writing business plans on napkins and getting funded by venture capitalists for \$10 (million) and \$20 million with a business plan on a napkin, my philosophy was that we need to develop clients, develop a product and be very careful stewards of money," Papier adds. "This is not a company that is flying first class."

Although he does not rule out approaching venture capitalists for funds in the future, Papier says building a company of experienced risk-takers has contributed to the firm's success.

"Part of the reason why these companies blew up in the dot-com boom was because they were all risk and they didn't have the experience," he says. "So we put together a company of people here that can tolerate risk but also have experience."

A couple of years after Weyl joined the firm she decided to turn the operational reins over to O'Connor—the current president—and left the company. Slowly, the company started assembling a team with expertise in different areas, including sales.

The firm, Papier says, has divided sales responsibilities such that Thomson is focused on selling to hospitals while Logical Images' internal sales team drums up business from city, county, state and federal health departments.

Stephen Cutrona, vice president of sales and marketing at Logical Images, says as the firm sells VisualDx, it likens the technology to aviation, where an airline pilot "doesn't need to know every single airport and know how to land on every single runway, under every single condition."

"What they have to know is how to fly the plane and use the tools in the plane to get you there," Cutrona says. "So we say that the clinician has to know how to use the right tools to diagnose it properly."

Papier adds: "In a sense, what we're creating is a visual dashboard for health care and we believe that we can look at many different problems beyond dermatology and present that information in a graphical manner that will speed instant decisions that busy health care professionals need to make."

Although the benefits of a visual software system seem clear, it still can be a \challenging sell.

"Physicians are trained to memorize and make instant decisions and here we are a company saying we're going to give you a guidance system," Papier says. "Well, the customer isn't used to having a guid-

ance system and frankly when we started, the market wasn't ready for our technology."

## A changing field

But a shift to a younger generation of physicians, a need for quick diagnoses and the focus on integrating information technology in health care has smoothed the road for Logical Images.

"So now we have 20-year-olds and 30-year-olds who grew up with computers in health care using our technology and they are the internal champions showing some of the older physicians how to use VisualDx," Papier says. "Ten years ago that didn't exist and so in a sense we were ahead of the curve in many respects and ironically the world has caught up to what we are doing."

Gordon Moore M.D., a family medicine physician who practices in Brighton, says the product is "brilliantly designed."

"It really has a good grasp of how doctors work that I'd never seen before in an electronic product," Moore says.

Those who know Papier well credit a large part of Logical Images' success to his ability to meld seamlessly medicine and IT.

"I still remember him saying, 'Look, this type of thing is going to be needed and there simply aren't enough people that are going to be able to do this,'" area researcher Squilla says. "He not only (had) the vision to see the problem, but he also knew that the technology could solve it for him. When you think about that, that is a very rare thing."

IT is an integral part of Papier's life. His office has two computer monitors that he frequently uses to explain VisualDx's efficiencies. Goldsmith says it is not uncommon for the Brighton resident, who is known for his wry sense of humor, to call from the slopes, while pursuing one of his favorite pastimes, skiing.

"(Papier) is continually wired," Goldsmith says.

Papier's high energy and creative instinct has helped Logical Images explore new opportunities. He recognizes people for accomplishments and often is the first one to reward the group, Cutrona says.

"This isn't about Art being successful, it is about the company being successful," he says.

Papier cherishes working with the team at Logical Images. He says putting a company together of "like-minded people" and creating local jobs have been his greatest successes.

"I think one of Art's special strengths is that he doesn't see the technology or Logical as standing alone, but as contributing to the health of people around the world," Goldsmith says.

Cutrona points to Papier's instrumental role in placing the firm's system at no cost in a number of areas, "where he thinks the benefit will overwhelm the income we might receive from it."

"In the case of Katrina last year he immediately wanted to put some informa-

tion on the Web for free that would help those areas that were having problems," Cutrona adds.

For Papier, using Logical Images to provide a benefit to others is a gratifying experience.

"We've received e-mails and comments

from physicians that say they've used this technology and their patients loved it and that is incredibly rewarding to think that you have a product that might potentially save a life," he says. "And we might never hear about it."

*sjacob@rbj.net / 585-546-8303*