BioTools Inc.

Introduction

In 1995 when Edmonton-based BioTools Incorporated was founded, the word "bioinformatics" was hardly known. But now this field, which marries computer science and biology, is hot. And BioTools is in the thick of things.

The company already has three bioinformatics software packages on the market. It is now poised to use its expertise to become a more significant player, taking on the role of a business-to-business applications service provider. But challenges remain…

The little idea that grew

BioTools was founded by four University of Alberta professors. Dr. Jonathan Schaeffer is an expert in artificial intelligence, parallel computing and high-performance computing. Dr. Duane Szafron is an expert in object-oriented programming. Dr. Brian Sykes specializes in protein research; he leads the Medical Research Council of Canada Group in Protein Structure and Function. Dr. David Wishart is involved in research in NMR spectroscopy, peptide synthesis, computer-aided drug design and informatics.

The company began as a spin-off of Wishart's research in protein chemistry. While an undergraduate student at the University of Alberta, Wishart wrote a computer program, called SeqSee, for the sequence analysis of peptides. Wishart continued to develop SeqSee during his graduate work at Yale University and on his return to the UofA. By 1993, SeqSee was ready for publication. "Our original idea was to distribute the program and the source code for free," says Wishart. "But all of sudden, people started to say 'Hold on'."

It was becoming clear that SeqSee could be much more than a niche product targeted to only a few researchers. It could become an important tool in the burgeoning field of bioinformatics – the application of information technology to biology. Bioinformatics software is necessary to search, retrieve, process, analyze and model the vast amount of information scientists have gathered about genes and proteins.

The business of BioTools

With start-up funding from the Technology Commercialization Program of the Alberta Heritage Foundation for Medical Research and the National Research Council's Industrial Research Assistance Program, BioTools was able to put its first product on the market. PepTool, a protein sequence analysis package, was released in December 1997.

A year later, BioTools released GeneTool, a DNA sequence analysis package. The company's latest software project is ChromaTool, a DNA sequence assembly package. It was launched in May 2000.

These award-winning products are being used by more than 3000 biomedical scientists in applications ranging from drug discovery to medical diagnosis to agricultural research. The target market segment for the three products is estimated to be worth approximately $200 million annually.

At the same time as PepTool, GeneTool and ChromaTool were under development, BioTools began to expand its interest to another field -- Magnetic Resonance Diagnostics. MRD is the application of Nuclear Magnetic Resonance (NMR) spectroscopy to clinical testing. It is a new method to detect and measure key chemical compounds found in body fluids such as blood and urine.

BioTools saw an opportunity to expand its established expertise in biomedical software development. In July 1999, it entered into a Product Development Agreement with Varian Inc. This company is a leader in developing, manufacturing and marketing NMR systems. The objective of the agreement is to develop an MRD unit that will have the capability to diagnose disease states in less than 90 seconds. BioTools' contribution is the analytical software and specialized databases required to make MRD a commercial reality.

In its 1999 business plan, BioTools estimated the clinical diagnostics market for MRD to be 3,286 units in the U.S. At a price of $400,000 per MRD unit, this represents a $1.3 billion market in the U.S. alone.

Evolution of an idea

Since 1999 BioTools has made rapid progress in MRD. The software and databases have been successfully demonstrated. In blind tests of 50 unknown samples, the products performed exceedingly well.

This success prompted the management team to rethink the company's focus. "We've demonstrated that we have the expertise in artificial intelligence and databases to do this in a number of fields, not just MRD. So we began to contemplate a change in our role," says BioTools President and CEO Gordon Stranks. An experienced manager, Stranks joined the company in 1997.

"We started thinking about what we do well, which is provide computational solutions for biological data. We talked to Varian and told them we're not the company to make an MRD machine. We'll license the software to them."

This crystallization of the role of BioTools came at a time of great change in the bioinformatics market. With completion of the Human Genome Project and the deciphering of the paired A's, C's, T's and G's of human genetic code, different

kinds of information are now needed: information on when and where various genes are turned on, the shapes of the proteins the genes encode, how the proteins interact with one another and the role these interactions play in disease. Bioinformatics will play a key role in this effort.

In the July 2000 issue of Scientific American, Jason Reed of the investment banking firm Oscar Gruss & Son in New York City estimated that bioinformatics could be a $2-billion business within five years.

Some bioinformatics companies cater to large users, aiming their products and services at genomics, biotechnology and pharmaceutical companies by creating custom software and offering consulting services. Other firms target small or academic users. Web businesses such as DoubleTwist Inc. are on-line portals that allows users to access various types of databases and use software to manipulate the data.

In May 2000 BioTools reached an agreement with DoubleTwist and became a strategic partner. BioTools' PepTool and GeneTool are now available on the DoubleTwist web site (www.doubletwist.com). As of June 2000, DoubleTwist had logged over 6000 downloads of the BioTools software.

"We're now having huge success and are looking to develop new products for DoubleTwist as well as doing contractual development for pharmaceutical and biotechnology companies," says Stranks. "They have the cutting edge hardware, but they need the software.

"BioTools will be a business-to-business application service provider. That's our future."

Crunch time

But even with a clear idea of its business focus, there are some serious challenges that BioTools must face. One of them is money.

"If we continue without significant investment, we will become a contractual development house," says Stranks. "We'll work for clients. They pay; they own. At the end of the day, we won't have the intellectual property. This is not the road to growth."

In order to become an applications service provider, BioTools will have to ramp up development of its own applications. Stranks says that significant investment needed to do this is on the order of $5 million U.S. One of his main tasks is finding the money. He is optimistic, noting that BioTools' new focus has received a positive response from venture capitalists in the U.S.

The other challenge for BioTools is human resources. The company has 14 employees and plans to hire another 16 over the next year. Finding skilled people is an issue, as is holding on to current staff.

“Our people get job offers every week,” notes Stranks. “It isn’t enough for us to protect our intellectual property. We must protect our human resources as well.”

And what about the future? “If we take investment and build applications, our valuation will skyrocket,” says Stranks. “Then we are positioned for an IPO or an acquisition.

“If we don’t take financing, there’s the possibility that a company like DoubleTwist will buy us. We’d be cheap. Our valuation wouldn’t be substantial.

“This moment in time, this is our window of opportunity. If we don’t push forward, we’ll end up as an add-on to a bigger company.”