

MAKING BIG DOCUMENTS MANAGEABLE EX-ISRAELI INTELLIGENCE OFFICER USES CD-ROM TECHNOLOGY TO MAKE MARK IN ELECTRONIC PUBLISHING INDUSTRY

Author(s): Robert Israel, Globe Correspondent **Date:** July 29, 1998 **Page:** C4 **Section:** Business

Jonathan Yaron remembers when he saw his future flash before him on the shiny silver surface of a CD-ROM disk. It was 1991.

Yaron was a 28-year-old intelligence officer for the Israel Defense Forces who had labored for the previous 10 years with the IDF and the Israeli Ministry of Defense processing large quantities of information in the bulky format of technical, policy, and procedure manuals. He knew the CD-ROM disk he held in his hands, a prototype sent to him by a military catalog publisher in Great Britain, was the key to a puzzling business challenge he felt compelled to decipher.

"I knew that this electronic disk would one day replace paper," Yaron recalled. "I didn't quite know how to do it, but I knew a place to start was to put together a business plan that would enable me to become a leader in this market."

Yaron sought technical advice from colleague Ronnan Armon, who would later become his partner, and then applied for an initial investment in the form of a \$250,000 loan from the Israeli government.

Although Israel as a nation is only 50 years old, it has long had a policy and system that supports and encourages technological research and development. This philosophy of investing in brainpower has paid off: Israel has risen to be second only to the United States in the number of high-tech companies traded on the Nasdaq Stock Market.

One requirement of the government loan is that the fledgling company obtain a matching cash investment from an established business. Yaron and Armon obtained funding from Magic Software Inc., one of the first Israeli companies to be traded on Nasdaq.

Six months later, calling their company Enigma -- the word describes the predicament publishers often face when they search for solutions to their electronic publishing needs -- Yaron and Armon cut a six-figure deal with Halchot, the largest publisher of legal documents in Israel. The Halchot agreement was to provide it with Israel's first legal CD-ROM title six months after the deal was signed. Halchot remains a client today and continues to expand its number of titles.

Today, six years after its founding, there is nothing enigmatic about Enigma: It provides electronic publishing solutions for a diverse international assembly of corporate, government, and commercial businesses, and it is growing 50 percent a year with projected revenues in 1998 of \$10.2 million.

Privately held, Enigma is based in Waltham, with research and development offices in Tel Aviv (where Microsoft and IBM also maintain R&D facilities), and sales offices in London, Paris, Frankfurt, and Tokyo. It employs 100 people -- 23 in Massachusetts. A growing list of customers includes United Technologies, Rolls-Royce, GaSonics International, SAP, Standard & Poor's, and Scientific American. Although Yaron said there are no immediate plans to go public, he predicts Enigma will move toward an IPO within 18 months.

Inside the firm's Waltham offices, a wall is lined with clocks reporting the time in key business centers around the world. A team of sales personnel works international telephone lines. Yaron, who frequently travels internationally, keeps his cell phone handy.

It is not by accident that Enigma chose the Boston area for its headquarters. Enigma is one of 60 Israeli high-tech firms that have settled there. According to Michel Habib, Israeli consul for economic affairs in New England, these firms are taking advantage of "a very favorable business climate here and a pool of highly skilled workers to draw from."

"For an Israeli high-tech firm, it's either Boston or Silicon Valley. Boston usually wins out because of practicality: It is only 7 hours time difference from Israel instead of 10 in California," he said. "Also, the potential to create substantive business partnerships here is extremely favorable."

Another factor for choosing the area lies in Yaron's relentless competitive drive. Born and raised in Israel to an American mother and an Israeli father, Yaron said he always looked to the United States as the ultimate beachhead for his business.

"On every piece of technology I handled when I was in the Israeli military," he said, "there was a label: 'Made in the USA.' There was never a question in my mind that I had to make it here. If one is going to be a leader in this market, it has to be here."

It is also in this region that Enigma's chief competitor, Providence-based Inso Inc., is located. Both firms will be exhibiting their products in the upcoming Documation trade show, taking place Sept. 14-17 at Boston's Hynes Convention Center.

Enigma's solution to the dilemmas faced by publishers seeking to electronically convert large quantities of reference information into an application is an intuitive tool, aptly named INSIGHT. The product combines commonly used authoring formats, including Microsoft Word and Standard Generalized Markup Language, into a unified electronic publication. This gives end-users the ability to effectively navigate very large documents to find the information they need and streamline the publishing process. This tool, Yaron said, "allows you to find what you are looking for with fewer keystrokes."

Scientific American Inc., publisher of monthly journals Scientific Medicine and Scientific American Surgery, uses INSIGHT "to customize our publishing," said Janet Zin, manager of electronic publications at Scientific American Inc. in New York.

"They have created conversion scripts that automate the process," she added. "We are able to put the CDs together in no time at all." The result is a product that is interactive, searchable, and less expensive to produce than the weighty tomes the firm produced for years.

Enigma software is not only attractive to publishers, it is also sought after by companies that need to better manage the publishing divisions within their organizations. One example is the London Underground in Great Britain, which provides daily subway service to over 2.5 million passengers on a fleet of 470 trains. Before switching to Enigma software, London Underground's maintenance engineers had to manually flip through large quantities of documents to find details about the 70,000 parts per train, their maintenance, service agreements, and purchase prices. The result was a paper management nightmare.

As demand for INSIGHT grows, Enigma is seeking to reach larger markets by aggressively supporting research that advances electronic publishing tools still in their infancy. One of these new tools is XML, or Extensible Markup Language, which provides the structure and intelligence of SGML but with HTML's cost-effective implementation.

"XML is rapidly bringing the Web to the next level, fully complementing HTML," said Steve Sklepovich, product manager for the platform marketing group at Microsoft Corp. "XML will mean

more intelligent searches for information on the Web, enabling the delivery, viewing, and interaction with that information in a much more meaningful way."

Yaron said he believes this development will enhance electronic publishing.

"The reality is that the Web is flat in terms of structured publishing and navigation," he said. "You start your search from one point until you exhaust it, and then you have to return to the beginning to start another search. XML will enable you to navigate more fluidly."

Toward that end, Enigma is a member of the World Wide Web consortium, founded in 1994 to help build the Web by developing common protocols to promote its evolution and ensure its interoperability. It is anticipated that by next year, XML -- a system for defining, validating, and sharing large documents on the Internet -- will complement, not replace, existing markup language, thereby providing more flexibility for users.

The financial rewards, industry analysts predict, will be tremendous.

"Over the next five years, the market for structured and interactive electronic publishing will grow to more than \$1 billion," said Mike Cunningham of the Harvard Computing Group. "XML promises to provide personalized information and customized design to Web content applications. Enigma is well positioned for this growth as information publishing goes upstream." But there are other challenges.

"Publishing is continually undergoing evolutionary changes," said Yaron. "Today, more and more people are ordering books via the Internet, via Amazon.com and other on-line businesses. Soon, customers will demand that these books become available on CD-ROM disks. College students, in some cases, are already using CD-ROM textbooks for their courses. There are many more avenues yet to explore.