

Exhibit E

A Media Pioneer's Quest: Portable Electronic Newspapers

New technologies offer an alternative to conventional publishing.

By JOHN MARKOFF

IN A favorite dream, Roger Fidler envisions a row of commuters reaching into their briefcases on their ride to work. Instead of pulling out the morning paper, each grabs a thin, tablet-sized computer and a pen.

With the flick of a switch, a newspaper front page appears — in color and bright, crisp type — on each battery-powered computer screen. With a tap of the pen, the reader calls up stories, flips pages, turns a photo into a television news replay, or simply browses, scanning the sports pages, features, comics, even doing the crossword puzzle or making reservations from a restaurant ad. The paper's cost? About the same as the price of a newspaper subscription today.

Because of a string of technological advances, Mr. Fidler, who is taking a year from his job as director of new media technology at Knight-Ridder to describe his vision in a book, says his dream of a popular, portable electronic newspaper is now about five years away. He calls the coming transformation "mediamorphosis."

Mr. Fidler began his quest in the late 1970's as a member of the team at Knight-Ridder Inc. that set out to create an electronic newspaper.

called Viewtron, proved a financial disaster. When the company ended the project in 1986, many said the failure was proof that such futuristic newspaper substitutes would never displace conventional ink-on-paper.

Mr. Fidler admits that he carries some arrows in his back from the failure, a hazard of being a pioneer. But now he has a prototype of his new product that he shows top executives in the newspaper business. Developed independent of Knight-Ridder, it is a model of a notebook-sized, pen-based computer that displays a sharp 8½-by-11-inch newspaper front page and offers the user a multitude of reading, printing and saving possibilities.

Mr. Fidler, 49, believes that by later this decade, lightweight pen-based computers will have become sufficiently inexpensive and technologically advanced to reinvent the newspaper. He is urging the nation's newspapers to develop a software standard so that a reader could view a favorite newspaper on any of the flat-panel systems now being developed by computer makers.

To a newspaper industry troubled by declining readership and an eroding advertising base, Mr. Fidler brings a message that publications can be revitalized by a series of converging technologies. These include clearer flat-panel displays, larger computer memories, silicon chips that consume less power, and digital communications systems.

Many executives and industry analysts agree that it is finally possible to conceive of a reasonable alternative to conventional newspapers.

"This is a new world for delivering information," said Jonathan Seybold, president of Seybold Inc., a publishing industry consulting firm based in Malibu, Calif. "I can't see any reason why anyone would want to read a newspaper on a video screen, but there are a lot of reasons to read a different product on a screen that you could carry around."

Thomas Winship, editor of the Boston Globe until 1985 and now chairman of the Center for Foreign Journalists, said: "I think this will be the salvation for the traditional serious newspapers. The main thing is to convince editors and publishers not to fear this technology."

Today, major newspaper companies, including Knight-Ridder, Washington Post, New York Times, Tribune and Hearst, are exploring new ideas in electronic publishing.

But many newspaper veterans are skeptical about any sudden transition to an electronic newspaper. "When you're dealing with high-value information for business and professional people, electronic information is workable," said Walter Baer, deputy

vice president for domestic research at the Rand Corporation, who worked for the Times Mirror Company during the 1980's. "But most consumers don't find information so valuable that they want to pay more than 50 cents for the newspaper. Newsprint will be around until well after the turn of the century."

What appeals most to newspaper publishers, however, is that Mr. Fidler's proposed standard retains on the computer screen most of the "look and feel" of today's newspapers. Mr. Fidler also argues that readers prefer news organized and edited by news organizations for many readers to the highly personalized electronic newspapers developed by some researchers.

"Many publishers are hearing that newspapers will be obsolete in the future," he said in a recent interview at the Freedom Forum Media Studies Center at Columbia University, where he has spent the past year on a writing fellowship. "That's not my vision. I see newspapers evolving from ink-on-paper, but there will be a renaissance of typography and design and the packaging of information in the new electronic medium."

Mr. Fidler says it will be possible to computerize all the features of today's newspapers and add the interactivity offered by computers, all for a price no higher than a newspaper subscription today.

In Mr. Fidler's newspaper of the future, the reader will essentially use the front page to pick what stories or sections to view, tapping a headline with the pen to read a whole story or tapping a menu item to call up sports or do the crossword puzzle or even see an article in large type. Similarly, he would expand to fill the entire page. Because the system is potentially interactive, a reader could tap an ad for a restaurant or theater to contact that establishment's computer and request a reservation.

Moreover, the system could blend text and video, so that a user could watch a segment from the evening news and read an accompanying story.

The key, Mr. Fidler says, is portability. To be workable, it must be possible to read it anywhere, from the train to the water closet.

And the key to portability, he said, is clear and bright flat-panel displays at low cost. Optimists in the computer industry have been predicting the imminent arrival of these screens for

A reader could display stories by tapping their headlines.

more than a decade, but obstacles that include a short battery life have held back advances.

"In consumer electronics, the Buddha lurks in the details," said Paul Saffo, a publishing consultant at the Institute for the Future, in Menlo Park, Calif. "It is likely that adequate panel computers will arrive at low cost well after 1995, and a more optimistic scenario is around 2000."

Some flat-panel designers are more optimistic. The first flat displays, used in laptop computers in the 1980's, were crude affairs that required perfect lighting and offered only a narrow viewing angle, but that is changing rapidly. At I.B.M.'s Thomas J. Watson Research Laboratory, researchers say that while flat-panel screens will not match the image resolution of ink-on-paper until the turn of the century, studies show they should reach a clarity equal to that of the printed page within two years.

In addition, new digital technologies potentially make transmission of an electronic newspaper far less costly than conventional distribution. Mr. Fidler argues that his electronic newspaper could be digitally transmitted to the reader's portable computer via cable television network, direct broadcast satellite transmission, high-speed digital telephone networks or digital cellular telephone transmission.

"It's happening sooner than later," said Walter Bender, director of the



Fred R. Conrad/The New York Times

Roger Fidler holds a notebook computer that could soon display newspapers electronically.

electronic publishing group at M.I.T.'s Media Laboratory. "The entertainment industry is pushing toward a digital communications infrastructure real hard, and these panels will ride on that."

The Viewtron project in the late 1970's was designed to offer the news

on a computer terminal transmitted to homes via telephone lines. The aim of such a "videotex" system was to create a computerized and tailored newspaper that offered instant news along with interactive services like electronic shopping. But poor performance, high costs and consumer

indifference doomed the project.

In the past six years, there have been a number of attempts to offer similar services, but despite the fact that there are more than 20 million computers in homes, there have been no striking videotex successes so far. For example, Prodigy Services, the

joint venture of I.B.M. and Sears, is still not profitable after an investment of almost \$1 billion, even though it has nearly a million subscribers.

Mr. Fidler argues that the missing element in the earlier ventures has been portability. He says that will change by the middle of the decade when pen-based computers will be inexpensive and widely used for a variety of functions. Many electronics experts believe such devices must be priced at less than \$500 to be attractive to a mass audience.

Skeptical until recently, major newspaper publishers have begun to listen to him intently, Mr. Fidler said, especially since Judge Harold H. Greene freed the regional telephone companies last year to provide information services.

"In the past year, there has been a dramatic shift," he said. "Publishers are looking for new ways to defend themselves against a new competitor that could potentially be very damaging."

Experiments with new technologies are going on at Times-Mirror newspapers and The San Jose Mercury, owned by Knight-Ridder. And The Chicago Tribune has struck an alliance with an electronic information service to make its news available electronically to subscribers.

"Newspapers have taken their heads out of the sand," said John Morton, a newspaper analyst at Lynch, Jones & Ryan, a brokerage firm. "They need to get their hands in it and be prepared to take advantage of strong consumer demand when it emerges."

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The Electronic Front Page

Pages retain a traditional look, though individual newspapers can be differentiated by typography, design and content.

- Headlines and abstracts are linked to stories inside.
- Graphics and maps can be animated.
- Still photos could be linked to full-motion video and audio segments.
- A menu along the bottom allows pages or stories to be modified, saved or printed.
- Pages can be turned one at a time by touching dog ear icon with pen.
- Readers can skip to a desired department, like weather or sports, by touching heading with pen.
- Expanded versions of these departments can be added or deleted based on the reader's interests.



Source: Knight-Ridder

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