Computer-Assisted Reporting in Michigan Daily Newspapers: More than a Decade of Adoption

By

Lucinda D. Davenport, Ph.D.
Professor, School of Journalism
305 Communication Arts Building
Michigan State University
East Lansing, Mich.  48824-1212
ludavenp@msu.edu
(517)355-6574

Fred Fico, Ph.D.
Professor, School of Journalism
Michigan State University

Mary Detwiler, M.A.
Mass Media Doctoral Student
College of Communication Arts and Sciences
Michigan State University


The computer-assisted reporting revolution may now be more of an evolution as computers are more routinely used for gathering and processing information. Indeed, the term, "computer-assisted reporting," may no longer be relevant as reporters use computers for gathering information on a regular basis as part of their writing and reporting process.

Computers are now used in every phase of the information production process--gathering, organizing, writing, presenting, producing and disseminating information to consumers. "Computer-assisted reporting" in the first phase, gathering information, is the focus of this study on rate of adoption.

This research is a follow-up to two Michigan daily newspaper studies. Initial research by Soffin et al. in 1986, tracked commercial online database and in-house electronic morgue use. A second study by Davenport et al. in 1996, noted seven specific means by which computers were used for gathering and organizing information: 1) commercial online databases, 2) electronic bulletin board services (BBS's), 3) the Internet, 4) compact disks-read only memory (CD-ROMs), 5) electronic morgues of that newspaper's past issues 6) in-house topical databases

that journalists develop and 7) the analyses of electronic public records.\textsuperscript{15}

This study tracks when newspapers of different circulation size adopted each of these computerized sources and tracks the organizational benefits they obtained. Furthermore, the study explores how frequently different journalistic personnel use the various computerized sources, and for what newsgathering purpose.

Thus, the overall objective of the present study is three-fold. First, it is a longitudinal study that follows up on previous research to track newspapers’ adoption of computerized information sources. Second, it updates what computer-assisted reporting methods journalists use as they gather information. Third, this study seeks current reasons why journalists use these different electronic sources.

This present study is unique because it replicates and updates the only other study that has traced the adoption of computerized information sources over time by a census of newspapers in a single state. In addition, this study follows the method of the previous research, breaking apart the term “computer-assisted reporting” into seven areas, making it a more exacting and comprehensive study. Other studies, national in scope, have not surveyed smaller—more typical—daily newspapers to find out the degree to which they have kept up or been left behind in computerized reporting. And, finally, a review of the literature shows no recent computer-assisted reporting research, even as widespread commentary suggests that newsrooms are being transformed by the “electronic revolution.”

This recent neglect in the field is disconcerting when the types and combinations of computer-assisted reporting skills and their rates of adoption are issues for news professionals, who are trying to balance economics and competition. These points are also important to journalism educators who are trying to keep abreast of the industry while balancing new technology budgets, finding computer-assisted reporting instructors and squeezing more information into already content-jammed disciplines.

**Background**

The first adoption study on computerized information sources in Michigan was presented in 1987.\textsuperscript{16} The second study was published in 1996.\textsuperscript{17} No new adoption studies on computer-assisted reporting published since 1996 could be found.

The 1996 study reviewed the history of computer-assisted reporting and research initiatives. Generally, newspapers began implementing computers into their newsrooms in the 1980s. Commercial online databases such as VU/TEXT, CompuServe and The Source were used sporadically, depending on the newspaper’s resources.\textsuperscript{18} Furthermore, because of


\textsuperscript{16}Soffin et al., 1987.

\textsuperscript{17}Davenport, Fico and Weinstock, 1996.

cost, many newspaper librarians, not journalists, were doing the online searching.\(^\text{19}\)

By the 1990s, reporters were doing something unlike what journalists had done before: They were experimenting with statistics and database manager software to analyze public records. Reporters using online databases and analyzing government data consistently won Pulitzers for their in-depth reporting.

By then, computers were used for a variety of reporting reasons. Ward and Hansen coined the term, “computer-assisted reporting” to include the use of computers for creating and analyzing data.\(^\text{20}\) DeFleur and Davenport defined computer-assisted reporting to encompass searching for information online in a variety of ways, analyzing public agency records and building customized databases.\(^\text{21}\)

Some journalists used the term, “computer-assisted reporting” to mean using a computer to search information online, while others intended it to mean using a computer to analyze government data. Researchers also used the term inconsistently for their research purposes. This confusion made comparisons of adoption rather difficult.\(^\text{22}\)

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\(^\text{20}\) Ward and Hansen, 1991, p. 496.


Davenport et al. identified seven distinct ways in which computers were used to gather information for news stories. Each method requires special hardware and software, various costs and information-gathering skills. Ideally, journalists should be skilled in obtaining all types of computerized information. This study presents a short account of each computerized information source, which has been the subject of one or more research articles:

Commercial online databases have been the foundation of computer-assisted reporting research since the 1970s, and are defined as “a collection of data or body of information that is organized for rapid retrieval via a computer.”

Commercial online services can be thought of as a collection of individual databases that can be searched simultaneously for updated information, and usually for a price. Newsroom librarians often search the more expensive services, such as Lexis/Nexis, Dow Jones News Retrieval and Dialog. Journalists more often use the less expensive ones, such as CompuServe and America Online, which also act as a gateway to the Internet.

Local or national electronic bulletin boards (BBS’s) store a topical database and enabled individuals to interact with other users. Journalists frequently used government BBS’s to find information or leave messages for experts.

Internet use surged when Gopher was developed in 1991 and exploded when the World Wide Web was born in 1993. Since then, many database producers formerly on commercial online services and owners of BBS’s have moved their content to the Internet, where volume is said to double every 90 days.

Journalists use websites with select databases, mailing lists and newsgroups to find people and information.

CD-ROMs are composed of individual databases that contain bibliographic citations and abstracts, articles and transcripts, books and directories, government documents, public records and consumer records, photos and graphics. CD-ROMs can be searched often without incurring online expenses, are easy to use and store. Their information is usually updated periodically by stamping out a new CD-ROM.

An electronic morgue of the newspaper's past issues usually is available in-house to all journalists on their computers. Reporters can find electronic articles published in previous issues of the newspaper by typing in a keyword into the electronic database. The morgue is often different in procedure and format from the online archive that consumers use when accessing an online “newspaper.”

In-house topical databases that journalists develop are most useful for preserving and adding to information annually to identify trends, such as local campaign contributions. Journalists analyze and organize this numerical or character data in spreadsheets and database management programs.

Electronic public records usually are obtained with a FIOA to government departments. Some records are available

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24 Nua, Ltd., NUA Internet Surveys, composed of information originally found at a now nonexistent file in Yahoo.com/headlines.
on a government agency’s website. Journalists use spreadsheets and database managers to assist them in their government watchdog role.

**The Present Study**

No studies on newspapers’ uses of computerized information have been systematically longitudinal. As DeFleur and Davenport indicated, the quantitative pattern of computer-assisted reporting adopted in newsrooms can only be inferred because of the limited number of studies reporting the use of online databases around the country.

The objective of this study is to follow up on two state studies, showing the rate of adoption of computerized information sources used by daily newspapers.

The initial study in 1986, by Soffin et al., found that only two of 51 state daily newspapers used a commercial online database. Four had some form of electronic morgue. More than 60 percent of the respondents thought online databases were not important, and many did not know what an online database was.

The 1994 study, by Davenport et al., was the first study in the country to ask about each of the seven components that make up computer-assisted reporting. They found in a telephone survey that 37 of the responding 46 daily newspapers used one or more of the computerized information sources (80 percent). Of those newspapers using at least one electronic source, only four (11 percent) used all seven sources. Eleven newspapers (30 percent) used just one of the sources. The most common sources used were newspaper-developed databases (68 percent), electronic public records (57 percent), CD-ROMs (51 percent) and commercial online databases (51 percent). Journalists used newspaper-developed databases and electronic public records mostly for finding raw data, CD-ROMs for general information and online databases for background statistics.

The present study gathers more information on the adoption rate of the seven computerized information sources. Comparison with the earlier study will illuminate trends or changes in how and why each computerized source is used. Results from the study will have value in tracking changes taking place in newsrooms. But more importantly, study results can help news organizations and journalism schools prioritize financial support and re-assess training needs.

**Research Questions**

This study seeks answers to the following questions about the seven types of computer-assisted information sources defined conceptually and explored empirically in previous research:

- **RQ1:** What is the average number of such sources used by dailies, and what are the most frequent combinations?
- **RQ2:** How is newspaper size related to use of such sources?
- **RQ3:** When and for what organizational reasons did newspapers adopt such sources?
- **RQ4:** For what journalistic reasons are such sources used, and how frequently are they used?
- **RQ5:** How likely are reporters to use such sources?
- **RQ6:** How have dailies changed during the last
six years in the use of computerized information sources?

Method
This study replicates the methods used for the studies conducted in 1986 and in 1994. In Phase One, researchers called each daily newspaper in Michigan and spoke to an appropriate editor who could provide information about the computerized information sources the newspaper used. The editor was asked if the newspaper used one or more of the seven electronic information sources. The seven sources were commercial online databases, bulletin board systems (BBS’s), the Internet, CD-ROMS, an electronic morgue, newspaper-developed databases and electronic public records.

If the newspaper used one or more of the computerized sources, then the editor was sent a Phase Two mail survey probing for more information. The one-page questionnaire (a single page focused on a particular source) asked when the newspaper acquired the source, why the newspaper decided to adopt it, the journalistic reasons for using the source and who uses the source. The consistency of the questions helped standardize comparisons of the three studies to gauge rate of adoption.

Results
Forty-eight Michigan dailies listed in Editor & Publisher International Directory for 1999 were contacted by telephone and asked about their use of the seven electronic information sources. Forty-seven reported using at least one of the seven sources. Twenty-five of those 47 newspapers (53 percent) subsequently provided additional information on how they use these information sources.

RQ1: What is the average number of such sources used by dailies, and what are the most frequent combinations?
The average number of such sources used by Michigan newspapers was about 4.5, thereby answering Research Question 1 (See Table 1). In fact, 47 percent of the 47 newspapers reported using at least five of the sources, and 21 percent used all seven of the sources probed.

Table 1 indicates that use of the Internet is now virtually universal among Michigan dailies, with more than nine in 10 newspapers reporting their use. CD-ROMs, public records and bulletin board services are used by about two-thirds to three-quarters of the dailies. Online databases and electronic morgues are used by at least half of the newspapers.

RQ2: How is newspaper size related to use of such sources?
Circulation size correlated .48 with the number of such sources adopted by these newspapers. But newspapers of all sizes were using one or more of the sources. Table 2 indicates that nearly every larger circulation newspaper—those over 50,000—have adopted each of the sources. However, the smallest

25 A follow-up mail survey was used for several reasons. First, the researchers wanted to give editors an opportunity to find information that they might not have access to while on the phone. Second, if newspapers used several information sources, interview time may have exceeded what is generally considered acceptable. Third, the researchers were confident that respondents would be interested enough in the study to be willing to respond with more detail at a later time. Phase Two consisted of three mailings.
dailies—those under 10,000 circulation—were less likely to adopt the sources. Overall, circulation size was consistently associated with the adoption of the Internet, online databases and electronic morgues. In general, newspapers under 25,000 circulation were less likely to use newspaper-developed databases, and newspapers under 10,000 were also less likely to use electronic morgues, electronic public records and online databases.

Clearly, newspapers are focusing on electronic information resources that yield a maximum return for a minimum investment. Those computerized sources that are the least expensive and require less expertise were adopted the most: the Internet and CD-ROMs. Those sources requiring ongoing newspaper maintenance and commitment were adopted least: electronic morgues and newspaper-developed databases. The other sources require varying costs and expertise, depending on the type and frequency of information acquired. For example, some public records may be inexpensive to obtain, but require expertise in statistics and database management programs. Online databases differ in fees for startup, monthly subscription, number of searches, types of searches (amount of time online) and document retrieval.

**RQ3: When and for what organizational reasons did newspapers adopt such sources?**

Nearly one quarter of the newspapers developed in-house topical databases and electronic morgues before 1990, and about one-third began using CD-ROMs between 1990 and 1995. (See Table 3) Editors indicated that their newspaper adopted the other sources sometime after 1995: 32 percent jumped on the Internet in 1996, another quarter had newspaper-developed databases in 1997, and BBS’s, online databases and electronic morgues were acquired mostly in 1998. In 1999 to early 2000, about one third of the newspapers began using CD-ROMs and public records, and a quarter of them used electronic morgues.

Management’s main objective for acquiring every source was personnel efficiency. (See Table 4) With many of the computerized sources at hand, reporters can find a lot of updated information quickly. They do not spend as much time in a library or on the telephone, tracking down information and sources. Reporters write in-depth and meaningful stories more quickly with these sources than the traditional ones. Editors said that after efficiency, competition was a reason to obtain online databases. Affordability was a second reason to use the Internet and BBS’s. Many editors noted they had various “other” reasons, such as storage and up-to-date information, for adopting sources. Certainly, encyclopedia CD-ROMs have more recent data and consume less shelf space than some 20 thick volumes.

**RQ4: For what journalistic reasons are such sources used, and how frequently are these used?**

Finding general information is the primary reason journalists use most of the sources (the Internet, 92 percent; online databases, 90 percent; CD-ROMs, 73 percent; and BBS’s, 57 percent). (See Table 5) As expected, journalists use public records to analyze raw numbers (77 percent) and even more to find information about people—particular individuals, such as campaign contributors, and groupings of people,
such as the demographics of a region (83 percent). They also develop their own databases to examine numerical data (75 percent). Journalists use their electronic morgue to gather general information, find facts about people and for a variety of “other” reasons (42 percent each).

Journalists used most of the sources frequently. They connected daily to their newspaper morgue (83 percent), the Internet (72 percent), online databases (60 percent) and their newspaper databases (50 percent). They used weekly BBS’s (47 percent) and they used annually CD-ROMs (38 percent) and public records (33 percent). (See Table 6) Reasons for these responses may have to do with the type of story written and the logistics of the newsroom—how accessible information sources are to journalists.

RQ5: How likely are reporters to use such sources?

In every case, each source was used mostly by reporters, then by editors, then distantly by librarians. (See Table 7) All reporters (100 percent) used the Internet, online databases, public records and newspaper-developed databases. Most reporters also used BBS’s (93 percent), electronic morgues (92 percent) and CD-ROMs (75 percent).

RQ6: How have dailies changed during the last six years in the use of computerized information sources?

Newsroom techniques have changed greatly from the time most editors thought online databases were not important. Fourteen years ago, only two of the state’s 51 daily newspapers used a commercial online database and four had an electronic morgue.

It is clear that dramatic changes also have occurred among these dailies since the 1994 study. In 1994, nearly one in five (9 of 46) of the newspapers reported using none of the sources, compared to only 2 percent of the dailies (1 of 48) asked in 2000. Nearly twice the newspapers in 2000 (21 percent) were using all seven sources compared to 1994 (11 percent). If newspapers used any of these sources at all, the average number of such sources used was 3.4 in 1994 compared to 4.5 in 2000.

In fact, different sources had very different rates of adoption across the time period studied. Internet adoption was explosive, doubling during the six-year period. (See Table 1) Use of CD-ROMs and online databases increased by more than 80 percent. Use of BBS’s, electronic morgues and electronic public records increased by 60 to 75 percent. By contrast, newspaper-developed databases showed a 20-percent decline during the period.

Interestingly, two electronic information sources exchanged first and last places from 1994 to 2000. The Internet, nearly the least adopted computer source in 1994, was adopted by most of the newspapers in 2000. This result is not surprising. With Gopher’s development in 1991 and the World Wide Web in 1993, interest in the Internet surged in 1994, the last year of the preceding study. In the following six years, the number of U.S. users of the Internet has grown to 20 million. Almost everyone knows something about the Internet, it requires relatively little expertise for someone to obtain information and it is the least expensive source (a cheap monthly flat fee or else free) of the studied seven electronic information sources.
On the other hand, use of newspaper-developed databases dropped from first to last place between the two periods. Six years ago, the concept of analyzing government records was new and exciting. However, government agencies often did not want to part with their records, and frequently gave data in paper stacks to reporters, who keyed in the numbers on their computers. Although the Freedom of Information Act was to guarantee open access to government records, the agencies would comply by offering that information in print documents, not electronic records. FOIA now includes electronic and digital information, and government agencies are more accustomed to reporters’ requests for records. Furthermore, much of the government’s data can be downloaded from the Internet and imported straight into a spreadsheet or database program; reporters no longer must key in the data themselves for many reporting projects, which may account for the drop in newspaper-developed databases, and a corresponding increase in use of electronic public records.

Editors in both studies said that personnel efficiency was the primary reason news organizations adopted each electronic information source. As management is surely aware, finding updated information and sources quickly using computerized sources may allow reporters to write two stories in the same time it took to write one using traditional methods.

Given that efficiency was the most often cited reason for adopting sources, it would be expected that these sources are used frequently in the newsroom. Online databases, electronic morgues and BBS’s are still used daily to weekly. Internet and newspaper database use increased from monthly in 1994 to daily in 1999. CD-ROM use decreased from monthly in 1994 to yearly in 1999, and accessing public records remained a yearly project.

Journalists developed their own databases and used public records in both studies primarily for the same reason—to analyze raw data. Increasingly, by 1999 they used public records to also find out about people. They also searched CD-ROMs for the same purpose of finding general information. In 1994, journalists used online databases, the Internet and their electronic morgue mostly for background statistics, but in 1999, they used these same sources mostly for finding general information. Use of the electronic morgue expanded by 1999 to include finding out about people and background information. Journalists turned to BBS’s for context and finding sources in 1994 and for general information in 1999.

A variety of personnel used each source in both studies. Reporters were the most common user of all the sources in 1999, and of all but two sources in 1994. In 1994, personnel other than reporters—presumably librarians—were the most common users of CD-ROMs and online databases. Librarians were trained to efficiently search expensive online databases and were responsible for the CD-ROM discs, which could get lost if borrowed by others. In the early 1990s, many newspapers had one computer, located in the library, dedicated to reading CD-ROMs. Six years later, many reporters can access CD-ROMs remotely through their computers. They also have become more knowledgeable database searchers.

Several research terms and technology procedures should be
considered when identifying changes in computer-assisted reporting because terms, definitions and processes have modified through the years. A future adoption study should more closely examine BBS, online database and Internet interconnections. Government and other BBS’s were once housed in stand-alone computers, usually accessible by a single telephone line. A government-sponsored BBS was about the fastest and only electronic way for reporters to get general information from a government agency. Today, most topical BBS’s are reached through the Internet, and still offer much interactivity among members—chat rooms, discussion groups, public and private e-mail. Government agencies, however, opt to put their information on websites without much of the interactive capabilities. Thus, a future study would need to find out if the BBS’s the reporters use are the traditional dial-up BBS’s or Internet ones. It is a certainty that reporters’ use of BBS’s will significantly decrease in the future as more information is offered online.

Similarly, much of the information once found only in online databases can be found on the Internet. Reporters formally used CompuServe and America Online for information found within those services’ computers. These online services now often act as an Internet Service Provider (ISP), merely a gateway to the Internet. Here, again, a future study should examine closely how the online service is being used—traditionally for its databases or as an ISP.

A future study also needs to look past the traditional terms to the definitions and processes of electronic morgues and archives. Long ago, all newspaper articles were cut up and filed in manila folders stored in filing cabinets. Newspaper issues were bound together in books. Reporters looked in the morgue for information the newspaper had previously published about a person, event or issue. “Morgue” has been replaced in many newspapers with the preferred term, “archive.” However, some newspapers have both an online morgue and an online archive. The morgue is a database of the newspaper stories that can be retrieved with dates and keywords, and is used only in-house—by the newspaper staff. A newspaper’s archive is on the newspaper’s website and stories can be retrieved by either the date or the keywords by the public, usually for a fee. The story appears on the monitor surrounded by ads or navigational buttons, as it appeared originally. Thus, a researcher should find out what reporters mean when they say they use a “morgue” or “archive.” Are they no longer using the term, “morgue” but instead “archive,” although the meanings are the same? Or, are these two different procedures for accessing two types of databases?

**Implications and Conclusions**

Newspapers are increasingly challenged by alternate information sources such as the Internet and the rise of specialty publications. Responding to this challenge to keep and gain readers, newspapers have used new marketing techniques and product technologies to better transmit their news and information. Zoned editions were created to capture additional geographic areas, while specialized sections attempted to capture niches of reader interest. More recently, newspapers have begun online publications as a
means to broaden both their geographic reach and reader appeal.

But alongside this innovativeness in transmitting information has been innovation in gathering the news. Especially during the last decade, that too has largely been a revolution in the use of computer-related, electronic technologies. And, just as news products are changing shape, newsrooms are changing the way they operate, dramatically illustrated by the changes tracked in this study. While the Internet is expanding throughout U.S. homes, it has already arrived in newsrooms in Michigan and no doubt throughout the nation. Other technologies are enabling reporters and editors to vastly expand the potential pool of sources, to gather background information on issues and people, and to analyze data in the “firehouse research” manner envisioned by journalist Philip Meyer more than 20 years ago in his book, *Precision Journalism.*

That revolution in electronic news gathering is now being carried almost entirely by the reporting staff. As this study shows, reporters in increasingly more newsrooms have learned to use the Internet, online databases, CD-ROMs and BBS’s. Furthermore, reporters are routinely accessing and analyzing data from such sources as electronic public records and newspaper-developed databases. The result has been a capability to report more broadly and deeply about the community and the nation than has ever existed before. Such a capability, of course, may not be reflected in the journalistic product. News organization managers and editors, after all, must make the decision on how to deploy newsroom resources of time and talent. But that capability is still unprecedented in America’s daily journalism.

For years, many mass media experts have accepted how Walter Lippmann in *Public Opinion* written during the last century, characterized American journalism: a restless searchlight probing the darkness, occasionally illuminating some object of interest but unable to provide the meaning and context needed by democracy. Lippmann thought then that journalism could function best in a derivative role: by reporting the findings of what he called the “fact gathering” institutions of government. Today, American journalism is increasingly acquiring its own capability to be the kind of institution Lippmann had in mind, one that can hold up a more faithful reflection of who we are and what we are about.

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### TABLE 1

**Most Frequently Used Electronic Information Sources**

<table>
<thead>
<tr>
<th>Source</th>
<th>2000</th>
<th>1994</th>
<th>Increase/Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet</td>
<td>96%</td>
<td>41%</td>
<td>200%</td>
</tr>
<tr>
<td>CD-ROMs</td>
<td>75%</td>
<td>51%</td>
<td>84%</td>
</tr>
<tr>
<td>Public Records</td>
<td>72%</td>
<td>57%</td>
<td>62%</td>
</tr>
<tr>
<td>BBS’s</td>
<td>64%</td>
<td>46%</td>
<td>76%</td>
</tr>
<tr>
<td>Online Databases</td>
<td>55%</td>
<td>51%</td>
<td>89%</td>
</tr>
<tr>
<td>Electronic Morgues</td>
<td>51%</td>
<td>35%</td>
<td>71%</td>
</tr>
<tr>
<td>Newspaper Databases</td>
<td>43%</td>
<td>68%</td>
<td>-20%</td>
</tr>
</tbody>
</table>

| N                             | 47    | 37    |
## TABLE 2

Circulation Size and Use of Electronic Information Sources

<table>
<thead>
<tr>
<th></th>
<th>(Circulation in thousands)</th>
<th>&lt;10</th>
<th>10-25</th>
<th>25-50</th>
<th>over 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet</td>
<td></td>
<td>88%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>CD-ROMs</td>
<td></td>
<td>82%</td>
<td>57%</td>
<td>67%</td>
<td>90%</td>
</tr>
<tr>
<td>Public Records</td>
<td></td>
<td>41%</td>
<td>93%</td>
<td>83%</td>
<td>90%</td>
</tr>
<tr>
<td>BBS’s</td>
<td></td>
<td>58%</td>
<td>50%</td>
<td>83%</td>
<td>80%</td>
</tr>
<tr>
<td>Online Databases</td>
<td></td>
<td>41%</td>
<td>50%</td>
<td>50%</td>
<td>90%</td>
</tr>
<tr>
<td>Electronic Morgues</td>
<td></td>
<td>18%</td>
<td>57%</td>
<td>67%</td>
<td>70%</td>
</tr>
<tr>
<td>Newspaper Databases</td>
<td></td>
<td>18%</td>
<td>36%</td>
<td>83%</td>
<td>70%</td>
</tr>
</tbody>
</table>

N | 17  | 14  | 6  | 10 |
### TABLE 3

<table>
<thead>
<tr>
<th>Year</th>
<th>Internet</th>
<th>CD-ROMs</th>
<th>Public Records</th>
<th>BBS’s</th>
<th>Online Databases</th>
<th>Electr. Morgue</th>
<th>Newspaper Databases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 1990</td>
<td>0</td>
<td>0</td>
<td>6%</td>
<td>0</td>
<td>0</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Before 1995</td>
<td>4%</td>
<td>29%</td>
<td>6%</td>
<td>14%</td>
<td>11%</td>
<td>8%</td>
<td>13%</td>
</tr>
<tr>
<td>1995</td>
<td>8%</td>
<td>0</td>
<td>6%</td>
<td>7%</td>
<td>11%</td>
<td>0</td>
<td>13%</td>
</tr>
<tr>
<td>1996</td>
<td>32%</td>
<td>7%</td>
<td>12%</td>
<td>14%</td>
<td>22%</td>
<td>8%</td>
<td>13%</td>
</tr>
<tr>
<td>1997</td>
<td>28%</td>
<td>14%</td>
<td>18%</td>
<td>14%</td>
<td>0</td>
<td>8%</td>
<td>25%</td>
</tr>
<tr>
<td>1998</td>
<td>20%</td>
<td>21%</td>
<td>24%</td>
<td>43%</td>
<td>33%</td>
<td>25%</td>
<td>0</td>
</tr>
<tr>
<td>1999-2000</td>
<td>8%</td>
<td>29%</td>
<td>29%</td>
<td>7%</td>
<td>22%</td>
<td>25%</td>
<td>13%</td>
</tr>
</tbody>
</table>

N 25 14 17 14 9 12 8

* Underlined percent is when most newspapers adopted this particular source.
TABLE 4

News Organizations’ Reasons for Adopting Electronic Information Source*

<table>
<thead>
<tr>
<th></th>
<th>Internet</th>
<th>CD-ROMs</th>
<th>Public Records</th>
<th>BBS’s</th>
<th>Online Databases</th>
<th>Electr. Morgue</th>
<th>Newspaper Databases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competition</td>
<td>44%</td>
<td>27%</td>
<td>17%</td>
<td>20%</td>
<td>60%</td>
<td>8%</td>
<td>38%</td>
</tr>
<tr>
<td>Efficiency</td>
<td>88%</td>
<td>73%</td>
<td>83%</td>
<td>73%</td>
<td>80%</td>
<td>100%</td>
<td>63%</td>
</tr>
<tr>
<td>Affordability</td>
<td>48%</td>
<td>27%</td>
<td>28%</td>
<td>27%</td>
<td>40%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Other</td>
<td>32%</td>
<td>33%</td>
<td>44%</td>
<td>13%</td>
<td>40%</td>
<td>33%</td>
<td>50%</td>
</tr>
</tbody>
</table>

N 22 15 18 15 10 12 8

* Editors could identify more than one reason for adopting a particular source. Underlined percent is the most commonly cited reason for adopting a particular source.
TABLE 5

Journalistic Reasons
for Using Electronic Information Sources*

<table>
<thead>
<tr>
<th>Source</th>
<th>Internet</th>
<th>CD-ROMs</th>
<th>Public Records</th>
<th>BBS’s</th>
<th>Online Databases</th>
<th>Electr. Morgue</th>
<th>Newspaper Databases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Background</td>
<td>80%</td>
<td>27%</td>
<td>67%</td>
<td>50%</td>
<td>60%</td>
<td>42%</td>
<td>50%</td>
</tr>
<tr>
<td>Raw Numbers</td>
<td>52%</td>
<td>47%</td>
<td>77%</td>
<td>36%</td>
<td>40%</td>
<td>0</td>
<td>75%</td>
</tr>
<tr>
<td>General</td>
<td>92%</td>
<td>73%</td>
<td>39%</td>
<td>57%</td>
<td>90%</td>
<td>42%</td>
<td>13%</td>
</tr>
<tr>
<td>People Info.</td>
<td>64%</td>
<td>33%</td>
<td>83%</td>
<td>36%</td>
<td>50%</td>
<td>42%</td>
<td>50%</td>
</tr>
<tr>
<td>Localization</td>
<td>76%</td>
<td>27%</td>
<td>44%</td>
<td>36%</td>
<td>60%</td>
<td>33%</td>
<td>50%</td>
</tr>
<tr>
<td>Interviews</td>
<td>60%</td>
<td>13%</td>
<td>22%</td>
<td>43%</td>
<td>50%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>Other</td>
<td>24%</td>
<td>31%</td>
<td>0</td>
<td>14%</td>
<td>40%</td>
<td>42%</td>
<td>0</td>
</tr>
</tbody>
</table>

N: 22 15 18 14 10 12 8

* Editors could identify multiple reasons for using a particular source. Underlined percent is the most commonly cited reason for using a source.
# TABLE 6

**Frequency of Use of Electronic Sources**

<table>
<thead>
<tr>
<th></th>
<th>Internet</th>
<th>CD-ROMs</th>
<th>Public Records</th>
<th>BBS’s</th>
<th>Online Databases</th>
<th>Electr. Morgue</th>
<th>Newspaper Databases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>72%</td>
<td>25%</td>
<td>17%</td>
<td>27%</td>
<td>60%</td>
<td>83%</td>
<td>50%</td>
</tr>
<tr>
<td>Weekly</td>
<td>20%</td>
<td>25%</td>
<td>22%</td>
<td>47%</td>
<td>20%</td>
<td>8%</td>
<td>13%</td>
</tr>
<tr>
<td>Monthly</td>
<td>8%</td>
<td>13%</td>
<td>28%</td>
<td>7%</td>
<td>20%</td>
<td>8%</td>
<td>0</td>
</tr>
<tr>
<td>Yearly</td>
<td>0%</td>
<td>38%</td>
<td>33%</td>
<td>20%</td>
<td>0</td>
<td>0</td>
<td>38%</td>
</tr>
</tbody>
</table>

N 25 16 18 15 10 12 8

* Underline percent is the most commonly cited frequency of use of a particular source.
### TABLE 7

**News Personnel Who Use Electronic Information Sources***

<table>
<thead>
<tr>
<th>Source</th>
<th>Internet</th>
<th>CD-ROMs</th>
<th>Online Records</th>
<th>BBS’s</th>
<th>Online Databases</th>
<th>Electr. Morgue</th>
<th>Newspaper Databases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporters</td>
<td>100%</td>
<td>75%</td>
<td>100%</td>
<td>93%</td>
<td>100%</td>
<td>92%</td>
<td>100%</td>
</tr>
<tr>
<td>Editors</td>
<td>92%</td>
<td>69%</td>
<td>56%</td>
<td>73%</td>
<td>70%</td>
<td>92%</td>
<td>N/A</td>
</tr>
<tr>
<td>Librarians</td>
<td>28%</td>
<td>19%</td>
<td>6%</td>
<td>7%</td>
<td>10%</td>
<td>50%</td>
<td>0</td>
</tr>
<tr>
<td>Others</td>
<td>16%</td>
<td>20%</td>
<td>0</td>
<td>14%</td>
<td>0</td>
<td>42%</td>
<td>0</td>
</tr>
</tbody>
</table>

| **N**                   | 22       | 16      | 18             | 15    | 10               | 12            | 8                   |

* Editors could identify multiple users of a particular source. Underline percent is the most commonly cited user of a particular source.
Computer-Assisted Reporting in Michigan Daily Newspapers:

More than a Decade of Adoption

-Abstract-

This study is a follow-up to previous studies, conducted in 1986 and 1994, and surveys all Michigan daily newspapers on their adoption and use of seven different computerized information sources. It also acts as a part of a longitudinal study on the adoption rate of computer-assisted reporting.

Particularly important findings are that 47 of the 48 state dailies now use one or more computerized sources to obtain information for news stories. The average number of such sources used by Michigan newspapers was about 4.5.

by
Lucinda D. Davenport, Ph.D.
Fred Fico, Ph.D.
Mary Detwiler, doctoral candidate
School of Journalism
Michigan State University
East Lansing, Mich.  48824-1212