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AUTHOR Herling, Thomas J.; Merskin, Debra
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ABSTRACT

Since little empirical research has been conducted on adoption of currently available information technology by the advertising industry, a study explored the extent of advertising agencies' adoption of selected information technologies such as online database services and electronic mail. The study discussed data from earlier studies and analyzed results of a 1994 mail survey of the top 500 United States advertising agencies consisting of questions designed to elicit information about: (1) adoption of information technologies and services, and (2) beliefs about those technologies and services. A 25% sample was drawn systematically from "Advertising Age's" listing of American advertising agencies and a sampling frame consisting of 125 agencies was developed. Of those, 77 were returned. Results concluded that 54.5% subscribed to at least 1 online database, with 31.2% using 1 service, 19.5% using between 2 and 4, and 3.9% with 5 or 6; 45.5% of the agencies did not subscribe to any database service. Findings suggest that a surprising number of advertising agencies are not fully investing in technology that is currently available and many have yet to take advantage of the information revolution that is already here. They further suggest that failure to adopt new technologies may be a result of resistance to innovation, rather than solely a lack of financial resources. Such information should be of use to students in university advertising departments who are future advertising professionals. (Contains 8 tables and 35 references.) (CR)

ADOPTION OF INFORMATION

TECHNOLOGY BY ADVERTISING AGENCIES

by

Thomas J. Herling

Syracuse University

and

Debra Merskin

University of Oregon

ADOPTION OF INFORMATION TECHNOLOGY BY ADVERTISING AGENCIES

Information technology has been the focus of a great deal of attention in recent years. The enormous increase in the power of even the smallest computers to handle great amounts of information at rapidly falling cost has led to a wealth of computer-based information sources. This shift in the way information has been made available is seen as one of the most important changes affecting society. White House press releases claim frequently that the National Information Infrastructure (NII) or "information superhighway" will "unleash an information revolution that will change forever the way people live, work, and interact with each other."[1]

Despite all the talk of how the information super highway will alter our lives, the question still remains whether people and institutions will actually adopt these new technologies. One industry that would logically grab onto these innovations is advertising. It is easy to assume that the "whiz kids" of the advertising industry would be using the latest tools. The popular perception of advertising agencies is that they are the trend-setters, always on top of "what's hot." In an increasingly competitive climate of buyouts, mergers, downsizing and re-engineering, advertising agencies need improved tools to retain existing accounts, reinforce relationships with clients and to seek out new business.

However, little empirical research has been conducted on adoption of currently available information technology by the advertising industry. This study was conducted to fill that need by exploring the extent of advertising agencies' adoption of selected information technologies such as online database services and electronic mail.

BACKGROUND

Adoption of innovations has been one of the most prolific areas of research, with several thousand studies published over the last five decades.[2] The nature of the adoption process has been the subject of research in a variety of disciplines, including education,[3] cultural anthropology,[4] marketing,[5] and communication.[6]

Diffusion of Innovations

Rogers' diffusion of innovation model is regarded as the most widely known description of the diffusion process. This model categorizes potential adopters of an innovation by innovativeness, the degree to which an individual or group adopts a new idea earlier than other members of a social system. Innovativeness is normally distributed among adopters, who are labeled innovators, early adopters, early majority, late majority, and finally laggards.[7]

Rogers states that innovations will be adopted more rapidly by individuals who are more venturesome, have a higher socioeconomic status, engage in specialized operations, are more cosmopolite, are more likely to belong to highly interconnected systems.[8] These are characteristics that are likely to be found among those that work in an industry that is known for its devotion to the cutting edge.

Rogers, however, comments that characteristics that affect adoption of innovations by organizations are not as readily determined. However, factors such as size of the organization and structural characteristics including interconnectedness, complexity and centralization have been found to correlate weakly with pace and level of innovation.[9]

Adoption by Advertising Agencies

With the increasing computerization of information resources, the need to know about new information technology has been cited as increasingly crucial to professional communicators. Miller considers computer databases the principal innovation that has drastically altered people's access to information, a phenomenon which he calls the

"retrieval revolution."[10] The use of online database technology has grown explosively since its inception only some 40 years ago.[11] Currently, the full texts of over 100 United States newspapers and nearly 1,000 trade publications and magazines are available electronically from commercial database vendors such as Mead Data Central's Lexis/Nexis system, Knight-Ridder's VU/Text, Dow-Jones News Retrieval Service, and others.[12]

Many of these online database services feature extensive holdings of information that are of interest to advertisers and marketers. According to Nexis Marketing Manager Ann Beeson, the Nexis service has been careful to position itself as a service for "news media, publications and advertising professionals," and that the company was making efforts to increase the level of "specialized data for professions such as marketing."[13]

The ability to send and receive information using electronic mail is also becoming more important. Email messages can be sent to almost any location in the world at virtually no cost to the user through Internet, a network of computers that spans the globe.[14] Along with email, Internet allows access to a wide range of information resources, including government databases, library catalogs and discussion groups made up of individuals with common interests.[15]

There have been several studies on adoption of information technology innovations by various media industries, such as public relations and the newspaper business.[16] For example, a 1990 study revealed that almost 90 percent of the 105 newspapers with a daily circulation of over 100,000 were found to subscribe to commercial online databases.[17] A similar study found that of 192 daily newspapers, 70 percent made use of online database services.[18] Merskin found dramatic growth in the number of newspapers adopting voice mail technology for classified advertising functions.[19]

Katz referred to the 1980s as the "era of data explosion" for agencies. Her 1991 study explored how agencies were coping with "data overload."[20] Katz found that "agencies have been fairly slow to adopt fully computer-based systems."[21]

Several studies in the late 1980s found that while 71 percent of the top advertising agencies considered themselves "computerized," the average number of personal computers owned by these agencies was a mere eleven.[22]

A 1994 survey by the American Association of Advertising Agencies was conducted among seventeen of the largest U.S. agencies.[23] The survey found that these agencies spent more than $130 million a year in capital and operating costs for information technology. The agencies reported that the percentage of employees with their own computer was around 75 percent among creative and account management personnel, and up to 90 percent for those in media and research departments. Furthermore, the agencies claimed that up to 90 percent of these computers would be networked by 1995. These technologies are reported to be increasingly used for in-house ad creations and computer-based media planning was found to save time and money and to increase accuracy. Gupta and Kuehne suggest that an emerging new infrastructure is linking agency departments and allowing increased contact between agencies and clients.[24]

A great deal of attention has been recently paid to the increasing exploration of interactive communication technology by advertising agencies. Advertising Age, the acknowledged leader of advertising trade press, instituted a regular "Interactive Media & Marketing" section devoted to the new technology.[25] Many large agencies have set up working groups to investigate applications of interactive communication technology, including Ogilvy & Mather Direct, Chiat/Day, Saatchi & Saatchi and others.[26] According to Goldman, agencies have taken to the Internet slowly, despite the omnipresent ballyhoo over the ubiquitous nature of the "Net."[27]

METHOD

Much is still yet to be known about the extent of the adoption of existing information retrieval and electronic mail technology by most U.S. advertising agencies, and whether adoption has taken place as quickly as might be expected. A

mail survey of the top 500 U.S. advertising agencies was conducted during the spring of 1994. The mail questionnaire consisted of questions designed to elicit information about (1) adoption of information technologies and services, and (2) beliefs about information technologies and services.

A 25 percent sample was drawn systematically from Advertising Age's listing of U.S. advertising agencies.[28] A sampling frame consisting of 125 agencies was developed. The questionnaires were mailed to the research director or head of media planning at each agency.[29] All possible measures were taken to maximize the response rate. Cover letters were devised which clearly identified the educational institution sponsoring the research, described the nature of the project and stressed the importance of returning a completed form. A stamped, addressed envelope was included for the convenience of the respondents. The respondents were sent a reminder notice shortly after the initial mailing.

FINDINGS

Out of 125 forms that were distributed, a total of 77 was returned, yielding an overall return rate of 60.8 percent.[30] Table 1 shows the rankings of the responding agencies by gross income. The representativeness of the survey is supported by comparing the number of respondents in each rank category of the population sampled. The number of responding agencies is proportional to that of the population surveyed. A chi square analysis of the response to the survey reveals that there is no significant difference between the number received and the number expected. ($\chi^2 = 1.407$, df = 5, p. = >.90)

Table 1 about here

The advertising agency representatives were asked whether they subscribed to a commercial online database service such as Lexis/Nexis or Dialog, as shown in Table 2.

Only a little more than one-half of agencies (54.5 percent) said they subscribed to at least one online database service. Most said they had only one service (31.2 percent). However, many agencies subscribed to a combination of services. About one-fifth (19.5 percent) said they carried between two and four, and a small number (3.9 percent) have as many as five or six. Almost half (45.5 percent) of the agencies did not subscribe to any database service.

Table 2 describes, in rank order, the online data base subscriptions held by the advertising agencies. Lexis/Nexis was clearly the most popular database reported, available in over a third of all agencies. Slightly more than a quarter (26.0%) have Dialog, followed by Data Times (15.6%) and Dow-Jones (9.5%). A handful carried Knight-Ridder's database service. Table 2 also shows that among agencies that have at least one subscription, Lexis/Nexis is clearly the most popular, followed closely by Dialog.

Table 2 about here

Most (60.5 percent) agencies did not have any general consumer online services (such as CompuServe, Prodigy or Genie) available. Of those that did, most said they had access to CompuServe. A slightly lesser number claimed access to Prodigy and a few received America Online and Genie.

Table 3 about here

As Table 4 reveals, almost two-thirds of the agencies (64.5 percent) have subscriptions to electronic versions of marketing information services such as MRI, Simmons or SRDS. Approximately 24 percent receive one service, and 10.5 percent have two services. Of the agencies that did get electronic marketing

information, most use MRI. SRDS and Simmons are each used by approximately a quarter of the responding agencies. A little more than a third receive none.

Table 4 about here

About two-thirds (63.6 percent) of agencies subscribe to ratings information in an electronic form. However, nearly 37 percent do not subscribe to any electronic ratings services. As Table 5 shows, most agencies subscribed evenly to market leaders Nielsen (57.1 percent) and Arbitron (54.5 percent).

Table 5 about here

While most agencies claimed to have electronic mail (59.7 percent), a substantial number of agencies said they do not, as shown in Table 6.

Table 6 about here

Agency representatives were queried about their beliefs about information technology. The respondents were asked to indicate on a five-point Likert-type scale whether they agreed or disagreed with statements about whether the various services were important to their agencies. As Table 7 reveals, the respondents were overwhelmingly positive about the value of electronic marketing and ratings services.[31] They were only slightly less convinced of the benefits of online databases, and email. The respondents were almost evenly split about their opinions on consumer services. The beliefs questions were then subject to a chi square test of association to determine whether these beliefs coincided with carriage of these

services. In all cases, beliefs were found to be significantly associated with whether the agency carried the service.

Table 7 about here

Spearman rank-order correlation coefficients were calculated between the ranked size of the agencies and whether they carried the services under study. According to Table 8, larger agencies were more likely to have online database, marketing information services and email. Availability of either consumer online or ratings services was not tied to size of agency, and these variables were only weakly correlated.

Table 8 about here

Agency beliefs about the technologies and agency ranking were also investigated using Spearman rank-order correlations. Table 8 also shows that the higher ranking agencies were about the technologies were significantly correlated with more positive beliefs about online database, market information and email. No significant correlations between agency size and positive beliefs about consumer online and ratings services. This means that indications of positive belief about the technologies were evenly split among the differently sized agencies.

DISCUSSION

Advertising agencies are primarily information processing organizations. Speed and accuracy in gathering, analyzing and presenting crucial information have always been key skills among advertising professionals. Often advertising agency personnel are called on to gather tremendous amounts of information on a product or product category in a short period of time. This information may include such things as competitive information, market statistics, and media information. New

products that result in efficient information handling are expected to be widely adopted by agencies. Yet this study shows that many agencies have yet to fully take advantage of the advanced tools available to them. For example, the level of email availability is surprisingly low, considering the relatively small expenditure required to make email accessible.

It is logical that larger agencies would be more likely to make use of advanced information technology. It is not necessarily certain, however, whether it is the larger agencies that are in a better position to obtain information resources, or whether those with such resources are more likely to become (or remain) larger agencies. Small and middle sized agencies may find themselves fighting for a shrinking market share since the larger agencies have more efficient means of gathering information about markets and clients from a variety of sources. It is possible though, that smaller agencies that fail to adopt these new technologies may find themselves getting even smaller.

This lack of adoption by some agencies may not be solely a matter of financial resources, since one major information tool email, is not highly adopted by smaller agencies despite its low cost. The correlation between positive beliefs about information resources and agency size may indicate that larger agencies have a greater commitment to adopting innovations more rapidly, which would be consistent with Rogers' generalization that larger organizations are earlier to adopt than those that are smaller.[32]

The reasons some agencies fail to adopt these innovations may be as important as why others adopt. Failure to adopt new technologies may be a result of resistance to innovation, rather than solely a lack of financial resources. Ram has proposed a model that claims that resistance to innovations may be found in varying levels throughout each of Rogers' five stages of the adoption process and may continue during the life cycle of an innovation.[33] This level of resistance can range

from passive indifference to stubborn refusal and even outright rebellion. Herling adapted Ram's resistance model to explore resistance to technological innovations.[34] Further work is needed to apply the concept of innovation resistance to the organizational level.

This research should also be useful to companies seeking new clients for their information services. Just as the advertising industry has become increasingly competitive over the past few years, information suppliers are facing a tougher fight for customers. These companies may seek to attract new business by adding features that advertising agencies find necessary and desirable.

This study was limited on a number of grounds. Cross-sectional research such as this is limited in its ability to show trends over time. Further study on a longitudinal basis could gauge how advertising industry adoption rate compares to other professions. The survey was kept rather simple by design. It was felt that a longer instrument would decrease the number of forms returned by busy agency research directors. Therefore, the amount of information gathered was limited to several key items. Further research could probe fewer agencies on a more in-depth basis that could reveal information on extent of adoption by individuals within the agencies, level of usage, and other details.

The findings of this study should be of interest to students are considering a career in advertising. Familiarity with such information resources as online database or electronic marketing services should be a benefit to any new graduate seeking employment in the industry, particularly those seeking to work in larger ad agencies.

CONCLUSIONS

A great deal of publicity is currently heard about how advertising agencies are preparing for future information technologies such as interactive television[35]. Yet, a surprising number of advertising agencies are not fully investing in technology that is currently available. Although much is said about what agencies hope to do during a coming "information age," certainly many agencies have yet to take full advantage of an

information revolution that is already here.

Table 1

RANK OF RESPONDING AGENCIES

Rank	Freq.	Percent	Expected Percent
Top 50	6	7.8	10.0
51-100	6	7.8	10.0
101-200	17	22.1	20.0
201-300	17	22.1	20.0
301-400	13	16.9	20.0
401-500	18	23.4	20.0
Totals:	76	100.0	100.0

Table 2

ONLINE DATABASE SUBSCRIPTIONS

Service	Freq	Percent of agencies	Percent of subscribing agencies
Lexis/Nexis	27	35.1	64.3
Dialog	20	26.0	47.6
Data Times	12	15.6	28.6
Dow-Jones	8	10.4	19.0
Knight-Ridder	4	5.2	9.5
Other	8	10.4	19.0
None	35	45.5	-

Table 3

CONSUMER ONLINE SERVICE SUBSCRIPTIONS

Service	Freq	Percent of agencies	Percent of subscribing agencies
CompuServe	20	26.0	66.6
Prodigy	14	18.2	46.6
America Online	7	9.2	23.3
Genie	2	2.6	6.6
Other	5	6.6	16.6
None	46	60.5	-

Table 4

MARKET INFORMATION SERVICES AVAILABLE

Service	Freq	Percent of agencies	Percent of subscribing agencies
MRI	25	32.9	51.0
SRDS	20	26.3	40.8
Simmons	19	25.0	38.8
Other	15	19.7	30.6
None	27	35.5	-

Table 5

RATINGS SERVICES AVAILABLE

Service	Freq	Percent of agencies	Percent of subscribing agencies
Nielsen	44	57.1	91.6
Arbitron	42	54.5	87.5
Other	2	2.6	4.2
None	28	36.4	-

Table 6

ELECTRONIC MAIL AVAILABILITY

	Freq	Percent
Agencies with email	46	59.7
Agencies without email	31	40.3
Totals	77	100.0

Table 7

BELIEFS ABOUT INFORMATION TECHNOLOGY

Service	Agree	Disagree	No Opinion	Chi Sq.	p.
Database	53.2	18.2	28.6	33.634	>.001
Consumer	36.4	29.9	33.8	34.675	>.001
Market	70.1	16.9	13.0	37.577	>.001
Ratings	62.3	11.7	26.0	29.384	>.001
Email	59.7	15.6	24.7	36.779	>.001

(Responses to the question: "_____ is valuable to my agency."

Table 8

AGENCY RANK CORRELATIONS

	Services carried		Positive belief	
Services	Rho	p.	Rho	p.
Database	.3311	.002	.4770	>.001
Consumer online	.1565	.087	.0724	.266
Market information	.3358	.001	.2449	.016
Ratings	.1169	.156	.0422	.358
Email	.2262	.024	.2757	.008

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