

Advances in Information Technology and Their
Influence on Strategic Thinking
At Real Estate Companies

Robert Milton Underwood, Jr.

© 2000

Table of Contents

<u>Section</u>	<u>Page</u>
Abstract	3
Introduction	3
Method	7
Participants	8
Materials	8
Design and Procedure	8
Limitations of the Study	9
Results	11
Discussion	12
Conclusions	15
References	19
Appendix	22
Exhibit 1	23
Tables	25

Advances in Information Technology and Their
Influence on Strategic Thinking
At Real Estate Companies

Abstract

The residential real estate sales business is one of the many industries that has been positively affected by the introduction of new technological items that can be used to enhance business practice. Strategic thinking should reflect an inclusion of these technological items as tools with which to enhance professionalism. As the use of these tools becomes more commonplace, and as time is saved and production improves, managers and real estate agents of residential real estate companies need to make sure that their operations are managed so that the most important part of the real estate business, customer service, is still a top priority.

Introduction

Surveys of real estate agents¹ have indicated that they desire to keep current with technology and want to maximize its usefulness in their business (Kabati, 1999).

Advances in technology are being introduced into society at a rapid pace. Most of the items introduced within the past few years are useful for saving time, increasing the speed of transfer of information, and improving the management of information.

Residential real estate agents are in an industry that requires them to frequently *be away* from the office to conduct business. The “inventory” of the real estate industry includes

¹ The term “REALTOR®” is often incorrectly used synonymously with “real estate agent” by the public at large. The term “REALTOR®” is a registered trademark and identifies a member of a professional organization, a local, state or National Board of REALTORS®. A “real estate agent” indicates a licensee of a state licensing entity. An individual does not have to be a REALTOR® to sell real estate to a third party, but he or she must be licensed. Furthermore, there are two types of real estate licenses for each state in the United States: Broker’s license, and Sales license. For the purposes of this paper, the term “agent” will be used to identify individuals who are licensed to sell real estate.

homes, condos, lots, and multi-family housing, and, by definition, each piece of real estate has its own singular location. It is very important that real estate agents manage their business in a way that takes advantage of the advances in technology, and at the same time is sensitive to the needs of clients. The real estate business is a people-business, so any new technology that is chosen to assist in the business must be done so not just as a convenience for the agent, but also as a benefit to the client. Using technological tools to enhance business practice should be a part of the overall strategic thinking process that agents and managers of real estate companies operate with.

Those participating in a typical real estate transaction include buyers, sellers and real estate agents. If new technology is implemented as a business tool, it will be most valuable if all parties to a transaction benefit from it use. Thus, the essence of the inclusion of new tools for strategic thinking in the real estate profession is to maximize customer service, which leads directly to the maximization of sales volume.

“Strategic thinking” as it relates to this project is considered in two different, but related, ways. First of all, managers of real estate companies need to think strategically in terms of the effective management of those real estate agents that are using the new technology. Secondly, information itself needs to be utilized efficiently by the individuals who use new technological tools, and they should strategically think in ways that allow them to continually offer the best possible service to customers and clients.

The importance of recent developments in technology is that information can be improved at all levels of a real estate transaction. If that information is “managed” properly, then all parties to a real estate transaction will benefit. Each agent involved in a typical transaction will be able to recognize improvements in communications with other

agents involved in the sales transaction. Also, each agent will be able to communicate more efficiently with his or her respective clients (i.e., sellers and buyers).

One of the most noticeable ways that technology is improving business in the real estate industry is through the Internet. The Internet "... is the largest, most powerful, and most accessible communications network on the planet" (Oracle, 1999). Approximately two-thirds of all real estate agents use the Internet for business (Molony, 1999).

Homebuyers benefit by having access to listings of homes on the Internet. Close to a quarter of all homebuyers use the Internet as part of their home search procedure (Malony, 1999). Sellers of homes also benefit because of the exposure their homes receive on the Internet. Agents benefit because they not only appear to be more professional to sellers by using the Internet as a marketing tool, but they also get more prospective buyer leads as a result.

One of the reasons that real estate companies have added advances in technology to assist their business practice is because consumers like to use new technology tools to help them with real estate transactions (Malony, 1999). As homebuyers and sellers continue to use new technology for transactions involving real estate and related activities, real estate agents must keep up-to-date with new technology. Most agents have made at least minimal improvements with their knowledge of and use of technology. Ninety percent of all REALTORS[®] use a computer, and at least three out of five REALTORS[®] use e-mail for their business (Malony, 1999).

Many agents find that their business has improved as a result of their utilization of advances in technology, which is exactly what they want as a result of thinking strategically. One real estate agent credits one-third of his business to increased mobility

provided by technological tools (Liparulo, 1999). His favorite tools include a laptop computer, a cellular phone, a portable answering machine, and a digital photographing device that connects his computer to a camera or videotape recorder.

Timely communications with customers is of utmost importance. Liparulo (1999) identified an agent who lists fast voice communications with her customers as her top priority, especially since she is out of the office at least half of her typical workday. She uses a voice recognition telephone service that can forward calls at predetermined times during the day. Customers' calls can be directed straight to her rather than to her office voice mail system, thereby allowing her to respond quicker.

One useful category of devices that has recently been introduced is that of remote mapping devices. With a remote mapping device, an individual can determine his or her physical location by using data from the Global Positioning System, a system of 24 satellites that circle the Earth. This type of device is helpful for a real estate agent who is having difficulty finding a specific location while showing homes to a prospective buyer.

One factor that is influencing the residential sales business is the ability of the general public to access the Internet for home searches, and they can also list their properties for sale on the Internet without the use of a real estate agent². The emerging influence of the Internet, coupled with a few other factors relating to the way the business is operated, is responsible for the expected attrition of real estate agents in the business. According to Slate (1999) "the (National Association of REALTORS[®]) is forecasting a 50 percent attrition within the next 3-5 years." Consistent opinions are found elsewhere. Inman News Features (1998, August 13) noted a study by two college

² From U. S. News and World Report, November 15, 1999, page 123.

researchers, Baen and Guttery, that revealed that the growth of Internet real estate activity could reduce the number of real estate agents involved in real estate transactions. Internet activity is favorable for the consumer, but it can also benefit the activities of real estate agents, if managed properly. Because of these considerations, it is imperative that real estate agents take advantage of new technology like the Internet both to save time and to improve service to customers.

One final benefit to real estate agents of incorporating technology into their business practice is increased remuneration. Technological-knowledgeable REALTORS[®] “earn 70 percent more than their offline counterparts” (Inman, 1999, November 22). Using technology is just one more tool that these REALTORS[®] use to improve service; they have learned that the client must be served to the best of their ability using whatever is necessary, and this realization is pivotal for their professional strategic thinking.

Method

The purpose of the research project was to determine if advances in information technology has influenced the way real estate professionals think strategically, and, if so, how must management focus its approach because of the use of information technology. Primary research was conducted among a sampling of real estate agents in the Austin metropolitan area.

Twenty technological items were listed on a one-page questionnaire. The items chosen to be on the questionnaire were items that have an effect on the transfer of data, the accessibility of information, or on the management of communications.

Participants

The sample population included 36 real estate agents in the Austin area who are active in residential sales. This sample, approximately one percent of the total population of real estate agents in the Austin area, was chosen to be representative of the industry. Therefore, agents from small, medium, and large companies were chosen at random from the membership list of the Austin Board of REALTORS[®].

Materials

The materials used for the primary research included a one-page questionnaire and a cover letter, both of which were written using Microsoft[®] Word 2000. The questionnaire, cover letter, and a stamped, letter-sized envelope were sent to each of the prospective participants in a legal-sized envelope. Microsoft[®] Excel 2000 was used for scoring and graphing the results. Copies of the questionnaire and the cover letter are included in Exhibit 1 in the Appendix.

Design and Procedure

Questionnaire. The one-page questionnaire was designed with two parts. The first part listed 20 technological items, devices, or systems that are or can be used in the real estate business at the present time. Most of these items have either been developed within the past five to 15 years, or their widespread use has become popular during that timeframe. Some technological items that are decidedly useful in the real estate business (e.g., calculators, black and white photocopiers, and office fax machines) were not included on the questionnaire because their use is so widespread that they are already presumed to be mandatory for successful business practice in today's real estate industry.

The second part of the questionnaire provided space for allowing agents to write a response to the question, “In your opinion, what is the most important management change, if any, that has been made or will soon be made, with regards to the advances in technology that are available to real estate agents?” An opportunity was offered at the bottom of the questionnaire for agents to add any other comments that they may have had.

Cover Letter. A cover letter and self-addressed stamped envelope were included with each questionnaire. Rather than send a generic “Dear Real Estate Agent” cover letter, the greeting on each cover letter was personalized with the actual name of the agent. “Thank you (agent’s first name)” was written in handwriting at the bottom of each cover letter in order to make the request for their participation more amicable. In order to attain the highest possible response rate, I (a) included a self-addressed, stamped return envelope, (b) limited the questionnaire to one page, (c) highlighted the “mail your response to me by this Friday” request on the cover letter in green marker, (d) printed the questionnaires using colored paper to make them stand out, and (e) addressed the envelopes in handwriting.

Since the questionnaires were mailed on a Saturday, and, since all possible participants in the sample pool had local addresses, it was assumed that they would receive them no later than Monday or Tuesday. It was requested that the questionnaires be mailed back by Friday of the same week.

Limitations of the Study

Not all new high tech gadgets could be included in the study. Only items either routinely being used, or increasingly being used, by real estate professionals representing

the mainstream of the real estate business, were included in the questionnaire. Some items that are widely used were not included in the study because they have already been presumed to be indispensable in the real estate business. Two examples of items that were not included in the questionnaire were calculators and office fax machines.

Although it is possible to operate successfully in the real estate business without the use of a calculator or an office fax machine, it is unlikely that many would choose to do so.

Because of the limitation of resources (viz., time and money), a sample size of only approximately one percent of the population was included. A larger sample size may have produced different results. No incentive was offered to the prospective participants, and, if an incentive had been offered, the response rate may have been greater. Also, it is possible that the response rate may have been greater if the prospective participants were allowed more time to complete and return the questionnaire.

It is possible, with questionnaires in general, that participants will not respond truthfully. However, it is more likely that respondents will answer truthfully to an unobtrusive and anonymous testing procedure (such as the one conducted for this project) rather than to a testing procedure that is very personal and potentially embarrassing.

It is also possible that participants hastened to complete the questionnaire and perhaps did not take time to thoroughly consider each item before responding. However, the questionnaire was intentionally designed to be brief so that only a few minutes would be required to complete it thoroughly.

One final limitation of the study is that it basically provides only a snapshot of what value real estate agents place on certain technological items today. They were not specifically asked to predict or anticipate the future importance of current technological

developments or to comment upon improvements to current technological trends. Some of the technological items that were rated low (e.g., video telephone, dashboard mapping device, and voice recognition software) are items that are just beginning to be used by real estate agents. If the same rating list were to be provided to agents a few years in the future, these items may be rated much higher. Some of the newest and most sophisticated advances in technology that are available to real estate agents still need improving. Voice recognition software, for example, has not been fully perfected. However, up to a 98 percent success rate (Garber, 1999) is claimed by some software companies for their voice recognition products. If improvements are made, the desirability of the product by real estate agents may be greater.

Results

Of the 36 questionnaires that were mailed out to real estate agents, 22 were returned, thus rendering a response rate of 61.1 percent. All of the participants indicated a rating for all 20 items on the rating list. Table 1 in the Appendix shows the number of responses given for each rating value for each item. Table 2 is a graphical representation using data from Table 1 and showing the results by technology item. Table 3 uses the data from Table 1 to graphically represent the questionnaire rating results by rating value.

Tables 4 and 5 were created to graphically represent the number of ratings for the items considered most important and least important, respectively. The number of “10” ratings given for each item is represented in Table 4. *Personal computer* was the only item that received the highest rating of “10” from all 22 participants. The number of “1” ratings given for each item is represented in Table 5. The most “1” ratings given to any one item was 11, for *Video telephone*.

If at least half of the participants in the study cumulatively rated an item in the top half of the rating scale, the item was considered significant for success in the real estate industry. Table 6 shows the cumulative response rate for the participants that rated an item in the top half of the rating scale. Data used to create the chart in Table 6 was taken from the second to the last column³ in Table 1. Only two items (i.e., Cellular phone and Personal computer) had 100 percent of ratings in the top half of the rating scale. In other words, none of the 22 participants gave a rating below “6” for Cellular phone and Personal computer.

Thirteen of the 22 participants (i.e., 62 percent) wrote one or more comments in the second section of the questionnaire. Eight of the 22 participants (i.e., 38 percent) chose not to place a written response in the comments section of the questionnaire.

All written responses to the second part of the questionnaire are included in the Appendix in Table 7. Grammar was corrected on several of the responses to facilitate understanding and readability.

Discussion

One question that becomes apparent when acknowledging the benefits of advances in technology and its role in strategic thinking is, “As information management is improved with technology, what should agents be doing with the time saved?” “Customer service,” according to Zaby (1999), and he acknowledges that the Internet can actually help agents be better at the selling process if they visit Web sites that are devoted to improving sales ability. Agents can currently glean information from the Internet on home repairs, neighborhood data, mortgage rates, moving tips, and home inspections. There is even one Web site where aerial photographs of building sites can be obtained

³ The column heading of the column referred to in Table 1 is “(10-6).”

(Anonymous, 1999). Agents who spend time on the Internet trying to learn about ways to improve their performance are better able to actually do so. One Web site that is helpful for buyers, sellers, and agents is found at www.propertyfirst.com. The company that runs this site allows the listings of properties for sale nationwide, and has an objective of facilitating transactions between buyers and sellers. Everyone benefits because of improved communications, and information about residential listings across the country is available to everyone. Prior to the introduction of this Web site, there was no way for buyers wanting to invest in property in another town to do so without making direct contact with an agent in that town.

Another useful Web site for homebuyers and sellers is www.NearMyHome.com. Information on this Web site that is available to consumers who can access their database includes natural hazards, environmental risks and community information (Inman, 1999, September 15). This site is also helpful for real estate agents with listings of property for sale, especially in states that have disclosure requirements for the protection of consumers. From both ethical and legal standpoints, anything that a seller knows about his or her property is supposed to be disclosed to a prospective buyer, and it behooves the real estate agent to be knowledgeable of risks or hazards that may be associated with a particular property.

Listings of homes for sale are still placed on the local multiple listing services. The local multiple listing service for the Austin, Texas area is called Austin Central Texas Realty Information Service (ACTRIS). Many local boards of REALTORS® also place their members' listings on the Internet. Increasing numbers of individuals are doing at least some of their home shopping on the Internet. Approximately 90 percent of

prospective homebuyers have Internet access (Austin REALTOR®, 1999), and four-fifths of those individuals use the Internet to shop for homes for sale. Agents can take advantage of the exposure of listings on the Internet by advertising on the Web sites where the properties are listed.

All contract forms and addenda that are necessary to conduct residential real estate business in Texas are available on two different Web sites. This convenience saves the agents from having to physically leave the office to acquire the paperwork. Revisions of forms pending final approval are also available for agents to examine.

Online mortgages are now being offered. Prospective buyers can apply for a loan with mortgage companies who offer online services, saving them the time required to meet in person. This is especially helpful when the loan officer and buyer are in different cities. A typical face-to-face pre-qualification meeting with a loan officer takes at least an hour. Buyers can save time with the online pre-qualification process.

Real estate agents can use Web pages in many different ways. One use is to research neighborhood sales (Herder, 1999) and publish the results regularly on a Web page. Homeowners living in the actual neighborhood appreciate the ability to gain community sales data by visiting an agent's Web page from the comfort and privacy of their own home. Another way that Web pages can benefit the public is by including virtual tours of homes (Antoniak, 1999). When a virtual tour of a home has been included on a Web page of an agent, images of the home and its surroundings can be seen in 360 degrees. Using a mouse on their computer, a prospective homebuyer can rotate the virtual image of a room in the home so that they can see all sides of the room.

Agents can also save money by using e-mail effectively. Most items that can be mailed (e.g., flyers, newsletters) can be sent as an e-mail attachment (Zaby, 1999). Russer (1999) suggests that agents can also use e-mail to send customers a virtual flyer. The self-contained executable file opens when customers download the attachment from an e-mail message.

Personal digital assistants are becoming more common. They fit in the palm of a hand and have a memory bank that can store appointments, memos, addresses, and notes. Prudential, one of the most recognized real estate companies in the industry, is testing the Palm Pilot[®] VII, a personal digital assistant, with its agents (Mateyaschuk, 1999). Pete Lacovara, Vice President of Information Systems at Prudential, wants to put more control in the hands of real estate agents with wireless technology. Palm Pilot[®] technology allows real estate agents to do many time-saving things such as connecting with multiple listings databases, saving customer profiles, and accessing financial information. A new personal digital assistant that was just introduced in the Fall of 1999 is the Visor, made by Handspring. It has been touted as a hand-held computer that can become much more, (with the proper module attachments or add-ons) including a cellular phone, a pager, a universal remote, and a global positioning device (Quittner, 1999). Products like the Visor and the Palm Pilot[®] are very useful for improving the flow and quality of information.

Conclusions

As our society matures into a knowledge-driven economy, information can be exploited to the full in making the real estate industry more efficient and productive. An essential element of this vision of the future is how real estate agents realize the

maximum use of the opportunities offered by new information and communication technologies and how they think strategically to apply these advancements. Of particular importance is how agents of real estate companies meet the challenge of the convergence of these new technologies. Managers of real estate companies need to observe and examine the impact that the convergence of telecommunications and information systems, as exemplified by the growth of the global Internet, will have across the real estate industry. Assessment, an important first step in strategic planning (Boar, 1997), becomes of high importance for managers as they study how new information technology evolves the practice of real estate sales in a competitive industry.

Some practitioners in the real estate industry think that clients (i.e., home buyers and home sellers) are more likely to choose an agent to represent them who is knowledgeable about technology (Antoniak, 1999). To these clients, the agent who is techno-savvy is believed to be better able to use technology to assist the client. Real estate agents have numerous resources available for keeping current with technology. Hoffman (1999) lists several Web sites that offer useful tips on technological trends to keep agents "... competitive in the 21st century." One of these Web sites is www.cnet.com, which reviews tech products, tracks the latest trends and discusses Internet and related technologies.

Education is the key to improving productivity by keeping real estate agents current with technology and sensitive to customers' needs. Hoffman (1999) mentions that REALTORS[®] can access archived articles from previous industry-related magazines, thereby reducing the need to search through piles of magazines at the office to reference a specific article or to research a specific topic.

Roketenetz (1999) noted the increasing importance of continuing education in the real estate industry. As consumers come into the real estate market more educated than ever before, it is important that real estate agents also maintain minimum standards of knowledge. People are entering the real estate profession at a younger age and most are more educated, technologically, than older practitioners, thanks to the prominence of computers in educational systems across the country. Managers should encourage educational opportunities for agents as a part of their overall strategic plan.

With proper education and training, real estate agents will be positioned to maintain a successful practice in the coming years. Agents will be better able to fully serve clients. Consider what real estate agent John Scott of Washington offers his clients. He creates a special Web page for each property listing that he takes (Inman, 1999, January 21). Each listing is effectively showcased at a unique URL (Uniform Resource Locator), and prospective buyers can easily access the Web page of a specific property for a detailed description.

Organizational costs can decline in companies that are utilizing advances in technology (Laudon, 2000), because more data is stored digitally rather than in hard copy format. In the real estate business, real estate agents can maintain extensive customer databases without ever having to rely upon paper resources. They can also have contract forms stored on their computer hard drives, further reducing the need for the unnecessary storage of paper copies.

In a distributed computing environment, or within a business structure where many employees operate away from the central office, information technology can literally transform the company. Individuals have the ability to get information quickly

and act upon that information. They are empowered to operate successfully away from the office since work is not tied to a geographical location. All employees can contribute to the success of the business from remote locations.

Managers of real estate companies must realize that information technology is transforming the way businesses operate. Faced with rapid technological advancement, real estate companies are taking a new look at the role of business and information technology. An effective manager helps improve agents' deliverance of value to clients by leveraging new technology to enhance every stage of the real estate transaction. While the technology can significantly speed the process of a real estate transaction, it cannot replace good old-fashioned personal service. The real estate business is a "people" business where professionals assist buyers and sellers during the many stages of real estate transactions. Traditional training for agents by management, integrated with the benefits of modern technology is an element of the solution for success that will allow real estate agents to be competitive both now and in the future. Thoughtful strategic planning, which includes using advances in information technology to better serve clients, is the key to their future success.

References

Anonymous. (1999, September). Virtual Site Selection for Retailers. Chain store age, [on-line].

Antoniak, M. (1999, September). Cyber Shop for Savings. REALTOR[®] magazine: technology buyer's guide.

Austin Board of REALTORS[®]. (1999, August). Make Sure Your Listings are Internet-Ready. Austin REALTOR[®].

Boar, B. (1997). Strategic thinking for information technology. New York: John Wiley & Sons, Inc.

Garber, J. (1999, November 15). Speak for Yourself. Forbes.

Herder, G. (1999, October). Superior Service. REALTOR[®] magazine.

Inman News Features. (1998, August 13). Agents dropping like flies? Today's real estate news, [on-line].

Inman News Daily Features. (1999, November 22). Daily Inman news summary, [on-line].

Inman News Features. (1999, September 15). Deals of the Day. Today's real estate news, [on-line].

Inman News Features. (1999, January 21). URL for every listing. Today's real estate news, [on-line].

Kabati, P. G. (1999, September). Gizmos of tomorrow and today. REALTOR[®] magazine.

Laudon, K. C., & Laudon, J. P. (2000). Management information systems: organization and technology in the networked enterprise (6th ed.). Upper Saddle River, NJ: Prentice Hall.

Liparulo, R. (1999, August). Business Tools for the Real Estate Fast Lane. REALTOR[®] magazine.

Malony, W. (1999, November 22). Technology's Profound Impact on Real Estate Will Continue: NAR. Technology and real estate environment, [on-line].

Mateyaschuk, J. (1999, September 27). Company policy: Reach more clients. Informationweek, [on-line].

Oracle Corporation. (1999, November 15). The e-business transformation. Forbes.

Personal Tech, Real Estate. (1999, November 15). U.S. news & world report.

Quittner, Joshua. (1999, September 27). All-in-One Gizmo? Time.

Roketenetz, A. (1999, November 12). The business of real estate: pros look back and to the future. The business of real estate, [on-line].

Russer, M. (1999, August). Make masterful listing presentations. REALTOR[®] magazine.

Slate, D. (1999, November 17). Are you more like an ostrich or an eagle? [on-line notice sent from Millennium Real Estate Network via e-mail to REALTORS[®]].

Spira, C. (1999, August). Bookmark These: 10 essential Web Sites. REALTOR[®] magazine.

U. S. News and World Report. (1999, November 15). 123.

Zaby, P. (1999, November 11). Real Estate Focus. Pat Zaby's newsletter, [on-line newsletter sent via e-mail to REALTORS[®]].

Zaby, P. (1999 October). Save Money with E-mail. REALTOR[®] magazine.

Appendix

Exhibit 1
Copy of Cover letter and Questionnaire

UNDERWOOD INVESTMENTS

Real Estate Brokerage

11502 Juniper Ridge Drive, Austin, TX 78759-3845

e-mail: TexasRealEstate@hotmail.com

(512)336-1155; fax: (512)331-9997

Dear (first name of real estate agent),

This questionnaire is a part of a semester research project being prepared for a class that I am taking in graduate school called *Strategic Planning for Management Information Systems*. The title of the research project is **Advances in Information Technology and Their Influence on Strategic Thinking at Real Estate Companies**. The study is being done to determine how advances in technology are affecting the way information and people are managed in the residential real estate industry.

Your response should be anonymous; please do not identify yourself. Simply complete the questionnaire and return in the enclosed, stamped envelope. Please mail your response to me by this Friday so I can meet my deadline. Thank you in advance for your help!

Sincerely,

Robert Underwood, REALTOR®



QUESTIONNAIRE

Please indicate on the scale where you rate each of the following technological items that are or that can be used as tools in the real estate industry. Rate each item on a scale of 1 to 10 according to its need for success in the residential sales business. Whether or not you actually use the item, please indicate how important you think its use is for the residential sales industry. (note: Office fax machines and Photocopiers (black & white) were not included on the list because it is already assumed that these two items are “mandatory” for success in today’s real estate industry.)

	Mandatory								Not Important	
	<u>10</u>	<u>9</u>	<u>8</u>	<u>7</u>	<u>6</u>	<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>
Cellular phone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pager: Numeric	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pager: Voice mail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pager: Text	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Office Voice mail system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e-mail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Desktop Publishing software	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personal or Company Web page	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scanner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personal computer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wireless remote access (e.g., use in car)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Home fax machine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Contact Management software	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Personal digital assistant (e.g., Palm Pilot®)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Color photocopier	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Street mapping software	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mapping device (for dashboard of car)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video telephone (you “see” the caller)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Color printer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Voice recognition software	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In your opinion, what is the most important management change, if any, that has been made or will soon be made, with regards to the advances in technology that are available to real estate agents?

Add below any other comments you may have about the effect of technology on management in the residential real estate industry.

Table 1
Questionnaire Scoring Table

	10	9	8	7	6	5	4	3	2	1	(10-6)	Total # of responses
Cellular phone	17	1	3	1	0	0	0	0	0	0	100.00%	22
Pager: Numeric	3	0	0	4	3	1	2	0	3	6	45.45%	22
Pager: Voice mail	7	0	1	3	2	1	1	0	2	5	59.09%	22
Pager: Text	2	0	1	0	3	3	0	5	2	6	27.27%	22
Office Voice mail system	13	1	4	0	0	0	1	2	0	1	81.82%	22
e-mail	13	3	4	1	0	0	1	0	0	0	95.45%	22
Desktop Publishing software	7	2	3	6	3	0	0	1	0	0	95.45%	22
Personal or Company Web page	6	1	7	1	4	0	1	1	1	0	86.36%	22
Scanner	3	1	4	2	6	1	2	1	0	2	72.73%	22
Personal computer	22	0	0	0	0	0	0	0	0	0	100.00%	22
Wireless remote access	2	2	2	2	5	4	1	1	3	0	59.09%	22
Home fax machine	8	2	3	2	3	2	1	0	1	0	81.82%	22
Contact Management software	7	0	6	3	2	2	0	1	1	0	81.82%	22
Personal digital assistant	1	0	4	2	6	4	2	1	1	1	59.09%	22
Color photocopier	2	0	0	1	6	2	1	6	1	3	40.91%	22
Street mapping software	2	1	0	2	8	0	0	3	4	2	59.09%	22
Dashboard Mapping device	2	0	0	1	3	1	1	5	3	6	27.27%	22
Video telephone	1	0	2	0	2	1	1	2	2	11	22.73%	22
Color printer	7	1	2	2	4	0	2	1	0	3	72.73%	22
Voice recognition software	1	0	1	0	3	1	0	1	5	10	22.73%	22

Table 4
Number of "10" responses in descending order

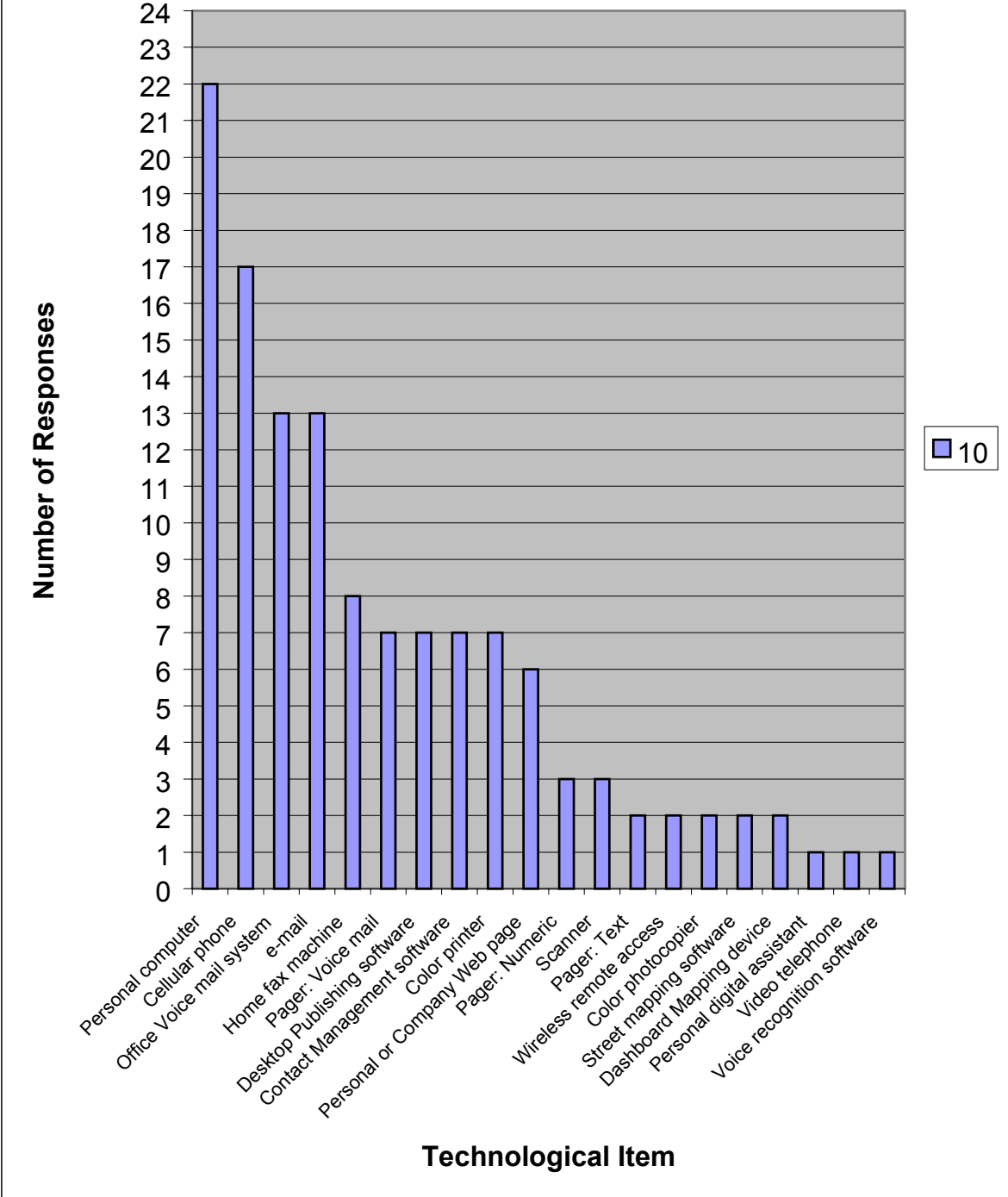


Table 5
Number of "1" responses in descending order

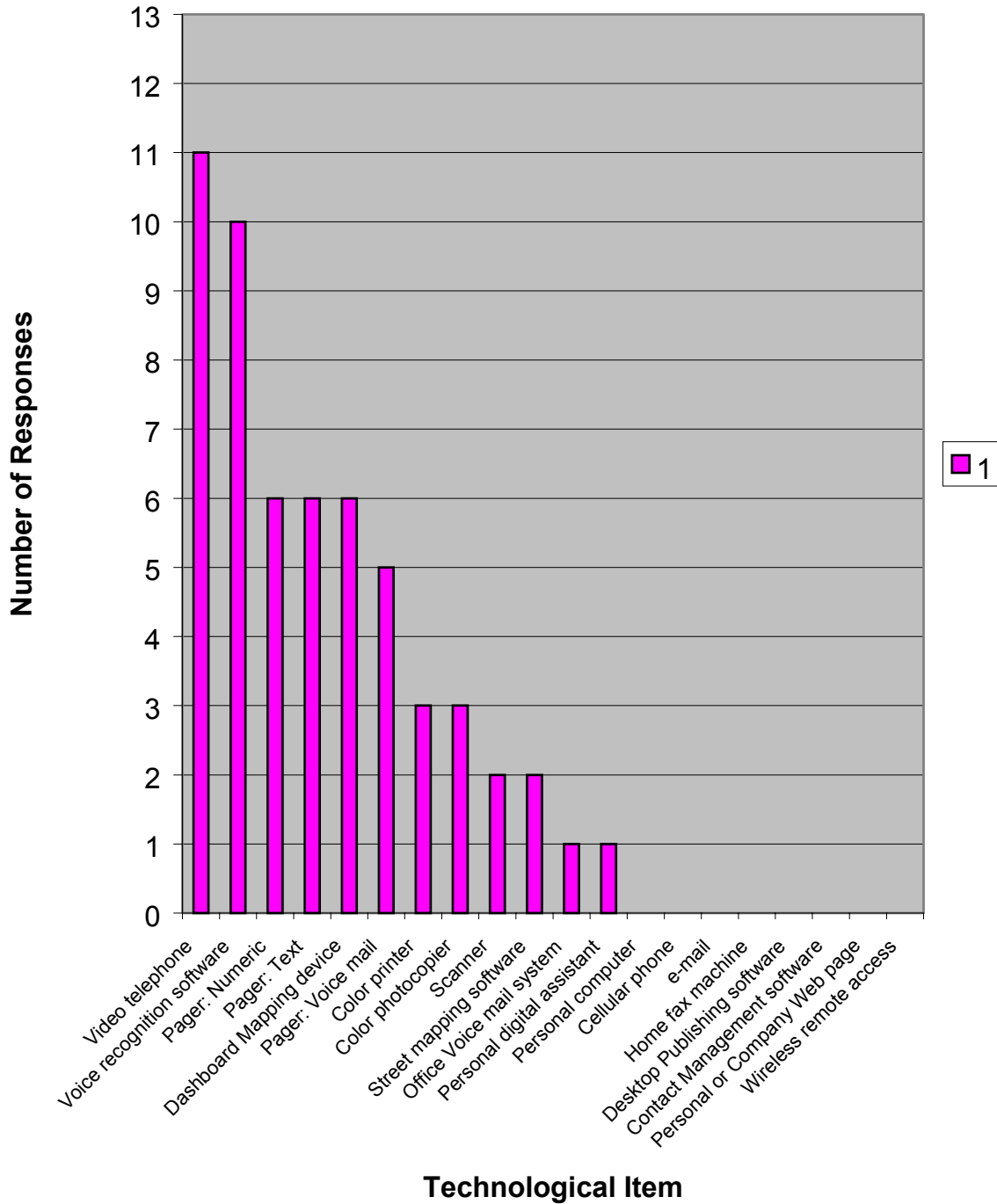


Table 6
Percentage of Participants rating
items from "6" to "10"

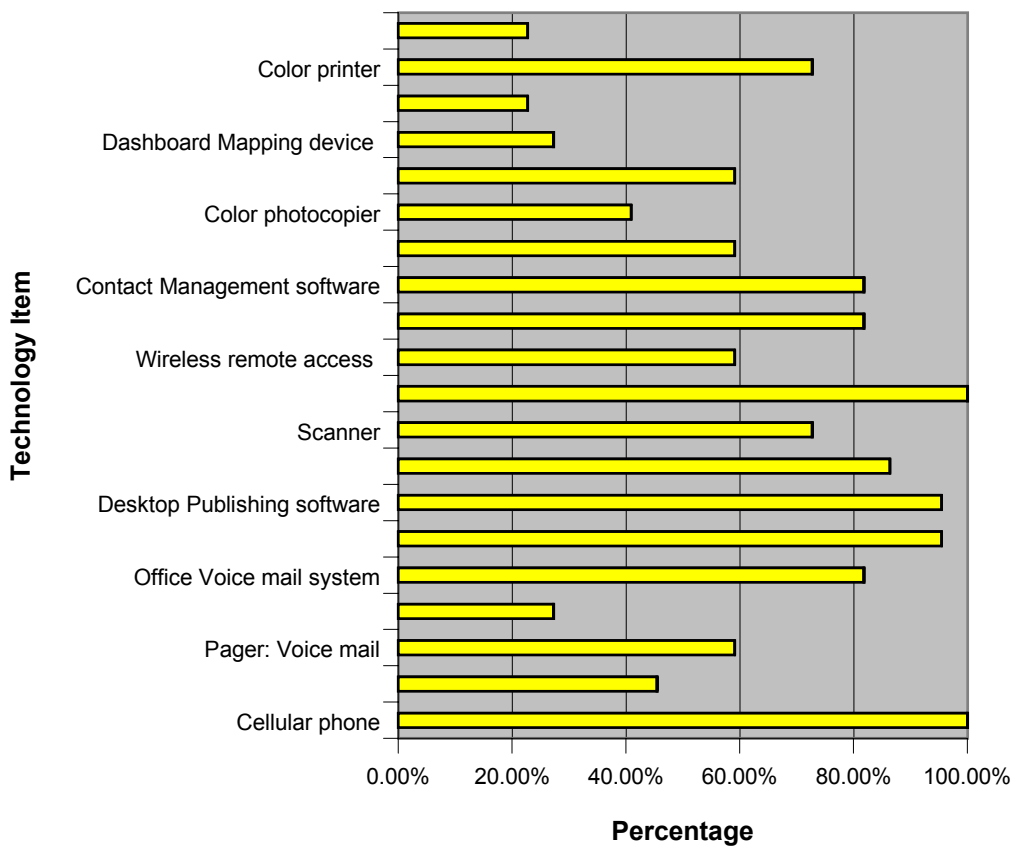


Table 7
Written Responses to Second Part of Questionnaire

“In your opinion, what is the most important management change, if any, that has been made or will soon be made, with regards to the advances in technology that are available to real estate agents?”

<i>Features like downloading MLS data for use in car, and 100% commission with office cost.</i>
<i>Software which allows e-mail of information directly to clients.</i>
<i>Customer satisfaction and service must be emphasized on all transactions.</i>
<i>The basic decision by a company as to whether the company will become involved in providing the technology (equipment, software, networks, etc.) or not.</i>
<i>A 360 degree virtual computer walk-thru of a house (i.e., “virtual reality”).</i>
<i>ISDN / ADSL lines for agents’ computers.</i>
<i>Management must be the leader in technology advances for real estate, otherwise top agents will not need (to be associated with a) company that does not manage for the future.</i>
<i>Being able to put one’s listings on a Web page, therefore making them available countrywide.</i>
<i>Internet.</i>
<i>The ability to follow a lead from Day 1 to the Day it closes, and beyond. (Providing information systems to) allow agents to have the ability to see what stage several different leads are in, and determine future growth needs to handle future business.</i>

“Add below any other comments you may have about the effect of technology on management in the residential real estate industry.”

<i>Most of our business will be done via the Internet.</i>
<i>The most important advancement in technology has been, and will continue to be, the proliferation of the Internet. How management reacts to this technology will ultimately decide the success or failure of their organization. Data portability and remote access have allowed the real estate broker to work longer hours, which is advantageous professionally, but detrimentally personally.</i>
<i>Technology is just a tool; personalized and more personal-level service is a must!</i>
<i>Many of the tools listed on the questionnaire are free through relationships with title companies.</i>
<i>Significant reallocation of time towards technological matters and away from traditional real estate issues.</i>
<i>Change is inevitable. Change must be managed correctly. Companies that do not embrace technological change will stagnate and disappear.</i>
<i>Pagers are not necessary with a cell phone that has voice mail. Without a cell phone, pagers are critical, but literally everyone has a (cell) phone.</i>
<i>All the advancements (in technology) have made it mandatory that we all keep up with the technology or “we are out of business.”</i>
<i>Management will have to take time to train agents (a) on software, (b) on how to combine different technologies to get the most “bang for your buck,” and (c) on how to reduce time on tasks to have more time for Buyers and Sellers.</i>