

Pittsburg State University

Pittsburg State University Digital Commons

Electronic Theses & Dissertations

7-1994

A Study of Computer Hardware and Software Usage in the Wichita, Kansas Area Business Community

Cheryl L. Rogers

Pittsburg State University

Follow this and additional works at: <https://digitalcommons.pittstate.edu/etd>



Part of the [Business Commons](#), and the [Computer Sciences Commons](#)

Recommended Citation

Rogers, Cheryl L., "A Study of Computer Hardware and Software Usage in the Wichita, Kansas Area Business Community" (1994). *Electronic Theses & Dissertations*. 40.

<https://digitalcommons.pittstate.edu/etd/40>

This Thesis is brought to you for free and open access by Pittsburg State University Digital Commons. It has been accepted for inclusion in Electronic Theses & Dissertations by an authorized administrator of Pittsburg State University Digital Commons. For more information, please contact digitalcommons@pittstate.edu.

A STUDY OF COMPUTER HARDWARE AND SOFTWARE USAGE IN THE
-WICHITA, KANSAS, AREA BUSINESS COMMUNITY

A Thesis Submitted to the Graduate School
in Partial Fulfillment of the Requirements
for the Degree of
Master of Science

by

Cheryl L. Rogers

PITTSBURG STATE UNIVERSITY

Pittsburg, Kansas

July 1994

ACKNOWLEDGMENTS

The author wishes to extend a sincere thank you to Thesis Advisor Dr. Frank M. Slapar and Thesis Committee Members Dr. Sue Unger and Dr. John Marrs for their insight, encouragement, and recommendations in the supervision of this thesis.

The author would also like to express appreciation to her daughters, Kim and Kara, for the support and love they provided during this project.

A STUDY OF COMPUTER HARDWARE AND SOFTWARE USAGE IN THE
WICHITA, KANSAS, AREA BUSINESS COMMUNITY

An Abstract of the Thesis by
Cheryl L. Rogers

For the purpose of informationally equipping educational institutions to prepare students for a future in the business world, this study was conducted with the intent of identifying and analyzing the current computer hardware and software used for word processing, spreadsheet, database, and desktop publishing tasks in Wichita, Kansas, selected area businesses and industries. In addition, this study/ was designed to determine the factors the business community respondents considered in choosing their computer hardware and software. Finally, the study was intended to ascertain the length of time since computer hardware and software changes had been made within the responding companies and the length of time before a future change would be made.

The Business and Industry Technology Survey was used to evaluate and compare the responses of the Wichita, Kansas, selected area businesses and industries. A total of 42 out of 100 of the businesses and industries responded to the survey. Three of the respondents reported they did not utilize computer hardware or software. Replies to each of the survey questions were tallied and the percent for each response was calculated.

The results of this study suggested that in the area of computer hardware, IBM or IBM compatible personal computers were the choice of the respondents mainly because of price and availability of technical support. Most respondents had made a change in hardware equipment within the past year and expected to make future hardware changes within the next year or two. Respondents predominantly managed their computer systems by networking personal computers or utilizing personal computers as individual units. The dot matrix and laser printers were the printers of choice, and only a small percent of the respondents--26 percent--utilized laptop or notebook computers.

The study further indicated that, in regard to computer software, the choice for word processing tasks was Word Perfect because of its ease of use and availability of technical support. For spreadsheet tasks respondents chose Lotus 1-2-3, also due to its ease of use. Company-developed programs and Microsoft Works were the preferences for handling database tasks, and, once again, ease of use was the reason for the choice. Desktop publishing was not utilized by the majority of respondents. Software changes had occurred within the past year, and most respondents were not certain when they expected to make future software changes. Finally, a very small number of respondents--23.8 percent--utilized CD-ROM.

TABLE OF CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION	
	Introductory Statement .	1
	Statement of the Problem	2
	Research Questions to be Addressed	2
	Assumptions	3
	Definition of Terms	3
	Delimitations	4
	Limitations	4
	Significance of the Study	5
II.	REVIEW OF LITERATURE	6
III.	PROCEDURES USED	
	Identification of Kind of Study	20
	Identification of Population . .	20
	Identification of Data Obtained	20
	Selection of Sample	21
	Development and Validity of the Instrument .	22
	Treatment of Data	22
IV.	FINDINGS	- - 23
V.	SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	
	Summary 41
	Conclusions . .	. 43
	Recommendations . .	• 45
	BIBLIOGRAPHY	- - 47
APPENDIX A	Letter of Transmittal and Survey	. 50
APPENDIX B	Sample Pool 55

LIST OF TABLES

TABLE	PAGE
I: Business and Industry Technology Survey Responses	25
II: Computer Hardware Utilized	26
III: Reasons for Choosing Computer Hardware	27
IV: When Hardware Equipment Change Last Occurred.	28
V: When Hardware Equipment Change is Expected.	29
VI: How Computer Systems are Managed	29
VII: Software Utilized for Word Processing	31
VIII: Reasons for Choosing Word Processing Software.	32
IX: Software Utilized for Spreadsheets	33
X: Reasons for Choosing Spreadsheet Software .	34
XI: Software Utilized for Database	35
XII: Reasons for Choosing Database Software	36
XIII: Software Utilized for Desktop Publishing	37
XIV: Reasons for Choosing Desktop Publishing Software	37
XV: When Software Program Change Last Occurred .	38
XVI: When Software Program Change is Expected .	39
XVII: Kinds of Printers Utilized .	40

CHAPTER I

INTRODUCTION

Introductory Statement .

Since the introduction by General Electric of the Univac computer in 1954, business and industry have been revolutionized. The Information Age, as this revolution has been called, has demanded drastic change in not only the office environment, but also the skills of employees. Correspondingly, secondary and post-secondary institutions have had to adapt to address these demands. Typewriting classes have been replaced with keyboarding on computers, filing has been automated on databases, and accounting worksheets have been enhanced by electronic spreadsheets. As they prepare individuals completing educational programs for employment, these institutions must constantly be aware of the current technological requirements. Therefore, it becomes necessary to analyze the hardware equipment and software programs being used by business and industry and to identify, for educational institutions, what technology needs to be taught to meet these requirements.

Statement of the Problem

This study attempted to identify and analyze the current computer hardware and software used for word processing, spreadsheet, database, and desktop publishing tasks in Wichita, Kansas, selected area businesses and industries.

Research Questions to be Addressed

1. What hardware equipment is used by the Wichita, Kansas, area business community for word processing, spreadsheet, database, and desktop publishing tasks?
2. What software programs are used by the Wichita, Kansas, area business community for word processing, spreadsheet, database, and desktop publishing tasks?
3. Do businesses in the Wichita, Kansas, area utilize laptop computers?
4. What reasons do the business community respondents give for choosing the hardware and/or software that they possess?
5. How long has it been since a change of hardware or software has occurred in the responding businesses?
6. How soon do the business respondents expect to change their hardware or software?
7. What kinds of computer printers are used in the Wichita, Kansas, area business community?
8. Are businesses in the Wichita, Kansas, area using CD-ROM?

Assumptions

It was assumed that all businesses responded accurately and truthfully on the survey instrument. It was also assumed that the respondents to the survey instrument were representative of all the businesses and industries in the Wichita, Kansas, area.

Definition of Terms

Bubble jet printer: a printer which heats the ink to become a bubble which prints in the formation of a character.

CD-ROM: compact disk-read only memory. Volumes of information can be stored on a CD disc.

Computer Hardware: that equipment, which is utilized to process information, such as the computer and its associated peripheral equipment which includes printers, . scanners, hard drives, etc..

Computer Software: the computer program which utilized to assist in processing information, either words or numbers.

Data Processing: the manipulation of data consisting of numbers which can be processed through various processes in order to print a hard copy which can be read, dispensed, or filed.

Database: a collection of information (records) divided into sections (fields) such as name, address, phone. Examples of a database include inventory, personnel, client records, etc..

Desktop Publishing: the computer manipulation of text and graphics to produce printed documents with text and graphics which can be read, dispensed, or filed.

Dot matrix printer: a printer which uses a series of pins to create an image on paper.

Ink jet printer: a printer similar to a bubble jet which heats the ink to the point that it jets out onto the paper to form a character.

Laptop/notebook computer: a special type of compact computer that is transportable.

Laser printer: a printer which uses a laser beam to create the image on paper. It works" like a copying machine and is fast and quiet and has the capacity to produce excellent graphics.

Mainframe: a 'large computer commonly used in business and industry.

pc: personal computer

RAM: random access memory which controls the size of applications that can be efficieritly run on a personal computer.

Spreadsheet: a worksheet made up of rows and columns from which reports can be generated.

Word Processing: the process of entering, manipulating, ! saving, and printing text to a hard copy which can ,be read, dispensed, or filed.

Delimitations

The study attempted to identify the kinds and types of computer hardware and software used by Wichita, Kansas, businesses and industries to process data. It was not an attempt to suggest one brand or kind of hardware or software over another.

Limitations

The study was limited by the responses the respondents gave in relation to the survey instrument provided for the study. The study was also limited to the truthfulness of those who responded to the survey items.

Significance of the Study

There is no doubt that today's business community is steeped in technological change. Certainly, much information exists regarding the latest in technological trends. However, it is important for educational institutions in Wichita, Kansas, to identify what computer hardware and software is currently being used in the Wichita business community. The results of this study should provide valuable information to educators who are attempting to prepare students for employment in local businesses. In addition, the business community will benefit from an awareness of what computer hardware and software choices other businesses in the area are making.

CHAPTER II

REVIEW OF LITERATURE

As business and industry continue to meet the challenge of trying to keep up with the leading edge of computer technology, educational systems must respond to these needs. In preparing students for employment, it becomes important to assess computer hardware and software used in business and industry, the trends in information systems, and the future of computer technology in the workplace.

The first commercial use of an electronic computer was initiated by General Electric in 1954. With the introduction of GE's Univac, business and industry were ushered into the Information Age. The second generation of computers arrived in the 1960s, followed by the microprocessor in the late 1970s, and by the 1980s even the smallest portable computers could handle memory units in the thousands of kilobytes. Now, in the 1990s, CD-ROM has left the confines of education, revolutionized home PCs, and begun to impact businesses beyond storing corporate libraries (2). This read-only memory allows business persons to transport their files, programs, and other data in their pockets (13).

According to Marsh, there is no evidence that the technological revolution is slowing down, and it is, in fact, advancing at an ever-accelerating pace. "Now, 40 years after

IBM sold its first commercial mainframe, information technology has penetrated every corner of the U.S. economy" (6, 57). Authors of a special report in the June 14, 1993, issue of Business Week further pointed out that today's computers are cheaper and more useful and accessible because of new software and networking. The \$1 trillion technology investment of the 1980s is paying off as information technology drives a 'productivity-led recovery,' according to Economist Stephen S. Roach of Morgan Stanley & Co. (6).

In terms of hardware, personal" computers (PCs) have single-handedly revolutionized today's office. The PC has

rendered the typewriter nearly extinct, turned secretaries into word-processing experts, pulled small businesses into the information age, and inspired man-machine love affairs every bit as passionate as automobiles have (16, 40).

In general, PCs have provided the key to a more efficient and productive office. They are less expensive and yet more complex and sophisticated than they were just a few years ago. Paul Gibson, vice-president and corporate purchasing director for KeyCorp, a financial services holding company operating banks in eight states as of 1992, has observed significant changes in the PC industry in the past few years. As clone systems have gained acceptance, prices have steadily dropped. Gibson oversees \$6 million worth of purchases for PCs, peripherals, and software. In an effort to standardize the equipment and software, KeyCorp shares the responsibility of computer hardware and software selection between the

information processing center, Key Services, Inc., and purchasing (14).

IBM unleashed the personal computer, and, as of 1991, remained the world's largest maker of PCs (16). While the IBM appears to remain a popular hardware, the ease of use of the Macintosh makes it an attractive choice. By clicking the device, called a mouse, on an icon, the Macintosh user is able to work more productively and more efficiently than when manipulating the typical set of software commands (10). The Microsoft Corporation's Windows graphic interface system now adapts to other brands of computers the concept of easily maneuvering icons by clicking and dragging (17).

Laptop, s--portable computers--have joined the ranks of computer hardware now used in business. However, large sales departments are going a step beyond providing their sales teams with ordinary portable computers. They are equipping their sales employees with technology which permits them to manipulate corporate information quickly, maintain inventory, and access corporate databases and messaging systems. These enabling technologies include

smaller, more powerful portable computers with communications enhancements, groupware applications, interactive platform-independent databases, pen-based systems and wireless wide-area networks (9, 30).

For instance, a clothing retailer can buy a garment, without having to make the trip to the showroom, by making a selection from a high-quality photograph electronically sent by the clothing manufacturer (9).

In selecting hardware, businesses look for particular hardware characteristics such as (1) clock speed, which determines how fast the computer operates, (2) memory expansion, (3), disk drives, both floppy and hard disk drives, (4) a display system, color or monochrome, (5) ports, located on the outside of the hardware and used to connect the printer and mouse, (6) expansion slots, located inside the hardware and used to connect modems and CD-ROM, and (7) a mathematics coprocessor socket, a separate processor which increases the speed of math or graphics processing. General considerations in selecting hardware include price, warranties, and service contracts (10).

In the 1980s Corporate America learned that "no matter how powerful the computer or how far-reaching the information network, it means little if the average office worker can't use it" (17, 76). By 1984 it was evident that hardware was not the issue--software had become the focus. Even the mainframe software companies joined the rush to produce software for PCs (18). Gregory Jordahl agrees that software is the most important part of the PC equation.

Having adapted to the presence of technology, customers have continued to demand software programs that perform a variety of tasks in a 'user friendly' format (18). It is the software which makes the technology accessible and contributes to improved productivity in a business (17). In fact, the software should be selected first, then the

hardware system which meets the needs of the software can be chosen (10).

Ten years ago, in 1984, Business Week highlighted the best-selling software programs as reported by DATA: INTERNATIONAL COMPUTER PROGRAMS INC., BW. For personal computers, the most popular applications software included WordStar and PFS:Write for word processing; Lotus 1-2-3, MUltiplan, and VisiCalc for spreadsheet; and dBase II and PFS:File for data base management (18).

While applications software continues to be upgraded, the most sophisticated changes are in database and spreadsheet software. In September of 1991, Computer World reported the leading software packages for spreadsheets to be Lotus' 1-2-3 Release 2.3 "by far the market's best-selling spreadsheet," Lotus' 1-2-3 Release 3.1 and 1-2-3/G, Lotus' 1-2-3 for Windows, Informix's Wings, Microsoft's Excel 3.0, computer Associates' SupercalcS, and Borlands' Quattro Pro 3.0 (15).

Database connectivity, windows compatibility, and application linking are concerns of purchasers of spreadsheet software. In response to those concerns, major vendors now provide database links which eliminate the detailed process of transferring database information into a spreadsheet. Furthermore, programs are available which break down complicated spreadsheets into a 3-D format. In the future, spreadsheets may even use business names such as "sales," "tax," and "commissions" for the cells and create formulas

such as "sales minus commissions equals net sales." If the expense of state-of-the-art spreadsheet software or hardware limitations prohibits a new purchase, spreadsheet add-ons might be a valid consideration for a business. Spreadsheet add-ons are available for word processing and database management, financial analysis, file and data linking, graphics, security, and spreadsheet optimization (7). While the foundation of business's computer systems might be the basic spreadsheet or database programs, quite often a company will customize their software (5).

Participating in the Information Age goes beyond the selection of hardware and software. Current trends affecting business's technological management of information include networking, outsourcing, insourcing and technical support.

PC networking allows workers to share information from one desktop computer to another by linking with other PCs as well as linking with a mainframe (5).

In terms of increasing productivity, networking may be the most important shift. Some 60% of all business pps in the u.S. are now able to trade files, documents, and electronic mail with others on a network, up from 35% in 1990 (17, 76).

The complexity of the mainframe discourages some of the tasks that PC networking accomplishes more efficiently. In addition, through networking, word processing software, spreadsheet software and printers can be shared, thus making networking cost effective as well as efficient. A company saves money when it purchases a network version of standard software programs rather than individual copies for each pc.

Finally, "backing up"--periodically saving onto another floppy disk or harddrive--each PC on the network assures that this process has been accomplished, rather than depending on each PC user to conduct his own backup procedure (19).

"Information sharing will become an integral part of tomorrow's applications," according to Joseph P. Firmage, vice president of the Appware Systems Group at Novell (4, 128). Network-applications software is "where all the action is, and where it's going to be for the next 10 years," predicted Patricia B. Seybold, president of Office Computing Group, a Boston consulting firm (5, 105).

While it is more usual for banking institutions to link their standalone PCs to mainframes, PC-to-PC networking is becoming the trend in large banking institutions. Signature verification, human resources, marketing, lockbox, wire transfer systems, and loan applications are examples of areas within a bank that benefit from PC networking. Sharing updated customer information from the main office to the branch is an important feature of networking that further appeals to banks. Patrick Rielly, division manager of information services for Key Services Corporation, the automation subsidiary of KeyCorp, holding company for Key Bank of Albany, NY, foresees "cooperative processing." This means PCs will network databases at the branches while the mainframe will be used for transaction information (19).

Banks are not the lone example of networking pes. The state government of California began phasing in PC networking

in the summer of 1991. While shared database files reside at the Teale Data Center, the primary mainframe computer operation for the state in Sacramento, local network administrators maintain local software applications and local databases. These local software applications can be developed more quickly than mainframe applications and they cost less. Even security is enhanced as fewer people log on with a user ID and a password. Three hundred Compaq Computer Corporation desktops were purchased for the initial phase of the government's 'two-tier computing'--mainframe and PC network (1).

In an effort to cut costs, many major corporations have reduced their internal data processing department and contracted with external providers. This concept is called "outsourcing." With data centers worldwide, corporations use different software programs at each center. By standardizing their hardware and software, these companies can reduce data processing costs and personnel while providing technical expertise and consulting services (8).

DeMuth reports that Eastman Kodak, Rochester, NY, was one of the first major companies to switch to outsourcing. In doing so, they reduced personnel by nearly 2,000 people and

consolidated into one state-of-the-art IBM facility, while two other vendors were given the responsibility of handling Kodak's telecommunications needs and its PC support services (8, 60).

Kodak still maintains a small technical staff and has appointed an advisory board to "monitor information technology needs and vendor performance" (8, 60). Savings institutions have also gone to outsourcing since their processing needs are uniform.

In 1993, Pepsico, Inc., took a new approach to outsourcing. Pepsico established their own data processing center, Restaurant Data Center, to handle all of the data processing for three of their major divisions: Pepsico Food Systems, Taco Bell in Irvine, California, and KFC in Louisville, Kentucky. All three of these divisions were running IBM mainframe centers which were doing similar data processing tasks. As they considered outsourcing, the concept of creating their own outsource center, or "insourcing," developed among the information systems departments of these divisions. Now mainframe operations are offloaded to the newly created data center (12).

As PCs and networking became the new wave in early 1990, businesses sought technical support for their software application choices. 'Service' and 'consulting' have become software producer's marketing buzzwords, and they sell businesses on the idea of 'partnerships' between the software producer and the business consumer. From assisting in the selection of the appropriate software to training the personnel and troubleshooting, software companies appeal to the lack of technical expertise of the businesses who have supplied personal computers on the desktops of their

personnel. Even support from mainframe software makers is demanded as networking became a part of a company's total information system design (5).

As the Information Age progresses, businesses confirm their commitment to technology. In 1993 electronic information services were projected to grow 16.4 percent, data processing and network services 13.7 percent, computer professional services 9.9 percent, computer hardware and peripherals 8.0 percent and packaged software 13.7 percent. The United States PC market was projected to grow 6 percent as the U.S. continues to be a competitive force in computer technology, according to Timothy J. Hauser, acting undersecretary for international trade. (1)

Craig Goldman, senior vice president and chief information officer at Chase Manhattan Bank comments, "Nothing works in this place without the use of efficient and effective technology" (11, 58). While it takes between \$500 million and \$600 million annually to maintain Chase's computer centers, Chase is committed to using technology. Arthur Ryan, president of Chase Manhattan, reasons,

The rapid pace of innovation, both in technology and in the marketplace, means that we have to be prepared to move forward, so our people have the information they need to do their work smarter and faster than the competition (11, 58).

In fact, information technology played a major role in turning around Chase Manhattan Bank from a net loss of \$665 million in 1989, after which Chase spent about \$500 million on new computer and communications technology in an effort to

integrate and reorganize its data bases to better serve the customers.

Predicting the future for technology in business is best left to the technological gurus. In 1991, top people in the field of personal computers, including Apple Computer co-founder Steven P. Jobs and Microsoft co-founder William H. Gates III, were interviewed by Fortune magazine about their predictions for the future of PCs. Their forecasts on general trends in computers included: (1) "razzle-dazzle technology" such as computers that read handwriting, will emerge quickly, (2) data networks which share drawings, documents, and spreadsheets on the screen will be common, (3) a multitude of choices will confront the user, (4) electronic companies from Japan will be even more of a force in the field, and (5) computers will continue to have an impact on the business of the future. Even the form of the PCs will take on a new look. Notepad-size computers that can read handwriting--and digital readers--book-size devices that display published materials--will be available. Salespeople, delivery people, construction workers and executives will have access to digital devices increase their productivity. "Personal communicators" that combine a fax, a cellular phone, and a PC will emerge. Paul Saffo, a researcher at the Institute for the Future in Menlo Park, California, is convinced that in the 1990s personal computers will continue to reshape American businesses. He says,

Technology has reinvented the corporation again and again . As computers become a primary means of communication, companies will transport work to the workers instead of transporting workers to the work" (16, 42).

A surge in office productivity will result as computers evolve "into the ultimate communication device--beyond telephones, cellular phones, faxes, even live video hookups" (16, 42).

It is evident, then, that business and industry will continue to be challenged in their efforts to keep up with technology. Indeed, already many businesses have improved their hardware systems and upgraded their software. As businesses respond to technological innovations, those educational institutions which prepare students for employment must keep apprised of the technological needs of business.

Summary

Computer technology has penetrated all kinds of businesses and industries as computers have become cheaper, software has become more 'user friendly,' and networking has connected information systems. The personal computer, first introduced by IBM, has single-handedly revolutionized today's office by enhancing efficiency and productivity. Laptops and notebooks--portable computers--are the latest to join the ranks of computer hardware now used in business.

Software, however, is the main focus in the technology environment. Customers are demanding software programs that can perform a variety of tasks and are easily manipulated. In 1984 Business Week reported the most popular applications included WordStar and PFS:Write for word processing and dBase II and PFS:File for data base management. In 1991 Computer World proclaimed Lotus 1-2-3 as the best-selling spreadsheet software. Yet, even though outstanding commercial software programs exist, quite often a company will customize their software.

Beyond the selection of hardware and software, current trends are affecting business's technological management of information. Networking, outsourcing, insourcing and technical support are advancing the sharing of information. Networking links one desktop computer to another or to the mainframe. The efficiency and cost effectiveness of such linking makes networking one of the most popular trends. Outsourcing reduces the internal data processing department and contracts with external providers for technical expertise and consulting services. By creating their own outsource center to which the mainframe operations for three of its major divisions are offloaded, Pepsico, Inc., created the concept of 'insourcing.' Technical support appeals to companies who seek assistance in the areas of service and consultation.

Projections for growth in electronic information services confirm business and industry's commitment to technology. These projections are based on computer experts' predictions regarding the future for technology. As companies respond to the challenges of technology, educational institutions must continue to evaluate the technological needs of business and industry.

CHAPTER III

PROCEDURES USED

Identification Of Kind of Study

This descriptive study was designed to identify and analyze the computer hardware and software used for word processing, spreadsheet, database, and desktop publishing tasks in Wichita, Kansas, area business and industry.

Identification of Population

Selected businesses and industries in the Wichita, Kansas, area were chosen for this study. Businesses and industries ranged in size from small (2 employees) to large (365 employees), and they encompassed a wide variety of types of businesses.

Identification of Data Obtained

The Business and Industry Technology Survey was used to gather data for this descriptive study. In response to the Business and Industry Technology Survey, participating businesses and industries initially identified the nature of their business or industry and the number of people employed. The respondents next noted the brand of computer hardware utilized by their company, how they managed their computer system, and whether or not their business or industry utilized laptop or notebook computers. In addition, the

respondents specified the type of computer software utilized for word processing, spreadsheet, database, and desktop publishing tasks. Respondents further noted the reason for choosing their particular hardware and software, how long it had been since a change of hardware equipment or software programs had occurred in their business or industry, and how soon they expected to change the kind of hardware or software. Finally, respondents indicated the kind of printer used in their company and whether or not they used CD-ROM.

Selection of Sample

The selection of sample for this survey was gathered by distributing the Business and Industry Technology Survey to one hundred selected Wichita, Kansas, area businesses and industries. The process of choosing participating businesses and industries was accomplished by selecting businesses from the second and fourth columns of each page in the business section of the Wichita, Kansas, phone book. A list was made of those highlighted in the second and fourth columns, and each entry on the list was assigned a serial number for identification purposes. One hundred numbers from a random number table were chosen and matched to the numbered list. The one hundred selected by this method were designated as the sample population.

Development and Validity of the Instrument

The Business and Industry Technology Survey was developed by the researcher with evaluation and input from a panel of experts. This panel of experts consisted of: (1) a teacher of Business Technology at Wichita High School Heights, (2) chairperson of the Business Department at Wichita High School Heights, and (3) the computer applications instructor at Wichita High School Heights. This panel was asked for their recommendations on the development of the Business and Industry Technology Survey. Furthermore, the Business and Industry Technology Survey was field tested by five selected businesses, and additional response was solicited in regard to (1) question clarity, (2) selection of items included on the survey, and (3) proper wording. After implementing the panel and five selected businesses' recommendations, the Business and Industry Technology Survey was judged to be a valid instrument.

Treatment of Data

Information gathered from the Business and Industry Technology Survey was displayed in tables indicating number of responses and percent. A narrative accompanied each table interpreting the statistics set forth in the table.

CHAPTER IV

FINDINGS

The purpose of this study was to determine computer usage in the Wichita, Kansas, business community. The Business and Industry Technology Survey was used to gather data for this descriptive study. One hundred surveys were distributed and 42 were returned, comprising a 42 percent return ratio for the study. The survey related to the following specific areas:

- * The nature of the business
- * The number of employees in that business
- * The brand of computer hardware utilized
- * Reasons for choosing the brand of computer hardware
- * The length of time since a change of hardware equipment had occurred
- * How soon a change was expected in the hardware equipment
- * How the computer system was managed
- * Whether or not laptop or notebook computers were utilized
- * The type of computer software utilized for word processing, spreadsheets, database, and desktop publishing

- * The reasons for choosing the software for each area including word processing; spreadsheets, database, and desktop publishing
- * The length of time since a change in the software programs had occurred
- * How soon a change was expected in the software
- * The kind of printer used
- * Whether or not CD-ROM was used in any capacity.

It should be noted that some of the respondents chose not to answer every item on the survey; therefore, the total number of responses used to calculate the percents were different for some areas. In addition, respondents had the option of choosing as many choices per survey question as applied to their business or industry. Accordingly, many of the tables displayed will reflect a combination of responses.

Responses for Questions 1 and 2 from the Business and Industry Technology Survey are combined and shown in TABLE I. The types of businesses and industries responding to the Business and Industry Technology Survey and the number of employees in each particular business are highlighted. Respondents represented a wide variety of area businesses and the number of employees ranged from 2 employees to 365 employees.

TABLE I

BUSINESS AND INDUSTRY TECHNOLOGY SURVEY RESPONSES (N=42)

Nature of Business and Industry	Number of Employees
Architecture	12
Architecture	12
Auto Dealership (Ford)	250
Auto Repair	8
Automotive Service	2 to 4
Aviation Insurance	10 local 250 nationwide
Banking	85
Bar	8
Commercial Refrigeration: Sales, Service and Installations	12
Electroplating/Metalfinishing	15
Equipment Leasing	1
Financial Planning/Investments	2
Health Care	12
Health Care Management	350+
Heating and Cooling	9
Household Goods Moving and Storage	30
Human Services, Programs for Adults with Disabilities	125
Insurance	5
Legal Practice	26
Lite Insurance	15
Machine Tool Distributor	15 full time - 3 part time
Mall Management Office	45
Management and Sales Training	2
Manufacturer of Aircraft Parts and Assemblies	22
Manufacturer of Rubber Stamps and Interior/Exterior Signs	6
Manufacturing	290
Media Buying Service	4
Medical Practice	44
Mexican Fastfood Franchisor	4
Monthly Accounting and Tax Preparation	2
New and Used Autos--Sales and Service	55
Outdoor Equipment Sales	45
Outpatient Drug and Alcohol Addiction Treatment Center	3
Printing	9
Real Estate Sales	5
Retail Propane Sales/Home Heating/Fork Lift Cylinder Exchange	17
Savings and Loans	5
Soft Drink Bottling	365
Steel Fabrication	140
Tires and Automotive Service at Retail and Wholesale Levels	15
Wholesale and Retail School Supply Sales and Manufacturing	45
Wholesale Plumbing	175

Exhibited in TABLE II is the brand of computer hardware utilized by the various respondents. It is worth noting that three of the businesses surveyed responded that they did not use computer hardware. Those three businesses were an equipment leasing company, a heating and cooling company, and a bar.

In regard to the brands of computer hardware, IBM clearly outnumbered all other brands", whether it was the IBM personal computer or an IBM compatible personal computer. Also, it should be noted that often IBM was used in combination with other computer hardware.

TABLE II

COMPUTER HARDWARE UTILIZED (N=42)

Brand	Number	Percent
computer hardware is not utilized	3	7.1
IBM personal computer	2	4.8
IBM compatible personal computer	21	50
Macintosh personal computer	2	0
IBM compatible personal computer and Gateway	1	2.4
IBM personal computer, IBM mainframe, and network hardware--Compaq	1	2.4
IBM personal computer and IBM compatible personal computer	2	4.8
IBM mainframe and IBM compatible personal computer	1	2.4
IBM personal computer, IBM compatible personal computer, and Compaq and Unisys	1	2.4
ASI	1	2.4
Apple II e	1	2.4
Mainframe IBM	1	2.4
Maxx personal computer 38640	1	2.4
Risc/6000 58F	1	2.4
Smart Choice	1	2.4
System 36 IBM and IBM personal computer	1	2.4
Texas Instruments	2	4.8
Zenith, Empresion and one unknown	1	2.4

In TABLE III the reasons for the respondents choosing their computer hardware brand are listed. Price, alone and in conjunction with other reasons, was the guiding force for selecting computer hardware. The next important factor, in combination with others, was availability of technical support.

TABLE III

REASONS FOR CHOOSING COMPUTER HARDWARE (N=42)

Reason	Number	Percent
computer hardware is not utilized	3	7.1
Price	6	14.3
Administrative recommendation	5	11.9
Availability of technical support	1	2.4
Business references	2	4.8
Ease of use	2	4.8
Price, availability of technical support, and ease of use	3	7.1
Price, administrative recommendation, and availability of technical support	2	4.8
Price, administrative recommendation, availability of technical support, and business references	1	2.4
Price and availability of technical support	5	11.9
Administrative recommendation, and availability of technical support	1	2.4
Administrative recommendation, availability of technical support, and ease of use	1	2.4
Availability of technical support, and ease of use	1	2.4
Availability of technical support, and industry requirements	1	2.4
Availability of technical support, business references, and ease of use	1	2.4
Availability of technical support, business references, and availability of business software	1	2.4
Business references, and ease of use	1	2.4
Application requirements	1	2.4
Fomoco system	1	2.4
Hardware choice was not an option	1	2.4
Other (unspecified)	1	2.4

In TABLE IV the length of time since the respondents have made a change of hardware equipment is displayed. Most respondents surveyed indicated a hardware equipment change within the past six months (28.9 percent) to a year (26.3 percent). Only a few respondents (a total of 8 out of 38) have not made a change within the past two years.

TABLE IV

WHEN HARDWARE EQUIPMENT CHANGE LAST OCCURRED (N=38)

Length of Time	Number	Percent
6 months or less	11	28.9
1 year	10	26.3
1 1/2 years	4	10.5
2 years	5	13.2
3 years	2	5.3
4 years	3	7.9
5 years	2	5.3
7 years	1	2.6

In TABLE V the length of time when respondents expected to make a change in computer hardware equipment is shown. The majority indicated that length of time was "unknown" (26.3 percent). However, 15.8 percent expected to make a change within a year and another 15.8 percent expected to make a change within two years. Therefore, a combined 31.6 percent of the respondents expected to make a change within the next two years. Only approximately half as many respondents (a combined 15.7 percent) expected to wait over two years to make a hardware change. The same number have no plans to change computer hardware.

TABLE V

WHEN HARDWARE EQUIPMENT CHANGE IS EXPECTED (N=38)

When Change Expected	Number	Percent
Continually	2	5.3
6 months	2	5.3
1 year	6	15.8
2 years	6	15.8
2 - 3 years	1	2.6
4 years	1	2.6
5 years	2	5.3
5 - 7 years	1	2.6
Several years	1	2.6
No plans to change	6	15.8
Unknown	10	26.3

How the respondents manage their computer systems is displayed in TABLE VI. Personal computers clearly appeared to be the choice of these businesses with an equal number operating personal computers as individual units (27.5 percent) as well as personal computers networked (27.5 percent). Another 15 percent combined the individual units with the networking of personal computers.

TABLE VI

HOW COMPUTER SYSTEMS ARE MANAGED (N=40)

Method of Management	Number	Percent
computers are not utilized	3	7.5
Main frame	4	10
Personal computers (individual units)	11	27.5
Personal computers networked	11	27.5
Main frame and personal computers (individual units)	1	5
Main frame and personal computers networked	1	5
Main frame, personal computers (individual units), and personal computers networked	2	5
Personal computers (individual units), and personal computers networked	6	15
Personal computers (individual units), personal computers networked, and service bureau	1	2.5

Only 26 percent of the respondents indicated that their companies were utilizing laptop or notebook computers. It is perhaps worth noting the nature of those ten businesses and industries who denoted the use of these small, portable computers. They were insurance companies, a human services program for adults with disabilities, a wholesale and retail school supply sales and manufacturing business, a medical practice, a Mexican fastfood franchisor, a machine tool distributor, a household goods moving and storage company, a bank, and a health care management industry. One respondent, a management and sales training organization, noted they would like to utilize laptops or notebooks, but they did not consider them affordable. It is evident, then, that the majority of the respondents did not utilize laptops or notebook computers.

In TABLE VI the type of computer software the respondents utilized for word processing tasks is exhibited. The predominant choice was Word Perfect, which was used either alone (28.6 percent) or along with other word processing packages. MS Word appeared to be the second choice with 7.1 percent of the respondents using MS Word solely and another 14.3 percent using it in connection with other word processing packages.

TABLE VII

SOFTWARE UTILIZED FOR WORD PROCESSING (N=42)

Type	Number	Percent
computer software is not used	3	7.1
Word Perfect	12	28.6
MS Works	1	2.4
MS Word	3	7.1
PFS First Choice	2	4.8
Company-developed program	1	2.4
Word Perfect and company-developed program	1	2.4
Word Perfect and MS Word	3	7.1
Word Perfect and PFS First Choice	3	7.1
Word Perfect, company-developed program, and Ami-Pro	1	2.4
Word Perfect, MS Works, and Mizer/SDI	1	2.4
MS Works, MS Word, and IFS Yourway	1	2.4
MS Word and company-developed program	1	2.4
MS Word, company-developed program, and MS Office	1	2.4
PFS First Choice and other commercially-developed program	1	2.4
BUWP, Quatro, and Alpha 4V3	1	2.4
DAC Easy	1	2.4
Fomoco	1	2.4
Pro Term and Appleworks	1	2.4
Pro write	1	2.4
Volkswriter	1	2.4
Other commercially-developed programs (not specified)	1	2.4

In TABLE VIII the respondents' reasons for choosing the word processing software they use is presented. It is obvious from this table that many factors have contributed to their choice of word processing packages. "Ease of use" alone (23.8 percent) was the major factor influencing choice, while "ease of use" was also mentioned in connection with other factors. It should also be noted that "availability of technical support" was mentioned often in conjunction with other factors.

TABLE VIII

REASONS FOR CHOOSING WORD PROCESSING SOFTWARE (N=42)

Reason	Number	Percent
computer software not used	3	7.1
Price	2	4.8
Administrative recommendation	2	4.8
Availability of technical support	0	0
Business references	2	4.8
Ease of use	10	23.8
Price and administrative recommendation	1	2.4
Price and ease of use	2	4.8
Price, business references, and reputation	1	2.4
Price, availability of technical support, business references and ease of use	1	2.4
Administrative recommendation and ease of use	2	4.8
Administrative recommendation, and availability of technical support	2	4.8
Administrative recommendation, availability of technical support, and ease of use	1	2.4
Administrative recommendation and functionality	1	2.4
Availability of technical support and business references	1	2.4
Availability of technical support and ease of use	1	2.4
Availability of technical support, business references, and ease of use	2	4.8
Availability of technical support and best power	1	2.4
Availability of technical support and health care specific	1	2.4
Availability of technical support, business references, and standard in architecture	1	2.4
Business references and ease of use	1	2.4
Ease of use and import/merge capabilities	1	2.4
Offered with specialized software program	1	2.4
Recommended by computer supplier	2	4.8

In TABLE IX the type of computer software utilized for spreadsheets is shown. Lotus 1-2-3 was the leading choice of the respondents (28.6 percent) who use spreadsheet software. Additionally, Lotus 1-2-3 was used in connection with other spreadsheet software. Excel was the second most widely utilized spreadsheet software. It was used either alone (9.5 percent) or along with Lotus 1-2-3 (7.1 percent). It is worth noting that 26.2 of the respondents do not use spreadsheet software.

TABLE IX

SOFTWARE UTILIZED FOR SPREADSHEETS (N=42)

Type	Number	Percent
Computer software is not used	11	26.2
Excel	4	9.5
Lotus 1-2-3	12	28.6
Quatro Pro	1	2.4
Company-developed program	1	2.4
ADP	1	2.4
Alpha 4	1	2.4
Excel and Lotus 1-2-3	3	7.1
Lotus 1-2-3 and company-developed program	2	4.8
Lotus 1-2-3 and Quatro Pro	3	7.1
Quatro	1	2.4
Real world	1	2.4
Window Works	1	2.4

The reasons the respondents chose their particular spreadsheet software are illustrated in TABLE X. Like the main factor in choosing word processing software, "ease of use" was the primary reason for choosing spreadsheet software. A total of 26.2 percent indicated this as the reason for their choice. Furthermore, "ease of use" was cited in conjunction with other factors. "Administrative recommendation" was mentioned by six respondents, and "availability of technical support" was mentioned by five respondents. It is interesting to note that of those respondents utilizing spreadsheet software, only two respondents listed "price" as a reason for selecting a software program.

TABLE X

REASONS FOR CHOOSING SPREADSHEET SOFTWARE (N=42)

Reason	Number	Percent
Computer software is not used	11	26.2
Price	2	4.8
Administrative recommendation	1	2.4
Availability of technical support	1	2.4
Business references	3	7.1
Ease of use	11	26.2
Administrative recommendation and business references	1	2.4
Administrative recommendation and ease of use	1	2.4
Administrative recommendation, business references, and ease of use	1	2.4
Administrative recommendation and availability of technical support	1	2.4
Administrative recommendation, availability of technical support and business references	1	2.4
Availability of technical support and ease of use	1	2.4
Availability of technical support and best power	1	2.4
Business references and ease of use	1	2.4
Business references and compatible with custom software	1	2.4
Ease of use and capacity to do required tasks	1	2.4
Best one offered	1	2.4
Recommended by computer supplier	1	2.4
Other (not specified)	1	2.4

In TABLE XI the type of computer software utilized by the respondents for database tasks is highlighted. There were a wide variety of software selections, and while purchased software was the most popular choice, no one particular brand was an overwhelming choice. Of the purchased packages, Microsoft Works (combination package) was the choice of the most respondents (9.5 percent). Company-developed programs were the choice of 11.9 percent of those respondents utilizing database software. It should be noted that 28.6 of the respondents indicated that they do not use database software.

TABLE XI

SOFTWARE UTILIZED FOR DATABASE (N=40)

Type	Number	Percent
Computer software is not used	12	28.6
dBase	0	0
Claris Works (combination package)	0	0
Lotus Works (combination package)	1	2.4
Microsoft Works (combination package)	4	9.5
PFS First Choice (combination package)	2	4.8
Quatro Pro (combination package)	0	0
Company-developed program	5	11.9
dBase and Lotus Works	1	2.4
Access	1	2.4
Access and company-developed program	1	2.4
ADP	1	2.4
Alpha	1	2.4
Applied Computer Resources	1	2.4
FE (File Express)	1	2.4
Fox Pro for Windows and In Magic	1	2.4
MAS-90 and ACT!	1	2.4
Medic	1	2.4
Microsoft Works and company-developed program	1	2.4
Paradox	2	4.8
Pick	1	2.4
Progress	1	2.4
Other commercially-developed programs (not specified)	3	7.1

The reasons respondents gave for choosing database software are highlighted in TABLE XII. A total of 28.6 percent of the respondents indicated they do not use database software. Of those who do use database software, "ease of use" alone was the primary factor for 26.2 percent of the survey respondent. "Ease of use" was also mentioned as a factor in connection with other criteria. "Administrative recommendation" was mentioned by 4.8 percent as the sole reason for program selection, but it was listed along with other factors by four other respondents.

TABLE XII

REASONS FOR CHOOSING DATABASE SOFTWARE (N=42)

Reason	Number	Percent
Computer software <i>is</i> not used	12	28.6
Price	1	2.4
Administrative recommendation	2	4.8
Availability of technical support	1	2.4
Business references	1	2.4
Ease of use	11	26.2
Price and ease of use	1	2.4
Price, availability of technical support and ease of use	1	2.4
Administrative recommendation and availability of technical support	1	2.4
Administrative recommendation, availability of technical support and business references	1	2.4
Administrative recommendation, functionality, and compatibility with other software	1	2.4
Administrative recommendation and other (not specified)	1	2.4
Availability of technical support and ease of use	1	2.4
Business references and ease of use	1	2.4
Ability to change	1	2.4
Came with computer	1	2.4
Came with other software	1	2.4
Installed by hardware sales people	1	2.4
Recommended by computer supplier	1	2.4
Other (not specified)	1	2.4

In TABLE XIII the types of software utilized for desktop publishing tasks are displayed. It should be noted that 78.6 of the responding businesses and industries indicated that they did not utilize desktop publishing. Of the remaining respondents who did utilize desktop publishing, the majority (7.1 percent) used Aldus Pagemaker. The next most widely used desktop publishing software program was Word Perfect. A total of 4.8 percent of the respondents utilized the desktop publishing features of this program.

TABLE XIII

SOFTWARE UTILIZED FOR DESKTOP PUBLISHING (N=42)

Type	Number	Percent
Desktop publishing not utilized	33	78.6
Aldus Pagemaker	3	7.1
Express Publisher	1	2.4
First Publisher	1	2.4
Company-developed program	0	0
Printmaster Gold for DOS	1	2.4
Word Perfect	2	4.8
Other commercially-developed programs (not specified)	1	2.4

In TABLE XIV the reasons for the respondents choosing their desktop publishing software are illustrated. Again, it should be noted that 78.6 percent of the respondents do not use desktop publishing software. Therefore, of the remaining respondents, 4.8 percent indicated "ease of use" as the main choice factor and another 4.8 percent listed other reasons (not specified) as a main choice factor.

TABLE XIV

REASONS FOR CHOOSING DESKTOP PUBLISHING SOFTWARE (N=42)

Reason	Number	Percent
Desktop publishing not <u>utilized</u>	33	78.6
Price	0	0
Administrative recommendation	1	2.4
Availability of technical support	0	0
Business references	1	2.4
Ease of use	2	4.8
Price and ease of use	1	2.4
Already in system	1	2.4
Already in use as word processing	1	2.4
Other (not specified)	2	4.8

The length of time since a change of software programs had taken place in the businesses and industries of the respondents is shown in Table XV. For 28.9 percent of the respondents, the length of time since a software change had been made was 6 months or less. Another 15.8 percent indicated they had made software changes on a constant basis. Still, another 15.8 percent indicated they had made software changes within the past year. It is evident, then, that changes of software programs had taken place rather recently. Only 21 percent responded that they had not made software program changes in over three years.

TABLE XV

WHEN SOFTWARE PROGRAM CHANGE LAST OCCURRED (N=38)

Length of Time	Number	Percent
Constant basis	6	15.9
Quarterly	1	2.6
6 months or less	11	28.9
1 year	6	15.8
1 1/2 years	1	2.6
2 years	5	13.2
3 years	3	7.9
4 years	1	2.6
5 years	3	7.9
6 years	1	2.6

In TABLE XVI length of time when the respondents expected to make a change in software programs is denoted. A response from 39.5 percent indicated they did not know when they expected to make a software program change. No change was expected by 15.8 percent of the respondents, while 13.2 percent indicated they expected to make a change within 6 months to a year.

TABLE XVI

WHEN SOFTWARE PROGRAM CHANGE IS EXPECTED (N=38)

Length of Time	Number	Percent
Periodically	3	7.9
6 months to 1 year	5	13.2
1 to 2 years	4	10.5
2 to 3 years	1	2.6
4 years	1	2.6
5 to 7 years	2	5.3
Several years	1	2.6
None expected	6	15.8
Unknown	15	39.5

The kinds of printers utilized by the responding businesses and industries is denoted in TABLE XVII. The dot matrix printer alone was used by 26.2 percent of the respondents. The dot matrix printer was also used by respondents in conjunction with other kinds of printers. The laser printer was the choice of 21.4 percent of the respondents.

TABLE XVII

KINDS OF PRINTERS UTILIZED (N=42)

Kind	Number	Percent
Computer hardware is not utilized	3	7.1
Bubble jet	0	0
Dot matrix	11	26.2
Ink jet	0	0
Laser	9	21.4
Bubble jet and dot matrix	1	2.4
Bubble jet and laser	1	2.4
Bubble jet, dot matrix and laser	1	2.4
Dot matrix and laser	8	19
Dot matrix, ink jet, and Band Printers	1	2.4
Dot matrix, ink jet and laser	5	11.9
Ink jet and Epson LX 810	1	2.4
Ink jet and laser	1	2.4

The number of business and industry respondents who utilized CD-ROM was minimal. Of the 42 who responded to the Business and Industry Technology Survey, only 23.8 percent indicated that they were currently using CD-ROM in their companies. It is therefore evident that this trend is in the introductory stages in businesses and industries in the Wichita, Kansas, area.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

For the purpose of informationally equipping educational institutions to prepare students for a future in the business world, this study was conducted with the intent of identifying and analyzing the current computer hardware and software used for word processing, spreadsheet, database, and desktop publishing tasks in Wichita, Kansas, selected area businesses and industries. In addition, this study was designed to determine the factors the business community respondents considered in choosing their computer hardware and software. Finally, the study was intended to ascertain the length of time since computer hardware and software changes had been made within the responding companies and the length of time before a future change would be made.

The Business and Industry Technology Survey was used to gather data which were used to compare the responses of the Wichita, Kansas, selected area businesses and industries. A total of 42 out of 100 of the businesses and industries responded to the survey. Responses to each of the survey questions were tallied and the percent for each response was calculated. These were reported in tables in CHAPTER IV.

As to the issue of hardware, respondents indicated a preference for IBM or IBM compatible personal computers. Respondents cited price as the guiding force in selecting computer hardware. For the most part, changes in hardware equipment had been made in the last six months to one year, and plans for future changes were either unknown or expected to occur within two years. Respondents predominantly managed their computer systems by utilizing personal computers as individual units or as networked systems. Dot matrix and laser were clearly the printers of choice. About one fifth of the respondents utilized laptop or notebook computers and CD-ROM.

Computer software issues were also addressed. The type of computer software mainly utilized for word processing was Word Perfect because of its ease of use. For spreadsheets the choice was Lotus 1-2-3 which was also selected because of its ease of use. The preference for database was Microsoft Works and company-developed programs, and again the reason for the program choice was ease of use. Over three-fourths of the respondents did not utilize desktop publishing. However, those who did preferred Aldus Pagemaker or Word Perfect. These programs were selected because of their ease of use. To conclude the software issue, almost 40 percent of the respondents were not sure when they would change software programs, while 30 percent expected to make a change within the next two years.

Ten years ago literature stated that WordStar and PFS:Write were the dominate software programs for word processing **tasks**, Lotus 1-2-3, Multiplan, and VisiCalc were spreadsheet preferences, and dBase II and PFS:File were choices for data base management. This study revealed that the current primary choice of businesses and industries in the Wichita, Kansas, area for word processing tasks was Word Perfect, for spreadsheet--Lotus 1-2-3, and for data base--Microsoft Works and company-developed programs. While a majority of the respondents did not use desktop publishing, those who did preferred Aldus Pagemaker and Word **Perfect**.

There is no evidence that the technological revolution *is* slowing down. A majority of the respondents in this study reported having made a change in hardware in the past six months to a year. The same length of time was the primary indication for software changes. In confirming their commitment to technology, over 40 percent of the respondents noted an expectation to change computer hardware in one to two years. While 39.5 percent were not sure when they would change software **programs**, over 30 percent stated they expected to make changes within the next two years.

This study clearly indicated business and industry's involvement in computer technology. As the Information Age progresses, business and industry will be challenged to meet technological needs. In training individuals for employment, educational institutions must be aware of and respond to those needs.

Recommendations

In an effort to prepare students for employment in the business and industry community in the Wichita, Kansas, area, educational institutions need to be aware of the computer hardware and software needs in this community. As a result of the findings and conclusions of this study, the following recommendations are hereby submitted:

- * Students should be trained on IBM or IBM compatible personal computers.
- * Students should be exposed to manipulation of data through networking.
- * Word Perfect should be the focus of word processing training.
- * Lotus 1-2-3 should be the focus of spreadsheet training.
- * Database management can be practiced on a variety of commercially-developed programs.
- * Aldus Pagemaker should be the focus of desktop publishing training.
- * Dot matrix and laser printers should be the predominant printers utilized in the classroom.
- * Students should be exposed to CD-ROM.
- * Computer technology studies of business and industry should be conducted on a continual basis.

BIBLIOGRAPHY

1. Anthes, Gary H. "Strong Growth Predicted for High-tech Industry." Computerworld 27 (January 18, 1993): 98.
2. Boroughs, Don L. "Profits on a Platter." U.S. News & World Report 25 April 1994, 69-72.
3. Bozman, Jean S. "Windows Provides Gateway to Database." Computerworld 25 (July 8, 1991): 39.
4. Brandt, Richard. "The Battle of the Network Stars. Boots Up." Business Week 25 April 1994, 128-130.
5. Brandt, Richard, Deidre A. Depke and Keith H. Hammonds. "Software: It's a New Game." Business Week 4 June 1990, 102-106.
6. Carey, John, Howard Gleckman, Russell Mitchell, Chris Roush and Tim Smart. "The Technology Payoff." Business Week 14 June 1993, 56-68.
7. Caron, Jeremiah. "Add-ons Can Expand Your Horizons." Computer World 25 (September 2, 1991): 76.
8. DeMuth, Jerry. "Outsourcing a Data Center Raises Pros and Cons." Savings Institutions III (April 1990): 60-61.
9. Fitzgerald, Michael and Joanie M. Wexler. "Beyond Laptops and Notebooks." Computerworld 27 (December 28, 1992): 30.
10. Jordahl, Gregory. "The New PC Marketplace." Insurance Review 51 (March 1990): 24-27.
11. Kindel, Sharen. "Thinking About Tomorrow." Financial World 163 (January 18, 1994): 56-58.
12. Margolis, Nell. "Pepsico Firms Choose Outsourcing." Computerworld 27 (May 29, 1993): 1.
13. Marsh, Hugh L. "It's a Revolution!" Internal Auditor 48 (June 1991): 110-111.
14. "Professional Profile: KeyCorp." Purchasing 112 (May 7, 1992): 57.

15. *Radding, Alan.* "PC Spreadsheets." Computerworld 25
(September 2, 1991): 69-70.
16. *Schlender, Brenton R.* "The Future of the PC." Fortune
26 August 1991, 40-48.
17. *Schwartz, Evan I.* "The Power of Software." Business
Week 14 June 1993, 76.
18. "Software: The New Driving Force." Business Week 27
February 1984, 74-84.
19. *Zimmermann, Kim Ann.* "To Network or Not." United
States Banker 101 (October 1991): 68-73.

APPENDIX A

May 18, 1994

Dear Sir or Madam:

As a business educator in USD #259, I am interested in surveying the Wichita business community to learn what computer hardware and software is being utilized. Therefore, I have chosen to do my master's thesis in this area. I

Enclosed you will find a survey which asks particular questions concerning computer usage in your business. Though I know you are very busy, I would greatly appreciate your assistance in completing this survey and returning it to me in the enclosed self-addressed, stamped envelope. Your responses will be kept in absolute confidence, and I will be glad to forward a copy of the completed study to you should you request one.

Please return the survey by June 1. Thank you in advance for your cooperation.

Sincerely,

Cheryl L. Rogers
141 S. Old Manor
Wichita, KS 67218
681-0766

BUSINESS AND INDUSTRY TECHNOLOGY SURVEY

Directions' For each question, please check one or more responses which apply to your business.

1. What is the nature of your business?

2. How many people does your business employ?

3. What brand of **computer** hardware does your business utilize?

- _____ Computer hardware is riot utilized
- _____ IBM personal computer
- _____ IBM compatible personal computer
- _____ Macintosh personal computer
- _____ Other personal computers (Please specify)

4. Why **did'** you choose this brand of computer hardware?

- _____ Computer hardware is not utilized
- _____ Price
- _____ Administrative recommendation
- _____ Availability of technical suppon
- _____ Business references
- _____ Ease of use
- _____ **Other** (Please specify)

5. How long has it been since a change of hardware equipment has occurred in your business?

6,' How soon **do you** expect to change the kind of hardware equipment your business uses?

7. How do you manage your computer system?

- _____ Computers are not utilized
- _____ Main frame
- _____ Personal computers (individual units)
- _____ Personal computers 'networked

8. Does your business utilize laptop or notebook computers?
- _____ Yes
_____ No
9. What type of computer software does your business utilize for word processing?
- _____ Computer software is not used
_____ Word Perfect
_____ MS Works
_____ MS Word
_____ PFS First Choice
_____ Company-developed program
_____ Other commercially-developed **programs** (Please specify)
10. Why did you choose this word processing software?
- _____ Computer software is not used
_____ Price
_____ Administrative recommendation
_____ Availability of technical support
_____ Business references
_____ Ease of use
_____ Other (Please specify)
11. What type of computer software does your business utilize for spreadsheets?
- _____ Computer software is not used
_____ Excel
_____ Lotus 123
_____ Quatro Pro
_____ Company-developed **program**
_____ Other commercially-developed programs (Please specify)
12. Why did you choose this spreadsheet software?
- _____ Computer software is not used
_____ Price
_____ Administrative recommendation
_____ Availability of technical support
_____ Business references
_____ Ease of use
_____ Other (Please specify)

13. What type of computer software does your business utilize for database?

- ☐ Computer software is not used
- ☐ dBase
- ☐ Claris Works (combination package)
- ☐ Lotus Works (combination package)
- ☐ Microsoft Works (combination package)
- ☐ PFS First Choice (combination package)
- ☐ Quatro Pro (combination package)
- ☐ Company-developed program
- ☐ Other commercially-developed programs (Please specify)

14. Why did you choose this database software?

- ☐ Computer software is not used
- ☐ Price
- ☐ Administrative recommendation
- ☐ Availability of technical support
- ☐ Business references
- ☐ Ease of use
- ☐ Other (Please specify)

15. What type of computer software does your business utilize for desktop publishing?

- ☐ Desktop publishing not utilized
- ☐ Aldus Pagemaker
- ☐ Express Publisher
- ☐ First Publisher
- ☐ Company-developed program
- ☐ Other commercially-developed programs (Please specify)

16. Why did you choose this desktop publishing software?

- ☐ Desktop publishing not utilized
- ☐ Price
- ☐ Administrative recommendation
- ☐ Availability of technical support
- ☐ Business references
- ☐ Ease of use
- ☐ Other (Please specify)

17. How long has it been since a change of software **programs** has occurred in your business?

18. How soon do you expect to change the kind of software programs your business uses?

19. Which kind of printer does your business use?

_____	Computer hardware is not utilized
_____	Bubble jet
_____	Dot matrix
_____	Ink jet
_____	Laser
_____	Other (specify)

20. Does your business use CD-ROM in any capacity?

_____	Yes
_____	No

APPENDIX B

SAMPLE POOL

1. A-One Prqpane Gas
2. AAA Auto Club .of Kansas
3. A E Henning Roofing
4. A-Z Blueprint Equipment & Supplies
5. Ace Graphic & Micrographic Systems .
6. Addiction Treatment Service of St Joseph Medical Center
7. Adventure Sports
8. After Hours Tint & Installation
9. Air Express International
10. Alcohol Tobacco & Firearms Bureau
11. All Medical Placement Specialist
12. Allied Battery Supply Co.
13. Amana Factory Authorized Service
14. American Express Travel Service
15. American National Insurance Co.
16. Ample Duds
17. Andrew Inc.
18. Apex Systems Inc.
19. Architectural Art Manufacturing Inc.
20. Arnold, Lila (Real Estate)
21. Associated Business Forms
22. Austin Distributing & Manufacturing Corp.
23. Auto Shopper Magazine
24. B & B Guttering
25. Backwoods
26. BailOut Now
27. Bank Management Concepts, Inc.
28. Barrett & Barret (Attorneys)
29. Baysinger Police Supplies
30. Beech-Hedrick Investments
31. Benton, J. Fictor (DDS)
32. Bestway International, Inc.
33. Big River Sand Co., Inc.
34. Bisq-It Ceramics
35. Block, H & R
36. Boeing Wichita Employees Credit Union
37. Bottenfield's Beauty Supply
38. Brammer, J. Preston (DDS)
39. Brinton, E. Holmes (MD)
40. Brown, Jerry Construction Co.
41. Brush & Board Hardwoods
42. Bulger Cadillac-Oldsmobile Jeep Eagle
43. Busch's Luggage & Leather Goods
44. C A Cook & Sons Body Shop
45. CSS Counselling Service
46. Camera Angles Ltd.
47. Carcare by Ritchie

48. Caro, Mike Construction, Inc.
49. Caster Excavating
50. Cellular Connections
51. Central States Thermo King, Inc.
52. CF Motor Freight
53. Chelsea Bar & Grill
54. Child's Horizon Preschool
55. Chrysler Credit-Corp.
56. Cigna Healthplan of Kansas
57. Classic Cabinetry & Interior Trim
58. Clough, Victor Custom Cabinets
59. Cohen, Justin, MD
60. Collision Specialists, Inc.
61. Commercial Properties, Inc.
62. Condition-Aire, Inc.
63. Continental Forge Co.
64. Cordes, Donald L. (Attorney)
65. Countryside Lawn Tree & Landscape Contractors, Inc.
66. Creason Corrugating and Machinery Co., Inc.
67. Crown Agency
68. Custom Cupboards Kitchens & Baths
69. D & R Electric
70. Dave Johnson Motors
71. Dawson Brothers, Inc.
72. Decker & Mattison Co., Inc.
73. Dent Busters
74. Deree's Nursery
75. Diamond Standard Service
76. Dillons a Hour Photo Lab
77. Dodge House
78. Doolin & Shaw Optical Dispensers
79. Doyle Construction
80. Duling Construction Co., Inc.
81. E B Reicher Roofing
82. Eastgate Key & Lock Co.,
83. Edison Promotional Advertising Co.
84. Electronic Business Machines
85. Empire House Restaurant & Theatre
86. Equitable Life Assurance Society of The United States
87. Executive Accounting Service
88. Fahnestock Heating & Air Conditioning, Inc.
89. Family Resorts, Inc.
90. Farmers Insurance Group
91. Ferguson Construction Co.
92. Finney's Action Air-
93. First National Fixture Corp.
94. Flame-Out Fire Equipment Service
95. Food Flavors Company
96. Four Seasons Design & Remodeling Center
97. Freedom Books & Gifts
98. Frye Chevrolet Sales & Service_
99. G & G Catering Service
100. Galloway Petroleum Consultants
101. Geisler, Steven R. (MD)

102. Getty Gas Gathering, Inc.
103. Glidden Paint & Wallcovering Store
104. Goodyear Auto Tires--Karl's
105. Government Employee's Credit Union
106. Graphics Systems, Inc.
107. Greenhill Nursery & Landscaping
108. Grunke, Helen (Real Estate)
109. Wesley Clinic
110. Hahn Architectural Services
111. Hamblin, Rodney D. (Optomotrist)
112. Hanson's Millwork & Lumber, Inc.
113. Harrison, Jeff L. (Architect)
114. Hawkins, R. Kell Agency, Inc.
115. Health Knead Bakery & Bread Co.
116. Heidebrecht & Howell (CPA)
117. Hershberger, Patterson, Jones & Roth (Attornies)
118. Higgins Brothers (Contractors)
119. Hobby Lobby Creative Center
120. Holmes Freight Lines, Inc.
121. Hooper Holmes, Inc.
122. Howard Electronics
123. Hunt Trash Service
124. Ice Maker Specialists
125. Industrial Supply Products, Inc.
126. Internal Medicine Associates, PA
127. Irlandi, James J. Consultant Services
128. JTPA Employment & Training
129. Jantz & Associates
130. Jesse's Coins & Baseball Cards
131. John Hancock Mutual Life Ins. Co.
132. Johnson's Garderi Centers
133. Jorban-Riscoe Associates, Inc.
134. K G Men's Store
135. Kamen Wiping Materials Co., Inc.
136. Kansas Credit Investigation Co.
137. Kansas-Oklahoma Machine Tools, Inc.
138. Kaplan, McMillan & Harris
139. Kelley & Dawson Service
140. Kentucky Fried Chicken General Office & Catering
141. King, Charles, F. (CPA)
142. Klafta, Lebnard A. (MD)
143. Koch Construction Co.
144. Krehbiel, Jeff Associates
145. L & M Shocks & Trailer Hitches
146. Lamplighter Club
147. Larry's Trailer Service
148. Leadersystems
149. L'Eggs Products
150. Liberty Mutual Insurance Group
151. Litco, Inc.
152. Long, Rebecca & Associates
153. Ludeman Insulation & Supply, Inc.
154. M K & W Supply Co.
155. Magic FOCUS, Inc.

156. Manning-Clampitt Meat & Chile Co.
157. Marketing & Consultant Services
158. Mast, Bill G. Chartered
159. Maxine's
160. McCormack-Payton Sotrage & Moving Co., Inc.
161. McGill, Joe Co., Inc.
162. Medequip
163. Melco Leasing, Inc.
164. Metal-Fab, Inc.
165. Microtech Computers, Inc.
166. Mid-Kansas Therapy Services, Inc.
167. Midwest Marking Products
168. Miller & Cleary
169. Mishler, G. Charles (CFP)
170. Mohr, Eric Printing Service
171. Moody Heating & Air Conditioning
172. Morris-Owen Associates
173. Muellers Flowers
174. Murphy, R. Michael (OD)
175. Nail's Auto Service, Inc.
176. National Safety Services
177. Network, Inc.
178. Nichols Honda Suzuki & Yamaha
179. Northcutt Trailer & Equipment Sales, Inc.
180. Nursefinders of Wichita
181. Ocrim America, Inc.
182. Olson-Blackburn Interiors, Inc.
183. Orthopaedic Specialists, PA
184. P B I Plasma Center
185. Paper Plus
186. Parks & Parks Architects
187. Pawnee Industries, Inc.
188. Penn, Ben Company (Mfrs. Agts.)
189. Peterson, Peterson, & Goss
190. Phillips 66 Training Center
191. Pioneer Aluminum, Inc.
192. Player Piano Co., Inc.
193. Portrait Express
194. Power-Link, Inc.
195. Precision Petroleum Corp.
196. Primeline Financial Group, Inc.
197. Professional Air Conditioning Service, Inc.
198. Psychiatric Service
199. Quest Research & Development
200. R & C Professional Services
201. Railroad Savings Bank FSB
202. Ravenscraft Implement, Inc.
203. Redco Reeves Engineering Development Co.
204. Reid's Radiator Repair
205. Rental World, Inc.
206. Richardson's Pharmacy
207. Ritchie Building
208. Roadfinder Company, Inc.
209. Rodney's Refrigeration

210. Roscoe Ad Agency
211. Rubber Belting & Hose Supply, Inc.
212. Rusty Eck Ford, Inc.
213. Sabolich Prosthetic Center of Wichita
214. St. Francis Regional Medical Center
215. St. Joseph Medical Credit Union
216. Salyer, Ivan P. Jr. (CPA)
217. Savage, Savage, & Brown, Inc.
218. Schoen's Fashions
219. Scizzory, The
220. Sears Telecatalog Center
221. Sedgwick County Dept. On Aging
222. Service Body Shop
223. Shaklee Back to Basics
224. Shepler's Western Wear
- 225.. Shrader, C. Eric, (MD)
226. Simpson & Associates
227. Slavenburg's Painting & Wallcovering
228. Smith Organ Co.
229. Soil Con\$ervation Service
230. South Wichita Family Medicine
231. Southwestern Electrical Co., Inc.
232. Spectacle Shoppe, Inc., The
233. Squires Service
234. Steak & Ale Restaurants
235. Steps Pennington Independent Living Service
236. Stone Sales Co., The
237. Sub & Stuff Sandwich Shop
238. Sun Supply Co.
239. Superior School Supplies
240. Swiss-Burger Brand Meat Company
241. Taco-Tico, Inc..
242. Ted Sheahon Co.
243. That Country Feeling
244. Thomas Furniture
245. Tiede's Line Construction
246. Tomlinson's Custom Woodworking & Refinishing
247. Town West Square
248. Tri-Mar Product, Inc.
249. Turner--The Tax Wise Professionals
250. U S Aviation Underwriters, Inc.
251. Union Pacific Railroad Company
252. United Steel Workers of America
253. Unruh Professional Automotive Service
254. Valley Hope Outpatient Alcohol & Drug Addiction
Treatment Center
255. Venture Material & Supply Co., Inc.
256. Viking Resources
257. WEI Markings
258. Wallis, Clarence Insurance
259. Water & Sewer Dept.--Wichita
260. Weaver Manufacturing, Inc.
261. Welex A. Haliburton Co.
262. Wesley United Methodist Church

- 263. Western Testing Co., Inc.
- 264. Weyerhaeuser Company Marketing
- 265. Wich-Craft Institutional Maintenance Supply
- 266. Wichita Christian Center
- 267. Wichita Coca-Cola Bottling Company
- 268. Wichita Federal Savings
- 269. Wichita Lawn Sprinkler, Inc.
- 270. Wichita Nephrology Group
- 271. Wichita Outdoor Power
- 272. Wichita Racquet & Swim Club With Fitness by Health Strategies
- 273. Wichita State University Activities Office
- 274. Wichita Steel Fabricators, Inc.
- 275. Wil-Ken Enterprises, Inc.
- 276. Williams, Thomas A (DVM)
- 277. Windshield Shop, A
- 278. Windsor Communities
- 279. Women's Health Care-West
- 280. Worry Free Enterprise Services
- 281. Yoder, Donald D. (Podiatrist)