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**THE IMPACT OF VIDEOCONFERENCING
ON THE
CORPORATE TRAVEL INDUSTRY**

by
Mary Elizabeth Grieco

A Project submitted to the
Faculty of the School of Food, Hotel and Travel Management
at
Rochester Institute of Technology
in partial fulfillment of the requirements
for the degree
of
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ABSTRACT

The wave of the future for businesses is technology. New technology is evolving everyday and in particular, the videoconferencing industry is steadily growing. The corporate travel industry may be influenced by videoconferencing. The focus of this study was to identify the impacts of videoconferencing on management decisions for employee travel.

A review of literature, focusing on information technology and videoconferencing was completed. Information was gathered by studying industry journals and current publications.

A questionnaire was used to collect further research. The survey was sent to decision makers for employee travel. The questionnaire was designed to capture both present and future perspectives. The questions were developed to gather information regarding strategic planning, economic development, employee growth and customer satisfaction within a corporate travel department. These areas were used to determine the impact of videoconferencing on the corporate travel industry.

Overall, the results determined that videoconferencing has no significant impact on management decisions for employee travel. However, the study determined two facts that should be considered by corporate travel departments and agencies when developing their companies corporate travel strategic plan. Recommendations for further studies were suggested. Additional research would help the corporate travel industry plan for the future.

ACKNOWLEDGEMENTS

To my Mom and Dad - this is for you!

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CHAPTER I

INTRODUCTION

It is 1998. At a large pharmaceutical company in the Northeast another busy day has begun.

In the conference room on the seventh floor corporate executives and production managers are engaged in a videoconference with the creative team from a West coast marketing firm. They are discussing story board ideas for the introduction of a new pharmaceutical product.

The second revolution of the information age will rearrange our view towards communications and information technology. The impact of technology will forever change the way we do business.

Technology's evolution has been a continuing process. Personal computers replace typewriters. Electronic mail replaces the fax machine. The training director replaces the meeting planner. Videoconferencing replaces the corporate travel agent and virtual reality becomes your next travel experience. Organizations will change the way they conduct business because of the implementation of information technology.

In particular, the corporate travel industry may be affected by technologies of today. One specific telecommunications "techno-tool" which may directly impact corporate travel is videoconferencing. Some companies

are using videoconferencing for a variety of reasons. With this thought in mind, what impact might videoconferencing have on the future of the corporate travel industry?

PROBLEM STATEMENT

The wave of the future for businesses is technology. The corporate travel industry may be influenced by videoconferencing. Specifically, what impact might videoconferencing have on management decisions for employee travel? And in turn, what impact will those decisions have on in-house corporate travel departments or outsourced corporate travel agencies?

BACKGROUND

The concept of videoconferencing is not new. In the 60's and 70's a few companies used closed-circuit television to link people from location to location. Since this type of telecommunications was expensive and limited in distance, the systems did not remain in operation.

In the early 80's, videoconferencing was once again put into use. This time, AT&T and the Hilton Hotel company began to offer videoconferencing in their facilities. At that point, videoconferencing began to evolve.

Since then, the rapid advancement in technology has enabled videoconferencing to become a commonly used means of communication. The videoconferencing industry has grown from less than \$200 million in

revenues in 1989 to almost \$1.3 billion in 1993. The market is predicted to reach \$6.9 billion by 1997 (Heather,1994).

Videoconferencing is on the verge of becoming a mainstream business communication tool. Through videoconferencing, people will be able to communicate long-distance the way they are used to communicating in person, face to face, not just by voice or by memo. More and more companies are transferring images and ideas rather than moving bodies.

PURPOSE STATEMENT

The purpose of this study is to examine various effects videoconferencing may have on management decisions for employee travel. Basically, what effects might videoconferencing have on the decision for employees to travel or not to travel? This analysis may guide corporate travel departments and agencies in their strategic planning.

SIGNIFICANCE

The corporate travel industry must begin to seriously think about technology. Videoconferencing may impact the future of corporate travel departments and corporate travel agencies. Strategic planning, economic development, employee growth, and customer satisfaction (internal and external) may be areas within a corporate travel department or agency that will be effected because of the use of videoconferencing.

This study will identify the affects, if any, of videoconferencing on management decisions about employee travel, with the intent of identifying the activities of corporate travel departments and agencies of the future.

METHODOLOGY

This study will be conducted in the present perspective and will use descriptive research to identify the impact (if any) of videoconferencing on the corporate travel industry. A questionnaire will be utilized to survey decision makers for employee travel. The data received from the questionnaires will be correlated through the SPSS-X computer program.

HYPOTHESIS

This study will demonstrate the fact that videoconferencing will impact management decisions for employee travel. Further, this study will identify the affects those decisions have on in-house corporate travel departments or outsourced corporate travel agencies.

If this hypothesis proves to be true, it will specify the impacts of videoconferencing on corporate travel. Various effects may be identified from this research. In particular, the research may determine that videoconferencing causes a downsizing, restructuring trend of the department or agency. A decrease in costs of the department or agency may result.

The results will determine that technology will alter the future of the corporate travel industry.

DEFINITION OF TERMS

Videoconferencing - Two way, full motion, full color, electronic form of communications that permits two or more people in different locations to engage in face-to-face (real time) audio and visual communication. Meetings, seminars and conferences are connected as if all of the participants were in the same room (Compression Labs Incorporated, 1993).

Outsourced - Contracting outside a company for completion of work, rather than that work being completed internally in the company.

Outsourced Corporate Travel Agency - Contracting an outside (public) travel agency for planning the companies business travel needs.

Telecommunications - Voice, data and/or video communications via any transmission vehicle, including cable, microwave, and satellite. (Compression Labs Incorporated, 1993).

In-House - Located within the organization or company.

In-House Corporate Travel Department - A travel department located within a company. This department works solely for this company.

Downsizing - Reducing the number of employees in a company.

SPSS-X Program - It is the abbreviation of the Statistical Package for the Social Sciences. This is a computer program to process data gathered through questionnaires and result in statistical data.

Descriptive Research - Systematic analysis and description of the facts and characteristics of a given population or event of interest.

Corporate Travel - Travel by corporate employees to transact the organization's business.

NBTA - National Business Travel Association.

Direct NBTA Members - Any individual that is employed for the prime purpose to procure business travel services and/or promulgate and administer travel policies for an organization (NBTA, 1994).

Techno-tool - Tools people use to conduct business which are technology based. These tools are the results of the rapid pace of technology.

Corporate Travel Industry - The industry which includes travel by corporate employees to conduct business. Travel can be facilitated through airplanes, cars and trains.

Virtual - Being present in effect as opposed to being present physically, in body.

ASSUMPTIONS

Ideological:

An integral assumption to this study is that there is a measurable impact that videoconferencing has on corporate travel. Care will be taken to reduce the possibility of research bias in both the development and interpretation of the survey.

Procedural:

When conducting research it is important to avoid personal bias. To guard against my bias, the data for this study will be collected through an anonymous questionnaire sent to decision makers regarding employee travel. The recipients of this research survey will be members of the NBTA and will be selected by a random sampling technique.

The questionnaire will be designed in a manner which will yield objective data. Controlling questions will be used to account for the "halo effect" that may be present. Survey questions will be structured so they do not lead the respondent in a particular direction.

SCOPE AND LIMITATIONS

The scope of this study will be focused on management decisions for employee travel. The results of this study will be formed from a combination by research of written publications, collection of data and analysis of survey responses. This analysis will determine specifically the impacts, if any, of videoconferencing on the corporate travel industry.

All corporate travel managers or corporate travel agents are not members of the National Business Travel Association (NBTA). As a result, the information which is formulated through the survey will not represent all corporate travel managers or agents. The survey will only represent those corporate travel managers who consider themselves professionals in the field, who may be educated in the travel field and who have a career path in the travel industry. Only a random sample of this certain population will be surveyed.

This study is also limited in that attitudes and perceptions change over time. How a corporate travel manager perceives the impact of videoconferencing may change over the next 5 years (especially since technology is advancing at such a rapid pace). This study is an assessment at the present time. The results of this study are valid for the current information available.

PROCEDURES

The population for this study will be direct members of the National Business Travel Association (NBTA). I chose to survey only members of the NBTA for several reasons. The NBTA is a captive audience, they are easy to come in contact with, have a career path in the travel field and are decision makers for their corporate travel options. The direct membership of NBTA is approximately 887 corporate travel managers. Based on this population, a sample size of 269 direct members is needed for validity (Krejcie, 1970). The sample size, representing the U.S. and Canada, will be chosen by a random sampling technique.

The independent variable in this study is videoconferencing technology. The dependent variable is corporate travel. The intervening variable will be the degree to which videoconferencing effects management decisions regarding corporate travel.

Data for this study will be gathered through the use of a survey questionnaire. This mailed questionnaire will use a combination of likert-type format and check list format. A second mailing of questionnaires may be sent out if the first mailing does not yield a high rate of return.

The data received from the survey will be analyzed by the SPSS-X computer program. Correlational analysis will be done to compare and contrast variables.

LONG RANGE CONSEQUENCES

Should the findings of this study show that videoconferencing has a measurable impact on management decisions for employee travel, specific factors which influence the decision process will be identified.

Should the findings prove to be a null hypothesis additional research and study may be recommended.

CHAPTER II

REVIEW OF THE LITERATURE

INFORMATION TECHNOLOGY

The second revolution of the information age has begun. It will be as profound as the first revolution (computers) and ultimately change the world's concepts of communication. It will rearrange our views toward communication and information technology, and forever change the way we do business.

The second revolution will consist of a global paradox. Telecommunications is the driving force that is creating the huge global economy and making its parts smaller and more powerful (Naisbitt, 1994). As we drive toward this global inter-connectivity, the telecommunications industry will be explosive. Creative chaos will begin as we start to encompass telephones, televisions, computers and consumer electronics.

Four ideas must be implemented to reach the global paradox. First, a blending of technologies must exist. Telephone, television and computer hybrids have to be created. Also, there will be a shift from solving the problems of business with technology to empowering individuals with technology based communication networks. Technology will soon be individually-driven as opposed to business-driven. The bigger the world economy, the more important the individual players are. Companies that are competitive and endure over the next few decades will exist to not only meet

the business' communication needs but they also will meet the individuals' communication needs.

Secondly, strategic alliances must be created. Alliances between major communication companies will be formed. In this new global paradox, no single company can survive and be successful on its own. Alliances must be formed to meet the needs of the customer-driven information age.

Next, a global network must be created. A global web of networks (information superhighway) will enable people to be connected to anyone anywhere.

In the final phase, telecomputers must be widely available and in use. At home or at the office everyone will be able to send and receive communications by voice, data, image and video. Telecomputing will become decentralized, completely individualized and further erode the industrial era of corporate giants. Early in the information age of the 21st century, all the communication capabilities we could possibly need will fit in our desk, in our car or in the palm of our hand (Naisbitt, 1994). The tools we need to communicate will be portable, cheaper and lighter. The revolution will change the world and the way we as individuals function within this world.

Whether it be the information superhighway, interactive video/t.v., wireless technology, digital technology, online services or videoconferencing, we see that technology is going to take us many places. The list of

information technologies, hardware, and software is endless.

The buzzword of the 90's has been the "information superhighway." This is basically the creation of a global network. Clinton and Gore are definite proponents for creating a seamless, global telecommunications network of networks that will allow everyone in the world to be connected with everyone else (Naisbitt, 1994). This global web of networks will make it possible for individuals to communicate with anyone, anywhere, on this planet in real time. The application of this superhighway will alter the way we live, including work, play, but most of all, our perception of the world.

Recently Xerox introduced their version of the "document superhighway." The product and service development by Xerox will allow customers to create a global publishing network. Documents will be sent electronically for printing. Their initiative will be aimed at a growing market called print on demand, which allows people to custom-print documents as needed. It will also aid in the preservation of historical books. Books can be scanned and printed out on paper or archived on computer CD's. The document superhighway is digital, is networked, is worldwide and is a reality, right now (Lowe, 1994). The introduction of the document highway, by Xerox, could put them as one of the leading technology companies of the future.

Along with the "document superhighway", the "data superhighway" and the "electronic superhighway" are emerging. Companies such as US West and Time Warner have joined to strategically develop their version of the "electronic superhighway." Obviously, the "information superhighway"

has emerged and will be an underlying force in the development of technology for the 90's and beyond.

Digital pioneers are on the forefront of technology. They are introducing the land of "interactive content" (Rebello,Eng 1994). Interactive technology consists of wiring homes with fiber optic lines. Fiber optics would ensure interactive capability, along with enormous profits for technology companies. Interactive technology goes beyond the direct broadcast satellite system and gives us the digitization of cable channels, resulting in a 500 channel system and the digital networking system which utilizes phone lines. These interactive services would allow anyone to punch in codes for musical choices, video programs with holographic images and every imaginable "how to" and educational program (Whyte, 1994). This interactive computer link would enable business activities to become decentralized, allowing many people to work out of their homes.

How about shopping right from your living room couch? Interactive technology will allow you to do your shopping from either your T.V. or your computer. For example, car manufacturers are getting involved in the thick of interactive T.V. You as a consumer will be able to race against the advertised car while its advantages and benefits are explained to you. From your T.V., you can set up an appointment to test drive the car and be enthralled when the car arrives in your driveway moments later. This interactive technology will also allow you to check inventory, financing, and even fill out the paperwork.

Also, on the verge of interactive technology, is the CD evolution. Compact disks that we buy to listen to music merely hint at the potential of the CD's. CD-Roms (read-only-memory) were introduced and are beginning to replace instruction/user manuals, textbooks and other reference materials. The CD-ROM database will replace printed directories and the floppy disk. CD-ROM's can also replace standard videos. This readily available and fast-growing mainstream technology not only allows its users to hear and see the information but the user can manipulate the information. This manipulation allows users to jump around the disk at their own pace. CD-ROMs can be bought as external or internal add-ons to personal computers.

CD-R (recordable) allows the user to record information on the CD. There is the Photo CD which holds digital images from film based photography. The next step beyond the CD-ROM is the CDI or Compact Disc Interactive. The CDI has many advantages. The most prevalent advantage is that using the CDI requires no computer experience. The hardware can plug right into a standard television or monitor and it is relatively inexpensive. CDI offers interactive training capabilities, high quality video and is standardized worldwide.

Multimedia is another interactive mechanism. Multimedia is an entirely new generation of communication technologies with sophisticated audio and video capabilities (Naisbitt, 1994). At one end, multimedia means the addition of sound and video to personal computers. At the other end of the spectrum, it means the melding of technologies (Naisbitt, 1994). Computers combine the advantages of television, telephones, print and

computers. Along with sound and video, data is combined for an interactive, integrated system which is suitable for training and presentations. Multimedia is more than just high tech, it is high touch. It has touch sensitive monitors and pen based and voice activated computer systems. PC based multimedia allows a speaker to interact with images and sound effects while delivering a presentation. When multimedia is communicated in real time it becomes a form of videoconferencing. Multimedia is on the cutting edge of technology. The multimedia market will certainly be a billion dollar industry.

Specific aspects of online services are popping up in the information technology revolution. Internet and electronic mail have expanded the traditional online industry.

Internet is a computer network system. It is basically a communication system. To some, Internet is just a way to send electronic mail to one another, but for others, Internet is a way to communicate globally. Beyond electronic mail the Internet system allows you to transfer files, run programs on other computers, search for files and databases, conduct discussion groups, play games and talk to other users in real time. Organizations and universities are mounting local databases that are accessible over their networks and also accessible via the Internet. No one organization or association owns/runs the Internet system. There are various subnetworks that are in constant contact with the system.

The Internet system is making a huge impact in several areas. This

system is completely changing the way processes are completed. Internet will impact the education section, including library issues and student access, science, research, and the ultimate "information superhighway."

The Internet network can also be available in your home. No longer will you only be connected at your office. Having a Internet connection at your home is the wave of the 21st century. The future of Internet is limitless. Right now this vast inter-network supports over a million computers in 40 countries and 7 continents. There are approximately 25 million people logged on everyday (Gibbs, Smith 1993). By the year 2000, the use of the Internet system should grow tenfold.

Electronic mail is a creation of the information age. Basically, e-mail is new technology that may soon replace fax machines. E-mail is an online service that delivers information in real time and a system that will aid in making us a global society. Besides sending your e-mail through the Internet system, many companies have in-house electronic mail systems.

According to Naisbitt, today's e-mail is passive and dumb (1994). Naisbitt explains that coordinating the e-mail system with another computing language will expand its capabilities. After this connection, the e-mail message will be sent until the recipient receives the message. No longer will the e-mail message sit until the intended receiver retrieves it. The new system will send instructions as to where the message goes next if it is not received. A message might ask that it be sent to the recipient's secretary, pager, home computer or cellular phone. This new connection will

bring e-mail services right into the middle of the technology revolution.

Another facet of the information technology revolution is teleconferencing. It is the electronic advantage. Teleconferencing is a generic term referring to the use of electronic channels to facilitate real time communications among groups of people at two or more locations (Rakoske, 1994). Teleconferencing encompasses any sharing of information through a electronic medium. Video and audio based communications fall under the heading of teleconferencing.

Audioconferencing is a subset of teleconferencing. It is a system that allows participants to hear and be heard, but not to see and be seen by one another. Audioconferencing employs voice communications over a standard telephone line. The conference call using a speaker phone is a typical example of audioconferencing. There are two main benefits of audioconferencing. First, audioconferencing is inexpensive and can be conducted at a reasonable, affordable cost. Secondly, it does not take a significant amount of time for people to learn to use a audioconferencing system. Training to use this type of system is minimal.

Audiographic conferencing is audioconferencing supplemented with visual displays. This type of conferencing has the ability to transmit still images from one location to the other. Graphics can include computer images, documenting still frame video images, electronic tablet and facsimile transmission. Transmissions can be conducted through a single standard telephone line or over separate lines.

Business television is considered an aspect of teleconferencing. Business television has satellite distribution of video programs (usually live as opposed to prerecorded) from one organization point to numerous receiving sites (Rakoske, 1994). Interaction between the audience and the video material can occur via telephone calls, data response systems, facsimile or electronic mail. No interaction occurs through the actual video. Usually business television exists for private networks (government agencies, non-profit organizations, education segments and subscription networks).

Intel Corporation and Andrew Grove have been leaders in the technology revolution by steering the PC onto the information highway. Grove hopes that the new PC technology will help businesses work differently, to get information around faster than the competition (1993). Intel hopes to revolutionize the business of doing business. By jazzing up the PC with new application programs, hardware add-ons and design standards, Grove hopes to make it as useful for communications as it is for number crunching - an information appliance for the information superhighway (Hof, McWilliams, Burrows, 1994). The personal conferencing products will generate entirely new ways to use the traditional PC.

Intel Corporation has products that will help make the PC a great communicator. Digital Video format is data compression software which allows video playback on PC's without special hardware.

Proshare a personal conferencing software package lets users collaborate electronically. This software allows two people to work on the

same documents or drawings simultaneously.

Intel also has many communication alliances. Intel realizes that in order to be successful in this technology revolution, partnerships and alliances with communication companies are the key to success. Intel has invested money in VTEL, a videoconferencing company, Compression Laboratories, Inc., AT&T and Microsoft corporation. Projects are underway with videoconferencing, networking and phone companies.

Overall, Intel's PC technology saves time, money and the problems that arise when dealing with some eight time zones (Adam, 1994). The PC will subsume all the other office gadgets we depend on. Electronic mail, voice mail, fax machines and the Internet system will be incorporated into one machine - the PC.

VIDEOCONFERENCING

Videoconferencing is a two-way, full motion, full color, electronic form of communication that permits two or more people in different locations to engage in face-to-face (real time) audio and visual communication. Meetings, seminars and conferences are connected as if all of the participants were in the same room (Compressed Labs Incorporated, 1993).

The concept of videoconferencing is not new. To many people's disbelief the idea of videoconferencing has been around since the early 60's. In the 60's and 70's a few companies used closed circuit television to link

people from location to location. This type of telecommunications was expensive and limited in distance. As a result, these systems did not attract sufficient usage and did not remain in operation.

In the early 80's, videoconferencing was once again put into use. AT&T launched its Picturephone Meeting Service in 1982. These were the earliest public videoconferencing studios. Customers were able to reserve time in the pairs of studios they needed. The cost was determined according to the tariff based on time and distance. AT&T indicated that for users of its public conference rooms, the cost of a one-hour videoconference would range from \$2,380 between Los Angeles and New York to \$1,340 between New York and Washington, DC (Elton, 1982). At this point, videoconferencing was expensive and costly to businesses. The Picturephone Meeting Service was in operation for 3 years.

In 1985, AT&T shut down their videoconferencing studios. They believed that the service never really lived up to early expectations. Instead of abandoning public videoconferencing all together, they shifted directions and decided to enter into a joint venture with Hilton Hotels. AT&T would no longer operate its own videoconference rooms. Instead, Hilton Hotels would operate videoconferencing services in their hotel meeting rooms. This would enable participants to have access to basic amenities such as meal service, parking, lodging and 24-hour availability. At this point, videoconferencing began to emerge as a solution to some business problems. Even though the agreement between AT&T and Hilton has ended, some Hilton Hotels still offered videoconference services. AT&T was the first

telecommunications company to take the beginning step in the videoconferencing market.

In 1989, digital videoconferencing represented approximately \$230 million or about 29% of the total global market for teleconferencing. Half of the world's videoconferencing took place in the United States. In 1989, European countries represented 30% of the world market for interactive videoconferencing. Japan lead the Far East market in using the equipment, developing the technology and investing in U.S. firms that had already developed image communication technology (Douglas,1989).

In the early 90's, the use of videoconferencing continued to grow. The Persian Gulf War resulted in a huge increase in videoconferencing. The videoconferencing industry developed as the fear of terrorist attacks on airplanes increased and travel restrictions were enforced. UpJohn Company ran videoconference's practically around the clock. The demand for international satellite time caused videoconferencing to start as early as 5 am and be conducted on Saturdays (Freeman,1991). Sprint Communications Company also said that its videoconference network traffic tripled during the time of the Gulf War. As a result of the increased use during the war, videoconferencing's popularity resurged. Many videoconferencing networks stayed busy even after the war ended and travel restrictions no longer applied.

According to the North American Telecommunications Association, the videoconferencing industry had grown to \$ 1.3 billion in 1993. The market is predicted to reach \$ 6.9 billion by 1997 (Heather, 1994).

Videoconferencing has clearly arrived and is on the verge of becoming a mainstream business communication tool. Now groups of individuals can conduct face to face meetings. Facial expressions, voice inflections, graphics and computer generated data and images of objects can be easily shared using camera's, television monitors, an audio system, a video codec (hardware to transmit video signals over fiber optic telephones lines) and a digital telecommunications line (Douglas,1989). Videoconferencing will enable people to communicate long distance the way they are used to communicating in person, face to face, not just by voice or by memo.

The processes of videoconferencing are highly advanced. Conceptually the process, at the evolution of videoconferencing, involves an uplink (an earth station transmitting information to a satellite station) from the point of generation of the meeting. Then from the satellite (the receiving station) the information is down-linked (an earth station receives the transmitted data) to each meeting location (Price,1989). A satellite company or telecommunications company can provide these arrangements. It usually takes a lead time of one to two months to set-up a fiber optic connection between unlinked sites. Now, these satellite connections are used to reach remote locations.

Most videoconference communications are now transmitted over telephone lines. Images and sounds are converted to computerized electronic transmissions and sent via telephone lines to another location, where they are converted back to images and sound.

Many companies rely on the Integrated Services Digital Network (ISDN) service. It is a digital telephone system that can transmit data much faster than a regular line, and can handle voices, pictures and computer data at the same time. ISDN offers high speed data communication for people who cannot afford a super fast, fiber-optic line.

An ISDN line is divided into two digital circuits. Each can be used separately to carry up to 64,000 bits of digital data or combined they can carry up to 128,000 bits per second (Bray, 1995). ISDN can also carry computer data with very little distortion. Its digital system is more flexible. With the right hardware, voice and video signals can be converted into digital data, just like the kind generated by a computer.

The digits can be sent down the ISDN line. When they arrive at the other end, the computer sorts out the various digits. This enables the voice, video and computer data to each be presented separately. Basically, ISDN provides the road that the digital information can travel on.

There are two basic categories of video technology. The first is full motion video. This type of videoconferencing generally comes with one-way video and two-way audio. Two-way video capabilities are available at a higher cost. Full motion video offers high quality and is usually more expensive than compressed digital video. Full motion video is most useful for presentations to larger audiences.

The second type of videoconferencing is compressed digital video. One driving force behind the development of compressed digital video technology is Compression Labs Inc. (CLI). More digital information is transferable and compressed digital video is less expensive than full motion video. Digital compression is essential for managing the millions of bits of information video requires. When a video signal is digitized, clarity and quality is enhanced. This will eliminate any distortion that often affects video. Compressing the same video signal into a narrower bandwidth (range of frequencies in a signal) will dramatically reduce the cost of transmission. This two-way audio and video communicator is most appropriate for smaller interactive meetings.

More specifically, how does compressed digital video work? It begins with a codec (coder-decoder) sampling of the analog signal from a video camera. The signal produces a digital display format made up of thousands of picture elements. When the picture is digitized, video frames are divided into more manageable picture elements. These elements are divided into luminance/brightness blocks and chrominance or color blocks. The codec analyzes these blocks to determine which picture data should be sent to the receiving codec station.

Specific coding techniques have been developed to avoid sending parts of a picture that have not changed. Interframe coding is used to transmit small differences that occur from one frame to the next. Intraframe coding is used for major scene changes. The sending codec instructs the receiving codec to replace all previous data with the new data being sent (CLI,1993).

Once the coding is complete, the picture elements are reorganized into a more compact form that makes it easier for them to be sent. Finally, the codec encodes and sends the data to the receiving site where the information is decoded by a similar codec performing the entire process in reverse (CLI,1993). .

Compressed digital video technology was chosen as the backbone of videoconferencing systems. It acts as the catalyst for a new era of video communication. This enabling technology with its quality and cost advantages will facilitate enhanced communication in many video applications. But in order for organizations to use video as a communication tool, videoconferencing standards must be set.

In 1990, the Consultative Committee on International Telephone and Telegraph (CCITT) began to develop a series of worldwide standards. These standards would allow different brands of videoconferencing systems to communicate. These standards would also create universal videoconferencing and lay the foundation for standardizing a number of compressed digital video applications.

The initial standards from the CCITT established guidelines for picture quality, communication requirements for high and low bandwidth videoconferencing and audio standards for high bandwidth videoconferencing (CLI, 1993). These standards now bridge the gap between codecs of different manufacturers. They define a way to convert unique television signal formats into a common format. The development of

videoconferencing standards is one step closer to making videoconferencing a viable communication tool in the business community.

The volume of meetings that an organization conducts will affect whether the company has an on site videoconferencing facility or whether these companies outsource for their videoconferencing needs. Many larger corporations have on site facilities, or at least have the established links needed to hold a videoconference. Mark Lowenstein, Research Director of the Yankee Group, says that 50% of Fortune 500 companies have put in videoconferencing systems (1994). Meanwhile, smaller companies that have fewer meetings may use the network of independent public rooms.

Conference centers and some hotels have purchased satellite dishes. Hyatt Hotel corporation leases videoconferencing systems. Westin Hotels & Resorts and AT&T have teamed up to provide easy access to public videoconferencing services for businesses and individuals. The nationwide copy center, Kinko's, has begun to provide videoconferencing services by linking many of their stores with the Sprint videoconferencing network (Nigro,1994). The Kinko's located in East Rochester, N.Y. offers this service. It is the only Kinko's in New York State to have videoconferencing facilities. Universities, colleges, government agencies and hospitals sometimes make facilities available. Sites that do not already have the capability can be temporarily linked for special events.

The digital video revolution changes the way people work. Businesses are using videoconferencing to communicate. Videoconferencing systems

are creating enormous opportunities in all sorts of fields. Companies are using this technology to accomplish many objectives. Presently, organizations use videoconferencing for meetings, recruiting and training. But these are not the only uses for videoconferencing, lawyers and doctors are also getting into videoconferencing.

Many companies are utilizing this technology for one-on-one meetings, board meetings, multi-site meetings and short, to-the-point, frequent meetings (Solmo,1994). Companies also conduct product design meetings and sales and marketing presentations over videoconferencing systems.

Advertising agencies are using videoconferencing units to show storyboards to clients so they can get quick feedback and produce new campaigns rapidly.

More specifically, McDonnell Douglas Company has used videoconferencing meetings in order to work out design and management decisions along with problem resolution. They have linked up with other aerospace companies to discuss major contracts and product design.

Hewlett-Packard Co., has conducted sales and marketing applications over video technology. They have hooked up a sales representative and clients in one location and corporate or technical staff members in another location. A Hewlett-Packard spokesman stated that the communication medium "is being used by a lot of marketing managers to set up new

marketing strategies and campaigns.” This particular company also uses videoconferencing to communicate overseas to their sales representatives in their Hong Kong office. This allows them to exchange product information with their colleagues in other parts of the world (Bertrand,1991).

Recruiting is also going high-tech. Organizations are using videoconferencing to facilitate the hiring process. Videoconferencing will change the way people are hired. This will open up opportunities for small companies that could not afford recruiting trips to colleges. Videoconferencing will expand a company’s ability to hire the best young people. Technology will help revolutionize the recruiting and hiring process.

Interviewing job candidates via a videoconference system enables applicants and companies the chance to “meet” one another through the screen (Kelley,1994). Interviews are conducted as if they were in the same room. This enables companies the opportunity to see possible candidates first through the videoconference and allows them to get a better feel for the applicants.

Centigram Communications Corporation uses videoconferencing to search for and find future employees. Videoconferencing has allowed them to interview people who they might have had a hard time getting to see otherwise. Both the company and applicant have busy schedules, so videoconferencing affords them the chance to communicate without having to lose time from work. It is all part of time management. Many people that are interviewed for a job are very busy. If a company fly’s a candidate in for

an interview they are asking them to take half a day or maybe two days off from work. Many of the applicants are going to have an awful hard time doing that (Kelley,1994). Centigram Communications Company has found videoconferencing to be a successful way to recruit and hire individuals. If videoconferencing is used well, you can learn much about a person. Video technology has definitely taken a foothold in the recruiting process (Kelley,1994).

Companies are also using videoconferencing to facilitate employee training. A single trainer can preside over a number of satellite sites. The instructor at any time, can point to a specific person at one of the sites and ask them a question. Video training is not like watching a video of an instructor or reading a pamphlet, there is a high level of interaction. This interactivity allows for class participation, visual stimulation and a heightened attention level.

Management Recruiters International (MRI) has begun a program that trains all of its new hires by video. The trainer broadcasts from Cleveland. MRI is creating a strategic advantage for itself when it is in competition with companies that do not have this type of extensive videoconferencing system. Hewlett-Packard videoconferencer's report that interactive learning - complete with two-way sites, data interaction, and top-notch trainers - is equal to, if not better than, face to face learning (Solmo,1994). Companies who are going high-tech believe videoconferencing is a viable means for training.

Colleges and universities are getting into videoconferencing. Schools are using videoconferencing systems to provide courses at colleges that are too small or remote to hire a full-time professor. Video systems are in use to let students gifted in math and art take advanced courses that are not available at their schools. Videoconferencing allows them to receive advanced training so that they do not have to travel across the city each day to get to where the teachers are (CLI,1993).

More specifically, Texas A&M University's eight campuses use videoconferencing for meetings and for training purposes. This A&M system uses the technology to allow students to take courses offered on other campuses in the system. The great advantage to this medium is that it encourages participation and collaboration between distant staff who could not otherwise justify the time (Mangan,1991). The University of Wyoming and Arizona State University are also using compressed digital video systems to hook up their campuses. Many other colleges are getting into the thick of videoconferencing and as a result the number of higher education institutions using videoconferencing is growing steadily.

Law firms are taking advantage of videoconferencing by using the system for consultations with clients. Depositions are taken speedily, rather than having to take lawyers time and clients money for flying attorneys across the country.

The technical manager for the law firm Howrey & Simon, introduced videoconferencing to the firms lawyers last year. Now, virtually all of the

firm's meetings-from "State of the Company" addresses to managers meetings to clients negotiations - were switched to a videoconferencing format. Only 10% of their meetings need to be done in person as opposed to 40% a year ago. This enables their offices to communicate weekly, rather than monthly, thus increasing their efficiency, communication and decision making (Solmo,1994).

Those in the health care field are also using videoconferencing systems to complete their work. "Telemedicine" according to Loui Moffitte, a Telecomm consultant, is gaining recognition (1993). Medical care, remote diagnostics by video, is an advantage especially for people who are physically unable to travel to a healthcare facility.

Videoconferencing is being used by doctors for consultations. A specialist can use a videoconferencing system to consult with a small town doctor who's patients' illnesses are beyond local expertise. In the future, networks of video communication systems in health clinics will be used so a "virtual" doctor in a remote location can offer their expertise in consultations and in examining patients x-rays (CLI,1993).

Videoconferencing has also been used to implement the ultimate virtual community. Xerox corporation has linked two of there offices together by a videoconference system. Wall size monitors have been installed in common rooms of their Palo Alto and Oregon sites. People at one site can walk into the common room, notice who's in the other site's room and strike up a conversation. Even though this can result in informal

videoconferencing of fellow employees, it also extends the possibility of ongoing information exchange.

The corporate law firm, Howrey & Simon, have videoconferencing systems that they leave on all the time. The videoconferencing system is in constant usage. The room is so popular that people have a hard time getting into it.

More and more organizations and individuals are using videoconferencing to facilitate their communication needs. Videoconferencing has already started to change the way companies do business. Companies are beginning to realize that it is more efficient to transmit images and ideas than it is to move bodies.

One of the biggest advantages to videoconferencing is the money that companies are saving in travel costs. Key Services, a division of KeyCorp, had saved \$372,000 in travel expenses in one month alone (Solmo, 1994). In 1990, Unisys Corp. held 962 videoconferences and realized a net savings of \$2.7 million in their travel budget. Publishing giant *Reader's Digest* cut its travel expenses by \$630,000 in 1992 by using its 12 videoconferencing rooms (Successful Meetings, 1994). Hewlett-Packard estimates it saves \$15 million to \$20 million a year by using videoconferencing. These cost savings are substantial.

But, are these slashed travel expenses true savings, or has the money been allocated toward videoconferencing equipment costs? Actually,

Hewlett-Packard recouped the \$1.5 million equipment installation cost at one office site in eight days alone by reducing travel expenses to almost nothing. Also, most video users swear that the equipment easily pays for itself in travel savings. Overall, observers of the technology revolution predict that in 15 years, about one quarter of travel will be cut in favor of video (Successful Meetings, 1994). Videoconferencing saves the cost of flying everyone involved in a project to one place.

Videoconferencing saves more than just travel costs. It saves on the cost of time spent out of the office and doesn't disrupt the employees work schedule. Can you put a price tag on that? Operating costs can also be reduced by making an employee's work location irrelevant. Labor costs decrease and that does have a definite bottom line effect.

Through videoconferencing, businesses can become more efficient and effective. The most important benefit is increased productivity. Videoconferencing has allowed executives to meet more regularly in face to face situations. Meetings can be assembled more quickly. It allows organizations the opportunity to have meetings on the spur of the moment that they could not have had otherwise.

Videoconferencing is user-friendly and can create a strategic advantage for a company. Videoconferencing is conference on demand. Videoconferencing enriches the creative process because it gives more people input. Usually when people travel for business reasons not everyone involved in the project goes to the business meeting. When a company uses

videoconferencing more people are able to be involved in the meetings. You usually can get all the right people present at both ends.

Communication is improved through videoconferencing. More information can be exchanged between company and client and between departments within a company. The benefit is that the information is delivered in real-time. Information no longer has to be delivered after the fact. Companies are also able to arrive at better decisions more rapidly. It is obvious that through videoconferencing information can be disseminated more quickly, decisions can be reached faster and critical situations can be resolved in a fraction of the time. It is a tremendous vehicle for client communication (Wells, 1993).

The lingering fear of terrorism in the early 90's pushed many companies to find an alternative to travel. Some corporate executives believe a substitute for travel has been delivered. Videoconferencing is safer and the alternative to air travel. It is the best alternative to combat higher airfares, time consuming trips and reduced travel budgets in companies. It may not be like actually being face to face with a colleague but it is the closes option to it. Bob Silver, Compression Labs Incorporated Vice President of Marketing, stated "if the alternative is not meeting, it's a great choice" (1994). Videoconferencing is an option for companies to use as a communication medium. If companies do not have travel funds, the manpower or cannot spare the time out of the office, videoconferencing may be the next best thing to being there.

Another advantage to videoconferencing is the fact that equipment prices are falling and advances in technology are continuing. More and more organizations are considering videoconferencing to fulfill their communication needs because it is economically feasible. This technology is appealing for many companies because the equipment prices have sharply decreased. "All the prices are falling into place for videoconferencing to make its big push, codec technology has made enormous improvements and systems are finally affordable for businesses large and small alike" stated Loui Moffitte, a Telecomm consultant. Even videoconferencing carriers are offering attractive rates to clients. Three years ago, a fully equipped videoconference room cost approximately \$125,000 now that same room can be assembled for about \$50,000 (Mangan,1991). Also codecs, the hardware to transmit video signals over fiber optic telephone lines, cost about \$30,000 down from more than \$100,000 a few years ago (Freeman,19 91).

Improvements in videoconferencing technology are also adding to its appeal. Video information compression improvements have reduced the need for high bandwidth digital circuits. Now, images can be computerized to electronic transmissions and be sent over telephone lines. Enhanced video quality is also a result of refinements to video technology. Videoconferencing technology is becoming increasingly efficient. As a result of these advantages and benefits, many organizations believe that videoconferencing is a highly effective option.

Along with the benefits of videoconferencing, there are obstacles to its further growth. Overall, there are four disadvantages to videoconferencing;

cost, lack of hardware capability, people's resistance to technology and the inhuman touch of video communication.

Videoconferencing is a great technology but it is expensive (Strazewski,1995). A reduction in price is needed in order for videoconferencing to reach its potential. Cost will be the chief drawback until it can be decreased and competitively compared to the cost of an ordinary phone service. Many companies are looking for a service that can justify the expense of the hardware, satellites or telephone lines.

David Jackson, VP of Legal Image Network Communications, believes it is cost-justifiable to use videoconferencing for a two to three hour disposition. However, it is cheaper to fly for a full day to New York (1991). Why use videoconferencing when an employee can personally fly to meet a client for half the price. The company spends less money on travel/communications and increased quality time with clients.

Not only do the initial videoconferencing costs need to decrease but so do the cost that will be incurred by companies trying to stay on top of the latest in video technology. What a company buys today to produce a videoconference may need to be changed and updated next month. It will be extremely expensive for an organization to always have the latest and best equipment for this communication medium. In times of cutting costs and downsizing, it will be risky for companies to buy an expensive operations tool only to find it obsolete and useless in a short period of time.

Basically, videoconferencing costs need to continue to decrease. If not, organizations will begin to use other means of communication, leaving video technology in the dust.

Another disadvantage to videoconferencing is the lack of conference capable environments and applications. Specialized hardware and dedicated high-capacity communication lines are needed. User's choices are limited because only certain digital networks are available.

The lack of ISDN implementation is also a barrier to widespread acceptance of videoconferencing. When ISDN becomes readily available high transmission rates will be more accessible. Presently, low transmission rates are in use limiting motion video codec technology.

People's resistance to technology is also an obstacle to further videoconferencing use. People are confused about technology and are resistant to change. Some people are just now learning to use voice and electronic mail. Video technology can be quite challenging for those who are just beginning to step into the technology revolution.

Even those who participated in the early videoconferencing trails may be resistant to use videoconferencing now. Bad experiences in the beginning may result in a reluctance to try the new and improved videoconferencing systems.

There is also the issue of camera-shyness. The wonder of videoconferencing stems from the idea that every participant is essentially creating live television. That can be a lot of pressure for those unaccustomed to being in front of a camera. Sherri Goodwin, public relations specialist for VTEL, states "most users are intimidated during the first fifteen minutes or so, but after that, they forget about the cameras and talk to one another normally" (1994). Nevertheless, camera shyness can be a barrier to using videoconferencing.

The final obstacle to videoconferencing is the fact that there is no human interaction between parties. Is communicating through video means as good as being there? Some researchers feel that to sell an idea or product you really want to meet, greet and close the prospect in person (Ross,1994). Through videoconferencing, that is impossible. There are some things you just need to do face-to-face. Videoconferencing works great for transactions requiring less warmth, but it is not the same as conducting business a few hours over dinner (Solmo,1994).

The nature of communication will remain immutable because people do not relate to machines or even to computerized images of people (Conlin,1994). There is no way to replace human interaction or the power that human interaction possesses. People relate to people and will always want to meet face to face to exchange information. Videoconferencing will no doubt enable people to bring more information to the forefront and to improve the exchange of ideas. However, machines or new technologies cannot take the place of the personal interaction.

The video technology industry is booming. The future for image communication looks bright. A notable exception is that both videoconferencing products and the networks they rely on need to increase in performance and availability and need to decrease in cost (Douglas,1989). Corporate procedure and meeting etiquette would have to change in order for videoconferencing sessions to be effective. Changes to this degree can be difficult to put into play (Abernathy,1994).

IMPACT ON THE CORPORATE TRAVEL INDUSTRY

From this review of information technology, we can see that the second revolution of the information age is explosive. Everyday new technology is introduced and the horizon of information technology appears to get wider. The breakthrough in video communications will come when televisions, computers, videoconferencing equipment, videophones etc. all speak the same language (Naisbitt, 1994). From the information superhighway to videoconferencing, the technology of today is effecting every industry worldwide. We are able to see that the information revolution is off and running, but what effect will it have on the corporate travel industry? What impact will videoconferencing have on management decisions for employee travel? What impact will those decisions have on in-house corporate travel departments or outsourced corporate travel agencies? Will the corporate travel industry slowly dissipate or will the technology of today and beyond enhance the industry? Will their jobs be taken over by computers and videoconferencing systems? These are some of the questions that those involved in the corporate travel industry are asking.

Currently, the overall view is that corporate travel managers do not see videoconferencing an imminent threat to business travel. However, they are leaving the yellow light on (Brisson,1994). Researchers are ambiguous about the degree to which corporations are looking for videoconferencing and other technologies to take the place of travel.

Most travel managers and executives have attached some importance to technology. They have indicated some need for videoconferencing services within the next five years. According to a survey conducted by DYG Inc., 87% of the executives and 85% of travel managers predict their companies will have some videoconferencing activity to coordinate (1994).

Many corporations are making investments in communication companies. PictureTel and VideoTel are being heavily invested in. This type of investment is becoming more and more common in corporations.

In the meantime, many organizations are moving rapidly to install their own videoconferencing equipment. Canon U.S.A. Inc., has plans to install videoconferencing in all of their U.S. offices. Apple Computer Co. has installed seven videoconferencing rooms, six in the U.S. and one in their Paris office. Apple averages 80 videoconferencing hours monthly. Allied Signal used AT&T videoconferencing equipment to connect their offices. Presently, they have 72 locations equipped to conduct videoconferencing. These are not the only organizations that have jumped on the videoconferencing bandwagon. Most Fortune 500 companies have videoconferencing facilities. It is predicted that by 2010 there will be

videoconferencing equipment in all departments of large companies in the U.S., and that by 2030 all executives will have a flat screen above their desk that will be large enough to see six other people and a digital fax to send them documents (Clery,1993).

Some companies are revising their travel policies to include technology. The Lake Success marketing company, for instance, added to their travel policy that videoconferencing should be considered instead of travel whenever possible. Canon's travel manager, Barry Friedman, uses the key phrase "Travel Smart" (1994). It means travel only when you need to and utilize existing technology when practical. They are establishing alternatives. The idea is not necessarily to cut travel spending, but to direct as much travel spending as possible toward marketing and sales (Brisson,1994).

According to the survey conducted by DYG, Inc., travel managers do not see a job role for themselves in the videoconferencing trend. Corporate travel managers risk letting an opportunity turn into a threat. They must be aware of the new technologies and take advantage of what these technologies have to offer. If travel managers think their companies are not going to be involved, that's a mistake (Brisson,1994).

Most organizations are getting into the middle of the technology revolution. Corporate travel managers must become knowledgeable about the technology that can enhance their job performance. The choice is this, the corporate travel manager can be part of the technology revolution steamroller or part of the pavement. The corporate travel manager who becomes literate

in the use of the new technology will be far more valuable to his/her company and far more marketable in the industry. The sooner the corporate travel manager starts, the sooner they will be driving down the high speed lanes of the electronic superhighway (Hoffman, 1994). People should think of videoconferencing as a way of expanding their roles as travel planners and decision makers, of saving executives time and companies' money, and of allowing as many people as possible to fit into an environment in which ideas are exchanged with meaningful outcomes (Carey, 1994).

Another perception of videoconferencing's impact on the corporate travel industry is that videoconferencing will be a substitute or alternative to corporate travel. A study conducted by Arthur D. Little Consulting Firm, suggests videoconferencing will be a substitute for 13 - 23% of business related travel by 2010 (Hughes,1993). The type of travel most likely to be affected are ones involving employees visiting their company's other U.S. locations. No one is saying that videoconferencing will totally take over the corporate travel industry. It is believed videoconferencing will supplement travel rather than replace it. However, both companies and corporate travel managers must begin to prepare for changes that will occur. Since corporate travel managers are going to be substituted by technology, companies must address the changes and impacts in their strategic business plans. Business plans will need to be revised and altered to allow for the technology revolution.

While some researchers believe that videoconferencing will be an alternative to corporate travel, others believe that videoconferencing will

result in more business travel than ever. Relationships are the essence of business life, and people who become acquainted by wire will inevitably want to meet in person (Saffo,1993). Videoconferencing may spare biweekly trips to our supplier's Singapore plant, but if we had not traveled there regularly to begin with, the relationship might never have gotten off the ground. Now since the relationship exists and is sustained by communication links, we are free to arrange other transatlantic trips (Saffo,1993). Short term travel may have found an alternative, but in the meantime it increased long term travel opportunities. Since travel has become more manageable, companies will be traveling more than ever.

Obviously, changes will occur within the corporate travel industry and technology will be a underlying cause. Technology can enhance the industry for both the corporate travel manager and their clients but it will alter the way the travel industry conducts business. Researchers are just beginning to conduct studies regarding technology and its impact on the corporate travel industry. Yet to be determined are the full effects the industry will endure as a result of the technology revolution.

CHAPTER III

METHODOLOGY

This study was conducted to identify the impact (if any) of videoconferencing on management decisions for employee travel. The methodology used in this study consisted of an identification of the population and sample, instrumentation - construction of the questionnaire, period of data collection and method of analysis.

POPULATION & SAMPLE SIZE

The population of this study consisted of members of the National Business Travel Association (NBTA). I chose to survey only direct members of the NBTA because they are the individuals who are employed for the prime purpose of procuring business travel services and/or promulgating and administering travel policies for an organization (NBTA, 1994).

According to the 1994 NBTA directory, the direct membership is 887 corporate travel managers. Based on this population, the sample size is 269 direct members (Krejcie, 1970). The sample size of NBTA direct members represents both the U.S. and Canada.

A systematic random sampling technique of the population was conducted. The NBTA direct members list was alphabetized according to corporation name with corresponding travel managers name. Every third

company in the membership list was selected until the population size of 269 was reached. Earl Babbie's, Survey Research Methods, was used to decide the sampling method.

THE RESEARCH INSTRUMENT

A survey questionnaire was used to gather data for this study (see Appendix A). The response format developed for the questionnaire used a combination of both the likert-type format and the checklist format. The survey questions were separated into four areas.

The first section was created to qualify, if participants were users of videoconferencing. Respondents were asked to circle either yes or no to answer these questions.

The second area was to gain insight on users perceptions of videoconferencing. The third section was developed to determine participants reactions toward future use of videoconferencing, both users and non users of videoconferencing were required to answer these questions. These sections used the likert-type response format. This format is specifically designed to allow participants to respond in varying degrees to each item (Hayes, 1990). The likert-type format ranged from strongly disagree to strongly agree. The scale was the following:

SD D DK A SA

1 - Strongly Disagree (SD)

2 - Disagree (D)

3 - Don't Know (DK)

4 - Agree (A)

5 - Strongly Agree (SA)

Respondents circled the number on the continuum that indicted the extent to which they disagreed or agreed.

The last area was used to gather general information on participants of this study. These questions were designed to assemble comprehensive information. Their main purpose was to collect additional data and insight, enabling a better understanding of the responses. This section used the check list response format.

Overall, the questions created for this study were developed to gain insight on the impact videoconferencing may have on management decisions for employee travel and the effects that those decisions will have on corporate travel departments or corporate travel agencies. Specifically, the questions were developed to gather information regarding strategic planning, economic development, employee growth and customer satisfaction (internal/external) within a corporate travel department or agency. The questionnaire was not pilot tested. However, research was conducted to determine how and what types of questions to ask.

The specific questions related to each area of interest are as follows:

<u>Topic Areas:</u>	<u>Question #:</u>
Strategic Planning -	1, 6g, 6i, 6j, 7e, 7f
Economic Development -	2, 6e, 7a, 7b
Employee Growth -	6b, 6c, 6d, 6h, 7c, 7d
Customer Satisfaction -	3, 4, 6a, 6f

Questions 5, 8, 9 were developed to determine participation in videoconferencing, corporate travel managers length of service and corporate travel budgets. Question 5 (participants in videoconferencing) will be used as the basis for correlational analysis. Questions 8 and 9 will be used to gather general information on respondents of this study.

PERIOD OF DATA COLLECTION

The first mailing of 269 questionnaires were sent to the samples on January 13, 1995. The questionnaires were mailed according to the addresses documented on the NBTA 1994 Membership Directory.

Besides the questionnaire, each mailing included a cover letter (see Appendix B) and a self-addressed, stamped return envelope. The cover letter was signed by the graduate student (project director) and chairman of the graduate project, a NBTA member. Also, included in each mailing was one packet of herbal tea. The tea was enclosed as a token of appreciation for participating in the study and as a motivator to increase the number of survey responses.

The time period given for the questionnaires to be returned was 13 days. By the end of this time, 79 (29.36%) surveys were returned. Four of them were returned indicating they were inapplicable and therefore, they were documented as blank responses.

As a result of the low response rate from the first mailing, a second mailing was compiled. A revised cover letter was created and another copy of the questionnaire was included in this mailing (see Appendix C). A packet of herbal tea was not sent in this mailing.

The original mailing of questionnaires was not coded to track the returned responses. The only indication of an individual returning the questionnaire was if they included their business card. Business cards were requested if the respondent was interested in receiving an executive summary of the study's findings. As a result of the inability to track the returned responses from the first mailing, the second set of questionnaires were sent out again to everyone in the selected sample. The only individuals excluded were those who had returned business cards. As a precaution to receiving another low response rate, the questionnaires in the second mailing were coded numerically. Thus enabling a tracking device if a further mailing was needed.

The second set of questionnaires was sent out on January 30, 1995. These were requested to be returned within 16 days. Within this time, 65 surveys were returned and answered. Two surveys were returned unanswered and recorded as blank responses.

After both mailings a total of 146 questionnaires were returned, yielding a 54.27% response rate. The total number of responses returned and answered was 140. The number of responses returned but not answered was 6. These 6 questionnaires were documented as blank responses.

The response rate was satisfactory and a third mailing was not required.

METHOD OF ANALYSIS

After receiving an adequate response rate, all data was analyzed by the SPSS-X computer program. Each survey was coded numerically for statistical purposes. This statistical program used the frequency of an answer to obtain a valid percent and determine the mean, median and mode of each question. The computer program generated further statistics to prove validity. Correlational analysis of specific questions was conducted to compare and contrast variables.

Bar graphs and pie charts are used to show the results of the impacts of videoconferencing on strategic planning, economic development, employee growth and customer satisfaction of corporate travel departments or agencies. They are also used to show the results of the demographics and general information that was gathered.

CHAPTER IV

RESULTS AND FINDINGS

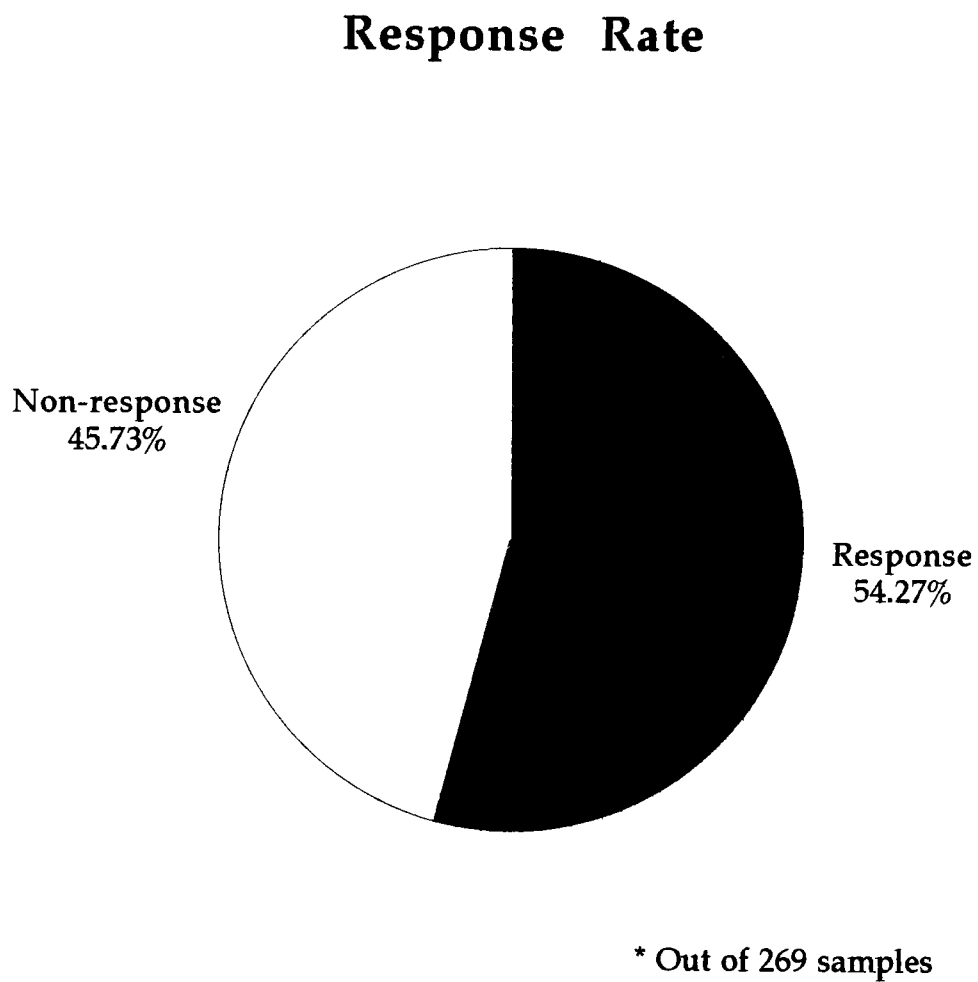
The survey instrument yielded general information along with figures regarding the impact of videoconferencing on corporate travel departments and agencies. Respondents identified their reactions and perceptions toward the four topic areas; strategic planning, economic development, employee growth and customer satisfaction.

Through the survey, 146 responses were received. Out of the 146, 6 responses were returned unanswered and not applicable to the study. Therefore, the response rate was 54.27% and the valid response rate was 52.04% (figure 1 and figure 2).

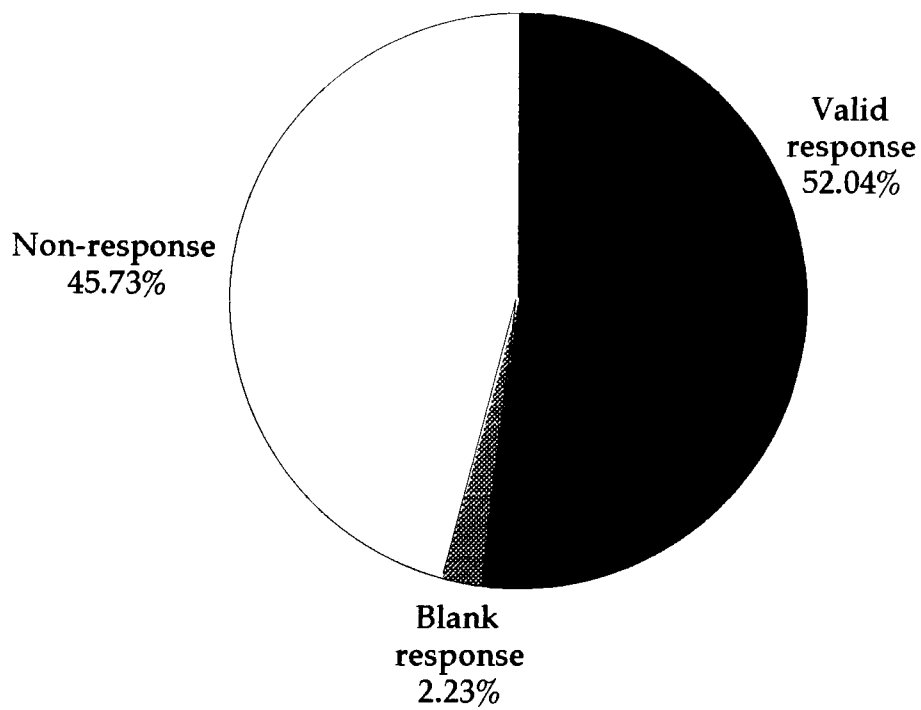
The number of years varied that respondents have held the position of corporate travel manager. Answers ranged from 1 year to 35 years. The majority of respondents have been corporate travel managers for either 3 years (13.6%) or 6 years (13.6%) (figure 3). Of the respondents, 57.9% claimed to have a corporate travel budget of \$7,500,001 or more (figure 4).

The majority of respondents have been participants in videoconferencing or the companies employees have been participants in videoconferencing. An overwhelming 70.7% of those surveyed have come in contact with videoconferencing. Only 29.3% have not been involved with this technology (figure 5). The survey also focused on the four topic areas.

Figure 1



Valid Response Rate



* Out of 269 samples

Figure 3

Years as Corporate Travel Manager

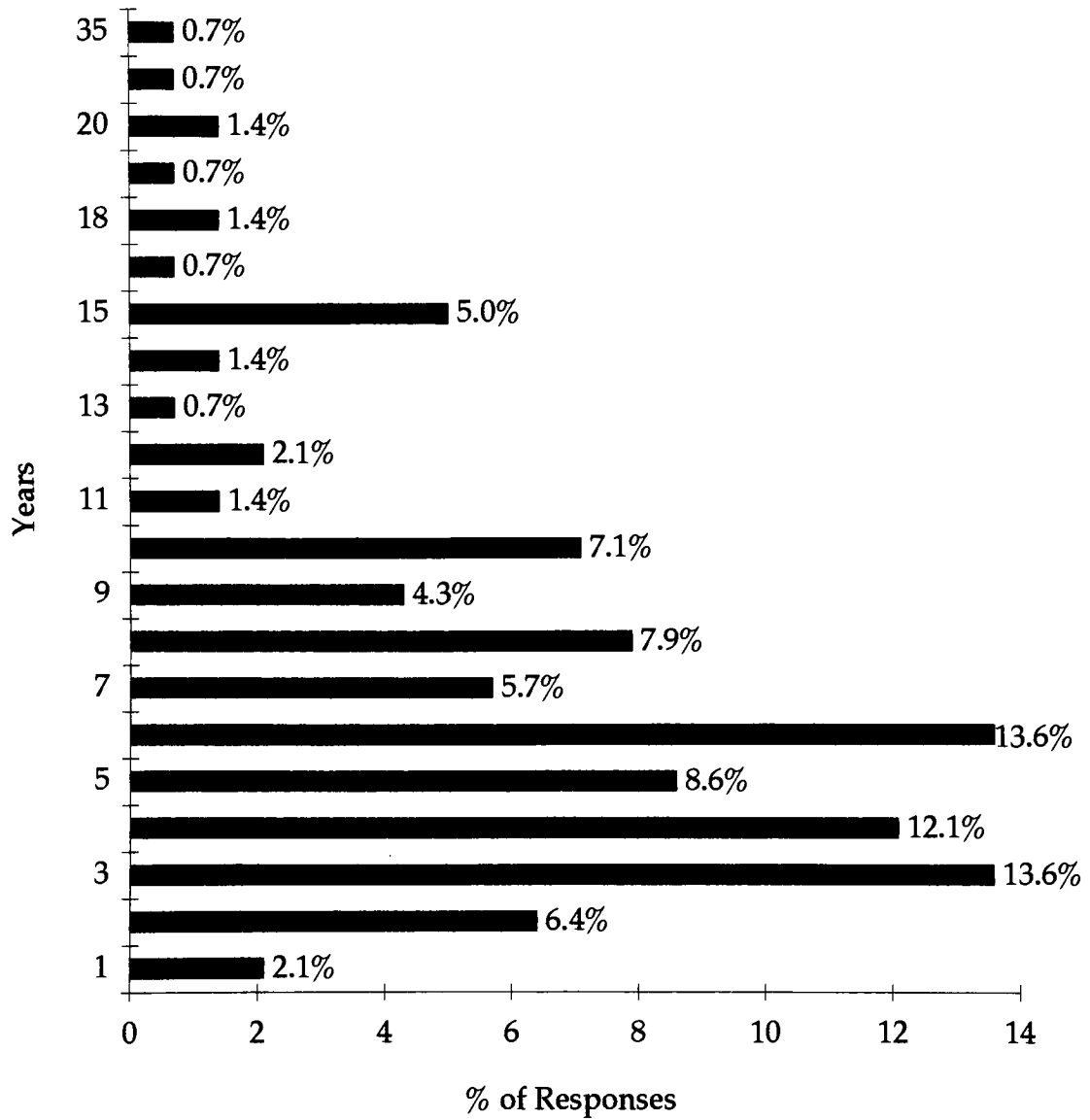


Figure 4

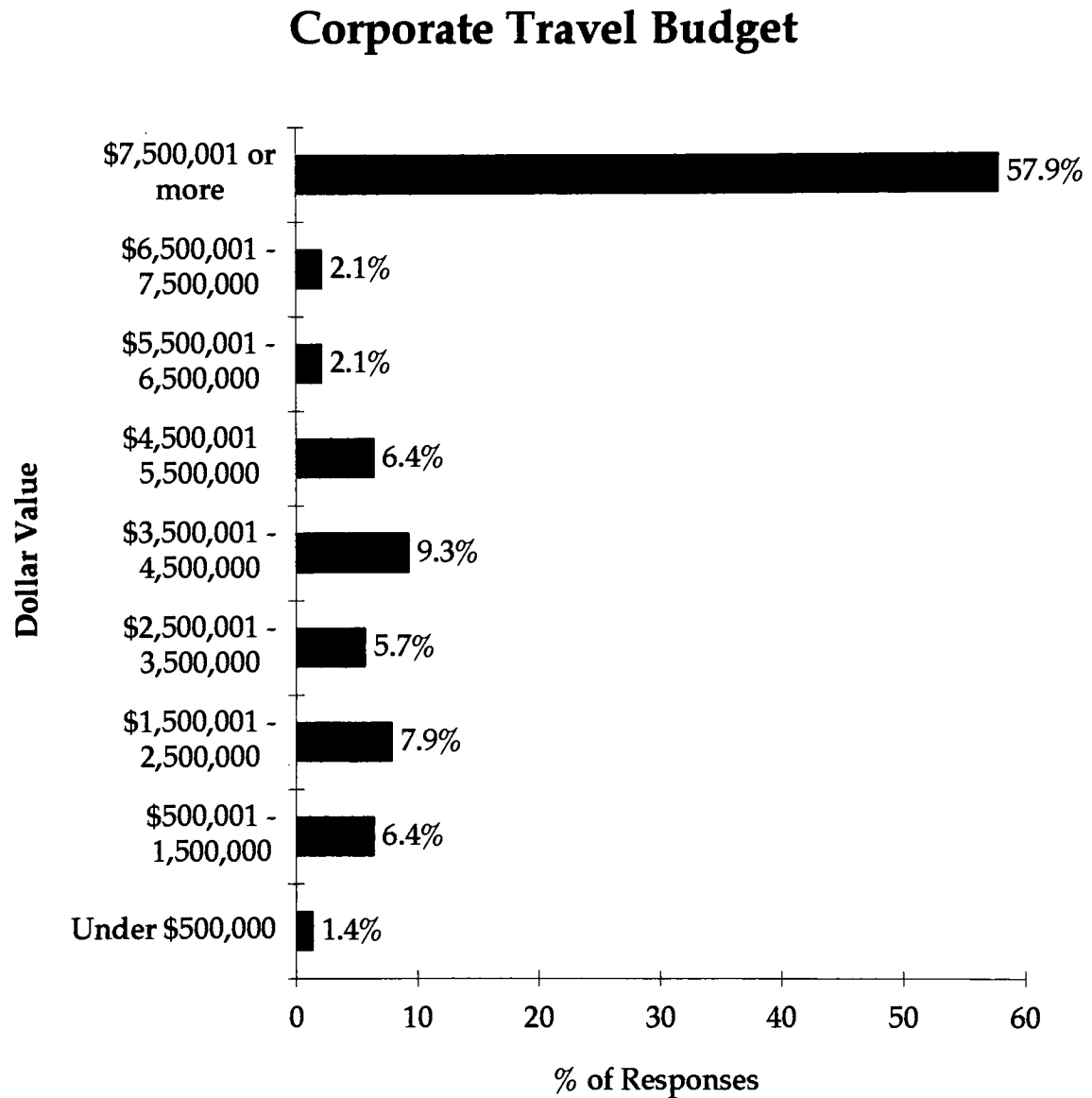
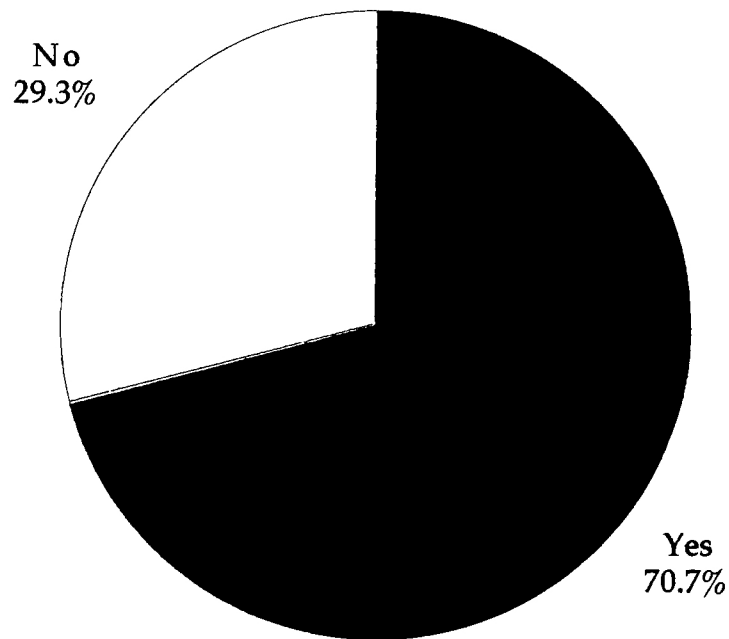


Figure 5

Participants in Videoconferencing



STRATEGIC PLANNING

Questions 1, 6g, 6i, 6j, 7e and 7f (see Appendix A for survey questions) were used to identify impacts videoconferencing may have on a corporate travel departments strategic plan.

Overall, 71.4% of all respondents' companies support the use of videoconferencing. This could mean that they are aware of videoconferencing and approve of technologies that aid them in conducting business (figure 6).

The majority of participants, 32.9%, agree videoconferencing decreases the number of employees who travel between divisions within an organization (figure 7). Also, 43.6% agree videoconferencing is an alternative to employee travel (figure 8). When asked if videoconferencing replaces corporate travel by company employees, 30% disagree and 19.3% strongly disagree (figure 9). Corporate travel managers believe that videoconferencing is an alternative to travel but do not believe that videoconferencing replaces corporate travel.

The participants were also surveyed to see if videoconferencing would impact the future of corporate travel departments or agencies. Among the respondents, 43.6% agree videoconferencing will decrease the number of employees who travel between divisions within an organization (figure 10). Presently, 32.9% agree videoconferencing decreases travel between divisions within an organization, 43.6% believe that it will decrease travel in the future.

Figure 6

Company Supports Use of Videoconferencing

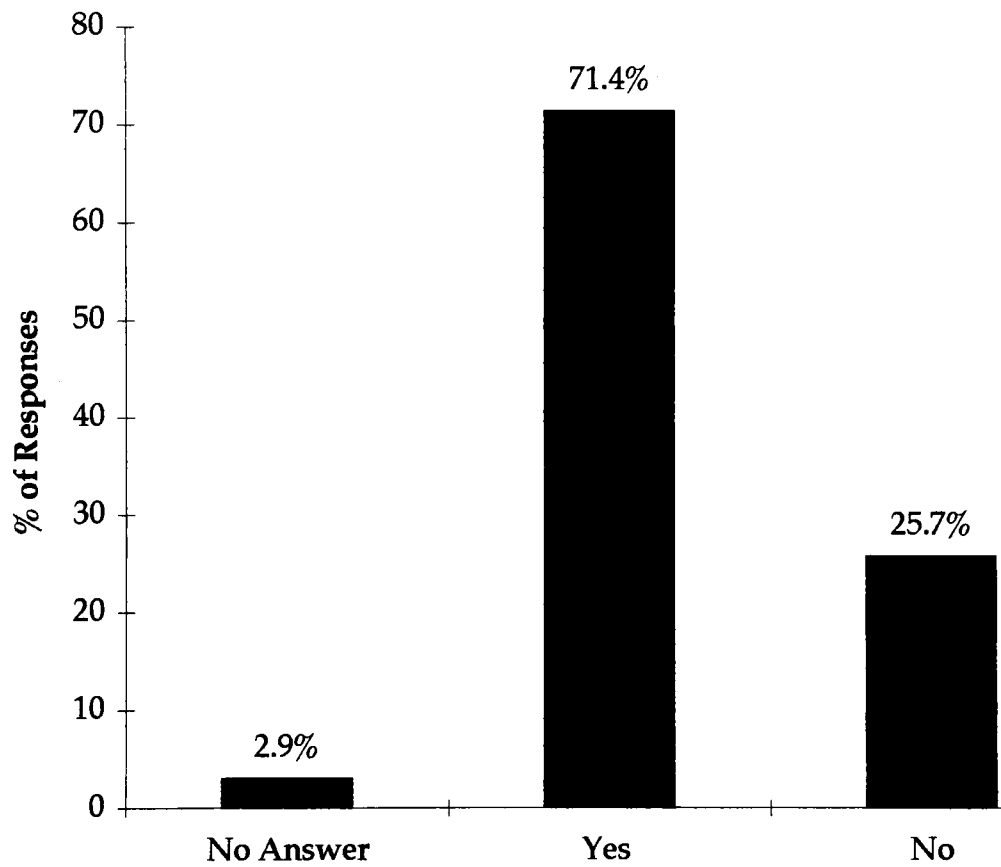


Figure 7

Decrease in Employee Travel between Divisions of an Organization

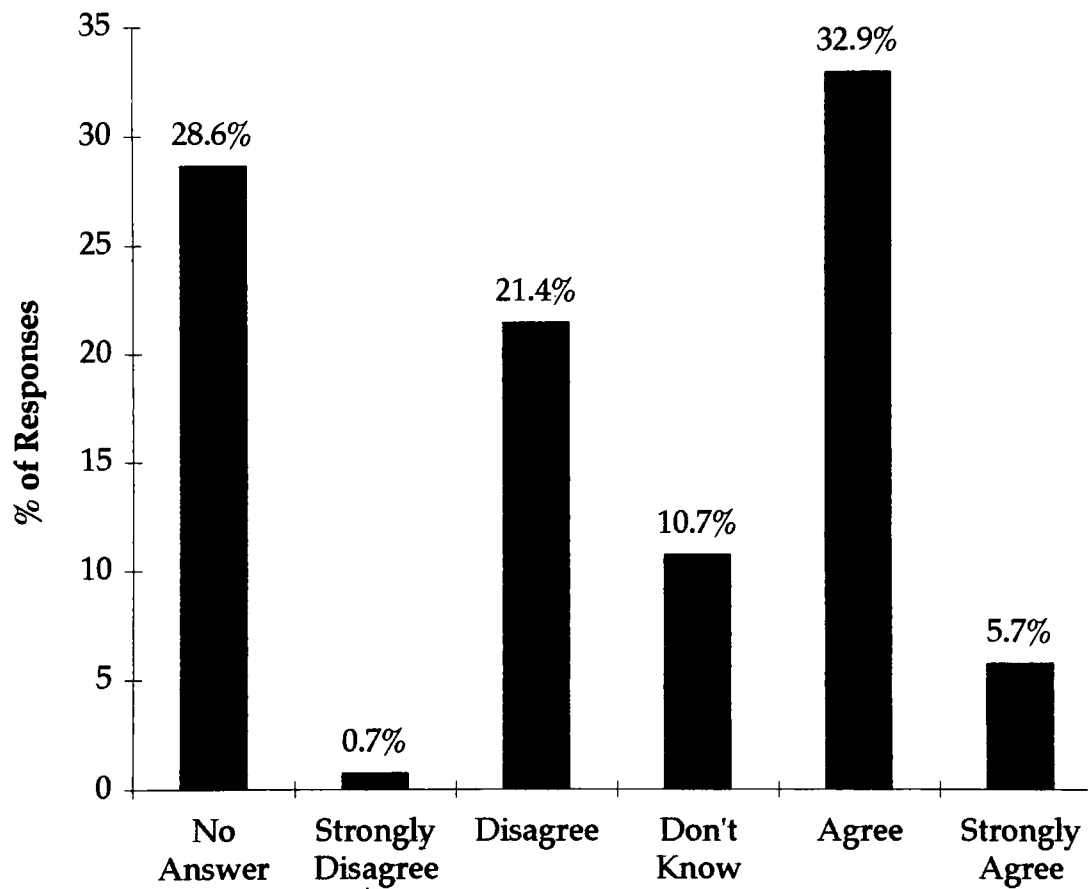


Figure 8

Alternative to Employee Travel

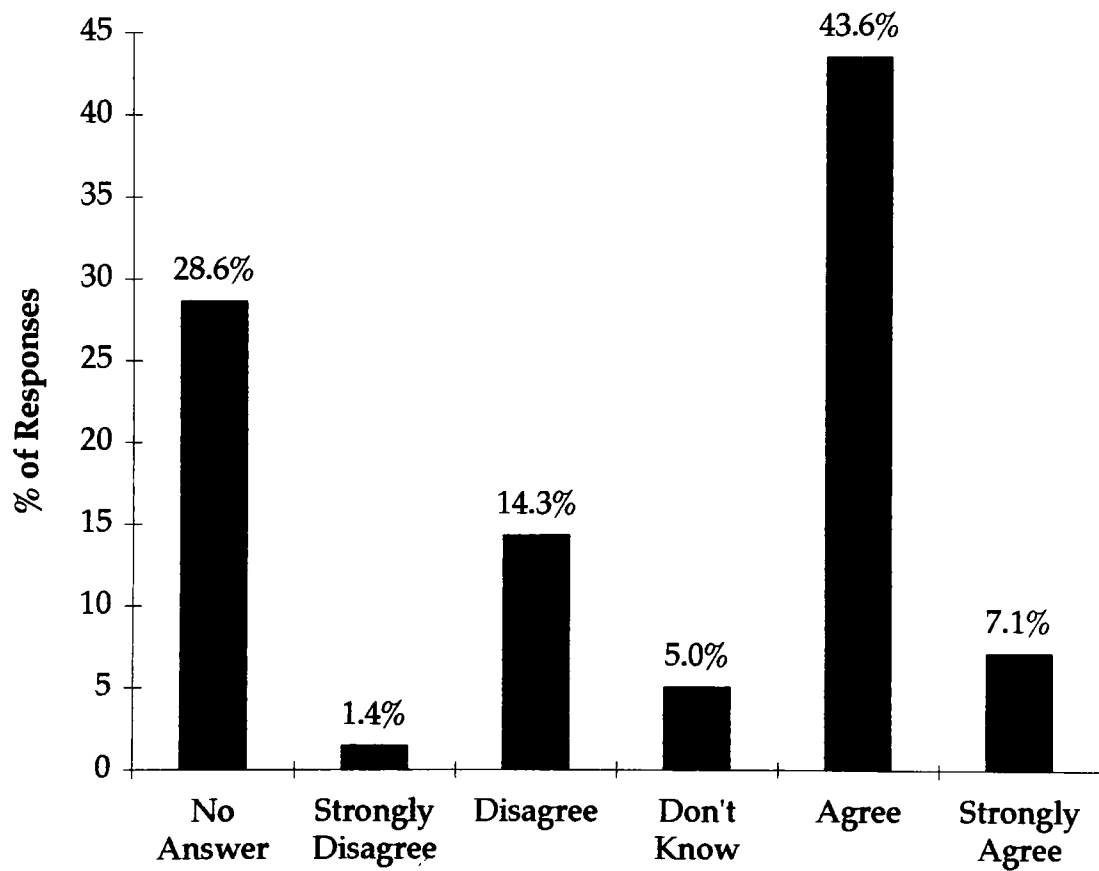


Figure 9

Replaces Corporate Travel

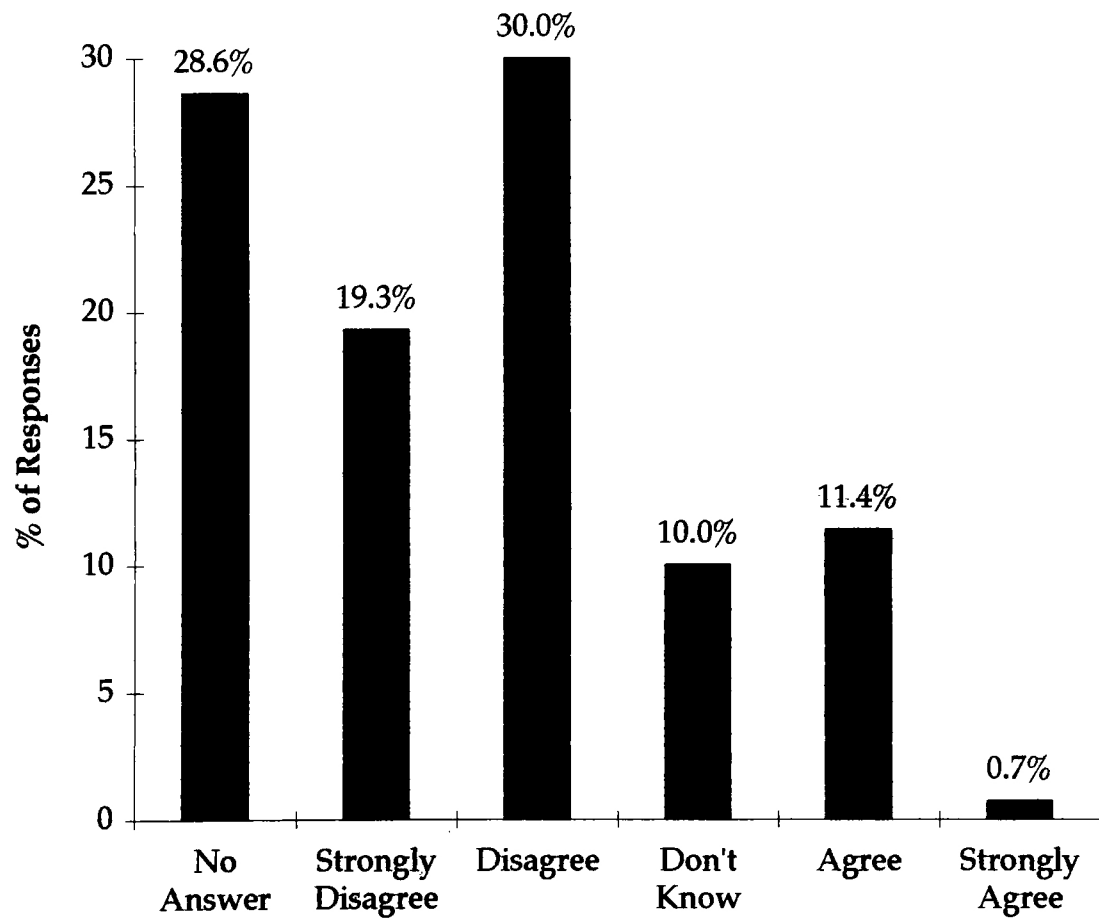
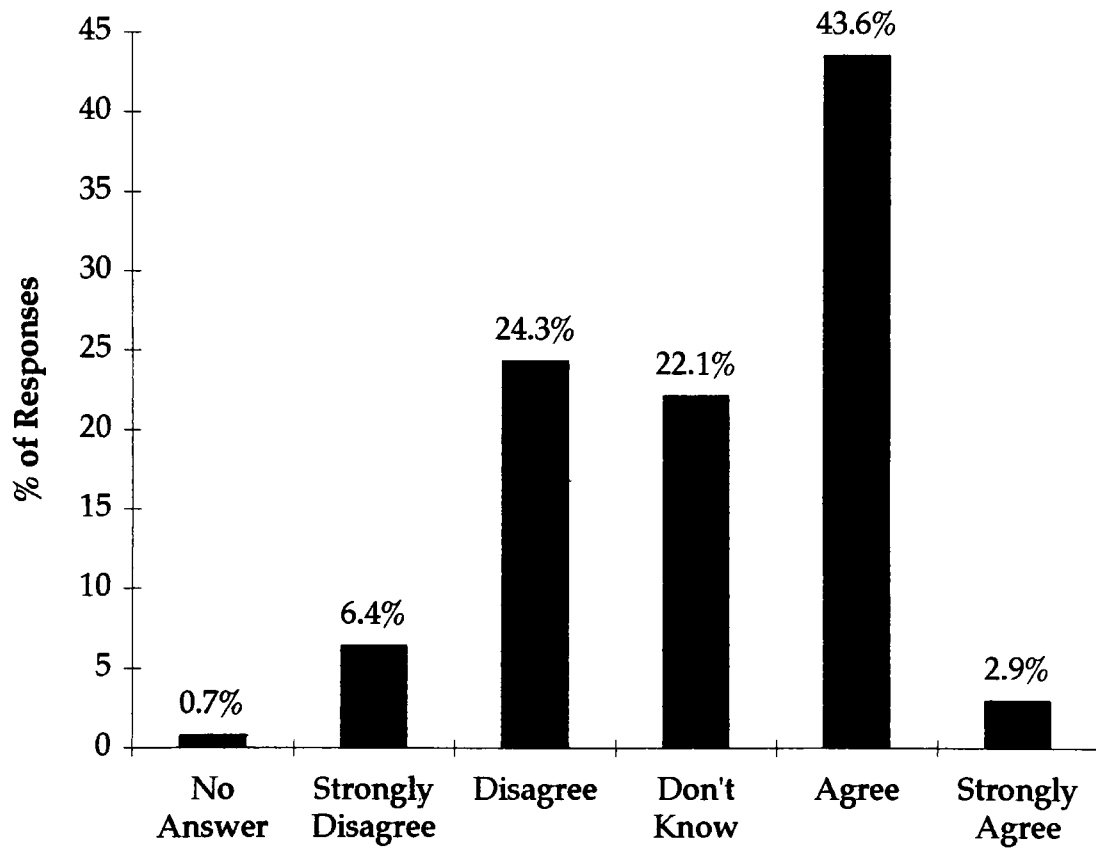


Figure 10

**Will Decrease Employee Travel between
Divisions of an Organization**



Of the respondents, 44.3% disagree with the statement videoconferencing will replace corporate travel. Those who strongly disagree were 35% of the participants (figure 11).

From the data gathered, corporate travel departments and corporate travel agencies should consider videoconferencing in their strategic plans, particularly, when it deals with employee travel between divisions within an organization and in looking at alternatives to employee travel. According to the corporate travel managers surveyed, videoconferencing is not and never will be a replacement for travel. Companies should take these reactions and perspectives into consideration when developing their strategic plans.

ECONOMIC DEVELOPMENT

Questions 2, 6e, 7a and 7b measured the impacts videoconferencing could have on the economic development area. When asked if their organization budget's for using videoconferencing, of the participating companies, 49.3% budget for videoconferencing and 49.3% do not (figure 12).

Surprisingly, 29.3% of the corporate travel managers disagree with the statement that the use of videoconferencing causes the travel departments costs' to decrease (figure 13). This is ironic, since a majority of the literature out today regarding videoconferencing states that the biggest benefit of videoconferencing is the money that is saved by corporate travel departments and agencies. This statistic contradicts previous research which has been conducted. Only 16.4% agree videoconferencing causes costs to decrease.

Figure 11

Will Replace Corporate Travel

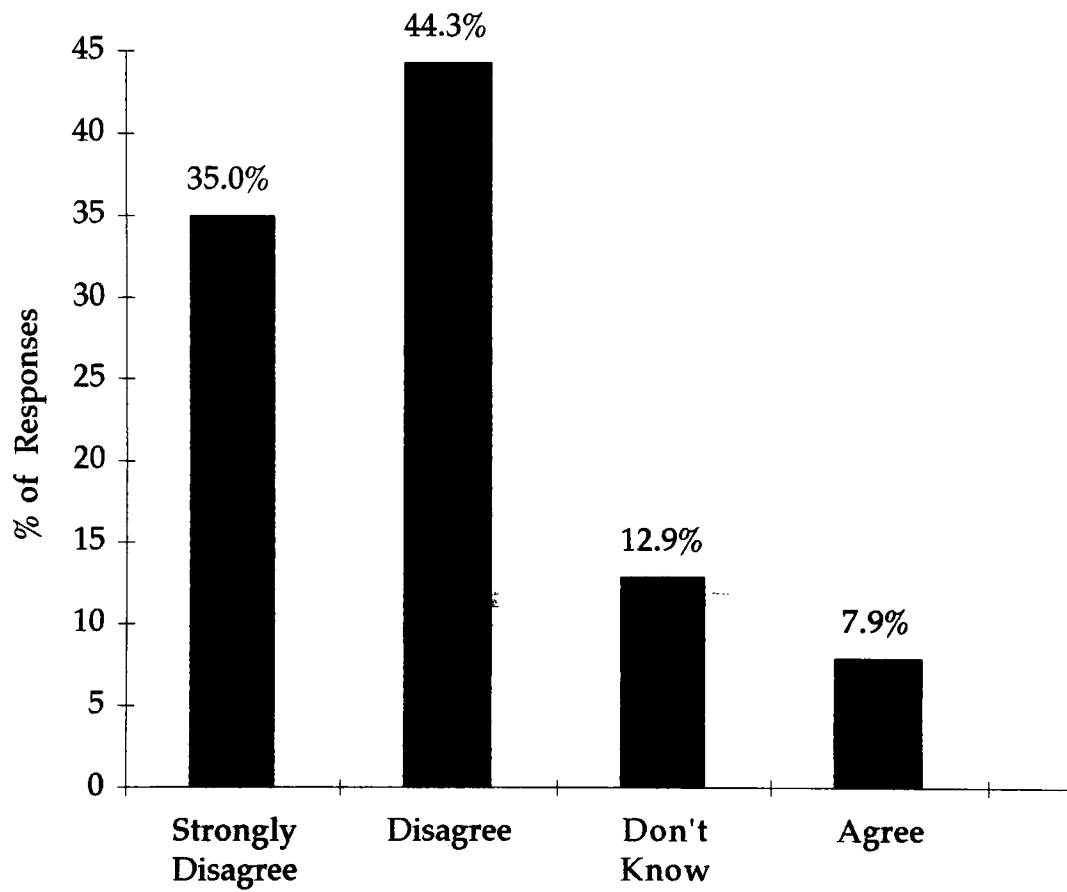


Figure 12

Budget for Videoconferencing

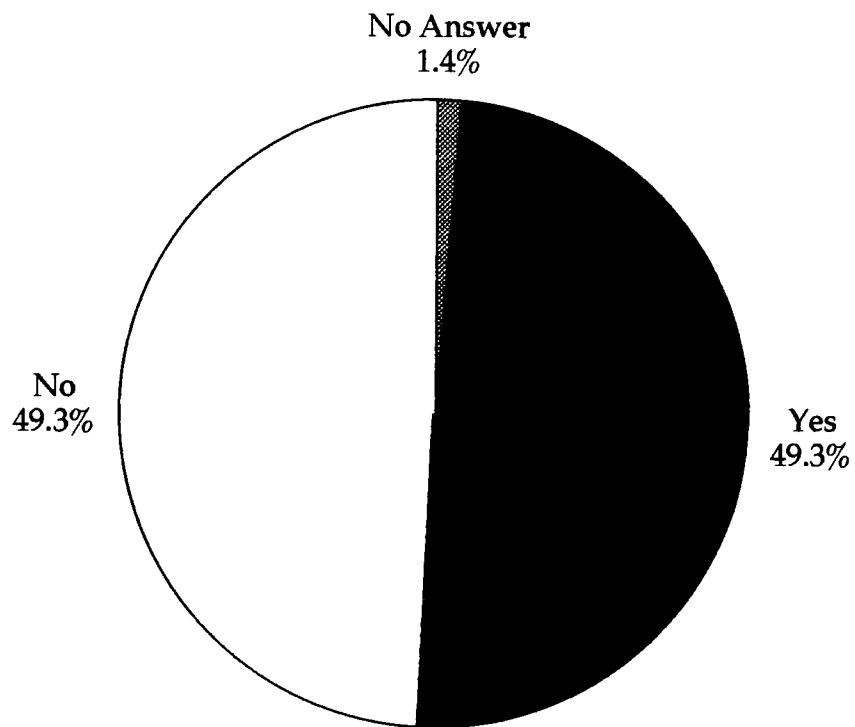
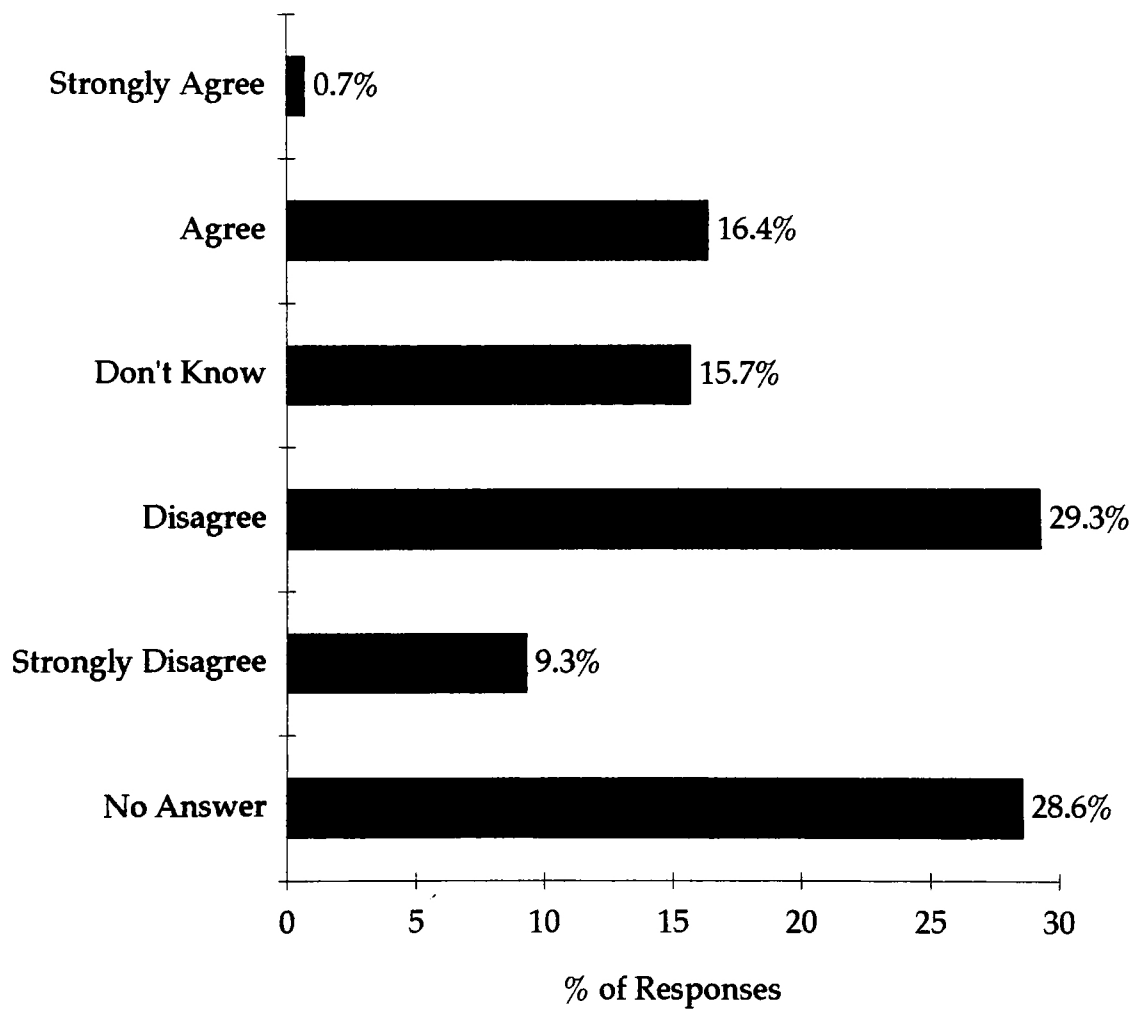


Figure 13

Costs Decrease



Another factor in the economic development area that was surveyed was the pay scale of travel department employees. The majority of respondents, 46.4%, disagree with the idea that the use of videoconferencing will change the pay scale of employees in the travel department, while 36.4% **strongly** disagree with this statement (figure 14).

The respondents were consistent when asked if the travel departments costs' will decrease with the use of videoconferencing. Specifically, 36.4% disagree with the statement and 27.9% did not know if videoconferencing would impact travel department costs' in the future (figure 15).

According to these responses, there are an equal number of companies who budget for videoconferencing and who do not budget for videoconferencing. Also, the majority of corporate travel managers believe costs do not decrease with the use of videoconferencing. It can be assumed there is not much room for cost reduction or economic development. These companies are not saving money by using videoconferencing and therefore are not allowed to economically prosper from it.

EMPLOYEE GROWTH

Employee growth was the third topic area the questionnaire focused on. Questions 6b, 6c, 6d, 6h; 7c and 7d were used to determine the impact videoconferencing would have on employee growth.

Figure 14

Will Change Pay Scale

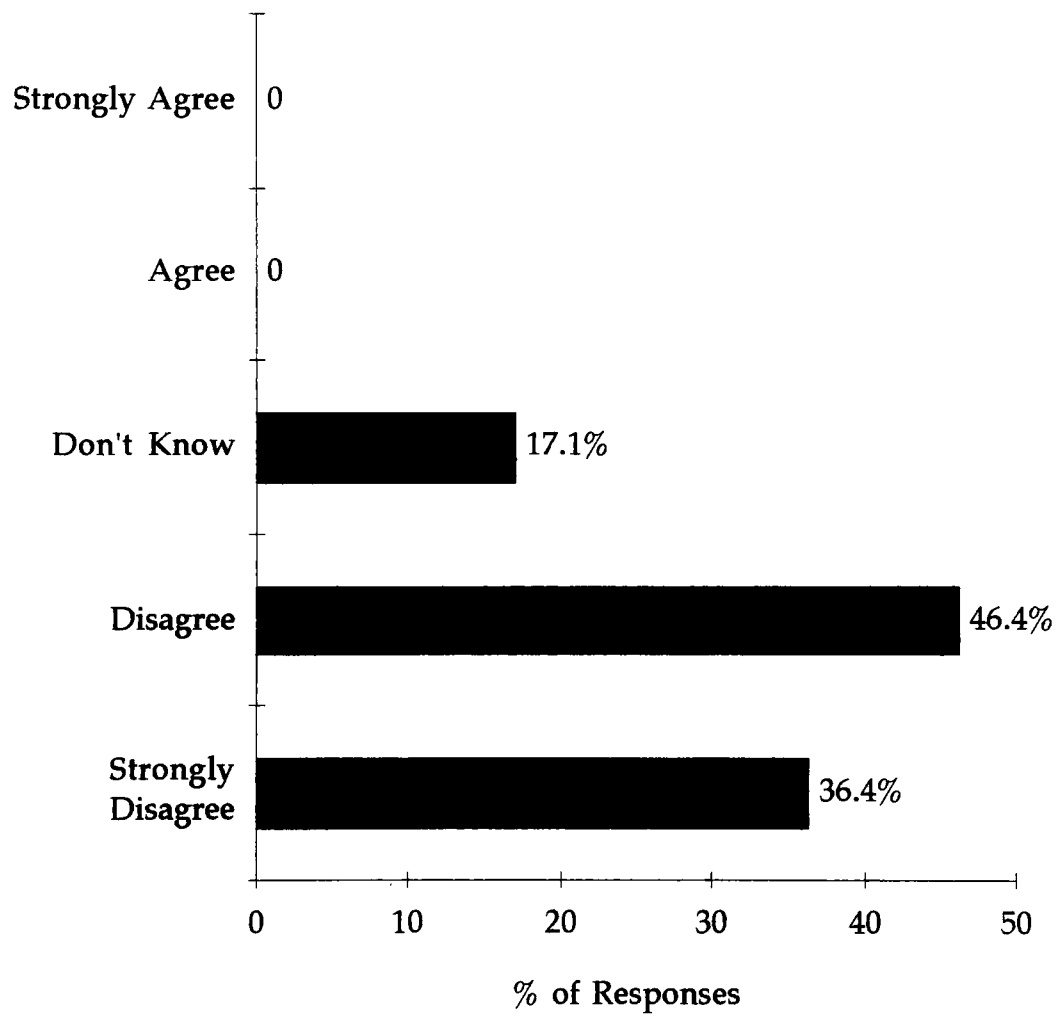
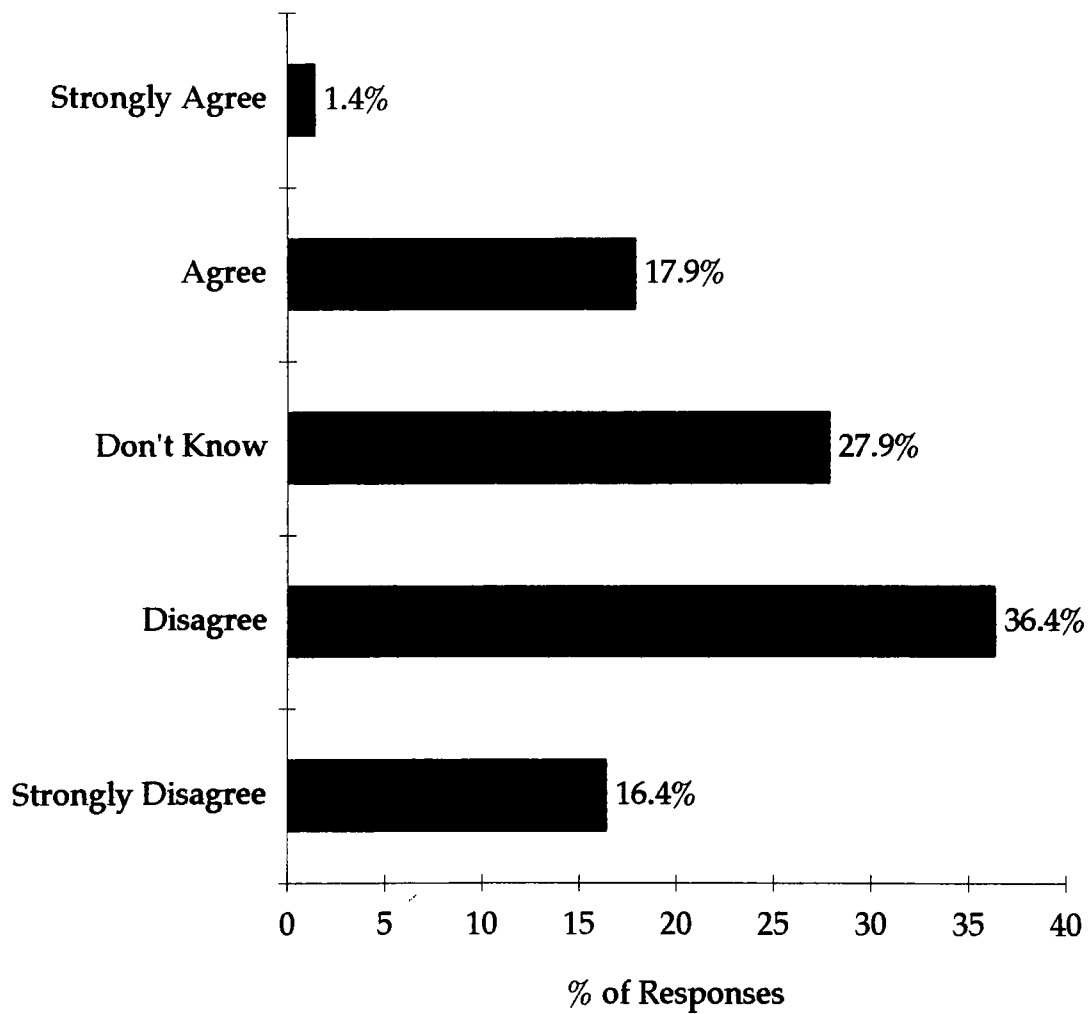


Figure 15

Costs Will Decrease



Among the respondents, 27.9% disagree with the statement that the use of videoconferencing changes the qualifications (education, skills, experience) needed by the staff in the travel department (figure 16). The combined percentage of the don't know, agree and strongly agree categories (24.2%) was still lower than those who responded with disagree.

Corporate travel managers, 36.4%, **strongly** disagree with the statement that the implementation of videoconferencing threatens their position in the travel department. Only a small margin, .7%, of corporate travel managers believe videoconferencing threatens their position (figure 17). To cross check the validity of these percentages, question 6h surveyed if videoconferencing does not threaten their position in the travel department. Accordingly, 44.3% of the respondents agree with the statement and 20% **strongly** agree (figure 18). From these questions it can be interpreted that corporate travel managers are not intimidated or threatened by this technology.

When questioned if videoconferencing would impact the number of employees who work in the travel department, 33.6% disagree with the statement videoconferencing would decrease the number of employees and 23.6% **strongly** disagree (figure 19). Managers do not believe implementing videoconferencing decreases the staff that is needed in the travel department.

Similar to present perceptions, 89.3% of those surveyed do not foresee that their position will be threatened by the use of videoconferencing (figure 20). Also, 52.1% of the respondents disagree with the statement that videoconferencing will decrease the number of people employed in the travel

Figure 16

Changes the Qualifications of Employees

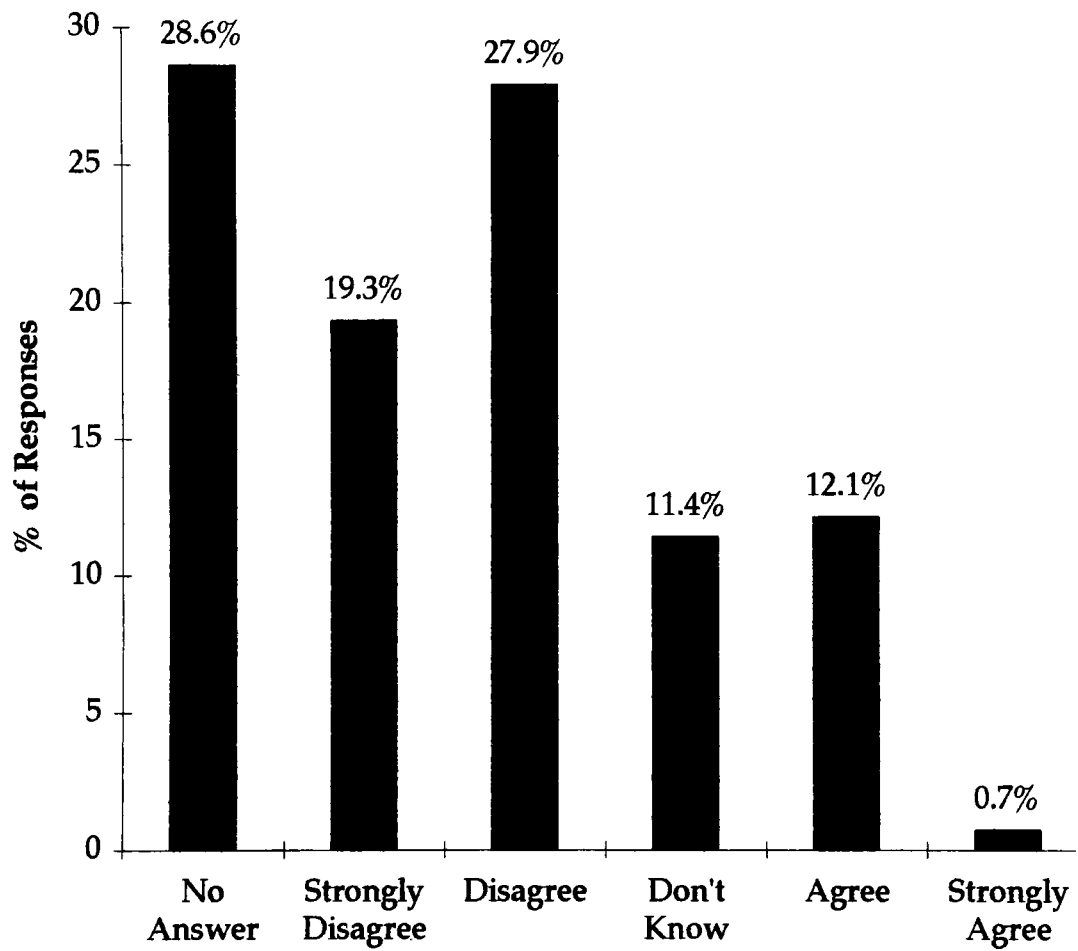


Figure 17

Threatens Corporate Travel Managers' Position

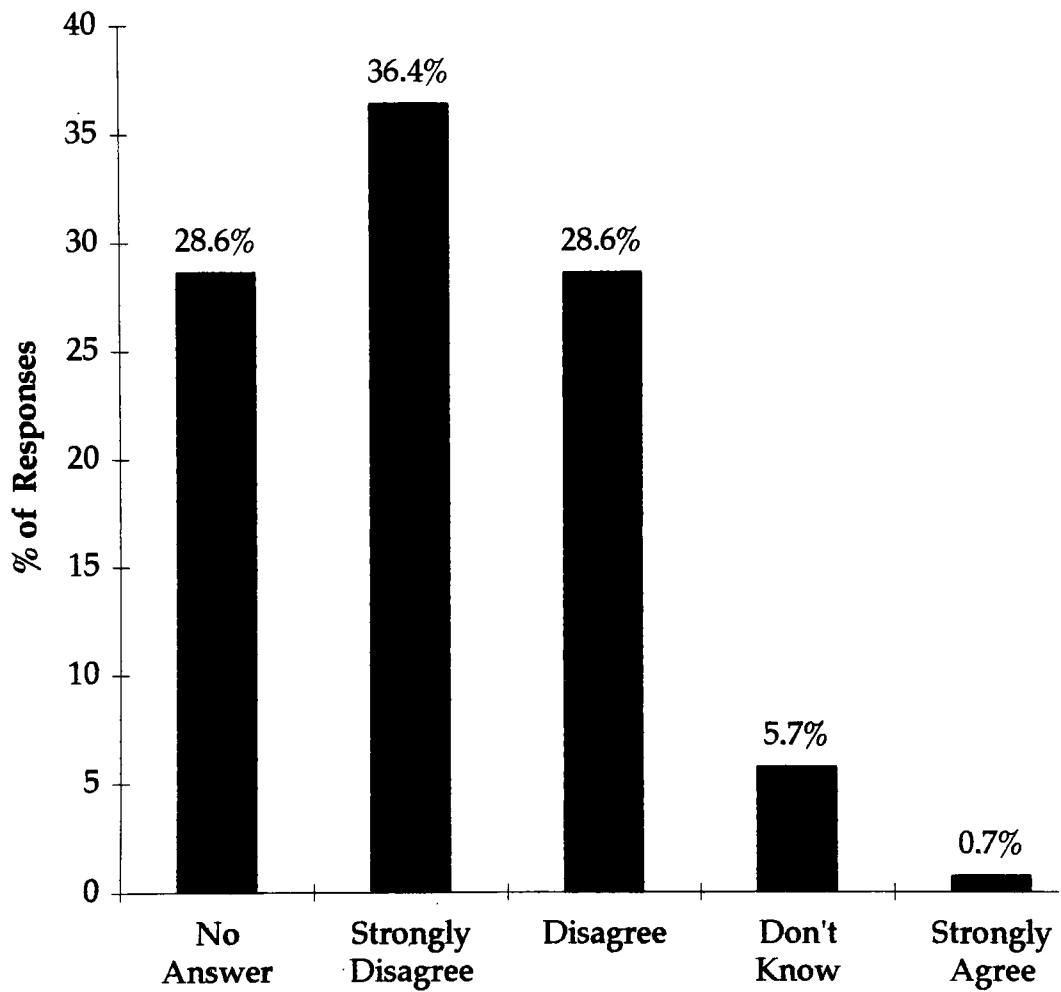


Figure 18

Does Not Threaten Corporate Travel Managers' Position

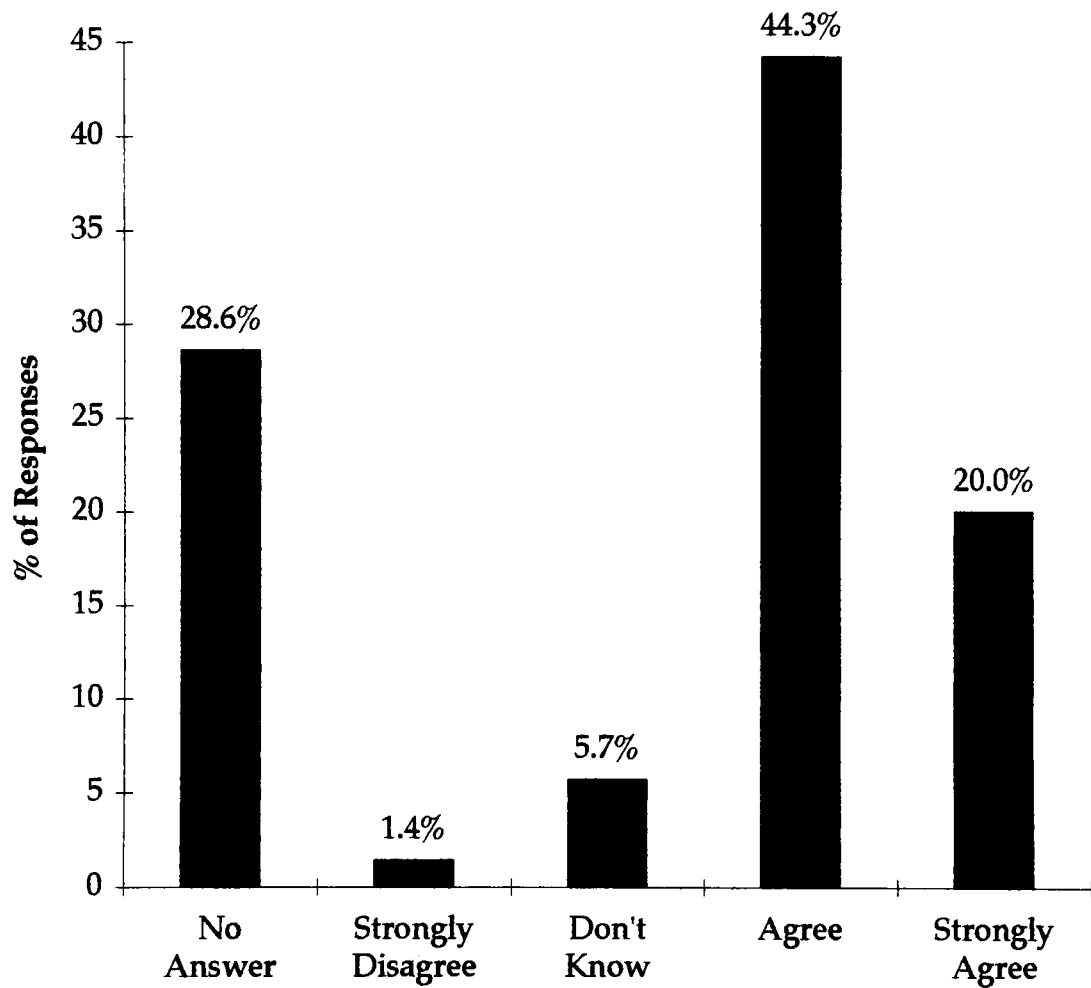


Figure 19

Decreases Number of Employees

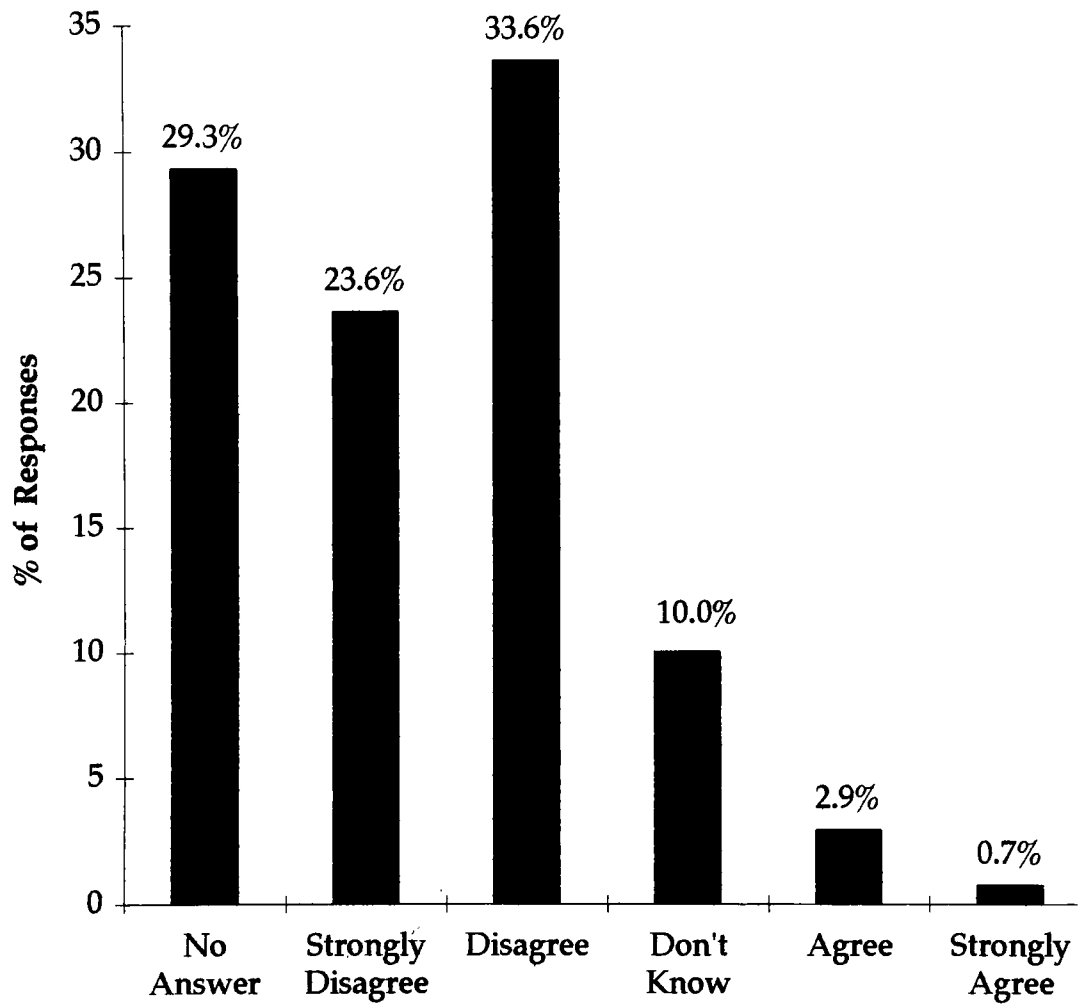
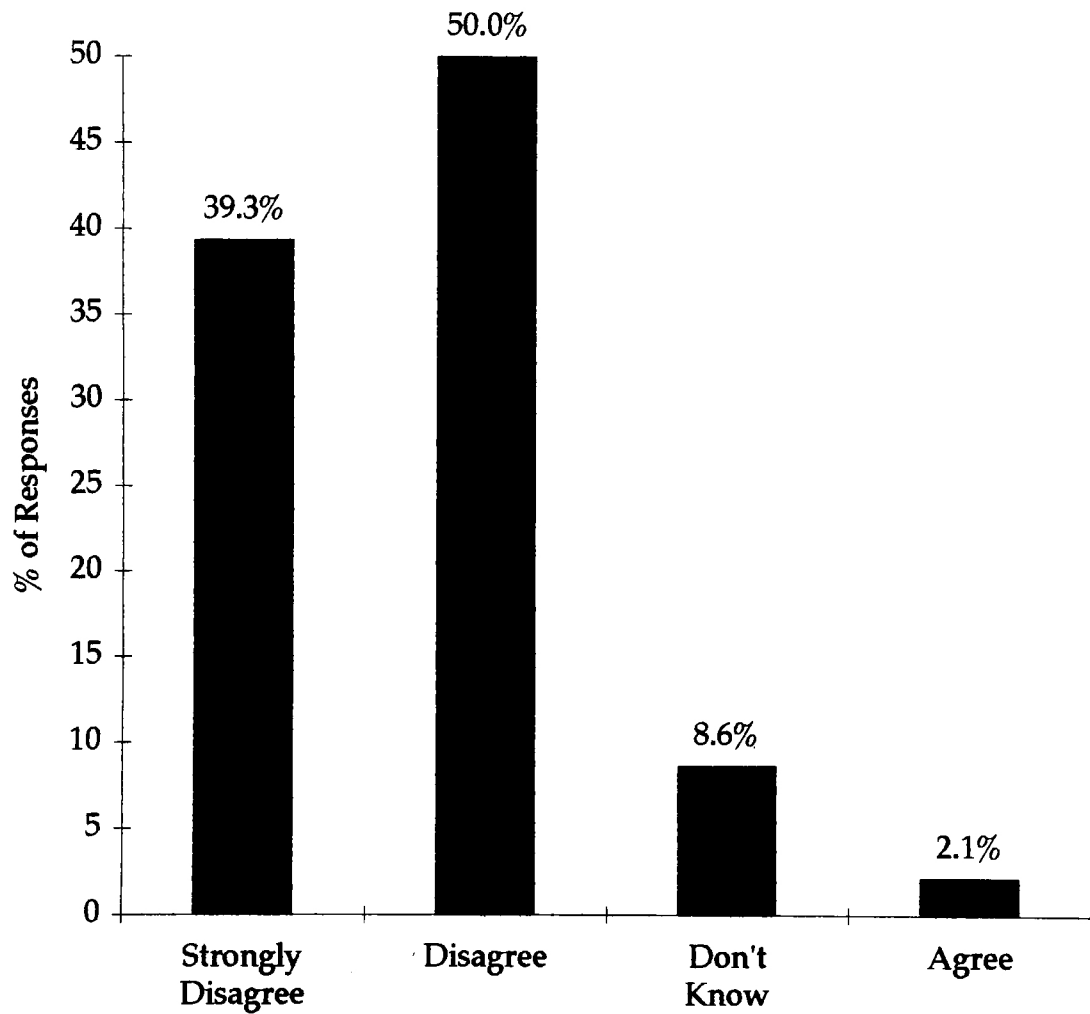


Figure 20

Corporate Travel Managers' Position Will be Threatened



department (figure 21). Since videoconferencing has not caused a travel departments staff size to decrease it will probably not cause it to decrease in the future.

The majority of corporate travel managers that were surveyed disagreed with each question which was directed toward employee growth. The corporate travel managers do not see any changes happening now or foresee any changes in regards to their position or their corporate travel department employees positions.

CUSTOMER SATISFACTION

The last topic area was customer satisfaction (internal/external). Questions 3, 4, 6a and 6f were focused towards this area. Among the respondents, 56.4% answered that videoconferencing is available to them as a source of fulfilling their travelers' needs (figure 22). On the other hand, 54.3% answered they are not confident videoconferencing can achieve their needs (figure 23). Overall, the corporate travel managers surveyed believe videoconferencing is available to achieve their travelers' needs but can not achieve their own needs.

According to the corporate travel manager's, 32.9% agree that employees are satisfied with the use of videoconferencing. While, 24.3% reported they did not know if employees were satisfied (figure 24). When asked if their employees are dissatisfied with the use of videoconferencing, 28.6% did not know and 27.9% disagree with the statement (figure 25).

Figure 21

Number of Employees Will Decrease

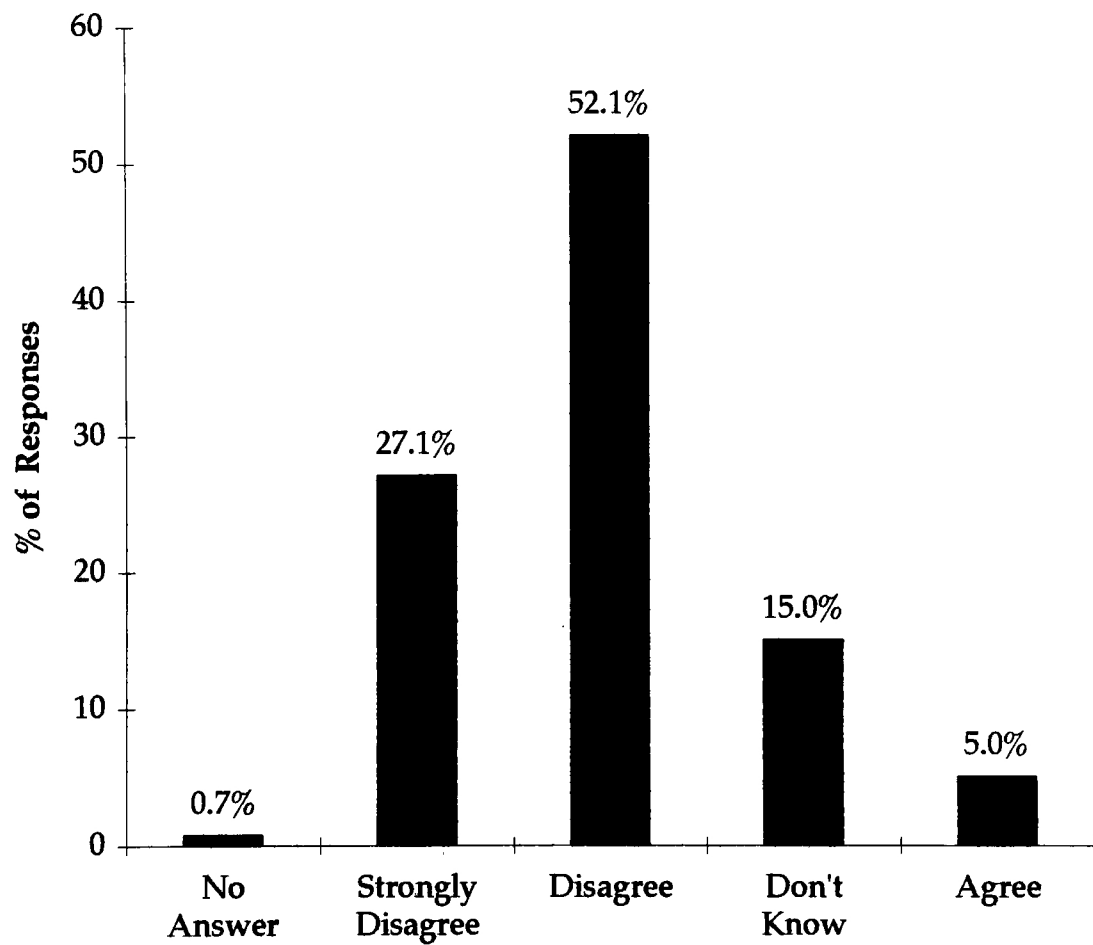


Figure 22

Available Source to Fulfill Travelers' Needs

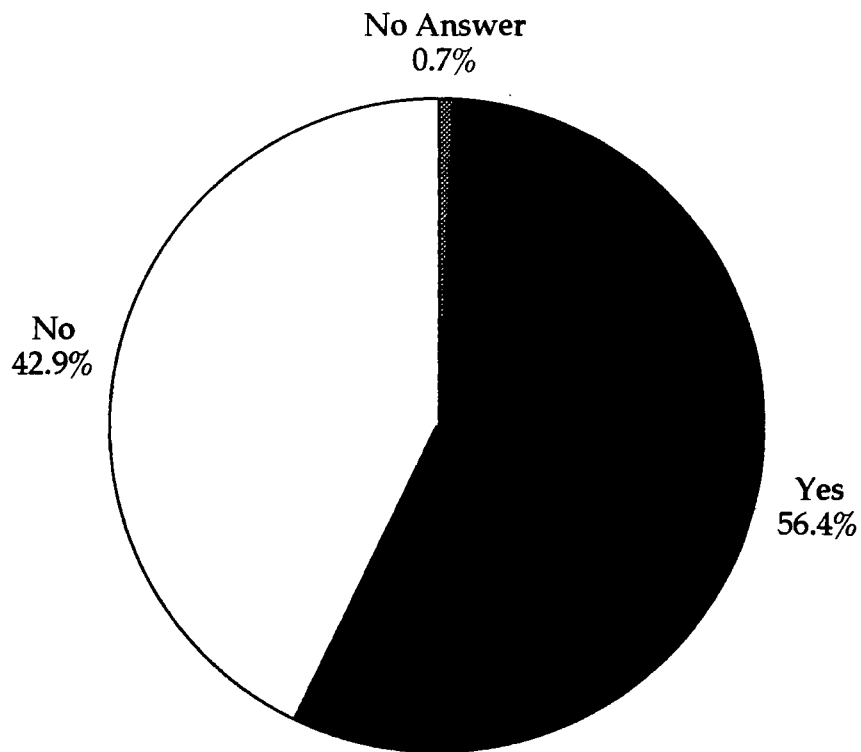


Figure 23

Achieve the Corporate Travel Managers' Needs

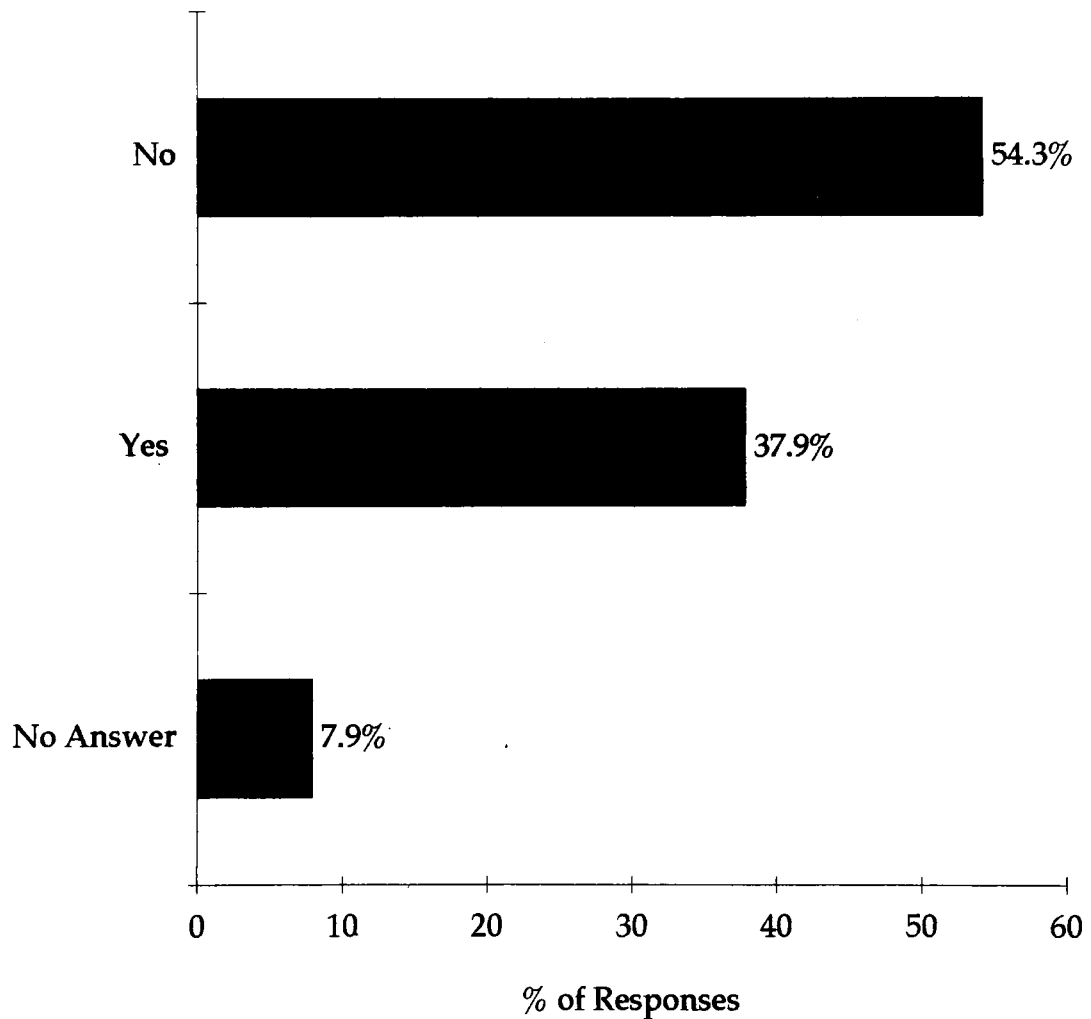


Figure 24

Satisfied with the Use of Videoconferencing

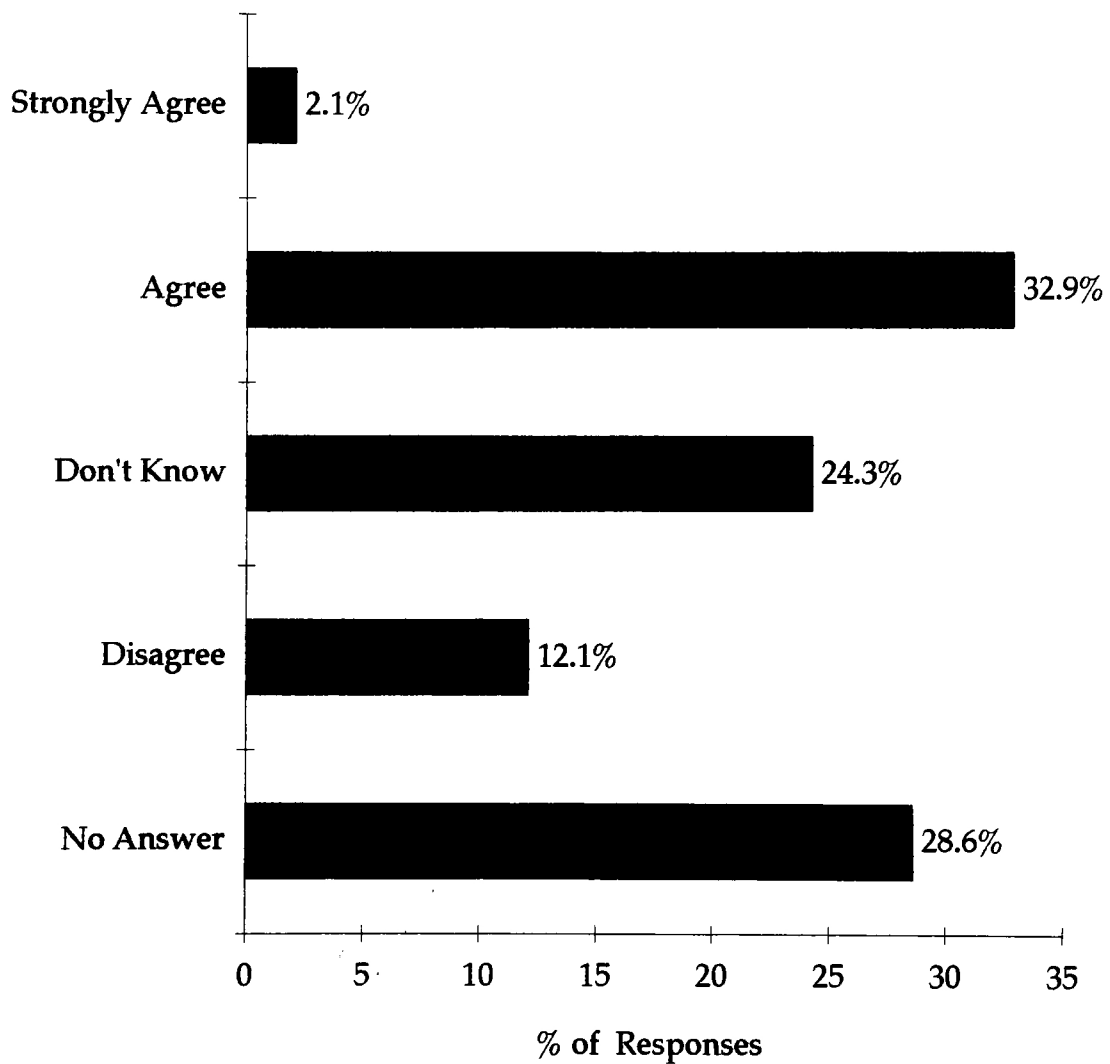
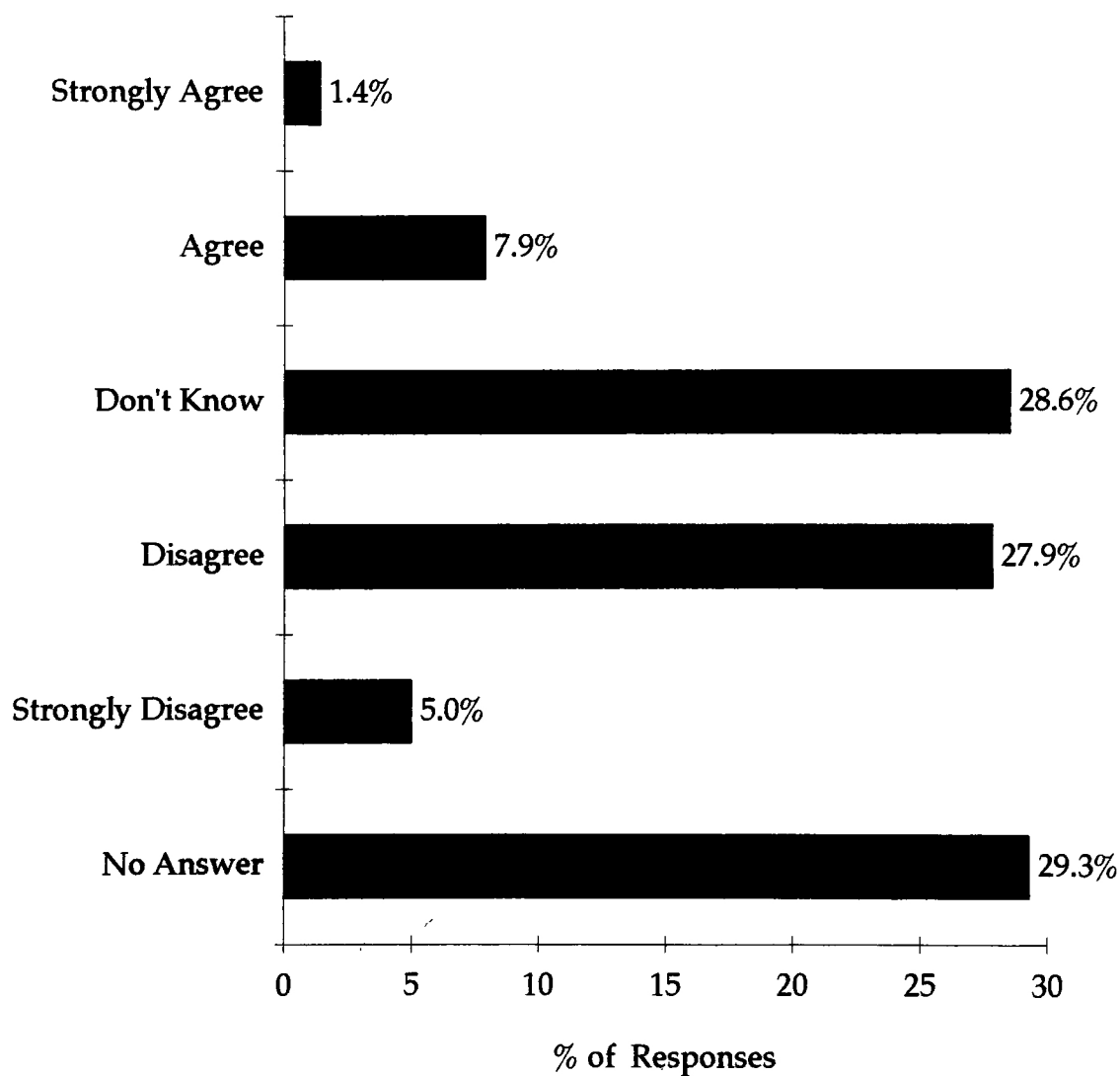


Figure 25

Dissatisfied with the Use of Videoconferencing



Basically, the figures show that the organizations' employees (external customer) are satisfied with videoconferencing but the corporate travel managers (internal customers) are not confident that videoconferencing can achieve their needs.

CORRELATIONAL ANALYSIS

To further investigate the impact that videoconferencing may have on the corporate travel industry, correlational analysis was conducted. Question 5, participation in videoconferencing, was used as the basis for comparison between variables. The statements used, to compare against question 5, were questions 6g, 6i, 6j, 7e and 7f (see Appendix A). The objective for using these particular questions was to isolate the reactions and perceptions of those who have been participants in videoconferencing. Those who have been involved with videoconferencing are more likely to lend reliable and valid data.

The first comparison was participants in videoconferencing by travel between divisions of an organization. Among the respondents, 32.1% (45) have been participants in videoconferencing and agree videoconferencing decreases the number of employees who travel between divisions within an organization. While, 20.7% (29) answered yes to being participants in videoconferencing but disagree with the idea that videoconferencing decreases travel between divisions of an organization (table 1).

Table 1.

Participate in Videoconferencing

**Decreases in Travel
between Divisions
of an Organization**

	Yes	No
Strongly Disagree	.7% (1)	
Disagree	20.7% (29)	.7% (1)
Don't Know	10% (14)	.7% (1)
Agree	32.1% (45)	.7% (1)
Strongly Agree	5.7% (8)	

The majority of respondents, 43.6% (61), who have been involved with videoconferencing also agree it is an alternative to corporate travel. Only 14.3% (20) of those who have been participants in videoconferencing strongly disagree/disagree that it is an alternative to corporate travel (table 2).

Those who have participated in videoconferencing and disagree with the idea videoconferencing replaces corporate travel is 30% (42), while 17.9% (25) strongly disagree. Only 11.4% (16) of the respondents who have been participants in videoconferencing, agree with the statement, videoconferencing replaces corporate travel (table 3).

The future perspective of respondents was also used for correlational analysis. When comparing participants in videoconferencing with the concept videoconferencing will decrease travel between divisions of an organization, 30% (42) agree travel will decrease. While 13.6% (19) of those who have not been participants in videoconferencing agree that travel will decrease (table 4).

Meanwhile, 29.3% (41) of those who have been involved with videoconferencing disagree with the statement videoconferencing will replace corporate travel. Also, 15% (21) of those who have not been participants in videoconferencing again disagree with the statement videoconferencing will replace corporate travel (figure 5).

Table 2.

Participate in Videoconferencing**Alternative to
Corporate Travel**

	Yes	No
Strongly Disagree	.7% (1)	.7% (1)
Disagree	13.6% (19)	.7% (1)
Don't Know	4.3% (6)	.7% (1)
Agree	43.6% (61)	
Strongly Agree	7.1% (10)	

Table 3.

Participate in Videoconferencing**Replace
Corporate Travel**

	Yes	No
Strongly Disagree	17.9% (25)	1.4% (2)
Disagree	30% (42)	
Don't Know	9.3% (13)	.7% (1)
Agree	11.4% (16)	
Strongly Agree	.7% (1)	

Table 4.

Participate in Videoconferencing

**Will Decrease Travel
between Divisions
of an Organization**

	Yes	No
Strongly Disagree	4.3% (6)	2.1% (3)
Disagree	17.1% (24)	7.1% (10)
Don't Know	15.7% (22)	6.4% (9)
Agree	30% (42)	13.6% (19)
Strongly Agree	2.9% (4)	

Table 5.

Participate in Videoconferencing

**Will Replace
Corporate Travel**

	Yes	No
Strongly Disagree	25% (35)	10% (14)
Disagree	29.3% (41)	15% (21)
Don't Know	9.3% (13)	3.6% (5)
Agree	7.1% (10)	.7% (1)
Strongly Agree		

Overall, comparing these variables and focusing on those who have been participants in videoconferencing, the responses follow the same patterns as previous statistics conducted in this study. Corporate travel managers interpret videoconferencing as an alternative to travel. They do not agree videoconferencing replaces or will replace corporate travel. However, they tend to agree with the idea that videoconferencing decreases or will decrease travel between divisions within an organization.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

The infusion of new technologies into our world is a daily occurrence. The horizon of information technology seems ever expanding and limitless. These technologies are effecting every industry that makes up the economy. Specifically, videoconferencing is on the verge of becoming a widely used business communication tool. The videoconferencing industry is steadily growing. Some companies are transferring images and ideas rather than moving bodies.

The purpose of this study is to examine various effects videoconferencing may have on management decisions for employee travel. Basically, what impacts videoconferencing may have on the corporate travel industry.

The study will demonstrate the fact that videoconferencing will impact management decisions for employee travel. The research may determine that videoconferencing causes a downsizing, restructuring trend of the department or agency. Also, a decrease in costs of the department or agency may result. The results will determine that technology will alter the future of the corporate travel industry.

A survey was conducted in the present perspective. The questionnaire was utilized to survey decision makers for employee travel. Specifically, questions were developed to gather information regarding strategic planning, economic development, employee growth and customer satisfaction (internal/external) within a corporate travel department or agency. The population for this study was direct members of the National Business Travel Association (NBTA). The sample size of 269 represented the U.S. and Canada.

After the data collection period was complete, 140 valid responses were received. The data received from the survey was analyzed using SPSS-X computer program. Correlational analysis of specific questions was conducted to compare and contrast variables.

CONCLUSIONS

The study concluded that videoconferencing does not significantly impact management decisions for employee travel. The original hypothesis is rejected and the null hypothesis is accepted.

Videoconferencing did not cause a downsizing trend of the department or agency. The questions defined under the employee growth topic area do not facilitate downsizing actions. At the present time and in the future, corporate travel managers do not feel threatened by the implementation of videoconferencing and they do not agree that videoconferencing decreases the number of employees who work in the travel department. Also, the

qualifications (education, skills, experience) of the staff in the travel department do not change with the use of videoconferencing.

Based on this project's research, the topic area that identified a restructuring trend, for the corporate travel department or agency, was the strategic planning category. Corporate travel managers agree, now and in the future, that videoconferencing decreases the number of employees who travel between divisions within an organization. The majority of corporate travel managers surveyed, also believe that videoconferencing is an alternative to employee travel. The correlational analysis which was conducted also confirmed this conclusion. The corporate travel managers who responded yes to participating in videoconferencing also agree videoconferencing decreases travel between divisions within an organization (32.1%) and videoconferencing is an alternative to corporate travel (43.6%). According to these responses, corporate travel departments and agencies should consider these facts when developing their companies corporate travel strategic plan.

Corporate travel managers reported that videoconferencing is available as a source of fulfilling their travelers needs. This means that companies offer videoconferencing as an avenue to completing their travelers' business needs. Overall, corporate travel managers responded that the companies employees are satisfied when they have used videoconferencing. At least half of the corporate travel managers who were surveyed reported they are not confident videoconferencing can achieve their needs.

Ironically, the department or agency costs do not decrease with the use of videoconferencing. The economic development topic area disclosed this fact. Corporate travel managers disagree that the use of videoconferencing causes travel department costs' to decrease. Furthermore, they do not see a decrease in costs taking place in the future. Also, corporate travel managers do not agree that videoconferencing will change the pay scale of employees in the travel department.

From this analysis, it can be concluded that videoconferencing has no significant impact on management decisions for employee travel. The results show that this technology will not alter the future of the corporate travel industry.

RECOMMENDATIONS

The following recommendations are suggested from this project.

The study identified the fact that videoconferencing decreases employee travel between divisions of an organization. Further investigation needs to be conducted on videoconferencing and its effects on employee travel within divisions of an organization. An indepth study yielding specific trends and traits could further aid a corporate travel department or agency when developing their strategic business plan.

The research could be expanded in the area, "videoconferencing is an alternative to employee travel." What factors cause corporate travel

departments to use videoconferencing instead of having an employee travel. Is cost, travel distance, time constraints or the business meeting agenda the reasons that videoconferencing is used as an alternative? Identifying when videoconferencing becomes an alternative would help the corporate travel industry plan for the future.

A comparison study of those who use videoconferencing and those who do not use videoconferencing is recommended. This type of study could further identify the effects that this technology may have or may not have on the corporate travel industry.

Another recommendation is specific research focused on a few corporate travel departments that have used both videoconferencing and employee travel. Documentation on how effectively and efficiently their business was facilitated could show the benefits and restrictions of both videoconferencing and employee travel. Furthermore, it would aid in determining technologies impact on the corporate travel industry.

Videoconferencing was the only technology thoroughly researched for this particular study. A suggestion for future research is to concentrate on other technologies that may impact corporate travel departments or corporate travel agencies. For example, Electronic data interchange, which allows companies to conduct business electronically rather than through traditional methods, On-line services (e-mail, Internet), Interactive mechanisms (multimedia, CD-Roms, interactive T.V.) or Travel automation (satellite printers, on-site CRS's, computer programs for quality control, fare checking

and seat optimization), how will these technologies influence the corporate travel industry?

This study could be adapted to focus on P.C. or desktop videoconferencing. This is the next step in videoconferencing. With companies like Intel, PictureTel, CLI and VTEL, P.C. videoconferencing is becoming a leader in desktop communications. Will this type of videoconferencing effect corporate travel departments or corporate travel agencies?

The results from this particular study indicate a need for future research. These results should be used as a starting point. The conclusions drawn are not final because perceptions can change over time. As a result, follow-up surveys and additional research is needed to identify trends and changed perceptions. It is recommended that future studies on the impact of videoconferencing on the corporate travel industry be conducted every 2 years.

BIBLIOGRAPHY AND REFERENCES

- Adams, M. (1993, September). Handy Andy. Successful Meetings, pp. 40-52.
- Adams, M. (1994, December). Fast forward. Successful Meetings, pp. 70-72.
- Abernathy, J. (1994, February). Reduce travel, improve communications with these conferencing tools. PC World, p. 96.
- Babbie, E. (1979). The Practice of Social Research. (2nd. Ed.). Belmont, CA: Wadsworth Publishing Company.
- Babbie, E. (1990). Survey research methods. (2nd Ed.). Belmont, CA: Wadsworth Publishing Company.
- Bertrand, K. (1991, April). Videoconferencing: The next best thing to being there. Business Marketing, p. 14.
- Bray, H. (1995, January). Digital, telephone lines deliver audio, video and data faster. Democrat & Chronicle, p. 4B
- Brisson, M. (1994, November). Video niche still out of focus. Business Travel News, p. 18.
- Carey, R. (1994, February). The Electronic Advantage. Successful Meetings, pp. 119-121.
- Clayton, T. (1994, January). Key factors in the videoconferencing boom. Telecommunications, pp. 107-109.
- Clery, D. (1993, March). Will virtual travel get off the ground? New Scientist, p. 20.

- Compression Labs, Incorporated. (1993). The coming of the video age.
- Conlin, J. (1994, March). Meetings over machines. Successful Meetings, p. 26.
- Cotton, D. (1991, September). Videoconferencing is here - finally. Data Communications, p. 33-35.
- Dillman, D. A. (1978). Mail and telephone surveys: The total design method. New York, NY: John Wiley & Sons.
- Doll, W. (1989, May) Information technology's strategic impact on the American air travel service industry. Information & Management, pp. 269-275.
- Douglas, S. (1989, April). Why travel when you can call? Telephony, pp. 38-40.
- Elton, M. (1982). Teleconferencing - New Media for Business Meetings. New York: American Management Associations.
- Fitzpatrick, N. (1994, December). New technology shaving videoconference costs. MeetingNews, pp. 14.
- Freeman, L. (1991, May). Seeing is believing: Videoconferencing booms for travel-weary companies. Advertising Age, pp. 22-24.
- Frost, N. (1993, September). Toward an understanding of telecommunications. The Office, p. 50.
- Gibbs, Smith, (1993). Navigating the Internet.
- Hayes, B. E. (1990). Measuring customer satisfaction: Development and use of questionnaires. Milwaukee, WI: ASQC Quality Press.

- Heather, R. (1994, January). Future focus groups. American Demographics, p.15.
- Hoewitt, E. (1989, September). McDonnell Douglas video hits big time. Computerworld, p. 55.
- Hof, R., McWilliams, G., Burrows, P., (1994, January 31). Intel steers the pc onto the info highway. Business Week, pp. 68 -69.
- Hughes, D. (1993, February). Videoconferencing may cut air travel. Aviation Week & Space Technology, pp. 31-33.
- Hughes, D. (1993, November). Videoconferencing gets airline attention. AviationWeek & Space Technology, pp. 39-40.
- Kelley, B. (1994, April). High-tech hits recruiting. Human Resource Executive, pp. 43-45.
- Kirvan, P. (1993, October). Teleconferencing in the 1990's: videoconferencing. Communication News, p.57.
- Kuzela, L. (1988, July). Long way to go: videoconferencing's chief drawback - cost. Industry Week, p. 62.
- Levin, J. (1991, April). At long last, videoconferencing finds its audience. Meetings & Conventions, p. 17.
- Lowe, S. (1994, April). Xerox paves "superhighway". Times Union, pp. 1A, 5A.
- Mangan, K.J. (1991, December) Colleges use video conferences to trim their travel budgets. The Chronicle of Higher Education, pp. A19-A20.

- Miller, K. (1993, December). Have wireless; will travel. Data Communications, pp.29-30.
- Nigro, D. (1994, February). Videoconferencing: A new agenda. Corporate Travel, pp. 27-28.
- Price, C. (1989). The AMA Guide for Meeting and Event Planners. New York: American Management Association.
- Oppenheim, A.N. (1966). Question Design and Attitude Measurement. New York, NY: Basic Books.
- Rakoske, A. (1994, February). On-line or in class? Association Meetings, pp. 54-58.
- Reamy, M. (1990, September). Coffee, tea or telecommunications? Institutional Investor, pp. 175-179.
- Rebello, K., Eng, P., (1994, May 2). Digital pioneers. Business Week, pp. 96-102.
- Rieger, P. (1991, January). Video conferencing: Meeting without meeting. Public Utilities Fortnightly, pp. 52-53.
- Ross, R. (1994, March). The alternative to business travel. PC World, pp. 66-68.
- Saffo, P. (1993, Autumn). The future of travel. Forbes, pp. 112-113+.
- Solmo, R. (1994, October). Closing the distance. Successful Meetings, pp. 91-100.
- Strazewski, L. (1995, February). From the distance. Human Resource Executive, pp.35-38.

Thurston, F. (1992, January). Video teleconferencing: the state of the art. Telecommunications, pp. 63-66.

Weighing Techno Costs. (1994, April). Successful Meetings, p. 19.

Wells, M. (1993, June). High tech tackles high travel costs for ad agencies. Advertising Age, pp. 51-52.

Wexler, J. M. (1991, February). Electronic meetings increases. Computerworld, pp. 55-57.

Whyte, B. (1994, February). Gearing down the superhighway. Audio, pp.17-18.

Yager, T. (1993, March). Better than being there. Byte, pp. 128 - 130+.

Zimmerman, M. R. (1991, April). Analyst expect video meetings to boom in 90's. PC Week, pp. 43-45.

APPENDIX A
QUESTIONNAIRE

Please read and answer each question carefully. The survey should be returned in the enclosed envelope, before January 26, 1995. Thank you for your time.

Videoconferencing is a two-way, full motion, full color, electronic form of communication that permits two or more people in different locations to engage in face-to-face (real time) audio and visual communication.

Please circle the appropriate answer to each of the following questions.

- | | | |
|---|-----|----|
| 1. Does your company support the use of videoconferencing in meetings? | YES | NO |
| 2. Does your organization budget for using videoconferencing? | YES | NO |
| 3. Is videoconferencing available to you as a source of fulfilling your travelers' needs? | YES | NO |
| 4. Are you confident that videoconferencing can achieve your needs? | YES | NO |
| 5. Have you and/or the companies employees been participants in videoconferencing? | YES | NO |

If your answer to question 5 is YES please continue to answer the remaining questions,
if your answer is NO please skip to question 7.

6. Beside each of the statements presented below, please indicate the extent to which you

1 - Strongly Disagree (SD)

2 - Disagree (D)

3 - Don't Know (DK)

4 - Agree (A)

5 - Strongly Agree (SA)

- | | SD | D | DK | A | SA |
|--|----|---|----|---|----|
| a. Employees are satisfied with the use of videoconferencing | 1 | 2 | 3 | 4 | 5 |
| b. The use of videoconferencing changes the qualifications (education, skills, experience) needed by your staff in the travel department | 1 | 2 | 3 | 4 | 5 |
| c. The implementation of videoconferencing threatens your position in the travel department | 1 | 2 | 3 | 4 | 5 |
| d. Videoconferencing decreases the number of employees who work in the travel department | 1 | 2 | 3 | 4 | 5 |

Please continue on reverse side

	SD	D	DK	A	SA
e. The use of videoconferencing causes the travel departments' costs to decrease	1	2	3	4	5
f. Employees are dissatisfied with the use of videoconferencing	1	2	3	4	5
g. Videoconferencing decreases the number of employees who travel between divisions within the organization	1	2	3	4	5
h. The use of videoconferencing does not threaten your position in the travel department	1	2	3	4	5
i. Videoconferencing is an alternative to employee travel	1	2	3	4	5
j. Videoconferencing replaces corporate travel by company employees	1	2	3	4	5
7.					
a. The use of videoconferencing will change the pay scale of employees in the travel department	1	2	3	4	5
b. The travel departments' costs will decrease with the use of videoconferencing	1	2	3	4	5
c. Your position in the travel department will be threatened by the use of videoconferencing	1	2	3	4	5
d. Videoconferencing will result in a decrease of the number of people employed in the travel department	1	2	3	4	5
e. Videoconferencing will decrease the number of employees who travel between divisions within the organization	1	2	3	4	5
f. Videoconferencing will replace corporate travel by company employees	1	2	3	4	5
8. Number of years you have held the position of corporate travel manager	_____				
9. Please check the amount below that best describes your corporate travel budget.					
___ under \$500,000	___ \$3,500,001 - \$4,500,000				
___ \$500,001 - \$1,500,000	___ \$4,500,001 - \$5,500,000				
___ \$1,500,001 - \$2,500,000	___ \$5,500,001 - \$6,500,000				
___ \$ 2,500,001 - \$3,500,000	___ \$6,500,001 - \$7,500,000				
___ \$7,500,001 or more					

If you would like to receive a summary of the survey results, please enclose your business card or mail your business card to the R.I.T. address.

THANK YOU !!!