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DEPARTMENT OF COMMUNICATIONS

TECHNOLOGY AND THE TOURISM INDUSTRY

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EXECUTIVE SUMMARY

This report presents the background, analysis and findings of the study undertaken to research Technology in the Tourism Industry. This study was initiated by the Department of Communications, specifically the Arts Policy Directorate. The objective of the study was to focus on the use of new technology as utilized by the tourism and cultural sectors.

The methodology for the study included the identification of technology utilization, both in terms of applications or functions provided, as well as the type of technology being used. The project team conducted two site visits to locations where significant use of technology was identified.

Tourism is a major Canadian industry with a significant contribution to our economy. The diversity and growth of its sub-sectors contributes to the industry's illusive nature. The illusive nature of the industry, combined with changing social values and lifestyles make the industry even more difficult to predict. The tourism industry faces consumers with an increased knowledge and awareness, and therefore a greater demand for information is part of their planning process.

The tourism industry has undergone significant technological change in the past decade. Recent progress in information and communications technology have made it possible to reach consumers in their homes. However, the cost of technology has not yet fallen to the point where interactive tourism systems can reach the population as a whole. Advances in the use of artificial intelligence may lead to systems that can plan trip itineraries based on a consumer's preferences. The use of new technology is limited only by the creativity and ingenuity of the organizations involved.

There are many issues affecting the rate of adoption of new technology in the tourism and cultural sectors. Some factors which are encouraging the adoption of new technology are the decreasing costs of hardware technology, recent computer innovations and increasing computer awareness. Many sub-sectors of the tourism industry are using new computer technology. However, the most significant use of technology in the tourism industry as a whole continues to be led by the airline industry.

Several systems which are currently in use or in development stages have been studied. These systems range in complexity from a stand-alone system providing directions, to a comprehensive tourist information transaction oriented system. Site visits were conducted to two locations which were representative of new technology in the tourism and cultural sectors. These two systems were Travel Manitoba's ELVIS/EARS in Winnipeg and Sun Teleguide in Las Vegas.

Although technological innovations may have benefits to the tourism industry as a whole, they may also be the cause of a restructuring of the industry. This may result in potential loss of employment, changes in skill sets required, as well as a shift in market share between organizations with differing capital or experience bases. From discussions with individuals involved in the design and implementation of tourism related systems, several success factors for implementation were identified. These include the man-machine interface, flexibility, accessibility and funding. With respect to government responsibility, the fundamental activities are those of education, coordination of development efforts, as well as possibly providing financial support in the initial stages of design and implementation.

INTRODUCTION

Purpose and Objective

The Department of Communications, specifically the Arts Policy Directorate, initiated a research study on Technologies in the Tourism and Cultural Sectors.

The objective of this study was to research the use of technology as it applied to the tourism and cultural sectors. This research was to focus primarily on the utilization of new technologies currently implemented, as well as those still in the implementation process.

Methodology

The methodology for the study was to initially scan the industry in order to identify the primary technologies being used in the tourism and cultural sectors. This initial scan included the identification of major technology vendors, the obtaining of preliminary information on the technologies, as well as identifying potential site visits.

The second segment of the study was to gather additional information on selected technologies, to identify clients using these technologies, and to contact these clients to assess potential applicability of the technologies.

The third segment of the study was to arrange and conduct two site visits to locations where a major system was in use. These site visits included the observation and utilization of the system, as well as meetings and discussions with the agencies or organizations utilizing the system.

The fourth segment of the study was to analyze the information gathered from the various sources and to assess the current and future use of technology in the tourism and cultural sectors. This analysis included a discussion of the issues surrounding the use of technology as it applies to the sectors.

The last segment of the study was to document the results of the study. This report represents the documentation of the findings.

Report Outline

Including this introduction, this report is comprised of six sections. The Background section describes the structure and characteristics of the tourism industry, the growth of the sectors and future prospects. The New Technology and Applications on the Horizon section describes the use of new technology and applications, and describes possible benefits to the tourism and cultural sectors. The Adoption of New Technology section presents issues affecting the rate of adoption, describes segments of the industry where adoption is fastest, and discusses some constraints to the adoption of technology. The Current and Future Systems section presents a summary of each of the technology systems that the project team researched, including the two site visits that were conducted. The last section, Issues in Implementing a System discusses some changes in industry organization due to technology, some success factors, and possible roles for the government, as well as the next steps to take to implement a system in Canada.

BACKGROUND

Structure and Characteristics of the Tourism Industry

Tourism is a major Canadian industry sector with important contributions to our gross national product. It encompasses many sub-sectors including transportation, accommodation, food and beverages, events and attractions, as well as the sales and distribution sub-sectors. It is made up of diverse and fragmented activities which are united only by the fact that the people involved are travelling away from their homes.

It is only natural then, that these people would be major consumers of information. One of the characteristics of the tourism industry is the enormous amount of information which must be kept on hand and updated regularly. A tourist requires endless information in the form of data on tourist destinations, transportation, accommodations, entertainment, availability, prices, etc. Tourism officers and travel agents must assist the tourist with all this information. Without adequate and up-to-date information, they are unable to perform this function.

The illusive nature of the industry makes it very hard to predict the number of tourists to expect. Tourism volumes are affected day to day by many factors such as the threat of terrorists abroad, the Canadian dollar value in foreign countries, airline strikes and both domestic and foreign political situations.

The extreme changes in tourism and travel responses have made it even more difficult to forecast. To add to that, travel and attraction visit decisions have become more spontaneous. All of these changes have continued to keep travel marketing executives trying to second guess the marketplace.

Growth of Sectors

The tourism industry has experienced a significant rate of growth since the early 1970s, in the order of 6% to 7% per annum. Predictions are optimistic that this pattern of growth will continue into the 1990s.

Changes in social trends will have a major influence in determining the amount and nature of holidays and travel in the future. The main trends which are expected to affect the tourism industry are the shifts in population structure, larger disposable incomes, changing social values and lifestyles, and increased leisure time.

The population is growing older. "The number of people who are over 65 years of age is expected to grow from 11.3 percent today to 12.5 percent by 1990.... Higher disposable incomes and better health are likely to lead to more travelling by this age group in the future.... "Baby Boomers," those born between 1946 and 1964, are expected to make up 44 percent of the population by 1990."(1) They too are expected to increase leisure travel because of their relatively high disposable incomes.

Social values and lifestyles are rapidly changing. A significant number of people, both young and old, will be living alone. Rising divorce levels have brought about new types of family groupings, as evidenced by the increase in single-parent households.

Although most of these trends are expected to increase leisure time and the desire to travel, other trends are working to decrease or eliminate the need for travel. The rapid development of gymnastics clubs with swimming pools, saunas and many other facilities is a factor working towards reducing the need to travel. Why travel to get a sun tan when you can get one at a health club in winter?

Technological innovations are one of the many changes expected to have an effect on the frequency and length of travel.

> "Growth in teleconferencing is anticipated as technology continues to improve. This is expected to reduce long-distance travel but increase short-distance travel, as participants journey to regional centres for access to teleconferencing equipment." (2)

In addition to traditional teleconferencing, recent technical advances in the area of video conferencing can be expected to further impact the business travel.

Business travel now accounts for the largest group of travellers in North America. These travellers tend to be between the ages of 25 to 44, with approximately 40 percent of this group being women. The increased household income due to the number of double-income families is expected to encourage leisure travel. These families are taking shorter, more frequent trips as a result of conflicting work schedules.

Future Prospects

Rising educational standards are producing tourists with higher levels of knowledge and awareness. Today's tourists demand a higher standard of service and value for their money. Young and old tourists alike will be looking for destinations and packages that offer more than a view and a chance to enjoy the weather. They are concerned about the quality of the tourism experience in all aspects. Tourists will be looking for more educational forms of entertainment, a need which the cultural sector is quite capable of fulfilling.

An example of a destination which has responded to the needs of today's tourist is the West Edmonton Mall. The Mall has succeeded to attract visitors because of its combination of leisure facilities and shopping. Other examples are the many buildings of historical significance that are turned into tourist attractions.

Changes in working patterns (more flexible hours, growth in part-time work and shared jobs, unemployment) will demand for different types of tourist destinations, activities and increased tourism in unconventional peak seasons. Destinations which offer activities, experiences and learning will be the ones which draw the business of the more demanding and better educated tourist of the 1990s.

NEW TECHNOLOGY AND APPLICATIONS ON HORIZON

New Technology

The tourism industry has undergone rapid technological change throughout the 1980s. Although the term videotex has been around for a long time, interactive videotex is fairly new. Interactive videotex allows two-way communication between users. It is an electronic information sending system. A television monitor which is linked to the public telephone network is used to display information, made up of text and graphics, which is stored on a central database.

Recent progress in data processing and telecommunications have made it possible to reach the consumers in their homes. Technology is already in place to allow the consumer to access an enormous amount of tourism information. However, not enough people currently own home computers and modems and as a result there are not enough customers for this type of system. Perhaps the development of portable terminals and modems as well as the rapidly declining cost of hardware may speed up the adoption of videotex systems in private households. This would mean that a telephone is all that is required to access a variety of information databases.

Electronic media in visual form is rapidly spreading in Canada. Video tapes and video discs are the fastest growing medium being adopted by private tourism firms. Several variations of videotex systems offering tourism-related information are being expanded and improved.

The advances in artificial intelligence are other developments which are significant to the tourism industry. Software based on artificial intelligence principles would enable the consumer or travel agent to give parameters such as date of travel, length of stay, budget, and other

parameters defining travel arrangements, to the reservation system. The system would then automatically plan a travel route or generate a list of travel products for the consumer to choose from.

This trend of rapid technological change is likely to continue into the 1990s. The possibilities are limited only by the creativity and ingenuity of organizations involved in tourism-related activities.

Applications

In the past few years, innovations in computer and communications technology have found increased application in the tourism and cultural sector. Through the use of automated systems, it is possible to reserve a room at a resort across the country, look up local attractions and cultural events, plan and book a fly-drive vacation, and so on.

In the future, there will be a greater quantity of information technologies in the home, the community and in workplaces. The trend is towards "self-service."

> "A new automated hotel registration system was introduced by the Fujita chain in a new 1801-room hotel in Tokyo in 1984 which totally eliminates any contact with front office staff. The completely automated system registers guests, issues a room "key" in the form of a magnetic card, balances the guest accounts, issues statements and accepts credit card payment. Check-out procedures take 45 seconds." (3)

The potential tourist can, without leaving the home or otherwise inconveniencing themselves, see pictures and videos of holiday destinations, events and attractions and make the necessary reservations and obtain tickets through voice recognition and transfer funds electronically to vendors by magnetic card.

Already, computerized boarding passes and automated pre-selection of seats is in use. Before long, public-access ticketing machines located at railway stations, airports and in the home will become increasingly widespread. The introduction of videotex/videodisc equipment in travel agencies will allow the customer to watch videos of destinations and attractions and obtain information on price and availability.

The most growth in the application of computer technology is likely to be in the area of on-line travel counselling, customized travel information, and more efficient ways of handling inquiries. To fully automate the reservation function, however, will require a large amount of co-ordination since this would mean that all the facilities involved have to be linked to the system via telecommunication networks.

Benefits to Tourism and Cultural Sectors

The human element, which is so important to the tourism and cultural sectors, is not being replaced by technology. If technology is implemented correctly, technology can complement work. Technology can enhance employee productivity, increase customer satisfaction, as well as reduce costs and improve profitability by improving operational efficiency.

Used as a marketing medium, it can assist in promoting the organization's products by providing accurate and timely information to a variety of locations. These products can range from travel services and accommodations to cultural activities.

The combination of interactive videotex and advances in telecommunications allows the different sectors to communicate with each other. Interfacing of hotel information systems with other travel systems can benefit the related organizations, since a tourist usually is interested in making accommodation reservations in conjunction with other travel, restaurant and entertainment reservations.

ADOPTION OF NEW TECHNOLOGY

Issues Affecting Rate of Adoption

The human character of tourism makes it necessary to store, process and communicate an enormous amount of information. Traditionally, this information has been imparted by means of printed material with all its associated problems of bulk and updating. The tourism industry is one which is highly suited to, and in need of, the advantages that technology can bring.

The use of technology in all the sub-sectors of the tourism industry is expanding rapidly. Computer innovations are giving rise to many new applications and improved capabilities. Hardware and software costs are declining and the range of available software is rapidly growing.

> "In one generation, progress in computer science has been fabulous. It has brought about revolutionary improvements in memory capacity, while the quality, complexity and speed of the operations handled have been combined with an almost incredible degree of miniturization and reduction in cost." (4)

Software costs are declining as standardized software packages are becoming available for an increasing number of applications. Communication costs are falling with the availability of integrated systems and new data transmission technologies such as fiber optics. Innovations in other system components, such as laser printers, are also reducing system costs. This declining cost of hardware and software makes it possible to tackle problems that seemed insurmountable a few years ago.

Systems have become easier to use with the introduction of improved man-machine interfaces such as touch-sensitive screens and pointing devices such as light pens and the computer mouse.

Developments in automated technology are acting to enhance system effectiveness. Communication systems are becoming more effective through the development of voice, video, and digital data transmission. The rapid development of new databases and iNet, which facilitates the linking of many databases, has also enhanced system effectiveness.

The combined progress of telecommunications and computerization has created new possibilities, making large computers and extensive data banks much more accessible.

Increased office automation is leading to a much greater public awareness and appreciation of the potential of automated technology.

This combination of increasing systems effectiveness, decreasing cost and increased public acceptance will encourage the continuing diffusion of technology in all sub-sectors of the tourism industry.

Segments Where Adoption is Fastest

Airlines, railways and large hotel chains were the first tourism organizations to utilize computerization in order to deal with administrative problems. Of these organizations, airlines are possibly the most sophisticated users of technology in the tourism industry.

> "The airlines, as the first segment of the industry to automate, have tended to show the direction to go in." (5)

Automation is critical for airline reservations and sales, ticketing, management and flight control, as the information required is voluminous and must travel around the globe with a high degree of precision.

Computers are becoming more common across the sub-sectors in the tourism industry in business operations, planning and marketing. Many railroad companies have automated their reservation systems. The tourism industry as a whole, however, still lacks in systems as comprehensive as those of airlines. The number of systems available for hotel applications are such that hotel owners are faced with too many options to choose from, whereas, systems to promote cultural events and attractions are extremely limited.

Companies which have been using technology in the past are likely to continue to do so in the future. These organizations are the ones most likely to emphasize the introduction of new technology as a part of their overall corporate strategy.

Constraints to Adoption of Technology

Although the declining costs of hardware and software is facilitating the acquisition of computerized information systems, adoption of technology in many of the tourism sub-sectors is lagging far behind the technical achievements. There exists many barriers to the adoption of technology caused in part by economic constraints, lack of education and attitudes towards technology.

Constraints such as initial costs of acquiring hardware and software, installing it and training people to use the system are making it difficult for many operators, in any industry, to adopt technology. In tourism, the cost of maintaining and updating the ever-changing and enormous amount of tourism data is a cause for many companies, who have attempted to computerize, to fail.

Awareness of the importance of good business practices and where technology fits into daily operations is low. Many potential users are

missing opportunities due to lack of knowledge about applicability and value of computer systems. Adoption of new technology also depends on whether the different organizations involved will perceive a need to use computers for tourism and cultural information.

It is very difficult to estimate public reaction to computer innovations. The human nature of the industry may lead to rejection of technology for unpredictable psychological reasons. There exists some resistance to advances in technology. There is a fear that technology will create job loss and replace human beings with machines. People prefer to deal with another human or a human voice at the end of the phone line. However, the next generation will be significantly more accustomed to using computer technology and will be much more at ease with it.

CURRENT AND FUTURE SYSTEMS

Use of technology for the promotion of cultural events is still limited. Some of the systems discussed below have incorporated information on cultural events as one of the many functions which deal with various tourism sub-sectors. Other systems have not included cultural information as a function of their system, however, they are presented here to demonstrate the different technologies being used in the tourism industry as a whole and how these technologies can be applied in a similar fashion to promote the cultural sector. These systems vary in sophistication and cost and demonstrate alternative conceptual designs for potential implementation in Canada.

Travel Manitoba

In 1984, Travel Manitoba developed a Telidon-based travel information system which provided tourists with up-to-date information on up-coming events, things to do in Manitoba, as well as road conditions. Since then, Travel Manitoba's system has undergone many changes in the type of information provided, and in the type of software and hardware technology used. What was originally a centralized database with a network of telephone-linked videotex terminals has evolved into a series of stand-alone Electronic Laser Videodisk Information System (ELVIS). The need for these stand-alone units came about because of the rising costs of the technology initially used, as well as problems experienced with telecommunications to remote areas of the province.

Travel Manitoba developed the system as a marketing and information tool. These kiosks were placed in Tourist Information Centres throughout the province. The kiosks are not meant to replace the human Travel Counsellors, but rather, to work with them in providing the traveller with quick and up-to-date information on things to see and do in Manitoba. Currently, there are five ELVIS units in operation with plans of installing four more in 1988. Two of these units will travel to various marketing functions in the United

States and Canada, such as sport and boatshows, mall promotions and festivals. Tourists can access information by following instructions on the kiosk video screen and by touching the screen in specified places.

The next phase, which is currently under development, will allow tourists to review information on accommodations and to place reservations with the hotel or motel of their choice. This new phase is called the Electronic Automated Reservations System (EARS) and is scheduled for implementation in the summer of 1988.

System Demonstration

When not in use, the system displays a colorful screen that says "Touch Here For More Information." This is the attention page. If it is not touched, the system starts to play short video segments accompanied by music and narration. Once the screen is touched, whether during a video segment or from the attention page, the main menu is displayed. The four categories to choose from are:

- Weekend Getaway
- Hotels
- Manitoba Video Clips
- Money/Metric Conversions

Selecting Weekend Getaway would take you to a list of attractions such as parks and zoos. Selecting parks, for example, would display a park location map of the province and allow the visitor to select a park by touching the screen in the appropriate location. Having selected a park, an individual slide of the park overlayed with textual information, is displayed. The system then automatically displays a list of facilities at that park.

The Hotels option on the main menu takes us through a similar process. The first screen displays a map of Manitoba and prompts the visitor

to select a region for which they would like to see possible accommodations. Selecting East, for example, will list hotels in East Manitoba by name, as well as indicate the price range of each hotel. Once a hotel is selected, the system displays two video images of the resort. The visitor can then choose to view a list of amenities for that resort. They then have the option of making a reservation, picking another hotel, or returning to the main menu. When they have found a hotel at which they would like to make a reservation, they can touch the screen in the appropriate location and automatically placea reverse charge call to the selected hotel. Picking up the hand set is all that is required to complete the reservation with the hotel reservation desk. A printout with directions to the hotel, along with some useful coupons, will come out of a slot just below the screen.

The Manitoba Film Digest option will take the visitor to a screen that lists attractions ranging from city life to beaches and cultural events such as folkloric festivals. Touching one of these attractions will show a short narrated video segment of the attraction.

Hardware/Software

To a tourist, ELVIS/EARS looks like a small booth with a screen, much like a video game. What they don't know is that inside this simple-looking booth is $20,000 worth of sophisticated equipment. Each kiosk consists of an IBM-XT microcomputer, a Sony VDX-1000 Videotex Decoder, and an Intelligent Videodisc unit, all integrated and invisible to the user. Travel Manitoba has designed this system using Cableshare's hardware and system software. Cableshare is a Computer Service Bureau located in London, Ontario.

Funding

Funding for this project is provided by the Department of Tourism, in cooperation with the federal government. The participating properties which are listed on EARS will pay an annual fee of $100, which will cover the costs of printing maps and coupons as well as an annual update of information. Each

property must also pay for having their facilities photographed, and for the telephone calls they receive. For 1987/88, the Federal/Provincial Tourism Agreement will pay the $10,000 production cost of transferring film to videodisc. After this, the cost of any updates and the majority of operating costs will be divided among the properties requesting changes. At the present time, it requires two people working full time to operate and maintain the system.

Past Experience

Initially, Travel Manitoba was maintaining a calendar of events and information on road conditions of major highways under construction. The updating of this extremely volatile information proved to be labour-intensive and a decision was made not to include these functions in the new phase of ELVIS/EARS.

Travel Manitoba has tried many forms of hardware to allow the users to interact with the system. The original system used keyboards and required the visitor to interact using this keyboard. Experience proved that the system was frequently malfunctioning due to inappropriate commands being entered. As well, the keyboards themselves were failing due to a combination of high use and, to some degree, abuse. They decided to take away the keyboard and switch the monitor to an infrared touch screen. This worked well for a while, until dust started collecting on the inside edges of the touch screen which resulted in blocking of the infrared light beams. This again caused significant problems in terms of reliability. Travel Manitoba is now using pressure sensitive touch screens in problem areas, and so far there have been no complaints. The infrared touch screens are used in areas with adequate climate control.

Other experiences to learn from are with respect to designing screens with text overlaying video. One must pay particular attention to the readability of the text, specifically the combination of colour and graphics.

Sun Teleguide

On June 1, 1985, Sun Teleguide launched an electronic information system which provided visitors to Las Vegas with up-to-date information on what is going on around town, ranging from hotel shows to cultural events. With over 60 terminals located in transportation centres, hotel lobbies, malls, tourist information centres and other high-traffic areas throughout the city, visitors and residents can plan an evening out or an entire vacation. Sun Teleguide originated from Infomart of Toronto which had their own Teleguide network of 500 public terminals throughout the city. The Toronto Teleguide system was funded by the Ministry of Tourism and Recreation. Due to financial problems and political conflict, a decision was made not to continue with Teleguide in Toronto.

Sun Teleguide is part of an international Teleguide network. Each month, San Francisco, Orlando, Tampa, Tokyo and Singapore send Sun Teleguide a current tape of their entire database and they receive a current tape of the Las Vegas database. Visitors from other cities who have Teleguide can plan the things they want to see and do before they arrive in Las Vegas.

Teleguide is an effective marketing and promotional vehicle for tourism related industries. The system uses videotex technology which allows visitors to view detailed information on accommodations, restaurants, events, and various service-oriented businesses in the form of animated graphics overlayed with text. Its central database makes it easy to update price changes, as well as add new tours and events.

Since its initiation in 1985, Sun Teleguide has changed its original keypad, which used numbers to cross reference items displaying on the screen, to an alphanumeric key pad which allows users to enter information such as their names and addresses. Another change is the installation of printers in all the terminals. These changes have enabled advertisers to offer

money-saving coupons for shows, meals, tours and shopping. As well, it allows them to conduct surveys, collect names for mailing lists, and provides them with on-line market research and lead generation.

Future enhancements to the present system include the addition of a credit card reader which will check the validity of the credit card and automatically bill the customer. This feature is expected to open the door to many new functions such as banking, bill payment and shopping. Sun Teleguide will also be extending their 24-hour cable television service to include information on cultural and sporting events, movie and show listings, as well as the real estate program, in addition to the already featured restaurant review.

Functions and Features

A tourist who is visiting Las Vegas would have a difficult time avoiding a Sun Teleguide terminal. As they get off the plane and walk towards the baggage claim, they will have already come across two terminals. Whether they stay in their hotel or decide to go shopping, a Sun Teleguide is always close at hand and ready to provide them with fast, up-to-date information about what to do in Las Vegas. Each terminal is tailored to its location in order to give priority to nearby businesses and attractions. For example, the first screen which displays when a user presses "begin" has that hotel or restaurant's logo, along with a personalized menu. Also, the coupons which print from that terminal will be specific to its location (i.e., Las Vegas Hilton coupons will not print at the terminal in the Holiday Casino lobby). The main index which is accessible from all terminals has the following options:

1. Casinos and Gaming
2. Show Guide and Entertainment
3. Restaurants
4. Places to Stay
5. Events
6. Sports
7. Lifestyles
8. Temperature
9. Weather
10. Time
11. Biorythms
12. Shopping
13. Services
14. Attractions
15. Airport, Tours and Transportation
16. Community Information
17. Money News
18. Real Estate
19. New on Teleguide
20. Teleguide Cities
21. Valentine Cards

By following the instructions on the screen and by using the alphanumeric keypad, the user can perform the following functions:

Casinos & Gaming

- displays a list of casinos and detailed information on each
- give crash courses in the basics of table games through a series of screens

Show Guide and Entertainment

- displays movie and show listings by name, category and theatre

Restaurants

- view local restaurants by location, type and name, as well as get detailed information on atmosphere, menu, prices and specials

Places to Stay

- provides detailed information on accommodations by name, price range and location

Events and Sports

- provides the ability to order tickets for shows and events and charge it on a credit card by entering information using the keypad; the tickets can be picked up at the appropriate box offices
- provides information on team standings, game schedules and results
- provides information on cultural events taking place in Las Vegas

Lifestyles

- provides helpful hints on cosmetics, sports and recreation

Temperature

- provides current temperature using animated graphics of a thermometer

Weather

- provides local and national weather

Time

- provides current time

Biorythms

- displays a graph of the users biorythm when a date of birth is entered

Shopping

- provides shopping information such as upcoming fashion shows, gifts available with special purchases and sales events
- dispenses coupons redeemable for free gifts and discounts
- on-line credit card applications for department stores

Services

- provides information on country and state services and statewide recreation areas

Attractions

- displays lists of museums and galleries, as well as providing detailed information about each

Airport, Tours and Transportation

- provides information on schedules and lists tours offered in the area

Community Information

- provides users with information on what's happening in the area

Money News

- a daily update of the Dow Jones Averages, Gold, the American Dollar, and 30-year Treasury Bond rates

Real Estate

- provides listings of commercial properties and residential developments
- view real estate ads with graphics of exteriors, interior floor plans, site plans and a list of amenities

New on Teleguide

- highlights new information listed on Teleguide

Valentine Cards

- can order and pay for customized cards which can later be picked up at specified locations

In addition to all these functions and features, the restaurant review can be seen on cable TV. This, however, only allows the viewer to look at the screens of information which are displayed for 12 seconds each.

Hardware and Software

A Sun Teleguide kiosk is made up of a dumb terminal with a limited alphanumeric keypad, a color monitor and a printer, all packaged in a user friendly booth. Each of these units is worth approximately $10,000. The main computer which performs all the processing is located at Sun Teleguide's Headquarters. This is a VAX minicomputer from Digital Equipment Corporation. Information is updated centrally and fed to the network of terminals via dedicated telephone lines at a 4800 baud rate. The original software for this system was bought from the parent company, Informart, in Toronto. Some modifications have been made since then to extend its functionality. A sophisticated terminal tracking system allows the technicians to monitor the network of terminals 24 hours a day and informs them when a unit is not functioning properly. Sun Teleguide currently employs a full time staff of approximately twenty-five people to operate and maintain the system. Operating costs run from $100,000 to $150,000 per month.

Funding

Sun Teleguide is being supported by a combination of funding from The Las Vegas Sun newspaper and the revenue generated by those who buy time and space in the system. Some of the information provided is paid for by the community, for example, the Time, Sports and Biorythm options are sponsored by a local radio station, Sports Tips are sponsored by a registered physical therapist in Las Vegas. There is no charge to the user or to the sites at which the kiosks are located. The cost of installing a unit at a site is covered by Sun Teleguide. Some sample rates for which the clients listed on the system are receiving service are shown below. These rates are those which were effective June 1, 1987, and are listed in order to give an idea of the costs. They do not necessarily reflect the present rates.

Service	Rate (U.S. Dollars)
One-time fee for page creation	$145/page
Monthly storage and processing (for up to 25 pages)	$22.92/page
Page updates and changes	$55/hour
Electronic marketing research surveys	$875/month or $600/month for 3 consecutive months
Lead generation	$775/month or $500/month for 3 consecutive months

In addition to these service rates, the clients will pay a commission for each sale generated through Sun Teleguide. The consumers will also pay a service charge when processing a transaction such as purchasing tickets or other items.

Key-Ask Systems

Key-Ask System is a multi-lingual computerized tourist information system which was designed as a direction finder for visitors to the 1988 Winter Olympic Games.

The primary features of the Key-Ask computer system are as follows:

- The ability to direct those who are not familiar with Calgary or the surrounding area to the desired destination in an easy and concise manner.

- Provides information about the destination, its services and products available to the consumer.

- Provides a printout containing directions and further information.

- The ability to communicate in four languages: English, French, German and Spanish.

- Provides descriptions and directions to all Olympic venues and attractions.

- Prints discount coupons.

The hardware consists of a microcomputer with a keyboard and printer connected to it. The computer, which is installed in the lobbies of eight major local hotels, provides information on the location of tourist and Olympic sites, restaurant listings and retail outlets.

The visitor uses the Key-Ask System by first locating the destination (i.e., restaurant, museums, etc.) in the manual directory. By entering a code number from the directory entry into the system, the visitor is provided with additional information and directions on a printout. The 8 1/2" x 11" printout which is produced, contains the following information:

- name of selection
- address
- telephone number
- exact directions to location
- number of kilometers
- estimated time of travel
- description or information about desired destination.

The system has been programmed to handle English, French, German and Spanish for Olympic visitors, but can communicate in seven languages. It was developed for the Pan-Am Games in Indianapolis. The developer of this system spent more than a year developing the software, while college professors did the translations.

There is no charge to the users or to the hotels in which the computer is located. It is funded by the organizations listed on the system. Businesses and sites wishing to be included in the computer's memory are charged an average annual fee of $795. This fee covers the cost of translation and of tailoring the information to the listing, since the directions change depending on where the computer is located. Although Key-Ask has not yet realized any profits, they attribute this to the fact that the system is so new and are optimistic about its future.

Major Airlines

As was noted earlier, airlines were the first sub-sector of the industry to automate. They are still among the leaders in terms of adoption of new technology. Air Canada and American Airlines are two of the many airline companies who have taken initiatives in the trend towards "self-service." In addition to its Reservec system, Air Canada is currently developing a system which will allow travellers to perform the following functions:

- watch videos of chosen destinations
- look at pictures of accommodations
- inquire about amenities, prices and availability of hotels
- inquire about flight and cruise schedules, prices and availability
- reserve and place a deposit using a major credit card
- view shopping videos and make purchases.

Air Canada's system can also be extended to include information on cultural events and attractions which can be seen at the chosen destination.

American Airlines has extended its EAASY SABRE system to allow travellers to book their own airline, hotel and car rental reservations from the office or home. To use this system, one must subscribe to any of the

participating public data networks and have the use of a microcomputer with a modem or any kind of communicating terminal. The system is available 24 hours a day, 7 days a week. Other associates listed on EAASY SABRE include business supply companies, greetings/gift services, theatre tickets/events, and maps/travel guides. It also allows the user to check current weather conditions or the forecast for the next three days in the city they will be visiting.

Another "self-service" system is American Airlines Travel Teller. This is a computerized self-service travel centre which allows the traveller to get reservations, tickets and boarding passes on-line. Travel Teller functions much like an automatic banking machine. A major credit card will activate the device and by selecting buttons located beside the screen or using the keyboard to enter detailed information, the traveller can make reservations, purchase tickets and obtain boarding passes for all American Airlines and American Eagle flights. As well, Travel Teller will print out boarding passes, tickets and receipts. American Airlines is also currently developing a leisure system which will put brochures into video.

Check Inns

Check Inns is a computerized reservation and information service located in Halifax, Nova Scotia. It is a non-profit organization which has been in operation since 1979, working to promote tourism in Nova Scotia. Funding for Check Inns is provided by the Nova Scotia Department of Tourism and the Tourism Industry Association of Nova Scotia. By calling a toll-free number, a tourist can reserve accommodation and obtain information ranging from special festivals and events, to weather forecasts and the price of lobster. For the Check Inns operator, the information is accessible by entering keywords. For example, if a traveller calls and asks for accommodation information, then location, property type and desired facilities are keyed into the computer and the system automatically displays a list of properties meeting the criteria and indicates their availability.

The Check Inns database includes information on motels, resorts, campgrounds, restaurants, tours, attractions, historic sites, locations of diesel and fuel stations, and so on. The reservation system is based on room availability. The participating hotels provide Check Inns with room blocks, and as each reservation is made, the room inventory decreases. Other services provided by Check Inns include special promotions, tourism programs and software development.

People Planners

TRIP (Total Recreation Itinerary Planning) is a leisure information system developed by Garrell Nicholes, a leisure counsellor and president of The People Planners. The purpose of TRIP is to provide the leisure traveller with immediate and easy-access information on destinations, accommodations, activities, attractions, transportation, shopping, restaurants and any other information which might be useful to the leisure traveller. It can provide video graphics of destinations and maps, tailor a tour package to the traveller's individual interest, and make reservations for transportation, dining, accommodations and activities throughout the world.

TRIP was designed to provide tourism businesses with an easy and economical way to collect, manage and access travel and recreational information. The software provides the flexibility to utilize existing databases to store information on places and activities in an inventory format. This inventory of information can then be linked to the TRIP electronic, public access system.

> "The flexibility of TRIP can offer local residents or those travelling to distant locations, a public access stand-alone service, a CRS network, or provide through an 800 number, a reservation and information service tailored to personal preference profiles." (6)

TRIP terminals can be located anywhere where a communications network is available, making it accessible to travel agents, hotels, homes, etc.

Checklist

Checklist is an automated leisure travel information system. By entering a "starting point," and "ending point" and the categories for which relevant points of interest are to be included, Checklist will immediately plan an itinerary for the traveller. It will print a custom itinerary, including travel directions to each point from the point before it on the itinerary, and a brief description of each selected point. Checklist will also display one or more digitized images of the points of interest on the screen, as well as on a printout. Additional information on hours of operation, average cost of a visit and recommended time to allow for a visit can be obtained. Checklist automatically inserts hotel, restaurant and attraction ads which are paid for by the sponsors. Checklist itself, however, is totally unbiased and includes all points of interest regardless of sponsorship.

Trintex

IBM Corp. and Sears Roebuck and Co. have formed a joint venture called Trintex. They have developed a system which would allow the use of a personal computer to turn the home into a "transaction centre." This videotex system, which is called Prodigy, will be a service starting sometime this year in Atlanta and San Francisco. Trintex is putting an estimated $250 million into the system.

> "If Trintex succeeds, the field known as videotex, could grow and thrive. If it flops, it could die or remain a marginally profitable business attractive to computer buffs and a handful of business people." (7)

Prodigy will allow the user to perform the following functions from home using a computer and a communications modem that would hook up to Prodigy:

- order groceries
- shop from up to 70 companies such as Speigel, Neiman Marcus, and J.C. Penney
- book airline tickets, reserve hotels and rent cars using American Airlines' EAASY SABRE system
- place orders to buy and sell stocks
- pay bills, check balances, transfer funds and apply for loans through an affiliated bank
- send messages to anyone else who subscribes to Prodigy
- participate in contests and play games.

Although not enough people own a home computer and a communications modem at present, Trintex is confident that falling prices of computers and the increase in the number of double-income families will increase the demand for such time-saving services. Trintex will make sure Prodigy is successful by heavily promoting it, signing up advertisers and making the system inexpensive and easy to use.

ISSUES OF IMPLEMENTING A SYSTEM

Changes in Organization of Industry Due to Technology

Although technological innovations may have many benefits to the tourism industry, they may also be the cause of, or facilitate the loss of employment, due to changes in skill sets required and restructuring of the industry.

There are many fears in the industry about the impact of automation on job design and job loss. Traditional skills, such as those required for clerical operations, are becoming less important, while personnel possessing technical skills and knowledge, are in heavy demand. New job descriptions and career structures are emerging, including videotex programmers and viewdata managers.

The computer is contributing to the restructuring of the industry, concentrating activity in fewer and larger hands. It can become an instrument with which the strong can stifle the weak.

Larger corporations, who are experienced and capable of establishing and operating automated systems, are gaining a competitive advantage. Small businesses are experiencing difficulty in keeping up. Small hotels will be bypassed as customers are attracted to the big chains by computerized reservations. Small travel agents are in a similar situation, but the information and counselling services they offer are even more threatened by remote data processing.

Travel agencies of all sizes are concerned about their survival in the long term because of the restructuring. This restructuring will come about due to new information technologies allowing the suppliers to sell their

products directly to the consumer. A loss of revenue of five to ten percent can seriously threaten the survival of a single-office agency. New computer products and services to meet the needs and financial capabilities of virtually any size of operation are continually being developed. As long as the travel agent can offer better quality, more comprehensive and personalized service than a customer can access on his own terminal, then the risk of loss of revenues may be reduced.

> "The tourism sector, being service-oriented and requiring large numbers of workers capable of dealing with the diverse needs of consumers, is probably more immune to the severe employment impacts of technological change than are manufacturing sectors." (8)

Travel agencies should themselves take advantage of the new technologies and act on the opportunities it can give them to enhance their own competitive performance in the industry.

In the long run, if present trends continue, the consumer will be able to get information, compare, make reservations and place orders from his home through a quick, simple and economical transaction. At that time, the independent agency may have a niche in the tourism industry as a consultant based in office premises. The agents would match travel products to suit individual tastes and requirements. As long as travel trade intermediaries are able to offer consumers good quality personal service at a competitive price, they will always have a role to play.

Success Factors

The success that an automated visitor information system will enjoy will depend largely on factors such as the extent to which it is user friendly, its flexibility, how it is paid for, and its accessibility.

In talking with a number of people who have designed and implemented such systems, we have identified some criteria which must be met in order for a public access system to be successful.

Although many people are becoming increasingly comfortable with computer technology, there remains a significant portion of the population which is not. The system must be easy to use, self-explanatory and informative, yet providing the required information quickly and efficiently. It needs to look clean, attractive and colorful enough to lure the curious consumer into trying it.

The location of the terminals is very important in determining the success of the system. The locations which were found to be best are:

- places where the need for information is primary, such as tourist information centres, libraries and travel agencies. These locations would also help in monitoring the systems initially.

- high traffic areas such as hotels, airports and shopping malls where it would be easily accessible.

Flexibility in both hardware and software is essential. Although a mainframe has very large storage and processing capacity, it is limited in its ability to interface with non-similar systems. Software also runs the risk of being incompatible with that needed for later applications. One must not get locked into a particular technology which may quickly become obsolete. In designing a system, some basic guidelines should be kept in mind:

- the logic must be kept as simple as possible so that future enhancements would be easily incorporated

- the menu items must be useful

- graphics should be simple so as to display quickly
- complicated information systems should be avoided because of their difficulty to maintain
- the storage medium should be inexpensive to update
- "teasers" should be provided which would tempt the user to access sections of the database which they otherwise would not.

There has been much controversy over who should pay for the system. Some of the ways which a system like this can be funded is through:

- the companies who are listed on the system
- coin operation
- commission from the sales of business services
- government support
- service charges which the consumer will pay when making a transaction.

Funding must come from a combination of the above, with Government possibly providing some "seed" money to develop the system. Once the system is up and running, Government would phase itself out and allow the free market to determine the best way to pay for itself.

Implementation of such a system should be in stages, starting with an electronic brochure in order for people to get accustomed to using the system for inquiry. This information must be constantly changing in order for it to

be useful not only to the tourists but also to the people who live in the area. Eventually, however, an electronic brochure will not be enough to make it successful. It must do more than present information which is already published elsewhere. It must have a transaction mode which would allow the user to purchase goods and services. Such a system must also be heavily marketed in order to make people aware of its existence.

Government Role

As far as government responsibility is concerned, the most fundamental activity is that of increasing awareness and understanding of computer applications throughout the tourism and cultural sectors. Small firms and independent operators lack an overview of technological changes and what it means to them. The government should take on a leadership role in the areas of education and training. It should develop an overview of the impact of computerization and encourage tourist and cultural organizations to get involved with the technology and use it as an advertising and selling medium.

Government should also be concerned with creating and maintaining as favourable an environment as possible in which innovations in the computer industry can be adapted smoothly to the tourism and cultural sectors. It should attempt to make the transition to automated systems as efficient as possible by providing information on available systems and designing guidelines for evaluating them. This should reduce the number of organizations which are incurring unnecessary expenses due to the purchase of equipment that is not entirely suited to their needs.

At the present time, collection and dissemination of tourism information is disorganized, with a lot of duplication of effort and unnecessary cost. The government should play a co-ordinating role in the implementation and operation of a computerized tourism data base and in the dissemination of information outside of Canada. It should seek to integrate

and set standards for compatibility of systems which already exist with those which are still under development or in the selection stage. Although this would not be cost-effective for any individual business, it would provide an overall benefit to a group of related businesses. Another role would be that of providing consumer protection by monitoring the quality and accuracy of tourist information.

Tourism businesses may need financial assistance from government because the initial costs could deter them from adopting technology, or from upgrading existing ones. This assistance could help in reducing the perceived risk of technology investment.

There exists different attitudes towards the role of the government in relation to computerization of the tourism industry. Many are afraid that government involvement might lead to excessive control over access to information and greater costs. Government, along with representatives from the various tourism sub-sectors, should address these concerns in order to find the right balance of government involvement.

Government must take the next steps towards implementing a tourism and cultural information system in Canada. The first step should be to conduct a feasibility study which would look at the different alternatives for implementing such a system in greater detail. Whether the government's role is one of coordinating the tourism and cultural organizations' efforts or performing the study itself is an issue which must be evaluated.

The study should consider the following issues in determining the alternatives for implementation:

- Government's role and the degree of government involvement.

- The geographic scope of the system. Should it be city, province or nationwide?

- The hardware configuration. Should it be a large centralized system serving the entire geographic scope or should it be distributed or standalone systems operating independently?

- Accessibility of the system. Should the terminals be located in information centres, high traffic areas or should it be accessible from the home? Should it be accessible in major foreign cities?

- The scope of the activities addressed. Should it provide information on cultural events only or include information dealing with other sub-sectors of the tourism industry (i.e.. restaurants, hotels, etc.)?

- The functional scope of the system. Should the system be used for inquiring only, making reservations or should it tie into a ticketing system?

- Funding. Should the system be supported by government grant, the users, travel agencies or by private business?

- Maintenance. Who will maintain both the hardware and the data on the system?

These and many more questions need to be addressed in order to develop the alternatives for the potential system.

Once these alternatives have been identified, a detailed cost benefit analysis outlining the pros and cons of each alternative should be conducted. Based on the outcome of the feasibility study, an Information Plan for the implementation of the system should be developed.

References

1. Laventhol and Harwath. U.S. Lodging Industry 1987: 55th Annual Report on Hotel and Motor Hotel Operations, 1987 Edition, 1987, p. 18

2. Starr Group, The. The Computerization of the Canadian Travel Industry - A State of the Art Overview Final Report, prepared for Corporate Policy and Strategic Planning, Corporate Affairs, Tourism Canada, February 1983, p. 13

3. _____. The Canadian Tourism Plant -- Some Trends and New Developments, prepared for Tourism Canada, November 1984, p. 9

4. _____. Adapting New Technologies to Tourism: Remote Data Processing as a Case Study Among Others, prepared for World Tourism Organization, 1983, p. 17

5. Booth, Ron. "Automation in the Travel Industry." Tourism Management, December 1983, p. 297

6. Garrell E. Nicholes, President, The People Planners, Salt Lake City, Utah, 1986.

7. Lewyn, Mark. "Trintex Pushes Videotex Ahead." USA Today. January 5, 1988, p. 7B.

8. Bureau of Management Consulting. Computer/Communications - Technology in the Tourism Sector: Executive Summary, prepared for Tourism Canada, Project No. 3-4406, March 1984, p. 8

Bibliography

Bruce, Margaret. "Information Technology: Changes in the Travel Trade." Tourism Management, December 1987, pp. 290-295.

Martin, W.H. and Mason, S. "Social Trends and Tourism Futures." Tourism Management, June 1987, pp. 112-114.

Sheldon, Pauline J. "Computers - Tourism Applications." Tourism Management, September 1987, pp. 258-262.

Starr Group, The. The Computerization of the Canadian Travel Industry - A State of the Art Overview Final Report, prepared for Corporate Policy and Strategic Planning, Corporate Affairs, Tourism Canada, February 1983.

Booth, Ron. "Automation in the Travel Industry." Tourism Management, December 1983, pp. 296-301.

_____. The Canadian Tourism Plant -- Some Trends and New Developments, prepared for Tourism Canada, November 1984.

_____. The Impact of High Technology on the Tourism Industry in British Columbia, prepared for the Department of Regional Industrial Expansion and the Ministry of Industry and Small Business Development.

Bureau of Management Consulting. Computer/Communications - Technology in the Tourism Sector: Part II: Review of Trends and Development of a Comprehensive Policy, prepared for Tourism Canada, Project No. 3-4406, March 1984.

Peat, Marwick and Partners. The Use of Computer Technology by the U.S. Tourism Industry: A State of the Art Overview of Canada's Major Foreign Competitors, prepared for Corporate Policy and Strategic Planning, Corporate Affairs, Tourism Canada, March 1983.

Bureau of Management Consulting. Computer/Communications - Technology in the Tourism Sector: Part I: An Assessment of Current Government Policies and Programs, prepared for Tourism Canada, Project No. 3-4406, March 1984.

Sheldon, Pauline J. "The Impact of Technology on the Hotel Industry." Tourism Management, December 1983, pp. 269-278.

Bruce, Margaret. "New Technology and the Future of Tourism. Tourism Management, June 1987, pp. 115-120.

Laventhol and Harwath. U.S. Lodging Industry 1987: 55th Annual Report on Hotel and Motor Hotel Operations, 1987 Edition, 1987.

Pannell Kerr Forster. Trends in the Hotel Industry, USA Edition, 1987.

_____. Consumer Protection and Information for Tourists, prepared for World Tourism Organization, 1982.

Lewyn, Mark. "Trintex Pushes Videotex Ahead." USA Today. January 5, 1988, p. 7B.

_____. Adapting New Technologies to Tourism: Remote Data Processing as a Case Study Among Others, prepared for World Tourism Organization, 1983.

Slattery, J. Desmond. Travel Research: The Catalyst for Worldwide Tourism Marketing, Proceedings of the Fifteenth Annual Conference for the Travel and Tourism Research Association, June 24-27, 1984.

Slattery, J. Desmond. The Battle for Market Share: Strategies in Research & Marketing, Proceedings of the Sixteenth Annual Conference for the Travel and Tourism Research Association, June 9-12, 1985.

Bureau of Economic and Business Research, Graduate School of Business, University of Utah. Tourism and Technology: A Growing Partnership, Proceedings of the Seventeenth Annual Conference for the Travel and Tourism Research Association, June 15-18, 1986.

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INDUSTRY