

**U.S. DEPARTMENT OF COMMERCE
National Telecommunications & Information Administration**

Evaluation of the
Telecommunications and Information Infrastructure Assistance Program

Case Study Report

**Pennsylvania Kiosk Project
94068**

Harrisburg, Pennsylvania

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PREFACE

On behalf of the National Telecommunications and Information (NTIA), I am pleased to share the following report that is one of a series of case studies conducted on grants awarded by the Telecommunications and Information Infrastructure Assistance Program (TIIAP) in 1994 and 1995. The case studies are part of the program's evaluation effort designed to gain knowledge about the effects and lessons of TIIAP-funded projects. NTIA contracted Westat, a research and consulting firm, to perform an independent evaluation of the program's first two years of grants. The evaluation consisted of a mail survey of 206 grant recipient organizations and in-depth case studies of selected projects. In February, 1999, the Commerce Department released Westat's evaluation report.

The projects selected for the case studies cover a broad range of program types and sizes, planning grants as well as demonstration grants, and they show varying degrees of implementation, sustainability, and replication. Westat selected the projects to represent a cross-section of all projects funded in the program's first two years. Specific selection criteria included geographic region, target population, project application area, project category, and size of award. To conduct each case study, Westat reviewed all project files, including progress reports and the final report, and conducted site visits. The site visits consisted of project demonstrations and interviews with project staff, representatives of partner organizations, and project end users.

NTIA thanks the case study participants for their time and their willingness to share not only their successes but their difficulties, too. Most of all, we applaud their pioneering efforts to bring the benefits of advanced telecommunications and information technologies to communities in need. We are excited about the case studies and lessons they contain. It is through the dissemination of these lessons that we extend the benefits of TIIAP-funded projects nationwide.

We hope you find this case study report valuable and encourage you to read other TIIAP case studies. You may obtain additional case studies and other TIIAP publications, including the final Westat evaluation report, through the NTIA web site (www.ntia.doc.gov) or by calling the TIIAP office at (202) 482-2048. We also are interested in your feedback. If you have comments on this case study or suggestions on how TIIAP can better provide information on the results and lessons of its grants, please contact Francine E. Jefferson, Ph.D. at (202) 482-2048 or by email at fjefferson@ntia.doc.gov.

Larry Irving
Assistant Secretary for Communications and Information

TIAP CASE STUDY

Pennsylvania Kiosk Project

A. EXECUTIVE SUMMARY

The Pennsylvania Kiosk Project was designed to “take government services out of government offices and place them more directly into the lifestyles of the people.” To achieve this objective, the Central Management Information Center (a state agency) contracted with a private company to install kiosks in 10 locations across the Commonwealth of Pennsylvania. Like the automatic teller machines (ATMs) used by the banking industry, these kiosks employed simple-to-use touch-screen interfaces that linked consumers with a variety of government services. Individuals could use the kiosks to access information and services from seven agencies and Penn State University. The proposed end users were Commonwealth citizens who wanted off-site access to government services and tourists in need of information about Pennsylvania’s attractions.

The kiosks were placed in a variety of urban, suburban, and rural communities across the Commonwealth. In addition, an effort was made to locate the kiosks in both affluent and impoverished settings. Several of the kiosks were relocated over the life of the project.

Project staff indicated that Info/Pennsylvania was a technological success in that the project was able to situate functional, user-friendly kiosks in 10 sites across the Commonwealth. They also concluded, however, that Info/Pennsylvania failed to accomplish its primary objective, i.e., persuading a significant number of the Commonwealth’s residents to use kiosks to conduct their business with government agencies. Overall, a considerable number of individuals accessed the system when it first became operational. According to project data, the entire kiosk system registered a total of 11,353 hits in July 1995 (or 366 hits per day). By the end of the project, however, the number of hits had decreased dramatically. For the month of September 1997 (the month before the decision was made to discontinue the project), the total number of hits across the Commonwealth had declined to 5,471 (or 182 hits per day). These data suggest that the project’s impact on the Commonwealth’s residents diminished over time. Project staff indicated that this decline was likely due to a combination of factors, including citizens’ increased access to government services via the Internet, agencies’ unwillingness to update information on the kiosks (due to high costs, time delays, and the comparative ease of updating Internet data), and the system’s limited ability to complete financial transactions (e.g., to cover the cost of a driver’s license or campground reservation).

The kiosk project was officially discontinued in October 1997. Several reasons for the project’s termination were cited in an October 14, 1997, memorandum, including (1) a dramatic decline in public usage; (2) a loss of enthusiasm among the agencies participating in the pilot study; and (3) the emergence of the Internet as “the preferred method of providing access to public information.” At the time of the site visit, the Historical and Museum Commission had agreed to take possession of the 10 kiosks. Nine of the kiosks were in storage; the tenth remained on display at a historical site in Somerset. The Commission plans to distribute the kiosks to 10 of its tourist sites as stand-alone components. Each kiosk will be reprogrammed with site-specific information.

Project staff identified a number of lessons that they had learned as a result of their participation in the TIIAP project.

- **Don't use a given technology for the sake of using that given technology.** Project staff suggested that technology-based initiatives should be motivated by a need to resolve a given problem (as opposed to a desire to justify the use of a given technology).
- **Conduct a needs assessment at the outset of the project.** Project staff indicated that a survey of the system's proposed end users could have been used to (1) measure the extent of the problem (i.e., lack of access to government services) that the project was designed to address; (2) assess whether residents would use the kiosks to obtain general information and conduct government business; and (3) obtain feedback on the types of services that should be offered on the system, the best types of places to locate the kiosks, and the methods that might be used to notify residents about kiosk availability.
- **It is difficult for projects to simultaneously focus on multiple, competing goals.** The selection of sites was complicated by the contradictory nature of the kiosk project's two primary goals. The first goal (expanding access to government services) required that kiosks be located in settings frequented by the Commonwealth's residents (e.g., shopping malls, stores). The second goal (informing visitors about parks and historic attractions) required that kiosks be located in settings frequented by tourists (e.g., turnpike rest stops, museums, airport terminals, visitor centers). Meeting these two goals would have, at the least, required the deployment of a significantly greater number of kiosks.
- **It can be costly and inefficient to implement a kiosk system on a statewide basis.** Given Pennsylvania's size and diversity, project staff indicated that it would have been unreasonably expensive to saturate the entire Commonwealth with kiosks. The longer term success of other kiosks projects suggests that this approach might be best suited for clearly defined geographic entity e.g., a city or county. The dispersion of 10 kiosks across the state hindered efforts to test this approach in a more concentrated region.
- **Location is critical.** Project staff indicated that a kiosk placement within a given venue was very important. Kiosks hidden in the corner of a shopping mall generally received very little usage. Conversely, kiosks placed near the entrance of a store or shopping mall were generally well utilized.
- **Functionality is critical.** The kiosk system, as originally envisioned, was designed to eliminate the need for residents to visit a government office to complete certain transactions. As the system progressed, its limited functionality made it necessary for residents to visit government agencies to complete transactions initiated on the kiosks. The system's limited functionality, coupled with the ease of accessing similar information on the Internet, contributed to the project's eventual demise.
- **Project outreach must be conducted on an ongoing basis.** Project staff indicated that usage increased each time that a public outreach campaign was mounted. As such, they suggested that similar efforts need to plan on conducting outreach on a regular basis to keep residents informed about and interested in the project.

- **The cost of developing software segments needs to be defined in a manner that is equitable to both contractors and the government entity.** The high cost of maintaining and revising the system made it increasingly difficult for the Commonwealth to sustain the kiosk project. Project staff suggested that future efforts should include taking the necessary steps to identify all short- and long-term costs and contractual arrangements. If the longer term costs or contractual arrangements are not favorable to the government entity, an alternative contractor or approach may be needed.
- **Pay attention to emerging technologies.** The kiosk project was implemented at the beginning of the Internet revolution. Project staff indicated that the advent of the Internet served to magnify the shortcomings of the kiosk approach. As a result, several respondents suggested that future projects consider all available and emerging technologies before investing in a long-term approach.

B. OVERVIEW

Purpose and General Approach

The Info/Pennsylvania kiosk pilot project was designed to “take government services out of government offices and place them more directly into the lifestyles of the people” (project closeout report). An overall objective was to “eliminate some of the negative aspects of communicating with the government,” e.g., inconvenient office hours, long lines, harried employees, poor parking conditions, and difficulty in locating a desired component of government services. Other goals included providing the public with an easy and convenient mechanism for transacting state business, reducing clerical costs, enhancing the quality of government services, and presenting “single government face for a complex bureaucracy to the citizens” (project application narrative).

o achieve these objectives, the project contracted with a private company to install kiosks in 10 locations across the Commonwealth of Pennsylvania. Like the automatic teller machines (ATMs) used by the banking industry, these kiosks employed simple to use touch-screen interfaces that linked consumers with a variety of government services. The kiosks featured an interactive television screen with a “hostess” who helped users navigate the range of options and services.¹ A significant feature was that the kiosk’s introductory menu was organized by categories of services (as opposed to by specific government agencies or programs). Thus, users looking for work could search a generic menu and click on “employment” without having to first access an index for Department of Labor programs. This approach made it significantly easier for users to locate information on a given subject. As shown in Exhibit 1, residents could use the kiosks to access information and services from seven agencies and Penn State University. For example, the kiosks could be used to:

- Access up-to-date information about employment opportunities across the Commonwealth;

¹The hostess was actually an actress who read from a series of scripts supplied by the participating government agencies.

Exhibit 1: Information and services available through the Info/Pennsylvania Pilot Project

Department of Health, Welfare, and Education

- Children's Health Insurance Program
- Teenage Pregnancy/Maternal Child Health Care
- Early Intervention Child Health Care
- Public Service Announcement for Tobacco, Alcohol, Cocaine/Crack

Department of Labor and Industry

- Job Search/Job Search Strategies
- Job Training/Employment Rights
- Unemployment Compensation
- Youth and Community Services
- Services for People with Disabilities

Department of Transportation

- License and Registration Information and Forms for New Residents
- Information on Obtaining Duplicate Title and/or Driver's License

Historical and Museum Commission

- Historical Sites/The State Museum
- Historical Preservation/Archives and History
- General Commission Information
- The History Quiz

Department of Aging

- Health Care (PACE, PrimeTime, Alzheimers, In-Home Day Care, Senior Centers)
- Help at Home (In-Home Services, Home & Day Care, Family Caregiver)
- Employment and Community (Senior Centers, Volunteer Opportunity, Jobs)
- Money Matters (Insurance, Medicare, Medicaid, Social Security, Property Tax, Rental Security)
- Protection From Abuse (Self Neglect, Financial Exploitation, Physical Abuse, To Get Help)
- Nursing Homes and Other Facilities (OPTIONS, Ombudsman, Domestic and Personal Care)
- Transportation (Regional Contacts)

Department of Conservation and Natural Resources

- Land Activities (bicycling, hiking, backpacking, hunting, horseback riding, play grounds, play fields, picnicking, pavilions)
- Water Activities (white water boating, sailing, fishing, swimming, canoeing, power boats)
- Winter Activities (sledding, skiing, ice skating, ice fishing, snowmobiling, ice boating)
- Environmental Education (seasonal education programs, environmental education centers)
- Accommodations (modern or rustic cabins, camping, organized group tenting, group camps)

Department of Commerce

- Finding a Regional Tourism Contact
- Select an Attraction By Touching a Map
- Order a Visitor's Guide
- Explore Your Interests

Penn State University

- Penn State Today and President's Message
 - Academic Offerings
 - Locations, Admissions, and Financial Aid
 - Academic Calendar
 - Arts, Athletics, and More
 - Directory, Main Campus, Locations, Cooperative Extensions, Alumni
-

- Access information on a variety of the Commonwealth's human service programs;
- View public service announcements on tobacco, alcohol, or cocaine/crack;
- Obtain forms to apply for driver's licenses and automobile registrations;
- Access information about the Commonwealth's parks and historical sites;
- Request a visitor's guide to the Commonwealth's tourist attractions; and
- Obtain information about Penn State University.

The proposed end users were Commonwealth citizens who wanted off-site access to government services and tourists in need of information about Pennsylvania's attractions. As shown in Exhibit 2, kiosks were located in a cross-section of cities, suburbs, and rural communities. To maximize the initiative's visibility, an effort was made to situate each kiosk in a venue commonly used by the general public, including shopping malls, grocery stores, a public library, a state park, an interstate visitors center, and an office building with government agencies for welfare and employment. Over the 21-month life of the TIIAP project, a total of 348 subjects were accessed over 770,000 times by over 219,000 individuals.

Kiosks were equipped with a printer that enabled users to receive paper copies of information, as well as forms (e.g., driver's license applications) that could then be mailed to the appropriate agency. Each kiosk housed a multimedia microcomputer system that was linked to the statewide network. This network connection enabled the Commonwealth to monitor each kiosk site and to perform remote updates as needed.

Description of Grant Recipients and Project Partners

Grant Recipient. The grant recipient for the demonstration grant was the Bureau of Central Management Information Center (CMIC), Office of Administration, Commonwealth of Pennsylvania. The CMIC is responsible for providing computer services that encompass more than one department within the state. The CMIC coordinates the statewide payroll, personnel, civil service, accounting, and retirement computer systems.

CMIC was responsible for selecting the kiosk technology used in the Info/Pennsylvania pilot project. They were also responsible for coordinating all of the state agencies that participated in the pilot project. Originally, five systems analysts worked on the project, one as the project manager and four as programmers.

Project Contractors. North Communications was contracted by the Commonwealth of Pennsylvania to develop the Info/Pennsylvania kiosk network. The company was founded in 1986 and is headquartered in Santa Monica, CA. North had developed kiosk systems for state, city, and county governments, including Texas, California, Hawaii, Kansas, South Dakota, New Mexico, Washington, Los Angeles, Ventura, San Diego, and Tulare Counties. In some of these projects, North developed multimedia kiosk networks capable of performing real-time transactions between citizens and government.

North was responsible for providing the equipment and software for the kiosks. They met with CMIC and the individual state agencies to design the information segments for the kiosk system. They were also responsible for maintaining the network and servicing the individual units.

Project Partners. State agencies that participated in the project included the Department of Labor and Industry, Department of Health, Historical Museum Commission, Department of Conservation and Natural Resources, Department of Aging, State System of Higher Education, and the Department of Transportation. After North Communications was contracted, CMIC invited the agencies to join in the project. One participant noted that the one agency missing at the beginning of the project was the Department of Commerce. This individual felt that Info/Pennsylvania was a marketing tool, and that Commerce would have been an obvious choice to take the lead in coordinating the marketing efforts of the pilot project. The Department of Commerce did join the project at a later date.

The individual agencies participating in Info/Pennsylvania were responsible for deciding what kind of information they wanted to disseminate through the kiosk system, and worked with North Communications to design their individual segments. Once the agencies had an idea of what they were looking for, they had to begin the process of scripting the sequences for the segments. They were also responsible for scripting changes to the system that would ensure timeliness of the information.

Project Costs

The original project cost was \$374,890, of which \$125,000 (33 percent) was provided through the TIIAP grant. The total cost of the kiosks was \$400,000, and developing an informational segment cost about \$25,000. However, the cost of developing an interactive application (e.g., an application in which users could request that information be printed out) was considerably higher (\$150,000). Each of the agencies participating in the pilot were required to contribute to the development of their information segments. In addition, some agencies contributed additional funds to cover the costs of supplementary kiosk functions. For example, the Department of Conservation and Natural Resources contributed an additional \$5,000 to cover the cost of making it even easier for users to locate a given topic.

C. PROJECT CONTEXT

Community Description

The kiosks were placed in a variety of urban, suburban, and rural communities across the Commonwealth. In addition, an effort was made to locate the kiosks in both affluent and impoverished settings. As shown in Exhibit 2, two kiosks were initially located in or near Philadelphia (at a city grocery store in a disadvantaged neighborhood and a shopping mall in a northwest suburb) and one was located in suburban Pittsburgh. The remaining sites were in shopping malls or grocery stores in five mid-size cities: Erie, Harrisburg (2 sites), Johnstown, Reading, and Scranton (2 sites). As the project progressed, five of the kiosks were relocated to other communities. Thus, by the end of the TIIAP project, kiosks had been installed at a welfare/employment office in Chester (halfway between Philadelphia and Wilmington, Delaware), a state park on Lake Erie (near Erie), a state museum in Harrisburg, a public library in Pittsburgh, and a visitors center on the Maryland/Pennsylvania border.

Exhibit 2: Summary information about kiosk sites

City	Setting	Average Daily Usage*	
		July 1995	September 1997
Camp Hill (suburban Harrisburg)	shopping mall	32.9	n/a
Chester (suburban Philadelphia)	welfare/employment office	n/a	24.7
Erie	shopping mall	48.1	20.5
Erie	Presque Island State Park	n/a	11.8
Harrisburg	grocery store	14.4	n/a
Harrisburg	state museum	n/a	15.0
Johnstown	shopping mall	38.7	13.6
Langhorne (suburban Philadelphia)	shopping mall	40.0	n/a
Philadelphia	grocery store	39.0	20.4
Pittsburgh	public library	n/a	7.9
Reading	shopping mall	41.2	n/a
Scranton	shopping mall	62.4	24.2
Scranton	shopping mall	19.3	n/a
State Line	visitors center	n/a	44.6
West Mifflin (suburban Pittsburgh)	shopping mall	32.6	15.4
Statewide Average		366.2	182.4

*These data are somewhat misleading in that the system was not able to distinguish individuals who used the kiosks more than once in a given month. "N/A" signifies that the kiosk was at a different location during a given reporting period. Source: Monthly reports generated by North Communications

Status of Telecommunications/Information Infrastructure Environment Prior to the TIAP Project

At the time that the project was conceived, the Internet was not widely available. The kiosk approach was therefore viewed as an innovative and cost-effective approach for streamlining government activities and disseminating information about government services to the Commonwealth's residents. As is discussed in Section D, however, the proliferation of the Internet rendered the kiosk approach obsolete almost as soon as it was implemented.

D. PROJECT IMPLEMENTATION

Activities/Milestones that Occurred Prior to the TIAP Grant Period

Project staff interviewed for this case study were not associated with the project prior to the TIAP grant period. As a result, the site visit team did not obtain any detailed information about the project's inception. At some point prior to being awarded the TIAP grant, North Communications (and several other vendors) were contacted by CMIC regarding kiosk technology they could offer the Commonwealth of Pennsylvania. In July 1994, North Communications was contracted to develop Info/Pennsylvania.

Activities and Milestones that Occurred During the TIIAP Grant Period

Development of the Info/Pennsylvania kiosk system began in October 1994. Some program administrators learned about the project through an announcement that CMIC distributed to state agency announcements. Others were contacted directly by CMIC staff and encouraged to participate in the initiative. CMIC scheduled meetings with individuals from participating agencies and North Communications to begin the application development process. Each agency had the latitude to determine the content of the segment, including the style and order of information delivery. As part of this process, North Communications designed graphical source flowcharts that had to be approved by the individual agency before development could continue. Agencies then worked with North Communications to develop scripts that would facilitate seamless flow of the segments. Once a script was approved by the appropriate agency, North Communications was responsible for producing all narration, text, and audio. CMIC was responsible for collecting any available videos or still photographs from participating agencies and scheduling film shoots that would complete the script. North Communications was responsible for processing and editing all media and digitizing the resulting video to ensure compatibility for computer use. Before the finished product could be added to the kiosk system, North communications had to receive approval from the appropriate state agency and CMIC.

The first agency segments included one for the Department of Labor and Industry and another for the Health Department. The Labor segment included a regularly updated database of current job listings that users could search. The segment designed for the Health Department featured public service announcements about health issues. Additional information segments for the Department of Transportation were completed by February 1995. These segments included information on licensing and registration procedures along with an option to print required forms for renewing a driver's license or vehicle registration. The Department hoped to eventually expand the system to include secure transactions that would allow residents to actually renew licenses and registrations through the kiosk system, paying any necessary fees by credit or debit cards. This additional capability was not achieved. Thus, while the system provided residents a means to quickly obtain forms, these forms still had to be taken to an authorized location to be processed.

In March 1995 a welcome message from the newly elected governor was taped and added to the system. The governor's office used the occasion to issue press releases promoting Info/Pennsylvania throughout the state. At the same time, the information segments for the Historical Museum Commission were completed. Unlike agencies that were looking for ways to improve services (or to improve access to seniors), the Historical Museum Commission saw the kiosk system as a marketing tool to promote the 26 sites located throughout the state under their administration. As such, information and video footage was included for each of the 26 sites. The segments were designed to allow users to locate and print information on any site included in the system. At the end of the segment, users were invited to complete a short history quiz, and those who did were offered a coupon for a free copy of the Historical Museum Commission's publication, *Heritage Magazine*, or a discount on admission to any site under their administration. In April 1995, an Info/Pennsylvania open house was held at the capitol for state agencies that were not currently involved in the project.

The information segments for State Parks was completed in April 1995. State Parks shared with the Historical Museum Commission the goal of using the Info/Pennsylvania system as a tool to promote their sites. State Parks worked with North Communications to ensure users could access information on the parks in a variety of ways, i.e., region, activity, or park name. Representatives from State Parks indicated that they had to pay an additional \$5,000 to North Communications for these added features. Video files from state parks that were already available were used for the segment, and others were filmed by North

Communications. Additionally, one State Parks representative who was very involved in the project supplied photograph of park scenery to North Communications.

The Department of Aging segment was completed in August 1995. It was designed to provide information for senior residents in Pennsylvania including eligibility requirements and application procedures for benefits, employment and community service, money matters, abuse prevention, and nursing homes. An open house was held at seven sites across the Commonwealth to announce the new segments and to increase public awareness of Info/Pennsylvania. Representatives were on site to distribute brochures and demonstrate the system to interested people.

During the last 6 months of the project (October 1995-March 1996), Info/Pennsylvania was exhibited at six job fairs within the state. Updates were made to ensure that the most current employment information was contained within the system at each fair. The system was also exhibited at the Pennsylvania Farm Show to expose more residents to the services offered by the state through the kiosks.

Activities/Milestones that Occurred Following the TIIAP Grant Period

Approximately 9 months after TIIAP funding ended, the Commonwealth of Pennsylvania terminated the project. Between the October 1996 expiration of the TIIAP grant and summer 1997, the kiosk system was maintained to some degree. CMIC personnel indicated that Transportation's Licensing Centers and Labor and Industry's employment listings were last updated in August 1997.

As is discussed later, a major factor that contributed to the end of Info/Pennsylvania was the emergence of web technology during the grant period. The World Wide Web allowed state agencies to disseminate information to a much wider audience and at a much lower cost than the kiosk system. In addition, state agencies found it much easier to revise information in a web environment to ensure that content was timely. As agency interest in participating in the system diminished, the CMIC decided to disconnect the units.

After the Commonwealth decided to terminate the kiosk project, letters were sent to state agencies inviting them to take over the kiosks. The Historical and Museum Commission was the only agency to express an interest in the kiosks. The Commission is hoping to use the 10 kiosks in some of their sites around the state to educate visitors about their 26 historical sites. As the system is proprietary, the Commission will be required to contract with North Communication for maintenance.

Issues

Site Selection. One of the most significant issues that project staff had to address was the selection of the communities that would participate in the pilot project. This issue was complicated by two factors. First, at the onset of the project, North Communications demonstrated a prototype kiosk system at the capitol building in Harrisburg. As a result of this demonstration, a number of the Commonwealth's prominent politicians wanted a kiosk in their home districts (the Governor's hometown of Scranton initially received two kiosks).² In an effort to satisfy various political constituencies, project staff indicated that they

²As the project progressed, kiosks that were underutilized were often moved to a different community, prompting a letter of protest from local politicians and legislators.

had to disperse the 10 kiosks around the Commonwealth. An alternative approach that was never tried would have been to assess the impact of saturating a single community (e.g., Philadelphia) with 10 kiosks.

A second factor that muddled the site selection process was the somewhat contradictory nature of the functions contained on the kiosks. On one level, the kiosks were designed to provide the Commonwealth's citizens with improved access to routine government functions, e.g., renewing a driver's license. To facilitate users' access to this function, project staff indicated that it made sense to situate kiosks in shopping malls and grocery stores. On another level, the kiosks were designed to provide residents and visitors with easy-to-access information about tourist attractions and recreational opportunities. To further this goal, representatives from some agencies suggested that kiosks should have also been located at visitor centers and tourist sites to test the technology's success at publicizing and promoting the Commonwealth.

As the study progressed (and agencies began to lose their enthusiasm for the kiosk approach), agencies began to have more influence in suggesting specific kiosk sites. By the end of the project, five of the kiosks had been relocated to a public library, a state park, a state museum, a visitors center, and an urban welfare office. Project staff indicated that the selection of these new sites reflected diminished usage in some of the original settings, as well as a need to maximize kiosk use among tourists.³

Project staff indicated that the underlying strategies regarding where kiosks should be placed within communities changed as the study progressed. Initially, the overriding goal was to make the Commonwealth's services more accessible to its residents by deploying kiosks in settings not traditionally associated with government, e.g., shopping malls, grocery stores. By the end of the project, however, some agencies were actually looking to establish kiosk sites within government offices. For example, a kiosk was installed at a Chester government center that operated welfare and job search programs. The intent at this site was to provide an interactive alternative to face-to-face meetings for learning about employment opportunities, obtaining guidance on job search strategies, and accessing up-to-date information on Unemployment Compensation. Nonetheless, project staff indicated that many clients continued to wait in line to obtain this information directly from a government worker.

Ongoing Maintenance of Kiosks. North Communications contracted with a private company in Pennsylvania to assure that each of the 10 kiosks was clean, operational, and well stocked with paper. The monthly cost for routine maintenance was \$500 per machine. As stated previously, each kiosk housed a multimedia microcomputer system that was linked to a statewide network. This network connection alerted staff at North Communications about problems as they arose. According to project staff, random spots checks provided evidence that some kiosks had not received any maintenance for extended periods of time.

Outreach. The project took several steps to publicize the kiosks. When the kiosks were initially installed, the project engaged in several outreach activities, including a kickoff with community leaders, and press releases through statewide and community news organizations. Throughout the project, special activities were used to promote the kiosks and increase their usage. For example:

- A 2-day open house was held at the capitol in April 1995. A kiosk was placed in the east wing of the main capitol building, with demonstrations being conducted with executive and legislative staff. While the event was used to publicize Info/Pennsylvania, another purpose was to encourage additional agencies to participate in the project.

³In at least one instance, an agency requested that kiosks not be located in areas frequented by tourists. The Department of Transportation indicated that placing kiosks at turnpike rest stops would result in longer visits, potentially producing a shortage of parking spaces.

- An open house was held at seven sites across the Commonwealth in August 1995 to introduce two new information segments and to raise public awareness of Info/Pennsylvania. The news media were present at six of the sites, and staff were on hand at all seven sites to hand out literature and help users navigate the system. Usage increased at all seven sites in the days following the presentations. It appears, however, that these gains were not sustained over a longer period of time.
- Info/Pennsylvania was exhibited at a series of job fairs across the Commonwealth. The purpose was to introduce the job search function to persons seeking employment.
- Info/Pennsylvania was exhibited at the Pennsylvania Farm Show in January 1996.
- Midway through the project, a new governor was elected. The taping of a message by the new governor provided the project with an opportunity to launch another marketing blitz.

In spite of these activities, project staff indicated that considerably more outreach was needed to sustain long-term interest in the kiosks. In addition, the shopping malls and grocery stores that housed the kiosks did not play a major role in publicizing the project (in fact, as is discussed later, kiosks were often placed in a corner of a mall or store where foot traffic was the lightest). Project staff also indicated that having the kiosks dispersed across the Commonwealth made it difficult to mount a successful and sustained outreach campaign.

Inclusion of Traditionally Disadvantaged Populations. One of the kiosks was located at a supermarket in a low-income neighborhood in Philadelphia. In July 1995, the site registered 39 hits per day, with half of the usage occurring during non-business hours, i.e., between 4 p.m. and 8 a.m. By September 1997, the site registered 20.4 hits per day, with almost two-thirds of the usage occurring during non-business hours. The project's final report notes that this site had the lowest percentage of users accessing job search-related topics. Monthly project data indicate that job search-related information accounted for only 14 percent of all topics accessed by users at this site in September 1997 (the average across the 10 kiosks for the same period was 23 percent). However, project data also indicate that job training-related information accounted for 6.7 percent of all topics accessed by users at this site in September 1997 (the average across all kiosks for the same period was 5.6 percent). Other frequently accessed topics at this site included substance abuse, children's health, child health care, and the Penn State main menu.

A second kiosk was eventually located in a welfare office in Chester. As stated previously, the decision to locate a kiosk within a government office represented a change in strategy, since the original intent had been to allow residents the opportunity to conduct their business away from a government building. In September 1997, the site registered 24.7 hits per day, with job search and job training information accounting for almost half of all topics accessed by users at this site.

Problems

Project staff indicated that a number of significant problems contributed to the underutilization and eventual demise of the Info/Pennsylvania initiative. The most prominent problems were the advent of the Internet, the high cost of maintaining and revising the kiosk system, and the legislature's unwillingness to allow financial transactions on the kiosks. These and other barriers are discussed below.

Improved Technology. When the project was first conceived, the Internet was not readily accessible. As a result, kiosks were viewed as a cost-effective mechanism for reaching a large segment of the Commonwealth's population. The advent of the Internet, however, made it difficult for project staff to justify continued support for the kiosks.

The Internet proved superior to the kiosks in several ways. First, residents could access the same information from their homes or businesses. People lacking access to a computer were often able to access the Internet at their local public library. As hits on websites increased, agencies with few hits on the kiosk system lost interest in the Info/Pennsylvania initiative. Second, people living outside of Pennsylvania could access information about the Commonwealth. This provided agencies such as the Historical and Museum Commission, Commerce, and Conservation and Natural Resources inexpensive forum for promoting Pennsylvania's attractions. It also allowed truckers to obtain any necessary permits before they transported hazardous materials through the Commonwealth. Third, as is discussed below, modifying websites required considerably less time and money than modifying the kiosks.

High Cost of Maintaining the Kiosk System. The cost of maintaining the ISDN lines that linked the 10 kiosks with North Communications in California was very expensive (approximately \$100,000 per year). In addition, the software contract between Pennsylvania and North Communications stipulated that the Commonwealth would pay for the development of the software segments. The use of these information segments would then be leased back to the Commonwealth. Under this arrangement, the Commonwealth would have to pay additional lease fees for every new kiosk that was added in the field. This arrangement made it difficult for project staff to advocate the purchase of the number of kiosks required to adequately saturate the Commonwealth. Eventually, the high costs associated with maintaining only 10 kiosks made it difficult for project staff to advocate that Info/Pennsylvania be continued.

High Cost of Making Changes to the Kiosk System. While some components of the kiosk system were designed to be updated on a daily or weekly basis (e.g., job listings), others segments were conceived as being updated on a less frequent basis (e.g., unemployment compensation, Penn State University's admission policies). As the project progressed, however, some agencies found it necessary to update existing information or add additional informational segments.

The process of revising informational segments was lengthy and costly (as much as \$30,000 for some changes). As stated previously, the kiosks portrayed a television screen instead of a computer. An interactive "hostess" helped users navigate the system by explaining the choices on the screen and video was interspersed with written information. These features, designed to improve the "friendliness" of the system, also made it more costly and difficult to make even the simplest of changes (e.g., updating a campground's telephone number). This high cost was due to a combination of factors, including the process of interweaving video and text, and the need to hire the same actress who played the hostess (wearing the same clothes and hairstyle) to read the revised scripts. As the project progressed, agencies eventually decided to focus their resources on maintaining and updating their websites. This, in turn, created a situation in which Internet information was up to date, while corresponding information on the kiosk was outdated. As discrepancies between the two information mediums intensified, it became more difficult for project staff to assert that the kiosk system should be maintained.

E. PROJECT ACCOMPLISHMENTS AND IMPACT

Project staff indicated that Info/Pennsylvania was a technological success in that the project was able to situate functional, user-friendly kiosks in 10 sites across the Commonwealth. They also concluded,

however, that Info/Pennsylvania failed to accomplish its primary objective, i.e., persuading a significant number of the Commonwealth's residents to use kiosks to conduct their business with government agencies.

Technology-Related Accomplishments

The project clearly met two of its primary technology-related goals. First, the project facilitated residents' access to government-related information and services. Residents were able to use the kiosks to obtain information and services without ever setting foot in a government building. Additionally, because kiosks could be accessed on evenings and weekends, users were able to obtain information during non-business hours when government offices were closed. In fact, according to project data, over two-fifths of users accessed the system between the hours of 4:00 p.m. and 8:00 a.m. (see Exhibit 3).

Second, the project resulted in a system that provided indepth content on a broad range of subjects. When fully implemented, Info/Pennsylvania contained information on 348 separate topics. Equally important, information and services were indexed according to subject area. Thus, users did not have to know which agency was responsible for administering a specific program to access information on a given topic. This approach made it significantly easier for users to locate information on a given subject.

Impact of Project on Direct End Users

A considerable number of individuals accessed the system when it first became operational. According to project data, the entire kiosk system registered a total of 11,353 hits in July 1995 (or 366 hits per day).⁴ During this period, one site registered 1,933 hits, and 8 of the 10 kiosks had over 1,000 hits. By the end of the project, however, the number of hits had decreased dramatically. For the month of September 1997 (the month before the decision was made to discontinue the project), the total number of hits across the Commonwealth had declined to 5,471 (or 182 hits per day). Only one site, a visitor's center on the Maryland/Pennsylvania border, registered more than 1,000 hits. These data suggest that the project's impact on the Commonwealth's residents diminished over time. As discussed previously, this decline was likely due to a combination of factors, including citizens' increased access to government services via the Internet, agency's unwillingness to update information on the kiosks (due to high costs, time delays, and the ease of updating Internet data), and the system's limited ability to complete financial transactions (e.g., to cover the cost of a drivers license or camp ground reservation).

⁴The system maintained information on the number of "hits" as opposed to the number of "users," i.e., an individual who accessed the system twice in a single day was counted twice.

Exhibit 3: Kiosk usage during non-business hours

City	Setting	Average Daily Usage*	
		July 1995	September 1997
Camp Hill (suburban Harrisburg)	shopping mall	43.7%	n/a
Chester (suburban Philadelphia)	welfare/employment office	n/a	13.3%
Erie	shopping mall	46.5%	51.0%
Erie	Presque Island State Park	n/a	5.9%
Harrisburg	grocery store	33.3%	n/a
Harrisburg	state museum	n/a	12.9%
Johnstown	shopping mall	51.3%	43.0%
Langhorne (suburban Philadelphia)	shopping mall	52.0%	n/a
Philadelphia	grocery store	49.9%	61.5%
Pittsburgh	public library	n/a	52.5%
Reading	shopping mall	47.1%	n/a
Scranton	shopping mall	42.2%	47.0%
Scranton	shopping mall	48.3%	n/a
State Line	visitors center	n/a	54.5%
West Mifflin (suburban Pittsburgh)	shopping mall	50.2%	51.5%
Total		47.0%	42.8%

*These data are somewhat misleading in that the system was not able to distinguish individuals who used the kiosks more than once in a given month. Non-business hours are defined as 4:00 p.m. to 8:00 a.m. Source: Monthly reports generated by North Communications

According to project data, almost two-fifths (39 percent) of users were under the age of 25, one-third (34 percent) were between the ages of 26-45, and one-quarter (26 percent) were over the age of 46. In addition, as shown in Exhibit 4, over one-quarter (27.8 percent) of the “touches”⁵ in September 1997 were on topics pertaining to tourist attractions (the high number of tourism-related touches was likely due to the kiosk at the visitor’s center in State Line, which averaged 45 hits per day in September 1997). In addition:

- Just under one-quarter (22.8 percent) of the touches were on topics pertaining to job search opportunities and strategies. These screens, updated on a daily basis, contained information on

⁵A “touch” refers to the specific information/service segments that users accessed. Thus, an individual who used the kiosk to (1) view a map of the Commonwealth’s driver license centers and (2) obtain information on driver license fee schedules would have registered two “touches” during a single “hit.”

as many as 60,000 jobs at any given time. According to the project’s final report, kiosks in high unemployment areas had a higher percentage of touches on topics related to job search.

- Almost 17 percent were on topics pertaining to Penn State University. Popular subjects included athletics, campus locations, the Nittany Lion, and academic offerings.
- Over 7 percent were on such health-related topics as substance abuse, children’s health, and child health care.
- Over 5 percent were on such job training-related topics as job center maps, job training, job center services, and occupational information.
- Over 5 percent were on topics related to state parks, e.g., attractions, seasonal activities.

Because followup data were never collected, it is not clear what impact, if any, the information obtained through the kiosks actually had on users. Data were never collected on the number of new and repeat users, the race/ethnicity of end users, or the impact that these applications had on end users. As is discussed in Section F, the system did include a survey for users. In addition, one agency attempted to track the number of visitors who learned about a given attraction through a kiosk.

Exhibit 4: Topics accessed by users in September 1997

Topic Area	Number of Touches	Percentage*
Tourism	6,776	27.8
Job Search Strategies	5,548	22.8
Penn State	4,024	16.5
Health	1,811	7.4
Job Training	1,374	5.6
State Parks	1,320	5.4
Museums	1,048	4.3
Aging	560	2.3
Transportation	533	2.2
Employment Rights	345	1.4
Unemployment Compensation	309	1.3
Youth and Community Services	307	1.3
Services For People With Disabilities	237	0.9
State Park Accommodations	142	0.6
Total	24,334	100.0

*Sum may not add to 100 percent due to rounding.
 Source: Monthly reports generated by North Communications

Impact of the Project on Grant Recipients and Project Partners

While the CMIC role in coordinating the information needs of the Commonwealth through the kiosk system came to a close, they took the lead in coordinating the web design efforts of the state. Through the TIIAP grant, CMIC assumed the lead role in coordinating the Commonwealth’s information dissemination

needs. As a result of the grant, the CMIC was in a position to coordinate the Commonwealth's Internet presence by serving as the lead contact for agencies seeking a presence on the World Wide Web. Interested agencies were required to submit a concept paper to CMIC that discussed the intended content of their website and how they would maintain it. CMIC reviewed these documents to ensure that the content was appropriate, accurate, and could not be misconstrued. Additionally, having all proposed web pages go through one office for approval ensured that all of the Commonwealth's pages would have the same look. Once in the state system, users can easily find web pages for any state agency.

Project staff indicated that their participation in Info/Pennsylvania eventually facilitated their efforts to develop websites for their agencies. Especially useful was the experience that CMIC and the participating agencies gained in developing scripts that could be used to disseminate information over the Internet. The project established CMIC as the focal point for coordinating Internet activities and for setting up mechanisms for launching home pages for individual agencies. Additionally, the TIIAP grant facilitated future working relationships between agencies that prior to the grant, had little or no involvement with each other. Now that the Commonwealth is focusing on the Internet to disseminate information, part of CMIC's role is to provide technical assistance to agencies seeking a web presence. CMIC regularly links agencies seeking assistance with other agencies who have the necessary technical expertise. For example, if CMIC gets a request from an agency that is having difficulty with certain applications, they will put the agency in contact with another group that has had success in the same area.

Project Goals Not Met

As discussed previously, the project was not able to meet one of its important goals. Specifically, the project never received approval to conduct financial transactions over the kiosks, thereby limiting the system's overall functionality. Thus, for example, the Department of Transportation was not able to offer residents the opportunity to use the kiosks to pay for their driver's license renewals. A number of respondents indicated that the decision to prohibit financial transactions removed one of the project's biggest selling points in that users would still be required to visit a government office to complete a given service.

Impact of TIIAP Support on the Initiative

Project staff indicated that the project would not have been possible without TIIAP's financial support.

F. Evaluation and Dissemination

Evaluation

The kiosks housed a multimedia microcomputer system that was linked to the statewide network. This network enabled project staff to monitor the number of hits (persons signing on to the system) and touches (topics accessed by users) registered by each of the kiosks. Reports, provided by North Communications on a monthly basis, covered the following topics:

- Total number of hits for each of the 10 kiosks (daily and monthly totals).

- Hours during which each of the 10 kiosks were being utilized (monthly totals).
- Percent of users who accessed the screens in English (daily and monthly totals).
- Topics accessed by users at each of the ten kiosks (monthly totals).
- Topics for which users printed out information at each of the ten kiosk sites (monthly totals).

The monthly reports also tabulated responses to a users' survey for each of the 10 kiosk sites.⁶ This survey was used to obtain information on (1) whether or not the respondent had previously used Info/Pennsylvania; (2) the respondent's age; (3) whether or not the respondent intended to use Info/Pennsylvania again; and (4) whether or not respondents found the kiosks easy to use. Two-thirds (68 percent) of persons responding to the survey in July 1995 indicated that they were using Info/Pennsylvania for the first time (64 percent of persons responding to the same survey in September 1997 indicated that they were first time users).⁷ In addition, over two-thirds (64 percent) of September 1995 respondents indicated that they planned to use Info/Pennsylvania again (by September, 1997, 73 percent of respondents indicated that they planned to use Info/Pennsylvania again).

The survey also contained several questions about the Commonwealth's history. Users who successfully completed these questions could claim one of three prizes, i.e., a coupon for free admission to a historic place, a coupon for free admission to the state museum planetarium, or a copy of *Pennsylvania Heritage Magazine*. The Historical and Museum Commission attempted to use these coupons to track the number of visitors who learned about its attractions through Info/Pennsylvania. However, because the historical sites never installed a reliable tracking system, no data were ever generated on the number of coupons turned in at any of the attractions.

On one level, the evaluation data did not provide project staff with adequate information on the impact that kiosks were having in the community. For example, there was no effort to track whether individuals who accessed the kiosk were able to prevent a subsequent trip to a government office. Nor did any of the historical sites use guest logs to determine whether their visitors had learned about the attraction on a kiosk.

On another level, the evaluation data did allow project staff to monitor usage trends. This information was used to assess (1) which kiosk sites were being underutilized; (2) which topics were most and least popular with users; and (3) the extent to which users were accessing the system during non-business hours. Ultimately, data on low-utilization rates across the 10 sites contributed to the project's decision to terminate the kiosk initiative.

Dissemination

Project staff participated in an effort to disseminate information about Info/Pennsylvania to other states. In May 1995, the project was featured at a national conference, Strategic Uses of Information Technologies in the Public Sector, at Harvard University. A major theme of the conference was re-

⁶The survey, administered throughout the project, generally had a very low response rate (14 percent in September 1997). In addition, no effort was made to avoid double counting of repeat users.

⁷As is discussed later, the response rate for the kiosk survey was 17 percent in July 1995, and 14 percent in September 1997.

engineering of paper-based processing to electronic methods. The project manager spoke about the kiosk project, how it started, and how the informational segments were designed and developed.

G. LESSONS LEARNED

Project staff identified a number of lessons that they had learned as a result of their participation in the TIIAP project. These lessons are summarized below.

Don't use a given technology for the sake of using that given technology. Project staff suggested that technology-based initiatives should be motivated by a need to resolve a given problem. They indicated that their predecessors may have been influenced by a desire to justify the use of a given technology i.e., kiosks. Had the sole motivation of the project's originators been to extend government services to as many residents as possible, they might have selected an alternative approach. In hindsight, project staff indicated that the kiosk approach did not represent a feasible and cost-effective approach for significantly improving residents' access to government services.

Conduct a needs assessment at the outset of the project. Project staff indicated that CMIC never assessed the needs of the population that was supposed to benefit from the kiosk project. A survey of the system's proposed end users could have been used to (1) measure the extent of the problem (i.e., lack of access to government services), and (2) assess whether residents would use the kiosks to obtain general information and conduct government business. Project staff agreed that such an assessment might have also provided the project with useful information about the types of services that should be offered on the system, the best types of places to locate the kiosks, and the methods that might be used to notify residents about the kiosks' availability.

It is difficult for projects to simultaneously focus on multiple, competing goals. The selection of sites was complicated by the contradictory nature of the kiosk project's two primary goals. The first goal (expanding access to government services) required that kiosks be located in settings frequented by the Commonwealth's residents (e.g., shopping malls, stores). The second goal (informing visitors about parks and historic attractions) required that kiosks be located in settings frequented by tourists (e.g., turnpike rest stops, museums, airport terminals, visitor centers). The initial settings favored the first goal. As the project progressed and usage decreased, steps were taken to situate kiosks in venues frequented by tourists. While usage at these visitor sites was generally high, project statistics demonstrate that tourists were not accessing many of the kiosk's resident-oriented functions (e.g., employment opportunities, driver's license renewals).

It can be costly and inefficient to implement a kiosk system on a statewide basis. Given Pennsylvania's size and diversity, project staff indicated that it would have been unreasonably expensive to saturate the entire Commonwealth with kiosks. The longer term success of other kiosk projects suggests that this approach is best suited for clearly defined geographic regions, e.g., a city or county.

Location is critical. Project staff indicated that a kiosk's placement within a given venue was very important. Kiosks hidden in the corner of a shopping mall generally received very little usage. Conversely, kiosks placed near the entrance of a store or shopping mall were generally well utilized. As such, project staff concluded that "a kiosk must be placed in the center of a busy walkway where it is very visible." Unfortunately, store owners were inclined to place kiosks in out-of-the-way places, so as not to distract from their own products. In one case, a store often hid their kiosk behind promotional displays, making the unit "difficult to see and access."

Functionality is critical. The kiosk system, as originally envisioned, was designed to eliminate the need for residents to visit a government office to complete certain transactions. As the system progressed, the system's limited functionality made it necessary for residents to visit government agencies to complete transactions initiated on the kiosks. The system's limited functionality, coupled with the ease of accessing similar information on the Internet, contributed to the project's eventual demise.

Project outreach must be conducted on an ongoing basis. Project staff indicated that usage increased each time that a public outreach campaign was mounted. As such, they suggested that similar efforts need to plan on conducting outreach on a regular basis to keep residents informed about and interested in the project.

The cost of developing software segments needs to be defined in a manner that is equitable to both contractors and the government entity. As stated previously, the high cost of maintaining and revising the system made it increasingly difficult for the Commonwealth to sustain the kiosk project. Project staff suggested that future efforts should take the necessary steps to identify all short- and long-term costs and contractual arrangements. If the longer term costs or contractual arrangements are not favorable to the government entity, an alternative contractor or approach may be needed.

Pay attention to emerging technologies. The kiosk project was implemented at the beginning of the Internet revolution. Project staff indicated that the advent of the Internet served to magnify the shortcomings of the kiosk approach. As a result, several respondents suggested that future projects research all available and emerging technologies before investing in a long-term approach.

H. FUTURE PLANS

The kiosk project was officially discontinued in October 1997. Several reasons for the project's termination were cited in an October 14, 1997, memorandum, including (1) a dramatic decline in public usage; (2) a loss of enthusiasm among the agencies participating in the pilot study, and (3) the emergence of the Internet as "the preferred method of providing access to public information."

At the time of the site visit, the Historical and Museum Commission had agreed to take possession of the 10 kiosks. Nine of the kiosks were in storage, while the tenth kiosk remained on display at a historical site in Somerset. The Commission plans to distribute the kiosks to ten of its tourist sites as stand-alone components. Each kiosk will be reprogrammed with site-specific information.