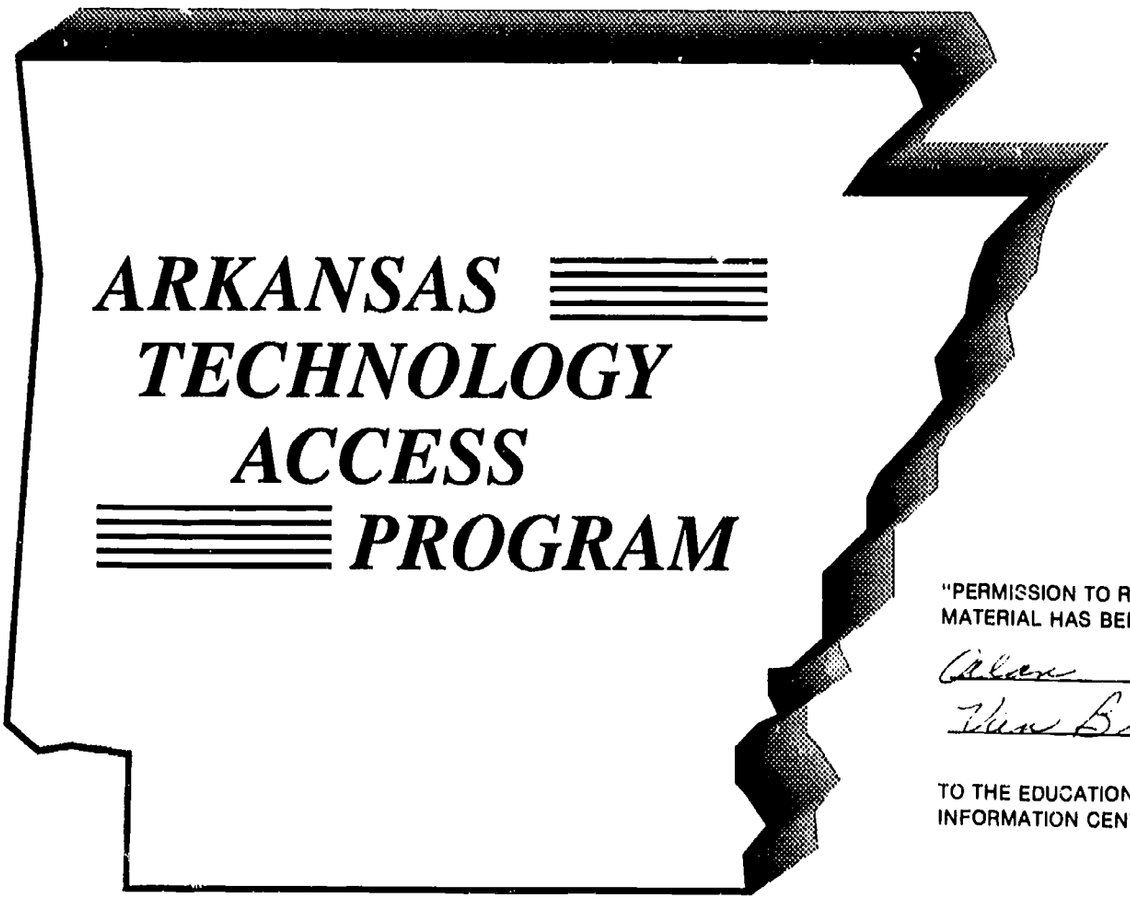
Think People... Think Technology.



ARKANSAS TECHNOLOGY ACCESS PROGRAM

Grant submitted by the Arkansas Department of Human Services, Division of Rehabilitation Services to the United States Department of Education, National Institute on Disability and Rehabilitation Research (84.224, State Grants Program), Washington, D.C. 20202

July 24, 1989

**Prepared by a writing team coordinated by:
Alan VanBiervliet, Ph.D., Howard P. Parette, Jr., Ed.D., Sue Gaskin, and Burton D. Pusch**

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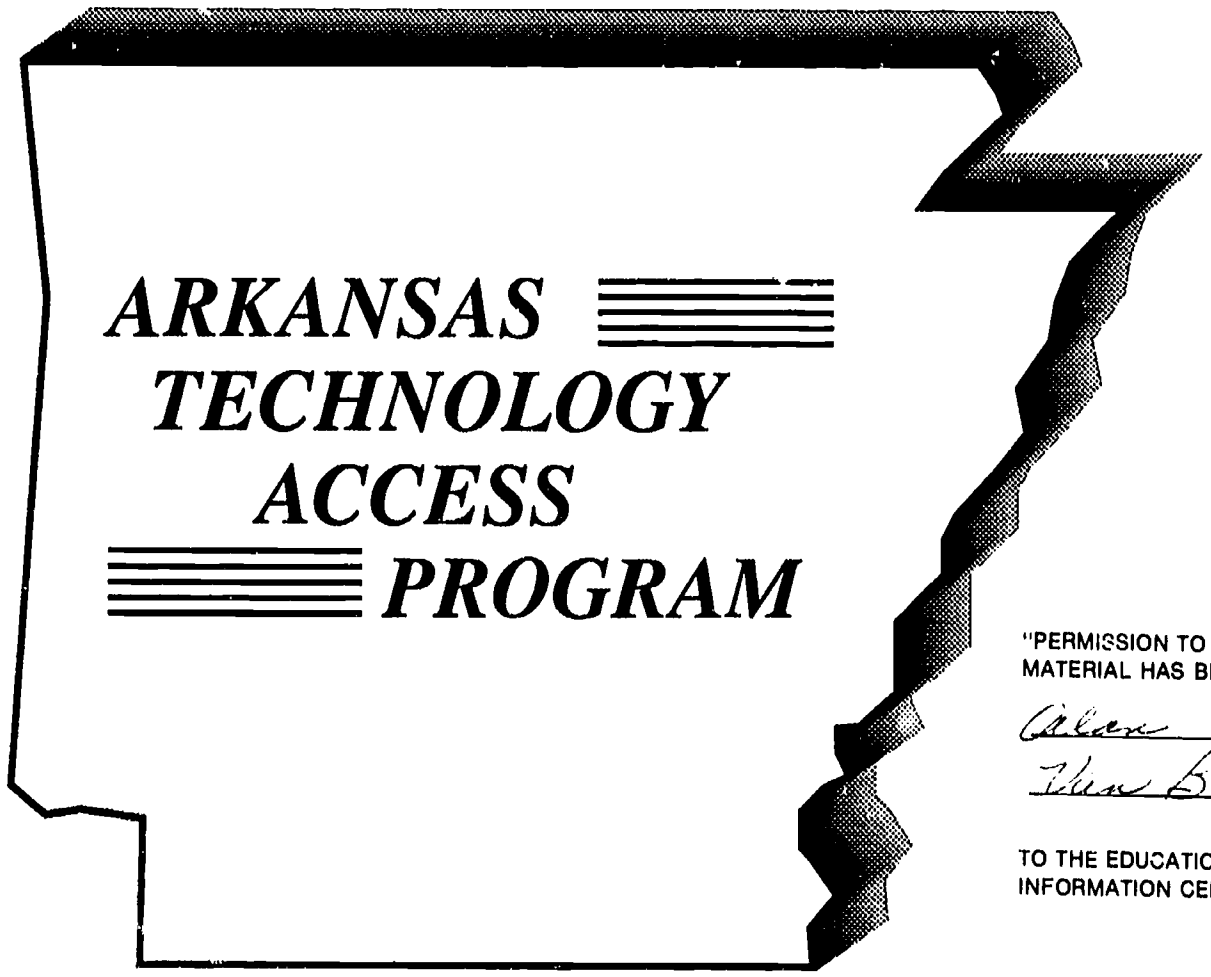

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ARKANSAS TECHNOLOGY ACCESS PROGRAM

Abstract

Technology plays an important role in all of our lives. No one can potentially benefit more from technology than persons with disabilities. Representing a cooperative effort to find solutions to problems Arkansans with disabilities have in obtaining technology, the Arkansas Technology Access Program (ARTAP) was conceptualized by a committee of 48 persons representing persons with disabilities, their families, and 25 public and private agencies and organizations. The purpose of ARTAP is to create and support a consumer-responsive, statewide system for enabling Arkansans with disabilities to access needed technologies. This system is designed to serve individuals with disabilities regardless of their ages or disabilities. The goals for this program are to: 1) develop an on-going consumer-driven technology planning and evaluation system; 2) develop a statewide technology information/service system; 3) establish a marketing and public awareness campaign to promote the benefits and use of technology for persons with disabilities; 4) facilitate the development and expansion of technology access centers; 5) develop coordinated training activities for consumers, their families, professionals, employers and the general public concerning technology-related services; 6) create a statewide system for equipment exchange of used assistive devices; 7) improve interagency cooperation in the development of consumer-responsive policies and procedures regarding technology services; 8) establish a network of community-based technology specialists for consumers and their families; and 9) develop, implement, and evaluate a User-to-User network involving consumers providing information and support to one another. The success of the ARTAP process reflects very strong commitments by consumers and professionals in Arkansas to break down the barriers to technology access, and to enhance the lives and opportunities of persons of all ages with disabilities through the appropriate use of technology. Funding is sought under P.L. 100-407, the *Technology-Related Assistance for Disabilities Act of 1988*, to help facilitate these efforts. The processes used to develop the unique cooperative relationships in Arkansas which underpin the ARTAP proposal can serve as models for other states striving to solve technology access problems.

Note: Appendices have not been included in this version of the grant proposal and all references to appendices have been removed from the narrative. Copies are available on request from: Department of Human Services, Division of Rehabilitation Services, P.O. Box 1437, Little Rock, AR 72203.

Arkansas Technology Access Philosophy:

The definition of technology cannot be limited to a "thing" that can be processed through the five senses of sight, sound, smell, touch and taste. Technology also represents a personal and corporate paradigm which continually defines, and is being defined by, technology itself. Technology represents new ways of perceiving and doing things.

Technology continues to change the way we work, play and live. The average individual cannot go to work, the grocery store or the doctor without experiencing the effects of new technology. The environment in which we live is heavily influenced by the development and use of technology. However, while the lives of the general public are more and more influenced by this application of science to daily living, technology is only nominally used to enhance the lives of persons with disabilities.

Somewhere along the line society somehow forgot the important and positive impacts of technology on the functional independence of persons with disabilities. Individuals with disabilities, who can probably make the most use out of technological devices and services, often have the least access to them. Traditionally, persons who require a higher level of assistance havenot been provided with technology, but have been placed in environments that cause them to be dependent on others to meet their needs. The introduction of technology in the lives of persons with disabilities can make the difference between these traditional settings of helpless dependency and lives of functional independence filled with opportunities based on people's abilities- - not their disabilities. Technology means empowerment by increasing the quality of life and the expression of individual abilities.

Why the interfacing of technology with persons with disabilities is not occurring on a larger scale is a complex question. Factors like the medical paradigm, the eternal child syndrome, and the "in-valid" myth are part of the puzzle. Cultural and societal values and standards which are unique to poor, rural settings in a state like Arkansas influence this situation. Value issues related to traditional beliefs and translated into financial priorities weigh heavily in understanding the problem. Access and

information issues may impede understanding and use of technology. All of these things, and more, are factors which handicap our society in fully accessing and utilizing technology-related services devices to enhance the quality of lives of persons with disabilities.

The State of Arkansas has a proven track record when it comes to increasing the awareness and application of technological services and devices for people with disabilities. However, so far these programs have been limited to too few individuals, agencies and organizations.

This proposal is the result of the collective efforts of a wide range of persons and organizations who share the goal of integrating assistive technological services and devices into the mainstream life of persons with disabilities. The purpose of this proposal to create a state-wide system for getting information and technology to the people who can use it, to influence the decision processes of the people can make it available, financially or otherwise, and to enhance and strengthen the relationship between the user, the provider, the funder, and the assistive device developer.

Process Used to Develop the Arkansas Technology Access Program (ARTAP)

Designation by the Governor

The Honorable Bill Clinton, Governor of the State of Arkansas, has designated the Department of Human Services, Division of Rehabilitation Services as the agency responsible for preparing the grant application in accordance with Public Law 100-407, the *Technology-Related Assistance for Individuals with Disabilities Act of 1988*. Subsequent to this designation, the responsibilities of Division of Rehabilitation Services include: (a) ensuring active, timely, and meaningful participation by individuals with disabilities and their families or representatives, and other appropriate individuals with respect to performing functions and carrying out activities under the grant; (b) assisting in the development of the statewide program of technology-related assistance; (c) ensuring coordination between public and private agencies, including the entering into interagency agreements; (d) administering and supervising the funds made available under the grant; and (e) delegating any of these responsibilities to one or more appropriate agencies, entities, or individuals. The strategies that were used to develop plans for achieving these tasks are presented below and they are illustrated in Figure 1.

Technology Access for Arkansans (TAARK) Project

During the past five years, a number of exemplary services and programs have been initiated in Arkansas to enhance the quality of lives of persons with disabilities through the use of technology. These activities, however, have been unable to solve the technology access problems facing Arkansans with disabilities due to a lack of interagency cooperation, a lack of coordinated planning, the limited scope of projects, and categorical-based eligibility requirements. In an attempt to meet the technology related needs of more Arkansans with disabilities, a cooperative effort was initiated via the funding of a 1-year grant for the Technology Access for Arkansans (TAARK) Project through the Arkansas Governor's Developmental Disabilities Planning Council and the University of Arkansas-University Affiliated Programs in Developmental Disabilities. TAARK was planned by six public and private

agencies; these are the University of Arkansas-University Affiliated Programs, Arkansas Division of Rehabilitation Services, Association for Retarded Citizens/Arkansas, Arkansas Special Education Resource Center, Arkansas Children's Hospital-UAMS, and Arkansas Easter Seal Society. TAARK was designed to: (a) identify the need and quality of technology provisions in Arkansas, (b) disseminate information about appropriate technology and funding, (c) educate Arkansans about technology and advocacy, (d) *develop a coordinated state plan for technology*, and (e) provide technical assistance to the Developmental Disabilities Planning Council.

This grant provided the fiscal basis for the intensive planning activities that evolved into the Arkansas Technology Access Plan. In early November 1989, a Technology Steering Committee representing the six state, private, and consumer agencies and groups that developed the TAARK grant

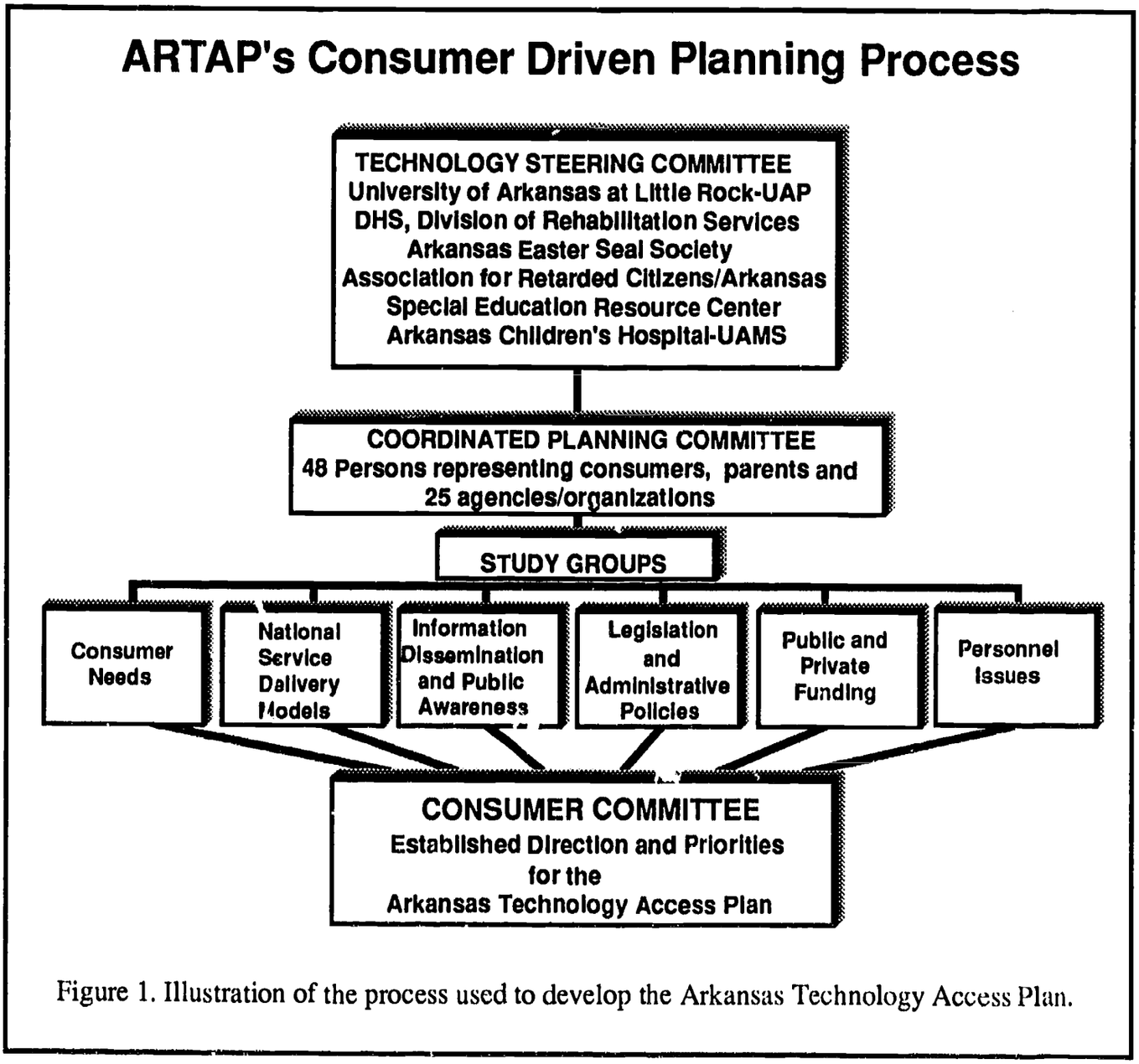


Figure 1. Illustration of the process used to develop the Arkansas Technology Access Plan.

proposal, was organized and provided with information relevant to Public Law 100-407, the objectives of Project TAARK, and timelines for proposed activities. This group decided to convene a larger planning group that would consist of individuals with disabilities, their families or representatives, representatives of state and private agencies, vendors, and other individuals as deemed appropriate.

Coordinated Planning Committee

A Coordinated Planning Committee was established on January 4, 1989, at a meeting which was jointly convened by TAARK and the Arkansas Division of Rehabilitation Services . The purpose of the Coordinated Planning Committee was to develop a state plan for a consumer responsive statewide system of technology-related assistance, and to develop an application for P.L. 100-407. An illustration of the process used to develop Arkansas' plan for technology access is presented in Figure 1.

Since only 3 of the 15 participants in the first meeting were individuals with disabilities, parents of children with disabilities or their representatives, the participants were requested to nominate at least two individuals with disabilities or parents to serve on the committee. At the next meeting, 10 (46%) of the 22 participants were individuals with disabilities, parents of children with disabilities, or their representatives. During this meeting, 6 study groups were organized to facilitate the acquisition of information relevant to TAARK project goals. These study groups included Consumer Needs, Information Dissemination and Public Awareness, Legislation and Administrative Policies, National Service Delivery Models, Personnel Issues, and Funding Issues, and were chaired by the representatives of the 6 organizations constituting Project TAARK. Each of these groups met independently from January until March to collect information relevant to the issue area targeted by the study group, identify barriers to technology access in Arkansas, and to develop solutions to the barriers. The TAARK Project Director was present at each of these study group meetings to facilitate the process and disseminate information regarding the activities and findings of other study grou

The Coordinated Planning Committee met 7 times between January and July 1989 as indicated in the minutes of the respective meetings. All meetings were well attended with an average of 24 persons participating in each meeting. Forty-eight persons, who represented 25 public and private agencies, participated in the meetings. Nineteen (40%) of the participants were persons with disabilities, parents

of children with disabilities, or their representatives. Twelve (25%) of the participants were representatives of private non-profit organizations. Three (6%) individuals represented private businesses, such as assistive device vendors. Fourteen (29%) of the participants were employees of 12 state agencies. A few of the participants are counted twice in these figures, e.g., 4 state agency employees were also persons with disabilities or parents of children with disabilities.

A large part of the early meetings of the Coordinated Planning Committee was devoted to technology awareness and information sharing activities. National experts were hired to provide information on alternative approaches towards developing a statewide system of technology access, and to facilitate the planning process. On March 13, a Planning Conference was held for all study groups to ensure coordinated planning activities and to share information regarding forthcoming tasks. On March 22-23, a 2-day retreat was held at DeGray State Park Lodge to begin development of the grant application for P.L. 100-407. At this conference, verbal reports were given by each study group regarding their findings in their designated issue areas. Written reports were subsequently submitted and compiled as a written document, *Proceedings from the DeGray Lodge Retreat,* that was made available to all Coordinated Planning Committee members as well as the public on request. Four additional meetings of the Coordinated Planning Committee were held prior to the drafting of this grant proposal.

Throughout the TAARK planning activities, the involvement of individuals with disabilities, their families or representatives, and persons from the private sector have been actively encouraged and facilitated. Inherent in the initial grant award was a budgetary allotment for stipends to support involvement of individuals with disabilities and their families at *all* planning meetings. Prior to the March 22-23 meeting of the Coordinated Planning Committee, held at DeGray Lodge, advance announcements were sent to all members indicating that stipend support would be provided in the form of babysitting and/or attendant reimbursement, as well as reimbursement for meals, lodging, and transportation. Individuals having access to a reimbursement mechanism via state or private agency were encouraged to utilize those resources. It was anticipated that such support would more readily facilitate the participation of consumers and parents who might have home responsibilities that typically inhibit such participation. It was found that this support did encourage participation, as 9 consumers, parents, and representatives (27%) constituted the makeup of the retreat meeting.

Consumer Committee

At the May 10 meeting of the Coordinated Planning Committee, a decision was made to establish a group of individuals with disabilities and parents of children with disabilities selected from the Coordinated Planning Committee to establish priorities for the Arkansas grant application for P.L. 100-407. The resulting Consumer Committee reflected a constituency of persons representing a variety of interest groups: a chairperson with a visual impairment who also heads a independent living center that is funded under TitleVII Part B; a parent of a child with cerebral palsy who is on the Governor's Committee for Employment of the Handicapped; a parent of a multihandicapped child who also is active on a state level as a parent advocate; a parent of a deaf/blind child who is also the Chair of the Governor's Deaf/Blind Task Force; a person with learning disabilities who also serves on the National Learning Disabilities Advisory Board; a person with blindness employed as an executive with AT&T who is on a 2-year loan to the President's Committee for Employment for the Handicapped and serves on the Governor's Committee for Employment of the Handicapped; and an elderly person representing the aging population as a member of the Governor's Advisory Council on Aging. Initial data analyses of an extensive consumer survey were shared with the committee to assist it in its efforts to establish priorities.

The Consumer Committee met on numerous occasions in an effort to both prioritize technology goals for the proposed grant application, as well as to offer recommendations pertaining to methodologies for attaining those goals. The recommendations of this committee were presented to the Coordinated Planning Committee at its meeting on May 24. Subsequent meetings focused on methodological decision-making processes to deal with the priorities established by the Consumer Committee. A representative of the Consumer Committee was present at meetings of the Technology Steering Committee held on June 8 and June 14 to ensure that the integrity of their priorities and recommendations was maintained in the development of state plan methodologies.

It should be noted that at all meetings of the Coordinated Planning Committee, subsequent to the organizational meeting on January 4, 1989, an average of 38% of participants were persons with disabilities or parents of persons with disabilities. This statistic supports the strong commitment in this

planning process to facilitate *maximum participation* by persons with disabilities and their families in the design of a comprehensive technology state plan.

Consumer Needs Survey

Consumer input was encouraged from across the state via the mechanism of a Consumer Survey designed to assess needs of users, or potential users of technology. The format for the survey instrument included multiple choice questions on specific technology-relevant issues, and open-ended items allowing consumers to express their unique needs and to offer suggestions for those involved in the state planning processes. These suggestions were systematically recorded and compiled for the review of those establishing priorities for the state plan as well as those designing methodologies for the implementation of those priorities. In addition to the Consumer Survey, efforts were made during the information gathering phase of Project TAARK to secure the input of professionals from across the state regarding their views regarding technology-related needs. Preliminary summaries of the results of these surveys are presented in the **Needs Assessment** section.

Interagency Coordination in Planning

From the outset of the state technology planning activities, interagency participation on a broad level has been encouraged and facilitated. Examining the constituency of the various minutes of meetings as well as the official mailing list for the Coordinated Planning Committee (see Appendix J), it can be seen that involvement has grown from the six initial members constituting Project TAARK to 48 persons representing 25 public and private groups/agencies, as well as persons with disabilities and their families. The Coordinated Planning Committee exhibits a mixed makeup demonstrating the efforts of TAARK participants to emphasize consumer involvement coupled with interagency cooperation. Approximately 40% of the Coordinated Planning Committee consists of persons with disabilities, their families and their representatives; 25% of the Commttee consisted of representatives from public non-profit organizations; and 29% of the Coordinated Planning Committee was represented by professionals from 15 state agencies. Three persons were from the business community, including assistive device vendors. One individual on the Coordinated Planning Committee represented the private advertising

sector.

Additional Interagency Links

Several unique approaches have been undertaken in attempting to involve a cadre of individuals in TAARK activities during the state planning phase of the project. It was discovered in February 1989 that the Arkansas State Highway and Transportation Department was preparing to undertake an extensive survey to determine the transportation needs of citizens with special needs across the state as a component of its 5-year planning activities. TAARK personnel cultivated a collaborative working relationship with the Planning Division of this state agency. This relationship enabled information of value to both TAARK and the Highway Department to be obtained and shared. Due to this cooperative working relationship, the Highway Department subsidized a significant portion of the costs for a statewide survey of persons with disabilities which was conducted prior to this grant submission.

Another novel working relationship that has been cultivated is with the Arkansas Community Council/Arkansas Advertising Council. This organization is comprised of businessmen from the private sector who have marketing and advertising experience. Given the fact that the president of this organization is a member of the Coordinated Planning Committee, a cooperative relationship is being developed wherein the expertise of this body of professionals will be used in future state technology awareness and marketing endeavors.

Needs Assessment

Prevalence of Persons With Disabilities In Arkansas

Prior to the beginning Project TAARK and this planning process, numerous efforts had already been undertaken in Arkansas to identify persons with disabilities. In addition to the annual Child Find efforts of the Arkansas State Department of Education, it was found that a variety of public agencies had initiated studies to examine specific target populations for service delivery in the state. One of the common findings from all investigations is that Arkansas consistently ranks within the top 10 states on numbers of persons with disabilities and on the presence of known social and environmental conditions that cause disabilities (e.g., poor prenatal services and high numbers of teen pregnancies).

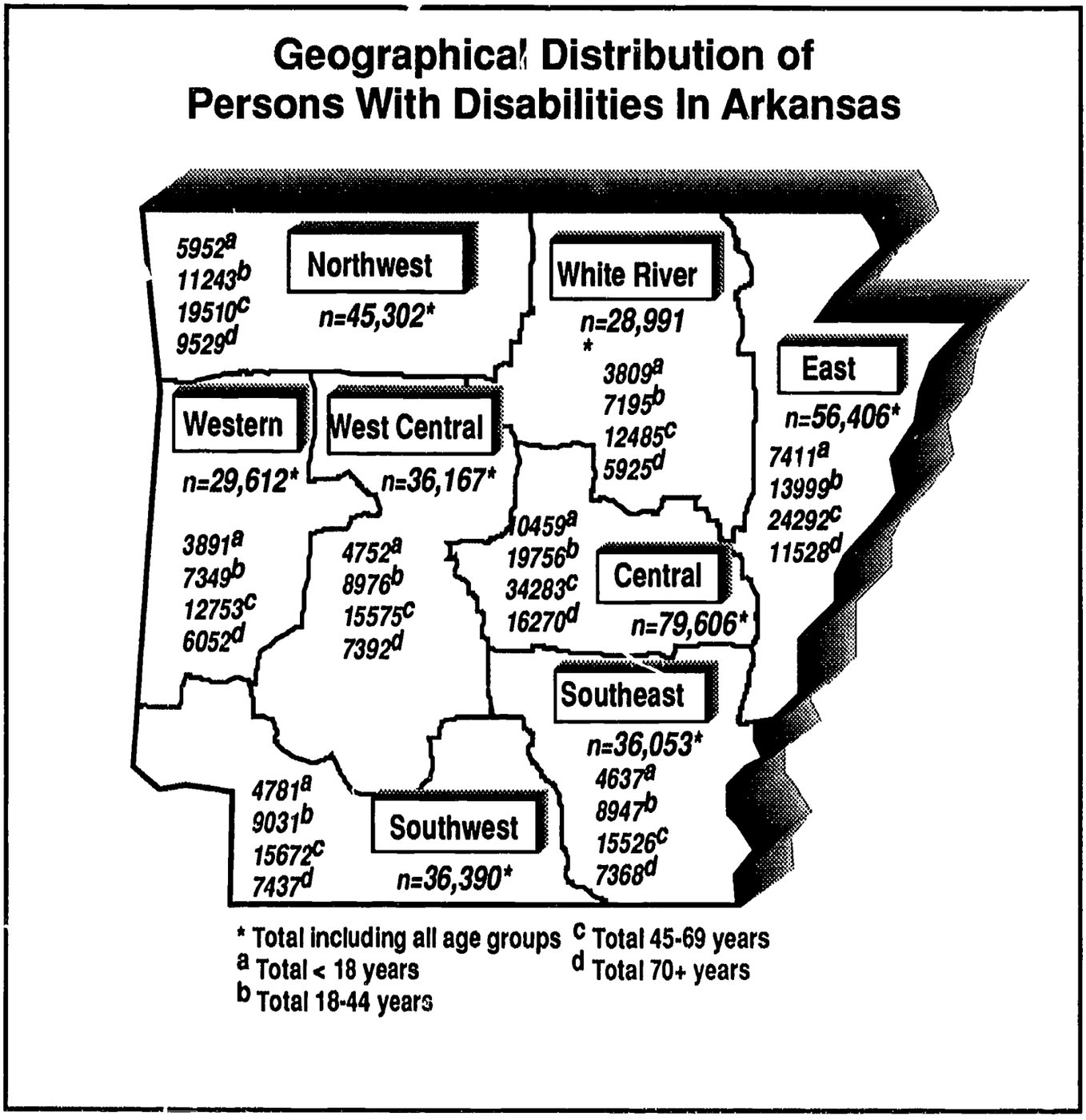
Even though much is known about individuals with disabilities in Arkansas, it must be noted that the information is still not currently complete and some logical conclusions are reached based on correlations rather than proven causations. The Office of Technology Assessment (1982) has found that the lack of valid, reliable data concerning the numbers of persons with specific forms of functional limitations and the demographic characteristics of those persons is currently a critical problem. This lack of information results in limitations concerning the improvement of policymaking and the use of technology. Given these limitations, however, the ARTAP philosophy is to use existing data sources regarding the technological needs of persons with disabilities as wisely as possible, and to gather additional data as needed for planning and evaluation. In addition, the planners of ARTAP believe that no one is aware of all present and future technologies which can potentially enhance the quality of life for persons with disabilities, therefore circumstances that might not be seen as a need today may be a critical need tomorrow.

In 1986, the Arkansas Governor's Developmental Disabilities Planning Council funded an epidemiological study of the incidence and prevalence of developmental disabilities under the present Arkansas definition and the alternative federal definition (Agosta, Ashbaugh, Langer, Moore, Bradley, Mulkern, & Nurczynski, 1988). Conducted by the Human Services Research Institute of Cambridge, Massachusetts, the study results indicated that significant numbers of Arkansans have disabilities. A total of 331,259 persons of all ages have some type of disability, with a majority of individuals (63%) constituting the age 45 and above category. Taken as a whole, 13% of the state's population base of 2,286,435 persons (13%) are disabled in some manner so as to affect some component of their life functioning. Figure 2 illustrates the estimated numbers of persons with disabilities across age groups for each region of the state. These estimates were compiled based upon the comprehensive study reported above.

Prenatal Conditions, and Infants and Preschoolers With Disabilities

Other studies have documented that Arkansas ranks alarmingly high on all indicators related to high rates of developmental disabilities (Hughes, Johnson, Rosenbaum, Simons, & Butler, 1987). Specific statistics relevant to children with disabilities reported by Hughes et al. include: (a) Arkansas ranks second in the United States with regard to the number of teen pregnancies; 1 in every 5 infants born

in the state has an adolescent mother ; (b) Babies born in Arkansas have a greater chance of being dangerously small (under 5.5 pounds) than in almost any other state in the country; (c) Arkansas ranks 8th among the states in the percentage of babies born to mothers who receive late or no prenatal care; almost 7% of Arkansas mothers receive little or no prenatal care; (d) Arkansas has a high infant mortality rate, as 1 in every 100 babies dies before they are a year old.



services and needs in 1985 and 1986 as part of a process for developing the Early Childhood State Plan Grant. The study indicated that 70% of the 12,423 children in this age group are presently unserved. Additionally, it was found that the services provided for this population were both fragmented and unevenly dispersed across the state. In fact, although there are 75 counties in the state, 27 (36%) were found to have *no* early childhood services.

School-Aged Children With Disabilities

With regard to the school-age population, there is a significant need for personnel to provide services to children with disabilities. Reflected in recent Arkansas State Department of Education (1988) statistical findings are significant personnel needs, both in the areas of teacher and related related services personnel. Shortages of personnel reflect only one facet of the extent of the inadequate technology service provision to the school-age population in the state. A more recent study (VanBiervliet & Parette, unpublished manuscript), suggests that existing educational personnel have significant needs for information relating to technology in numerous areas. Such needs ultimately affect the kinds and quality of technology service provision rendered to the school-aged population in Arkansas.

The issue of lack of transitional services in Arkansas has recently come under considerable scrutiny. An excellent example of a population affected by the lack of transitional services is reflected in the Arkansas Department of Education Child Count. This activity resulted in the finding that there were 5,953 persons with mental retardation, between 13 and 21 years of age who were enrolled in public school programs in 1985. The transition to adulthood for many of these students reportedly was anticipated to result in a work activities center or adult developmental center placement with a nonvocational emphasis and with *little or no* opportunity for advancement to more integrated and vocational placements. An indeterminate length of time typically elapses between the completion of school services and the initiation of adult services. Work activities and adult developmental centers in the state provide long-term static placements for approximately 1743 persons with severe disabilities. These programs currently maintain waiting lists of approximately 313 persons who are without day services. Only 50 of the 1743 clients (2.86%) were placed in competitive employment in 1984 (Woolcock & Smith, 1985).

Adults With Disabilities

A significant area of need appears to exist in the area of community-based and independent living services for persons with disabilities in Arkansas. During the past 5 years, the state has made a commitment towards moving from highly segregated programs to programs aimed at the provision of appropriate services to families and persons with disabilities *in communities where they live.* This commitment is reflected in the Arkansas Departments of Human Services and Education mission statements and state plans. Although the philosophical commitment to community-based services exists at virtually all levels of the service networks, substantial problems exist in regard to implementation. The number of Human Development Center residents (segregated institutions) has been relatively stable over the past 10 years (Braddock, Hemp, & Fugiura, 1986). The largest proportion of resources is expended on these services. A survey of consumers of developmental disabilities services in Arkansas (Lewis & Smith, 1984) found that 90% of the respondents listed the improvement of community-based services as the greatest need. Many of the other high priority areas listed were related to community services, such as vocational services, parent support, parent training, and early intervention.

With regard to the working age segment of the population, considerable needs for technology and technology-related assistance are evident. According to the Arkansas Rehabilitation Research and Training Center (1984), Arkansas ranks second in the nation in per capita of persons with disabilities, with an estimated 12.7% of all working age Arkansans considered to be disabled. Based on U.S. Census (1980) data, the Research and Training Center also ranks Arkansas first in the nation in persons between 16 and 64 years of age who report one or more disabilities, and 46th in labor force participation by persons of working age who experience disabilities. Given the status of Arkansas with regard to lack of participation in the work force by persons with disabilities, it is obvious that there is a real need for the utilization of technology to make employment a reality for a greater number of Arkansans with disabilities.

Elderly Individuals with Disabilities

On the other end of the age continuum, the elderly population, it is readily observed that

Arkansas ranks third in the United States with regard to the number of aging individuals per capita. Recent studies (Demographic Research, Center for information Services, 1986; Division of Aging and Adult Services, 1987) have suggested that a steadily increasing trend toward greater numbers of elderly persons residing in the state will be observed. Although terms like "lifelong", "across all age groups", and "comprehensive planning" frequently appear in the mission statements and state planning documents of various agencies/groups,very little attention has been given to the technology needs of elderly persons with disabilities. Janicki, Knox, and Jacobson (1985) and Agosta et al. (1988) have estimated that a significant number of elderly Arkansans have disabilities. These individuals' needs, unfortunately, have failed to be addressed in most service delivery efforts to date. Service provision in the state has principally focused on those persons at the beginning or middle phases of the life cycle. Services for the aging population with disabilities has primarily consisted of financial support, i.e., Medicaid and SSI, and nursing home placements. Nursing homes typically serve younger persons with severe disabilities, persons who are chronically mentally ill, the elderly who are frail, younger persons with disabilities, coupled with aging persons with disabilities. Thus, a considerable number of these placements fail to meet the technology needs of elderly persons.

Needs Assessment Undertaken for the Development of the Arkansas Technology Access Plan

Taken as a whole, the aforementioned documentation are suggestive of significant technology needs of persons of all age groups in Arkansas. In order to formulate a comprehensive technology state plan, participants in TAARK deemed it necessary to formally ascertain the needs of persons with disabilities across the age span in the state.

On January 4, 1989, a group of 17 individuals constituting the Coordinated Planning Committee of TAARK met and discussed components of Public Law 100-407. A decision was made to initiate surveys of both consumer and professional audiences in the state given the significant needs for technology and related assistance which were evident in the state. A Consumer Needs Study Group was organized to draft documents designed to assess the technology-related needs of persons with disabilities, as well as to identify needs for training among professionals involved in service provision to persons with disabilities. The format for the survey instruments included multiple choice questions

on specific technology-relevant issues and open-ended items allowing persons with disabilities, their representatives, and professionals to provide additional input concerning recommendations, technology needs, strengths, and service provisions in Arkansas. The resulting instruments were subjected to a series of reviews and modifications by the entire Planning Committee which, by May of 1989, had grown to a constituency of 45 persons representing persons with disabilities, their families, and 25 different organizations.

Consumer survey. Each participating agency and group was requested to provide a mailing list of persons with disabilities . This request resulted in approximately 12,000 mailing labels being submitted for use in the consumer survey which accessed a range of consumers including persons with mental retardation, hearing impairments, and multihandicaps. Groups which participated by providing mailing lists included: Advocacy Services, Arkansas Association for the Hearing Impaired, Arkansas Easter Seal Society, Central Arkansas Area Agency on Aging, Coalition for the Handicapped, Department of Human Services, Developmental Disabilities Services, Division of Rehabilitation Services, Division of Services for the Blind, and Mainstream Living Center, which is an independent living center funded through Title 7 Part B. In order to address the elderly population of the state, which represents a significant component of the Arkansas population base (Division of Demographic Research, 1988), contact was made with publication headquarters for *Arkansas Aging*, a periodical of the Division of Aging and Adult Services and the Arkansas Association of Area Agencies on Aging, and consent was obtained to reproduce the Consumer Survey instrument in its newspaper. This publication has a circulation of approximately 35,000 within the State of Arkansas. Consent was also obtained to reproduce the Consumer Survey in the monthly newsletter disseminated by the Association for Retarded Citizens/Arkansas which has a circulation of approximately 4,000. These three sources resulted in the potential to reach approximately 51,000 Arkansans.

Return envelopes were included in the mailout of 12,000 survey instruments, though no return envelopes were included in the surveys published in the newsletters. It was recognized from the outset that this strategy would significantly affect return rates from the readership of these newsletters, yet project budgetary constraints prohibited the use of return envelopes with such a volume of mailouts. Surveys were mailed during the first week of April of 1989. A second mailing of 1200 surveys to 6 Area

Agencies on Aging located around the state was conducted in June of 1989 to insure a reasonable response rate from the aging sector. A total of 2136 consumer survey forms were received as of June 30,1989. This reflects a return rate of approximately 18%.

Examination of the survey responses indicated that representation of all counties in the state was reflected in returned survey instruments, and that the return rates from these counties typically mirrored population densities of these counties. A majority of respondents reported that they participated in an assessment or evaluation prior to obtaining their assistive devices/services. A majority of respondents also reported that they were satisfied with the services they received for their assistive devices. However, 53% of the respondents reported that they needed *more information* regarding assistive devices/services. This need for information was supported by the high number of unmet needs reported in all categories of assistive devices/services. In some of these categories, such as reading, recreation, hearing aids, using a computer, building accessibility, and specialized transportation, consumers reported *unmet needs more often than usage*. With regard to the costs of assistive devices/ services to consumers, a majority of respondents reported expending less than $1,000 for technology devices and services last year. The largest funding sources for assistive devices/services reported by respondents were Medicare/Medicaid and consumers and/or their families. In the area of travel practices demonstrated by consumers, a majority of respondents indicated traveling only 1-20 miles to receive their assistive devices/services, though 30% reported they had to travel over 50 miles to receive such services. In the area of equipment purchasing practices, 27% of the respondents expressed having had the opportunity to purchase assistive devices on a "buy-on-time", or credit plan, and 56% reported that such a plan would be helpful to assist them in purchasing needed devices. A significant number of respondents (28%) reported that they did not receive adequate training in the use of their devices, and 48% reported that they did not have an opportunity to try out devices before being required to pay for them. A significant number of respondents (29%) voiced dissatisfaction with the length of time required for the servicing of their devices when they were in need of repair.

Professional Technology Survey

In addition to the Consumer Survey, efforts were made during the information gathering phase of Project TAARK to secure the input of professionals from across the state regarding their views

regarding technology-related needs. Each participating group in the project was requested to provide a mailing list of professionals involved in service delivery to persons with disabilities in their respective agency. In some instances, contacts were made with agencies/groups not directly involved in the planning activity, e.g., state occupational therapy, physical therapy, social work organizations, and copies of mailing labels secured. This process resulted in the names and addresses of approximately 2700 professional across the state being identified for use in the survey, representing the following agencies/ groups: Advocacy Services, Arkansas Area Agencies on Aging, Arkansas Chapter of American Deafness and Rehabilitation Association, Arkansas Chapter of the American Speech and Hearing Association,Arkansas Chapter of the National Association of Social Workers, Arkansas Easter Seal Society, Arkansas Occupational Therapy Association, Arkansas Physical Therapy Association, Arkansas Rehabilitation Institute, Arkansas School for the Blind, Arkansas School for the Deaf, Arkansas Spinal Cord Commission, Association for the Hearing Impaired, Association for Retarded Citizens/ Arkansas, Children's Medical Services, Coalition for the Handicapped, Department of Human Services (DHS) Division of Aging and Adult Services, DHS Division of Developmental Disabilities Services, DHS Division of Rehabilitation Services, DHS Division of Services for the Blind, and Mainstream Living. A survey instrument was also sent to all educational administrators, i.e., superintendents, principals, and special education supervisors via a mailing list provided by the Arkansas Special Education Resource Center. Since the TAARK project was cooperating with the Arkansas Highway and Transportation Department in its 5-year planning activities, surveys were sent to all recipients of transportation via the mechanism of Highway Department funding streams.

A draft version of the Survey of Professionals instrument was prepared by the Consumer Needs Study Group and, as with the Consumer Survey, was reviewed and modified on numerous occasions by the entire Coordinated Planning Committee. The final version was printed and mailed in mid-April of 1989. Return envelopes were included in each instrument to facilitate return by recipients of the survey. A total of 444 completed professional survey forms were received as of June 30, 1989. This reflects a return rate approximately 16%.

Responses were received from professionals who worked with individuals who represented the entire age range and all disability categories. Responses were also received from professionals who

work in all regions of the state. Professionals representing all disciplines submitted responses; a surprisingly high percentage of the responses were returned by administrators. Direct Service professionals, i.e. educators, therapists and counselors, however, represented the largest number of respondents.

The need for information on services and devices that was reflected in the consumer survey was also supported by the findings from the professional surveys. Professionals reported that they needed additional information in all areas of technology and related services. The following areas were reported as information needs by at least 20% of the respondents: work site modifications, telephone usage, recreation, assistive listening devices, classroom adaptations, communication aids, aids for the visually impaired, and computers. Over 67% of the respondents also reported that they received insufficient training on technology and persons with disabilities during their college training. The following training topics were ranked as greatest need by the respondents: matching needs of persons with disabilities to technology, conducting assessments and evaluations, how technology can increase vocational options, legislation and funding, clinical experiences in technology, and communication aids. The professionals reported that they preferred to receive additional training on a local level if possible.

Goals and Objectives

Representing a cooperative effort to find solutions to the problems Arkansans with disabilities have in obtaining needed technology, the Arkansas Technology Access Project (ARTAP) was designed to address the technology needs of hundreds of thousands of persons with disabilities in the state. ARTAP has evolved from the Technology Access for Arkansans (TAARK) project, a state-funded, multi-agency collaborative technology state planning activity described previously on page 4. The ARTAP planning endeavor reflects the unprecedented cooperation and *direct involvement* of over 48 persons representing persons with disabilities, their families and representatives, 25 different public and private agencies in the state, vendors, and business. Efforts have been made to insure a high degree of consumer involvement throughout the planning phases of ARTAP. The Office of Technology Assessment (1982) has reported that there is no "correct" amount of consumer involvement, and no *easy*

way to achieve effective involvement. It is important to note, however, that consumers have the level of understanding and experience to ultimately assure appropriate technology delivery and use (Office of Technology Assessment, 1982).

The vehicles for insuring consumer input and participation in the planning processes for ARTAP included open-ended survey items on questionnaires distributed to over 50,000 persons with disabilities across the state, informal surveys of consumers by persons involved in the planning processes, use of previous needs surveys conducted by other agencies/groups, and direct participation by consumers at all levels of information gathering and decision-making in the development of this grant proposal. The quintessence of the ARTAP planning processes was the designation of a *Consumer Advisory Committee to establish priorities for the system.* This decision, based on the unanimous consent of all persons involved in the planning activities, reflects the recognition by all parties involved in the design of ARTAP of the crucial role in decision-making processes played by those who will benefit most from the system.

This proposal reflects the efforts of persons representing persons having disabilities as well as a cadre of organizations serving persons who have disabilities. Their shared vision has been crystallized into the following goals, objectives, activities, and anticipated outcomes which are delineated in the following section. In a most basic sense, the goals do not diverge significantly from those identified in the regulations governing applications for assistance under P.L. 100-407. However, these goals are clearly linked to the unique needs of Arkansans with disabilities as identified during the ARTAP planning phases. They represent a *systems approach* towards providing appropriate assistive technology and technology-related assistance for *all persons* having disabilities in the state. Similarly, the objectives, activities, and outcomes specified herein are indicative of an attempt to implement a comprehensive systems change across the state with regard to the provision of assistive technology and technology-related assistance.

Following is list of the ARTAP goals and objectives. Detailed descriptions of these goals, objectives, related activities, evaluation procedures, and timlines are presented in the **Plan of Activities** and in the **Evaluation Plan** section.

Goal 1: To develop an ongoing, consumer-driven planning and evaluation system.

Objective 1.1: To establish an advisory council appointed by the Deputy Director of the Department of Human Services (DHS), Division of Rehabilitation Services.

Objective 1.2: To identify barriers to state plan implementation and develop solutions to these barriers.

Objective 1.3: To evaluate the implementation of the state technology plan.

Goal 2: To develop a coordinated information/service system.

Objective 2.1: To develop a computer-based information and referral network accessible to all Arkansans.

Objective 2.2: To disseminate the information system across the state.

Objective 2.3: Evaluation of the Technology Information System.

Goal 3: To facilitate the development and/or expansion of Technology Access Centers (TACs) across the state.

Objective 3.1: To establish six (6) Technology Access Centers.

Objective 3.2: To provide educational resources to existing systems serving the educational community.

Objective 3.3: To provide additional resources to a vocational center developed through the Division of Rehabilitation Services.

Objective 3.4: To evaluate the Technology Access Centers.

Goal 4: To establish a marketing and public awareness campaign to promote the benefits and use of technology for persons with disabilities.

Objective 4.1: To develop a comprehensive marketing and public awareness plan to enhance public awareness/acceptance of people with disabilities, to heighten public awareness/acceptance of technology and its use, and to heighten public awareness of ARTAP itself.

Objective 4.2: To implement a comprehensive marketing and public awareness campaign.

Objective 4.3: To evaluate the effectiveness of the campaign toward enhancing public awareness, awareness of technology and its benefits.

Goal 5: To develop coordinated training activities for consumers, their families, professionals, employers and the general public concerning technology - related services.

Objective 5.1: To identify training needs and mechanisms for training.

Objective 5.2: To develop and implement a system of training.

Objective 5.3: To evaluate the ARTAP training system.

Goal 6: To develop a statewide system for equipment exchange of used assistive devices.

Objective 6.1. To create a registry of equipment statewide and regionally.

Objective 6.2: To evaluate the Equipment Exchange Program.

Goal 7: To improve interagency cooperation in the development of consumer responsive policies and procedures regarding technology services.

Objective 7.1: To establish an Interagency Council.

Objective 7.2: To evaluate the effectiveness of the interagency activities.

Goal 8: To establish a network of community-based technology specialists responsive to consumers and their families.

Objective 8.1: To develop regional technology teams.

Objective 8.2: To provide training and technical assistance to the technology teams and to persons in the regions.

Objective 8.3: To evaluate the network of regional technology specialists.

Goal 9: To develop, implement, and evaluate a User-to-User network.

Objective 9.1: To identify individuals to participate in a User-to-User network on a state and regional basis.

Objective 9.2: To disseminate information relating to the User-to-User network to the TACs, and Regional Technology Specialists.

Objective 9.3: To evaluate the User-to-User network.

Plan of Activities

Goal 1: To develop an ongoing, consumer-driven planning and evaluation system.

Paramount to all concerns is a recognition that the involvement of consumers in *all* the planning processes is critical to the success of a consumer-driven technology plan. This involvement is critical at each stage in the life cycle of technologies (Office of Technology Assessment, 1982). In order to insure that the system is designed to be truly consumer-responsive, there should be maximum opportunity for consumer input, including active, majority participation in the board, advisory committees, and councils (Technology Access for Arkansans, 1989). Since many consumers have never had the opportunity to serve on such bodies, the system must also empower consumers to insure their participation is effective. Consumer review and input should also be inherent in quality assurance.

In Arkansas, consumer involvement in the planning processes of service delivery systems and in the evaluation of those systems has been minimal to date. In fact, data generated from a survey of professionals in the state suggest that consumer participation in team processes are perceived as being much less important than participation by traditional team members, i.e., professionals. Parent participation in team processes was deemed to be important by only 43% of respondents in this survey, while advocate participation was seen as important by only 25% of respondents. Similarly, procedures providing for the active involvement of persons with disabilities and their families was viewed as being a lower priority than other traditional types of activities such as early identification and evaluations of needs.Interestingly, ongoing evaluation, identification and coordination of policies, resources, and services, and the provision and payment for technology and services were rated highly by the respondents in this survey. Given such attitudes toward the involvement of consumers in developing service delivery systems, it would appear that the design of a system in the state to provide assistive technology and technology-related services to consumers and the subsequent evaluation of that system must utilize consumers to the greatest extent possible. A Consumer Advisory Committee was designated to establish

priorities for a comprehensive technology plan in Arkansas, and this group has recommended that the organization of an on-going consumer review panel was the second greatest priority for the conceptualized state plan . In light of the perceptions of service providers in the existing system, it would appear that planning, evaluation, and coordination of services in the design and implementation of such a system are also of critical importance.

Objective 1.1: To establish an advisory council appointed by the Deputy Director of the Department of Human Services , Division of Rehabilitation Services.

Given that the Division of Rehabilitation Services has been designated as the lead agency to administer the grant, the Deputy Director of this agency will be directly responsible for appointing an Arkansas Technology Access Project (ARTAP) Advisory Council. This council will consist of 15 individuals of which 9 (60%) will be persons with disabilities or representatives of groups of persons with disabilities. An attempt will be made during the appointment process to select a group of persons who will, to the greatest extent possible, represent the various groups of persons with disabilities across the state. This reflects recommendations made by TAARK (1989) (see Appendix E) and the Consumer Advisory Committee (see Appendix G). The Deputy Director will appoint 6 (40%) persons to the ARTAP Advisory Council representing professional groups/agencies and non-profit organizations. The selection process will be completed by October 15, 1989, and, by design, will reflect a commitment to insuring a majority consumer involvement in advisory activities. The ARTAP Advisory Council will meet quarterly and more often as needed throughout the grant period. Its specific responsibilities will include advising the Division of Rehabilitation Services Deputy Director, making recommendations regarding overall project development, and the review of Requests for Proposals (RFPs) for specific technology services as delineated elsewhere in this proposal. An organizational chart of the ARTAP framework is illustrated in Figure 3.

Objective 1.2: To identify barriers to state plan implementation and develop solutions to these barriers.

A variety of barriers have been identified which impact upon systems designed to facilitat

greater use of technology among persons with disabilities (Developmental Disabilities Program, 1984; Galvin, 1989; Developmental Disabilities Program, 1986; Governor's Task Force on Technology and Disabilities, 1987; Office of Technology Assessment, 1982). Some of these barriers are particularly important at one stage of the technology cycle, while other barriers become apparent throughout the life process of a system. This suggests a need to continually provide the means for identification of barriers

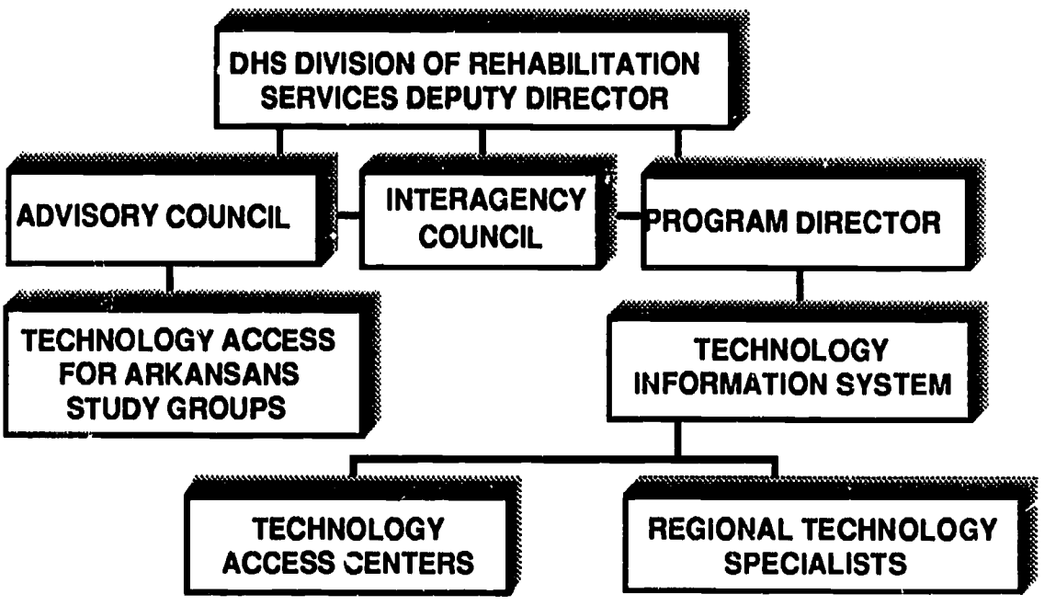


Figure 3. An illustration of the Arkansas Technology Access Program (ARTAP) structure.

in a technology service system which inhibit the effectiveness of persons with disabilities from gaining optimal benefits from that system.

In Arkansas, a variety of public and private organizations host public forums annually such that input may be gained from consumers and families regarding the quality of services provided in the state. These open forums are included in the meetings of such diverse groups as the Governor's Developmental Disabilities Planning Council, the Coalition for the Handicapped, and the Division of Rehabilitation Services. Issues relevant to ARTAP implementation will be included in as many of these forums as possible throughout the grant period. Additionally, a statewide Annual Technology Conference will be held in conjunction with ARTAP implementation processes, providing a primary mechanism for consumers and professionals alike to identify barriers toward attainment of ARTAP goals as well as to

generate solutions to such barriers. Reports of identified barriers will also be submitted to the TAARK Study Groups for evaluation and problem solving.

Given that each Technology Access Center (TAC) (see **Goal 3** for additional information about the Technology Access Centers) will be responsible for assisting persons with disabilities to secure needed technology and/or related services, telephone calls will be made by Technology Information System (TIS) (see **Goal 2** for additional information about the Technology Information System) staff to each service recipient within 2 months of their accessing the system to ascertain the existence of barriers in receiving services. Quarterly progress reports will also be obtained from each TAC during the grant implementation phase wherein barriers toward the attainment of goals and objectives specified in proposals submitted by these service sites and solutions to the barriers are identified. Another means of identifying barriers toward attainment of ARTAP goals and objectives will be the examination of data generated from the Governor's Developmental Disabilities Planning Council (DDPC) state plan activities. Barriers identified in this state plan evaluation which have specific relevance to the provision of assistive device technology and related services can be readily ascertained. Finally, comprehensive needs assessment of Arkansans will be initiated during the third year of implementation to determine the impact of the ARTAP project. These assessments will include all persons who have accessed the TIS, the TACs, as well as persons who are members of various consumer and professional organizations that are identifiable via available mailing lists acquired by CIS personnel. This identification of barriers and solutions will constitute an ongoing process throughout the duration of ARTAP.

Objective 1.3: To evaluate the implementation of the state technology plan.

Evaluation has traditionally been perceived as an end point activity, though ideally it should be considered as an ongoing, cyclical process. Evaluation of the ARTAP state plan will assume a multifaceted approach to insure comprehensive, cyclical monitoring of implementation efforts. Wilkerson (1989) has identified three specific aims of evaluation activities that impact upon systems designed to provide technology and related services to persons with disabilities. These include: (1) compliance evaluation , (2) efficiency evaluation, and (3) effectiveness evaluation. *Compliance evaluation* focuses on program monitoring, or gathering and using information to insure that a program is operating within

a set of standards. *Efficiency evaluation* hinges on gathering and using information to insure that a program is more productive or cost effective. *Effectiveness evaluation* denotes the gathering and using of information to insure that a program is more successful and determines how well a program is accomplishing its goals. Each of these three types of evaluation will be built into the ARTAP system and will be attained through a variety of specific evaluative strategies noted below.

The Deputy Director of Division of Rehabilitation Services as well as the project director of ARTAP will work closely with the staff of the federal technical assistance support system to continually evaluate implementation activities and their impact. Within the Division of Rehabilitation Services there is also an *internal grant monitoring process* (refer to Appendix N and the **Management Plan** for additional information about this process) which is an inherent part of any grant secured for the provision of services. This process will also be used to monitor and evaluate the implementation of ARTAP. The Technology Access for Arkansans (TAARK) project study groups described previously in this proposal will be continued throughout the implementation phase of the grant. These study groups will submit reports periodically to the ARTAP Advisory Council for consideration and review, focusing on consumer issues, funding mechanisms, activities of national models for technology service delivery, personnel issues, information dissemination and public awareness, and legislation and administrative policies. Such reports will serve to provide supplementary monitoring and evaluation information to the Deputy Director, ARTAP Project Director, and the ARTAP Advisory Council.

In an effort to maximize the input of consumers of technology, the ARTAP Advisory Council members will additionally make informal contacts with consumers of technology throughout the state. These contacts will be initiated by consumers. The names, addresses, and telephone numbers of ARTAP Advisory Council members will be provided as public information through newsletters, surveys, and other mechanisms, such that direct contact can be made with these board members by consumers. In addition, public forums provided at meetings of the DDPC, Coalition for the Handicapped, Association for Retarded Citizens/Arkansas, Division of Rehabilitation Services, and the State Technology Conference will serve as important vehicles for consumer input.

One of the principle means of evaluating the implementation efforts of ARTAP will be through the use of evaluation forms provided to each consumer accessing the system at the various Technology

Access Centers (TACs). Each consumer who is provided with a service from these centers will be encouraged to evaluate their satisfaction with the TAC and with the overall system. The completed evaluation forms will be mailed *directly* to the Technology Information System (TIS) for data entry and action (in the event of dissatisfaction). Random telephone interviews with consumers of technology and technology-related services provided by the system will also be attained periodically to evaluate the effectiveness of the ARTAP system. These contacts will be made by personnel of the TIS, with the information being stored for retrieval and dissemination to the Advisory Committee, to the TACs, and to other groups as requested.

During the third year of the grant, statewide consumer and professional surveys will be prepared, disseminated, and analyzed. These surveys will be designed in such a way as to enable comparison with the results of the TAARK 1989 surveys (see the **Needs Assessment** section for further information about the TAARK technology needs surveys). The survey instruments will be designed by a team of consumers and professionals. Particular concern will be placed on items concerning technology awareness and accessibility.

A final means of evaluation of ARTAP implementation efforts will focus on periodic examinations of past statistical data relating to ABLEDATA usage and other information contacts contrasted with current contacts made by consumers and professionals around the state. For the past 4 years, the Division of Rehabilitation Services has been maintaining a record of requests from consumers and professionals regarding assistive devices for persons with disabilities. The number of contacts to ARTAP will be immediately available from computer storage at the various TACs and the TIS, providing quantitative measures of the impact of ARTAP activities on the attitudes and opinions of Arkansans. Finally, a comparison will be made between the policy barriers that are identified and the success of the solutions to those barriers.

Goal 2: To develop a coordinated information/service system.

Any service delivery system for assistive technology is a distribution system ((Enders, 1989). This distribution is only as good as the information which supports it, with collaboration from both

service providers and consumers being necessitated to develop and maintain the system.

Based on the findings of the Technology Access for Arkansans Project (TAARK, 1989), and survey data generated by this project , there appears to be a considerable need in the state for a coordinated information/service system. In Table 21, it can be seen that of 444 respondents representing public and private agencies around the state, 55% viewed information dissemination as being a very important priority. In addition, 52% of the respondents believed public awareness of the effectiveness and availability of technology to be a priority. Similarly, a Consumer Advisory Committee which established the priorities for a comprehensive technology system in Arkansas identified a central information system as being among the top three needs for the state.

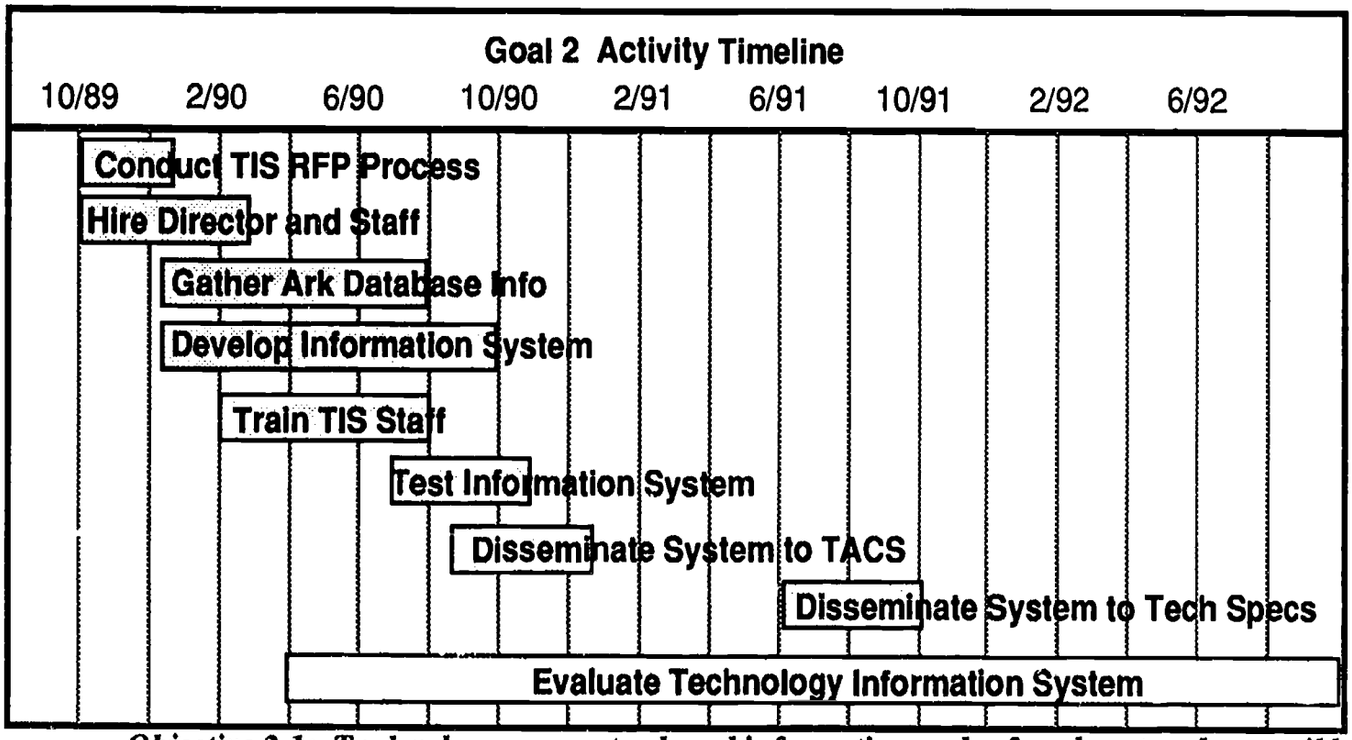
The need for a more effective information and referral system for persons with disabilities has been a recognized need in Arkansas for some time. In 1985 the Arkansas Legislature passed a resolution to establish a statewide information and referral system. Unfortunately, the system was never developed although many agencies and groups have been involved in the planning of such a service.

A large volume of information and services are currently in existence regarding technology and related services, yet the system is fragmented to such a degree that little coordination of services and dissemination of information occurs across subsystems. This results in the unfortunate situation of technology being available, though people who need the technology are unable to access it.

A number of important components of a central information/service system have been identified as being of importance for the provision of technology and related services in Arkansas. It is well-recognized based on TAARK (1982), the Consumer Advisory Committee, and TAARK survey data findings, that such a system must provide technology information of relevance to all persons having disabilities with all types of needs. The system must be accessible via a number of levels of entry to accommodate all persons in various environmental settings. Also, it has been noted that the system should enable interface/interaction among all potential users of the system. State-of-the-art technology must be utilized in such a system to allow access by all persons across all settings. There should also be a strong evaluative component in order to examine usage, degrees of satisfaction expressed by users, suggestions for enhancement of the system, and other types of evaluative information. In order to develop such an information system, a management framework would be necessiated to design, develop,

implement, maintain, and support the system. Finally, it is acknowledged that an information system must facilitate the development of cooperative agreements and the optimum utilization and development of existing resources in order to provide comprehensive technology-related services to the citizens of the state.

This goal will be achieved by three interrelated objectives: to develop a Technology Information System (TIS); to disseminate the information system across the state; and to evaluate the effectiveness of the system. The following timeline represents the planned onset and completion dates of tasks that are designed to accomplish the objectives.



Objective 2.1: To develop a computer-based information and referral network accessible to all Arkansans.

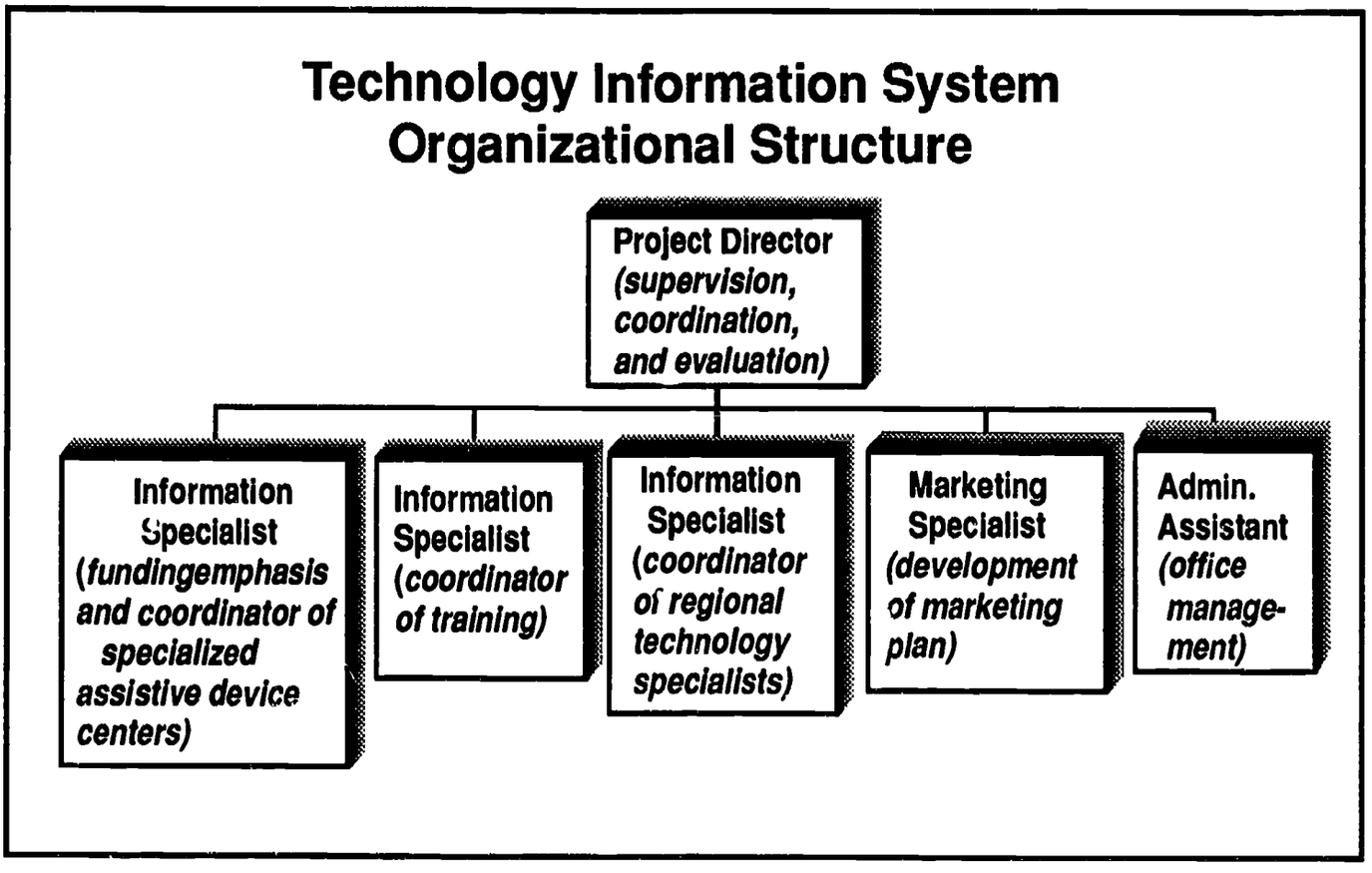
The Division of Rehabilitation Services will issue a Request for Proposals (RFP) for the development of a Technology Information System by October 15, 1989. The RFP will be published and sent out across the state both via mail services and state routing mechanisms between October 1, 1989, and October 15, 1989. The procedures developed by the Division of Rehabilitation Services will be used to evaluate the proposals that are submitted. A review panel with a mebership of at least 60% comsumers will be established by the Director of the Division of Rehabilitaion Services to review and make recommendations regarding awards to the agency's Grants Review Committee which in turn will

make recommendations to the Deputy Director. The review process will be completed by January 4, 1990. Awards will be announced on this date. In order to inform groups and individuals about ARTAP and to teach them how to prepare applications for ARTAP's RFPs, a statewide workshop will be conducted by the Division of Rehabilitation in October 1989.

Personnel

The development of a computer-based central repository of information, or central information system, will be the first priority in the implementation efforts of ARTAP. Project personnel will be employed to conduct the multifaceted activities inherent in its implementation. The TIS will be staffed by 6 individuals consisting of a Project director, three Information Specialists, an administrative assistant, and a Marketing Specialist. An organizational chart reflecting the TIS staff personnel and their responsibilities is presented below in Figure 4.

The Project Director will be a staff position with the Division of Rehabilitation Services and will be employed according to published hiring procedures utilized by this state agency. The direct link



coordinate the TAC's, and coordinate the evaluation of ARTAP. Each TAC will be operated by an organization separate from the TIS, therefore the Director's TAC coordination responsibilities will mainly consist of monitoring grant-related activities and assisting in maintaining effective lines of communication between the TAC's. Although funded by the Division of Rehabilitation Services, the Director and all other positions associates with the TIS will be located at the host organization for the TIS. Employment of this Director will be accomplished by November 1, 1989.

The three positions of Information Specialist will assume unique yet related functions in the TIS. Two Information Specialists will be grant-funded positions, and the third will be funded by the Division of Rehabilitation Services. All of the Information Specialists will be responsible for responding to information requests that arrive via phone, letter, or in person. The information that they provide will be in a medium (e.g., voice, Braille, TDD, print, or video) that is appropriate for the person making the request. This will involve using existing electronic bulletin boards and databases, using the database system created for Arkansas (see the following **Arkansas Database Development** section), and using the print and video materials stored throughout the information network. All Information Specialists will be responsible for compiling technology-related information that would be entered into the TIS for dissemination. The Specialists will assume primary responsibility for maintenance of computer files and print/audio/video materials within the TIS. The Information Specialists will be employed by February 15, 1990.

One grant funded Information Specialist will have specific expertise in funding mechanisms for assistive technology and related services. The Specialist will assist in gathering and disseminating information about funding polices, practices, barriers, and solutions in Arkansas and across the country. The Specialist will also coordinate the Funding and Policies Study Group and work closely with the Interagency Council on funding and policy issues. Collaborative work on policy change regarding insurance and other forms of third party payment will be a crucial component of this individuals job responsibilities. This person will also be responsible for coordinating the Equipment Exchange Program (see **Goal 5** for information concerning the Equipment Exchange Program).

The other grant funded Information Specialist will serve as the Training Coordinator. The Training Coordinator will assist in targeting technology training needs throughout the state, organize

the resources necessary to meet the needs, and coordinate the evaluation of the effectiveness of training activities. This Specialist will work closely with the Technology Access Centers (see **Goal 3** for additional information about the Technology Access Centers) to accomplish these tasks. Based on identified training needs and upon requests for training, the Training Coordinator will match the expertise of persons within Arkansas and nationally to training needs. A database of course instructors will be maintained to assist in this task. The Training Coordinator will assist the TACs in achieving their training goals by assisting in organizing training programs. The Training Coordinator will also be responsible for organizing the yearly Arkansas Technology Access Conference and programs at appropriate meetings and conferences throughout Arkansas. In addition, the Training Coordinator will be responsible for developing and implementing systematic procedures for evaluating all training activities.

The third Information Specialist will be responsible for the coordination of the Regional Technology Specialist Program (see **Goal 7** for additional information about the Regional Technology Specialist Program) and the User-to-User Network (see **Goal 8** for additional information about the User-to-User Network). Both of these tasks consist of statewide community-based outreach and expansion of the service network. For the Regional Technology Specialist Program, the Information Specialist will identify participants in all regions of the state, identify training needs of the participants, assist in conducting preservice and inservice training, develop a manual of procedures and guidelines, assist in providing technical assistance, coordinate fiscal management of the program, assist in marketing the program, and coordinate the evaluation of the program. The User-to-User Network is principally a volunteer organization of consumers who use technology and who are willing to share their experiences with other consumers who are contemplating buying or otherwise using the same or similar technology. The Information Specialist will assist in marketing the program, assist in identifying participants in all regions of the state, assist in conducting orientation and training of participants, assist in developing and maintaining a record keeping system, develop a manual of procedures and guidelines, coordinate fiscal management of the program, troubleshoot as problems arise, and coordinate the evaluation of the program.

Funding for the Marketing Specialist will be provided by the Division of Rehabilitation Services in a full-time capacity. This staff person will be assigned full time responsibility to ARTAP.

The primary job responsibilities of this individual will consist of developing marketing strategies relating to technology applications with persons having disabilities. Such strategies will be designed to impact upon the awareness of all Arkansans through a variety of media including print materials, production of audio and visual media presentations, newspaper and newsletter layouts, and other mechanisms for information dissemination. For more detailed description of planned marketing activities see **Goal 4**. The Marketing Specialist will work closely with the ARTAP Advisory Committee, Project Director, the Information Specialists, and the Training Specialist in the development of marketing strategies and also serve as a resource person for resolving problems relating to public awareness which are reported to occur in the various regions of the state. This staff person will be employed by February 15, 1990.

An administrative assistant will be employed to assist in data collection and storage, record keeping, maintaining training and financial records, producing reports, and daily clerical activities in the operation of the TIS. The secretary will be employed by February 15, 1990.

Arkansas Database Development

The strength of any information system is reflected in the quality (i.e., comprehensiveness and accuracy) of the information it provides and the ease with which users can access the information. In order to ensure that the TIS ranks on both of these quality indicators, both national and Arkansas-based information on technology and services will be gathered into a user friendly hypertext format.

One of the primary mechanisms available for the dissemination of information to persons with disabilities are automated indexes, or databases [illegible] databases will be obtained and/or accessed by the TIS, including BRS (ABELDATA), ERIC, SpecialNET, COMPUSERVE, DD Connection, DeafNET, CEC's Technology Net, CO-Net, and other information systems as identified. The use of multiple data bases in rehabilitation facilities has been shown to be highly cost effective (Shafer, 1985). Existing databases, however, do not contain information that is specific to accessing technology in Arkansas. The TIS needs to be able to provide consumers, their families, professionals, and the general public with information on accessing services in their local community, funding provisions and other procedures, and information about quality vendors. Two concurrent processes will take place in order to fill this need: these are information gathering and hypertext software development.

A concerted and ongoing effort to identify resources for the provision of technology and related

services in Arkansas and surrounding states will be undertaken throughout this project. ARTAP staff will work closely with the DHS field offices to identify appropriate contacts in municipalities throughout the state. Consumer and professional questionnaires will be designed such that persons having expertise in the field of technology service provision can be identified. Questionnaires forwarded to agencies, as well as telephone contacts to these agencies, will be used to acquire specific information relevant to the kinds of technology related services provided by existing sub-systems of service delivery. These contacts will also enable ARTAP personnel to examine referral for technology-related services processes across the state, providing valuable information for decision-making and problem solving. One excellent source of information relating to this statewide examination of existing resources is the DDPC state plan data. An examination of existing registries will also be launched to gather information which can be woven into the ARTAP service model. These registries would include, but not be limited to the Arkansas Special Education Resource Center, Division of Rehabilitation Services, Arkansas Occupational and Physical Therapy Associations, Arkansas Chapter of the American Speech and Hearing Association, Arkansas Association of Special Education Administrators, Arkansas Association of School Psychologists, and vendors of assistive device technology. Inherent in the review of these existing registries would be the use of any of several techniques for accessing information, including surveys, telephone calls, and the review of available print materials. Contacts made with any person would involve an inquiry as to the types of technology-related services that s/he was providing to persons with disabilities and eligibility requirements. Prioritization of these various sources of services would proceed in the following manner: statewide service systems would be examined first, followed by regional systems, and then local systems.

Letters of request will be forwarded to bordering states asking that information and printed materials pertaining to the types of services provided be forwarded to the TIS staff for storage and retrieval in the TIS. Local vendors of assistive technology and technology-related services as well as groups/agencies providing such services will also be contacted and requested to provide information needed to build the TIS. This information-gathering process will be functionally completed, in-place, and available to the public by August 1, 1990, though the process of updating and revising the system will be an on-going activity throughout the life of the system.

The information access system that will be developed for the TIS will incorporate state-of-the-art hypermedia concepts and technologies. Hypermedia is an information storage and usage design that enables the creation of unique information environments. Through hypermedia techniques text, graphics, animations, and sound can be combined and outputed to suit individual needs. Any piece of information can be connected and outputted with any other piece of information enabling the operator to find as much or as little about a topic. Use of these technologies will enable the information system to evolve with needs and to maintain more flexible output and input for future developments. Appropriate use of the hypermedia approach will enable the TIS to output information to meet the needs of a broad range of consumer needs through a wide range forms, such as Braille, audio, and visual.

In order to maximize the time available for this project, the development of the hypermedia based information storage and retrieval system will occur concurrently with the information gathering activities. Systems engineers and computer programmers will be contracted with in order to develop this system. The design of the system will combine the features of existing referral systems, such as South Carolina Handicapped Services Information System report and letter generation capabilities, with the user friendliness and modularity of HyperCard programs, such as HyperAbleData. An object-based programming environment such as HyperCard or LinkWays will be used to design the system to allow rapid prototyping and so that modifications can be easily made as system requirements change. These programming languages also provide the capability to disseminate information in a wide variety of formats, e.g. visually, auditorily, and tactually. The system will be designed to operate in a graphics-based computer interface, such as the Macintosh operating system or Windows, in order to ensure that it is easy to use and learn. The system will also be designed to operate on a computer that enables multitasking. Multitasking capabilities will enable the Information Specialists to access requested technology information even when they are in the middle of some other computer intensive task, such as conference planning, when a phone inquiry arrives. Since such a massive amount of information will be stored in the system a large digital storage device, such as large hard discs or compact discs, will be required to store the system. Using eraseable compact disc technology will enable the TIS to easily distribute the information system to others as the technology becomes more readily available. Prior to the design of the hypermedia program, a thorough search of the literature and a review of existing system

features will be conducted. The contractors' concept plan will be reviewed prior to programming to ensure that their design meets ARTAP specifications. The system will will be available for initial testing by August 1, 1990.

Training will be provided to the TIS staff between February 15 and August 1, 1990, in order to activate the system and ensure optimum efficiency in disseminating information. Barrier awareness training is deemed to be crucial in the training of persons providing services in the TIS given the need for barrier-free access to the information. This training would also focus on the development of problem solving strategies having relevance to both the state and local level. The TIS staff would also be trained in advocacy skills since this would become an important function of these resource persons on a state and local level. The information system will be fully operational by October, 1990.

Objective 2.2: To disseminate the information system across the state.

After the information system has passed field testing by the TIS staff, it will begin to be distributed throughout the ARTAP network reflecting a centralized to peripheral approach to developing the system. The development of Technology Access Centers (TACs) will occur parallel to that of the TIS (see **Goal 3** for a detailed description of TACs). In year 2 of the project, teams of regional technology specialists (see **Goal 7** for a detailed description of regional technology specialists) will be established across the state to act as resource personnel in their respective regions. Information will flow outward from the TIS to the various TACs, regional technology specialists, and to others accessing the system, but information will also flow inward from these latter sources to the TIS. The hypermedia-based information system will be made available for TAC staff and the regional technology specialists to use in their locals. Since the information system will be designed to operate on readily available, low cost microcomputers exiting equipment will be able to be used in most instances.

Between September 1 and November 1, 1990, information dissemination to the various TACs across the state will begin, enabling a testing process of the TIS system. Personnel in the various TACs will be trained during this period by TIS staff in the procedures relevant to accessing the TIS system as well as in submitting data for entry into the system for statewide dissemination. In addition to instruction on operating the information system, this training will focus on barrier awareness, advocacy, and

problem solving.

Between July 15,1991 and September 15, 1991, information dissemination to the 8 teams of regional technology specialists will be a target activity. Many of these regional technology specialists will have access to technology that would enable them to access data bases available in the TIS, which they, in turn, would disseminate to persons on a local level. The information in the database will also be published in a ring binder format, the Information System Binder, for use by individuals and organizations who do not have access to computer equipment. This binder will be disseminated to agencies and organizations involved with persons with disabilities, such as the 15 educational cooperatives in Arkansas, as well as to others upon request. The Information System Binder will also be used as a training tool for consumers, professional inservice, and for university students. The digital information system and the Information System Binder will also be shared with persons involved with technology access in other states.

In addition to digitally stored information, the TIS will also gather and make information available in other formats such as Braille, text, audio tape, and videos. A concentrated effort will be made to collect and disseminate information in video format since this is an excellent instructual medium and video players are widely available throughout Arkansas. The TIS will also support the creation of video tapes concerning technology that are needed in Arkansas.

Objective 2.3: Evaluation of the Technology Information System

Evaluation of the coordinated TIS will incorporate multiple evaluative techniques and sources of information throughout the grant. One evaluation technique involves gathering satisfaction and grievance information and analyzing it for patterns which highlight both strengths and weaknesses of the system. Each person accessing the TIS will be contacted via a telephone call by the TIS staff within 2 weeks of their entry into the system to determine whether needed services were obtained and to ascertain the recipient's level of satisfaction with services received. These contacts would be followed up within 2 months by a mail-out questionnaire sent to the service recipient from the TIS. Also, service recipients will be made aware of grievance processes on their initial entry into the system. Since the Division of Rehabilitation Services has been designated as the lead agency for the administration of ARTAP,

grievance processes would be accessed through the Division of Rehabilitation Services internal procedures for lodging complaints. Persons who have used the information system will also be asked to provide demographic information, information concerning their needs, and how they learned of the TIS services.

Since needs assessments are an ongoing activity demonstrated by many public and private agencies/groups, TIS personnel will insure that many of these annual needs assessments, e.g., Division of Rehabilitation Services, Governor's Developmental Disabilities Planning Council, Division of Aging and Adult Services, etc., will contain questions having bearing on the TIS. At the beginning of the third year of the ARTAP implementation phase, a comprehensive needs assessment will be conducted involving all persons who have accessed the TIS system, as well as consumers and professionals who are members of a variety of organizations that would provide mailing lists of their membership rosters. A critical facet of this comprehensive needs assessment would be levels of satisfaction with the TIS system.

Other forms of evaluation of the TIS would include (1) progress reports submitted from the TAARK study groups which act in an advisory capacity to the ARTAP Advisory Council; (2) input from the federal technical assistance program; (3) quarterly reports from the TACs ; (4) informal contacts made by consumers with the ARTAP Advisory Council; (5) examination of the number of access contacts made with databases available in the TIS by persons across the state; and (6) anecdotal records maintained by the various regional technology specialists across the state that would be submitted on a regular basis to the CIS. Evaluation activities will begin July 1, 1990, and will be ongoing throughout ARTAP implementation.

Goal 3: To facilitate the development and expansion of Technology Access Centers across the state.

It is well-established that a desirable component of any comprehensive technology service delivery model is the development of physical sites where people can experience "hands-on" examination of available technology (Governor's Task Force on Developmental Disabilities, 1987; Office of

Technology Assessment, 1982). A great deal of assistive technology and related services exists across many service subsystems in Arkansas, though due to lack of information dissemination across subsystems, differences in eligibility criteria, and other barriers, individuals are often unable to access technology and services which are available. One approach to improving information dissemination and direct services to persons having disabilities is the establishment of sites *specializing* in particular technology service provision. Such sites would, by design, utilize existing facilities/services to the maximum extent possible or be created anew in the absence of any existing resources in a particular locale where the services are needed.

Objective 3.1: To establish six (6) Technology Access Centers

With the award of the grant to fund ARTAP, requests for proposals (RFPs) will be published and sent out across the state both via mail services and state routing mechanisms between October 1, 1989 and October 15, 1989. These RFPs will specify the development of 6 Technology Access Centers (TACs). The general responsibilities of each TAC will be to freely provide information and hands on demonstration concerning targeted technology devices and approaches to consumers, parents, professionals, employers, business, and the general public. The TACs will also provide and participate in training activities concerning technology and awareness; provide technical assistance to consumers, professionals, policy makers and the TIS; and generate information concerning technology and services. In addition, TACs will provide formal evaluations/assessments and other services, such as therapy and device construction, for a fee. Finally, each TAC will be required to participate fully in the evaluation of its own activities and those of the statewide technology system. The TACs will maintain a record on a database of the technology and information resources that it possesses, and this database will be shared with the TIS, other TACs, Technology Specialists, and others across the state concerned with technology access.

Each TAC will also establish an advisory board with at least 60% representation by persons with disabilities and their families and representatives. The roles of these boards will be to: advise TAC staff on issues concerning consumer accessibility; review plans and implementation of the plans; assist in evaluating the effectiveness of the TAC; and to assist the TACs to maintain close working relationships

with the target population.

Representatives from the TACs and the TIS will meet regularly to share information, to evaluate progress, and to develop plans for future activities. During the the first year these meetings will be monthly; during future years these meetings will be bi-monthly. Appropriate communication technologies, such as conference calls, will be used to ensure that this process is carried out efficiently.

The procedures developed by the Division of Rehabilitation Services will be used to evaluate the proposals that are submitted. A review panel with a membership of at least 60% consumers will be

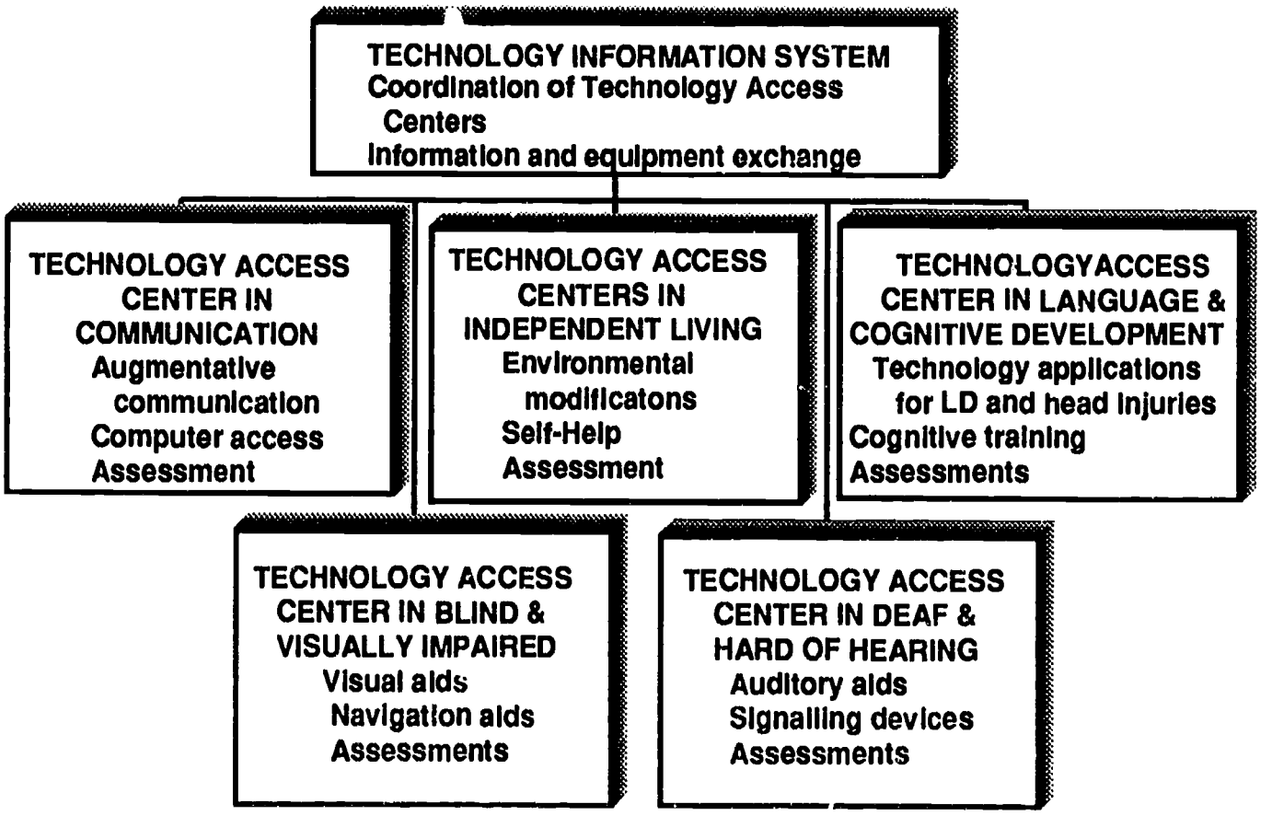


Figure 5. Illustration of the structure and functions of the Technology Access Centers.

established by the Director of the Division of Rehabilitation Services to review and make recommendations regarding awards to the agency's Grants Review Committee which in turn will make recommendations to the Deputy Director. The review process will be completed by January 4, 1990. Awards will

be announced on this date.

Five TACs would specialize in one of the following areas: (1) communication, (2) blind and visually impaired, (3) cognitive and language habilitation,(4) deaf and hard of hearing, and (5) independent living. Two TACs will specialize in independent living as it was determined that there was a great need throughout Arkansas for these services. Except for the Independent Living TACs, each of which will serve only half of the state, all other TACs will be responsible for proving services to the entire state. Figure 5 reflects the general structure of the TAC system.

Each of the TAC areas has been identified as being of critical importance to enhance the existing service delivery system and to optimize the success and efficiency of the TIS. Vocational technology is deemed to be within the realm of the service responsibility of the Division of Rehabilitation Services, and educational technology is deemed to be within the realm of the Arkansas Department of Education. As such, no TAC focusing on these areas was identified as being of critical need for the purposes of ARTAP, though development in each of these areas will be supported through other types of activities. It should be noted that while on the surface there appears to be little distinction between the Communication TAC and the Cognitive and Language Habilitation TAC, decision-makers have consistently noted that there should be specific technology services, i.e., cognitive development technologies, available for persons having learning disabilities and brain injuries given the fact that this population has been generally ignored in the development of technology services in Arkansas. Communication, on the other hand, will focus specifically on augmentative communication and related types of technologies appropriate for non-speaking persons, and to access to computer equipment.

The TAC for blind and visually impaired will provide information, hands-on experiences, training, and assesesments in assistive devices that can enhance the lives of persons with visual impairments. Examples of these technologioes include auditory and tactile time and temperature aids, talking file storage, electronic sensing devices, navigation aids, and tactile braillers.

The TAC for deaf and hearing impaired will provide information, hands-on experiences, training, and assesesments in assistive devices that can enhance the lives of persons with hearing impairments. Examples of these technologies include signalling systems, telephone amplifiers, hearing aids, amplification systems, speech training aids, manual sign traing computer programs, and telecaption

equipment.

The TACs for independent living will focus on technologies that will assist anyone with a disability to function more successfully in the community. Due to the population base of Arkansas and needs that were identified in the **Needs Assessment** section, these TAC's will place a special emphasis on assisting elderly persons with disabilities. These TACs will provide information, hands-on experiences, training, and assesesments on assistive technologies concerned with home management, personal care, home modifications, architectural modifications, home health, and recreation.

Each site responding to the published RFP would clearly delineate in its proposal resources available in the community that would be utilized in the provision of technology-related services for the 5 specified areas of human functioning described in the RFP. This would include interagency agreements in the case of several agencies/groups who wished to respond to the RFP. This information, in turn, would be entered into the TIS for use during implementation of ARTAP. Each site would identify existing hardware that would enable interface with the TIS, as well as to identify equipment that would be necessitated to operate successfully. Each site would prioritize the acquisition of needed resources once existing resources were identified in the proposal. Demonstration protocols for intake, service provision, and follow-up would be developed and submitted in the proposal. Additionally, a description of the specific types of services to be provided in the TAC would be an important component of each proposal submitted. Procedures for the demonstration of equipment would be clearly described, and a procedure for the collection of information, evaluation of data, and reporting of progress and accomplishments in accordance with the RFP would also be specified.

Objective 3.2: To provide educational resources to existing systems serving the educational community.

The Arkansas Special Education Resource Center (ASERC) is a federally-funded, non-profit organization coordinated by the Department of Education and the Cabot School District. It functions on a consultative model to school systems across the state. An important component of their existing service delivery model is technology training. However, there are only a few persons in the ASERC who have wide competencies in the area of technology which inhibits frequent involvement with the schools

requiring technology assistance. Given the fact that ASERC is an existing service system that addresses educational applications of technology in the Arkansas schools, ARTAP will provide training to these personnel on a regular basis so as to cultivate a greater diversity of technology-related skills. These skills, in turn, would serve to provide information and direct services to school systems in need for such services.

There are also 15 educational service cooperatives located across the state which are designed to provide resources and training to school systems across counties. Established under *The Education Service Cooperative Act of 1985* [Acts of Arkansas 1985, No. 349, S1; A.S.A. 1947, S 80-489], these cooperatives are strategically located to provide services to 3-9 counties each with 10-35 school districts benefitting therefrom. The cooperatives are located no more than 50 miles from any school district office in their service area and are designed to provide a variety of services contingent upon the needs of school districts. Many of the staff at these cooperatives are heavily involved in providing technology services to students in their schools. They are also involved in training programs for teachers, therapists, and parents. The cooperatives will participate in the information system developed by the TIS and the TACs. Information will be provided to the cooperatives in both digital and print forms. Many of the cooperatives already posses collections of equipment, information, and video tapes that can be used to promote technology access in Arkansas. In addition staff of the cooperatives will participate in ARTAP training activities.

Objective 3.3: To provide additional resources to a vocational center developed through the Division of Rehabilitation Services.

The provision of assistive technology and related-services in the realm of vocational functioning are within the auspices of the Division of Rehabilitation Services. The Deputy Director of this agency has committed resources toward the development of a center targeting the application of vocational technologies for persons with disabilities and, as such, the development of a separate facility utilizing ARTAP budgetary resources will not be necessary. However, the TIS staff will work closely with personnel developing this facility to ensure that compatibility with the TIS is maintained such that all information generated is disseminated to the TIS and, in turn, shared with other information sites across

the state. Support and training will also be provided to the vocational technology site personnel by ARTAP staff.

Objective 3.4: To evaluate the Technology Access Centers

Both qualitative and quantitative evaluation techniques will be used to determine the effectiveness of the Technology Access Centers. Quantitative evaluation techniques will include each TAC recording and analyzing the following information: the number and type of inquiries for technology information they received; the number and purposes of evaluations and assessments that they provided; the numbers of persons who participated in on-site and off-site equipment demonstrations; the number of presentations and other training activities in which TAC staff participated; the number of persons who participated in the TAC's training activities; the number and types of items the TAC added to the TIS database; the numbers and types of publications and other informational materials produced and disseminated by the TAC; and the participation of TAC staff in marketing activities. In addition to recording the number of individuals served by the TACs, information concerning the characteristics of the "clients", including age, type of disabilities, address, technology needs, and how they learned about the TAC's services. Semi-annual summary and analysis of this information will provide an accurate picture of each TAC's activities. This analysis will also delineate the characteristics of the TAC's customers and the effectiveness of various marketing strategies.

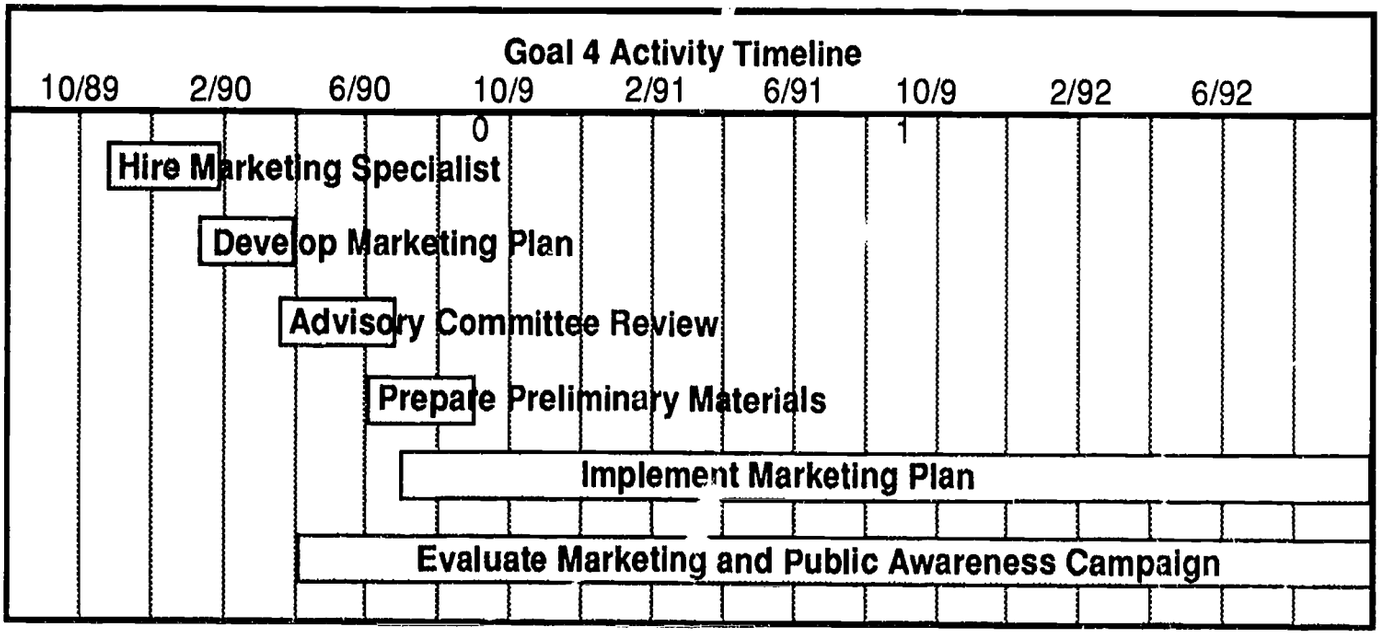
Qualitative evaluation will consist of asking persons who have received services from the TAC to indicate their satisfaction with the services, criticism of the services, and recommendations for improvements. Each person who accesses the TAC services will receive a questionnaire. Service recipients will be informed of the ARTAP's grievance processes. Semi-annual summary and analysis of these instruments and complaints will provide information concerning the quality of the TAC's services. This information will be provided to the TIS, to the ARTAP Advisory Committee, and to the Division of Rehabilitation Services.

Goal 4: To establish a marketing and public awareness campaign to promote the benefits and use of technology for persons with disabilities.

The need for increased awareness of technology and knowledge of specific assistive devices among individuals with disabilities, parents, professionals, and advocates is well recognized. Information regarding available technologies is typically disseminated through publicly financed or publicly operated programs *for persons with disabilities*. Information is often fragmented in light of the fact that many of the existing programs target specific audiences and are deficient in coordination efforts. Thus, as noted by the Office of Technology Assessment (1982), strengthened information dissemination in a coordinated manner is a critical need. Similarly, the Developmental Disabilities Program (1982) of Minnesota has noted *awareness* of technological advancements should be increased among persons with disabilities and their families, professionals, policymakers, and the general public.

In Arkansas, it has been recognized that there is no general public awareness campaign currently existing to address the aforementioned need area. Earlier findings of the Technology Access for Arkansans (1989) Information Dissemination and Public Awareness Study Group have indicated that a centralized, comprehensive information system accessible by all Arkansans with disabilities *should be marketed to all citizens for use*. The following timeline represents the planned onset and completion dates of tasks that are designed to accomplish the objectives.

Objective 4.1: To develop a comprehensive marketing and public awareness plan to enhance public awareness/acceptance of people with disabilities, to heighten public



awareness/acceptance of technology and its use, and to heighten public awareness of ARTAP itself.

A comprehensive marketing and public awareness plan will be developed by the Marketing Specialist, and a marketing firm and reviewed and approved by the ARTAP Advisory Committee no later than April 4, 1989.

The comprehensive marketing plan will include a variety of activities. Target audiences for the campaign will first be identified for marketing strategies, e.g., employers, consumers, general public, etc. Materials will then be developed for use in the campaign. Television and radio public service announcements (PSAs) will be designed to focus on various issues relating to technology, such as its use in recreation, education, daily living, and employment. Press packets will be prepared which include guidelines for writing about persons with disabilities, background regarding ARTAP, and human interest stories highlighting how technology has impacted upon and enhanced the quality of life for specific persons with disabilities. Factsheets and/or brochures will be prepared relative to technology etiquette. "Ad slicks" will be developed that are suitable for reproduction and which promote the use of technology with persons having disabilities. Quarterly news releases announcing the initiation of ARTAP as well as progress of the project will be developed during the implementation phase. A series of project description/access brochures will be developed that target various audiences, including employers, educators, persons with disabilities, parents, and other groups.

Important resources for the awareness campaign will be the print, video, and slide show materials that were developed by the Division of Rehabilitation Services' Explorer Program (Gaskin & Long, 1987). The developers of the Explorer Program used Arkansas-based examples of persons using assistive technology to produce the nationally acclaimed multimedia awareness program.

All marketing materials as well as the proposed distribution strategies will be reviewed by the ARTAP Advisory Committee and its subcommittees by July 15, 1990. Consumer and advocacy groups will be provided the opportunity to review the marketing materials and strategies that are developed. This review process will result in the marketing materials and distribution plan being revised by August 1, 1990.

Objective 4.2: To implement a comprehensive marketing and public awareness cam-

paign.

Implementation of the marketing and public awareness campaign will entail a multifaceted approach. Television and radio PSAs will be distributed to stations in Little Rock and surrounding states. These PSAs will be distributed to cable companies throughout the state. A consumer organized/hosted press conference/reception to announce the initiation of ARTAP and its Technology Information System will be conducted. All press attendees will be provided with press packets containing relevant marketing materials developed for this audience. Press packets will be sent to all print and new media resources throughout the state. These packets will contain, among other materials, 3-4 human interest stories relevant to persons with disabilities and technology, and a list of persons in their area who are available for interview. Updates of information regarding ARTAP and its activities will be disseminated via quarterly news releases. "Ad slicks" on technology will be distributed on a wide scale to all printed news media, trade publications, pertinent organizations, civic clubs, and other targeted audiences. Talk shows and news shows that focus on technology utilization and its benefits with persons having disabilities will be promoted on radio and television. Brochures will be distributed widely throughout the state to targeted audiences such as employers, educators, consumers, and other groups. ARTAP personnel will participate in conferences and conventions statewide to promote the project. This will include such meetings as the Special Show for educators, Arkansas Rehabilitation Association, Arkansas Council for Exceptional Children for special educators, and meetings of physicians, businessmen, potential employers, and advocacy groups. A consumer/parent/professional speakers' bureau will be developed comprised of persons willing to make presentations about people with disabilities and the benefits of using technology. Inherent in these presentations will be disability simulations that will enhance sensitivity to individuals with disabilities. ARTAP will utilize existing speakers' bureaus developed by the Coalition for the Handicapped and other consumer groups in the state.

In addition, information about ARTAP and its information services will be included in the statewide barrier awareness program that has been coordinated by the Association for Retarded Citizens. This program is conducted in schools and other public facilities and includes a wide range of simulation activites designed to sensitize people to the challenges facing persons with disabilities.

The production of public awareness campaign materials will begin in April 1990 and

preliminary materials will be available by August 1, 1990. The statewide implementation of the marketing plan will commence on August 1, 1990. The development and revision of marketing materials, however, will be an ongoing activity throughout the life of the project.

Objective 4.3: To evaluate the effectiveness of the campaign toward enhancing public awareness, awareness of technology and its benefits.

Evaluation of the ARTAP marketing and public awareness campaign will involve recording and analyzing a wide variety of events including: the number of times Public Service Announcements (PSAs) are aired; the number of times that articles appear in press, as well as the types of publications in which they appear; the number of "ad slicks" that are reproduced in written publications; the number of brochures distributed to the general public, professional audiences, consumers, and other groups; the number of news/talk shows on which information relating to technology and its uses; the number of presentations relating to technology usage with persons with disabilities made at conferences and conventions; and the number of presentations made via the consumer/professional speakers' bureau. A statewide "clipping service" will be designed to locate and excerpt such articles for storage in the Technology Information System. Pre- and posttests will be used in presentations to determine the level of expanded awareness created. A final component of the evaluation process will be the number of persons who access the Technology Information System and TACs who respond to a question regarding the source of their knowledge of ARTAP and correspondingly voice their awareness of ARTAP as a result of some particular component of the campaign, e.g., a television PSA or brochure.

Goal 5: To develop coordinated training activities for consumers, their families, professionals, employers and the general public concerning technology-related services.

One of the major categories of problems related to the use of existing technology is that of the constellation of problems which evolve from the lack of knowledge and training regarding technology (Developmental Disabilities Program, 1982). More recently, LeBlanc (1989) succinctly noted that training in the area of assistive technology should be a high priority for all the helping professions given

the complex nature of the problem. In Arkansas, available data suggests that significant training needs are apparent for providers of technology services to persons with disabilities. In fact, 67% of professionals surveyed have indicated that they were inadequately trained at the college preparatory level to deal with the multiplicity of technology needs demonstrated by persons with disabilities.

Objective 5.1: To identify training needs and mechanisms for training.

Based on survey data generated from both consumer and professional surveys conducted in March through June of 1989, a significant need appears to exist in Arkansas relating to the training of these groups in the area of assistive technology and related services. The five greatest training needs areas identified by the 444 professional respondents in this survey were: matching the needs of persons with disabilities to technology (54%); conducting assessments and evaluations (42%); increasing vocational options through the use of technology (41%); patterns of technology needs for persons with disabilities (39%); and computers (37%). These findings provided support to the findings and recommendations published in the TAARK (1989) *Proceedings of the DeGray Lodge Retreat,* in which training was identified as a critical need within the state.

The various study groups of the TAARK project are currently active as functioning entities and will remain active in an advisory capacity to the ARTAP Advisory Council, reporting on identified training needs in the six issue areas previously delineated [see Section (2)]. Existing needs assessments conducted by a variety of public and private agencies will be examined during the first year of ARTAP implementation such that appropriate strategies may be developed for meeting the technology training needs of these groups. Ongoing training needs will be identified as a function of contacts made with the TIS, each TAC, and, in the third year, through the regional technology specialists.

Objective 5.2: To develop and implement a system of training.

Numerous vehicles exist whereby information and training may be provided to large audiences of both consumers and professionals involved in technology service provision. TIS staff as well as TAC personnel will conduct training activities in the area of assistive technology at the state meetings for the following groups: Association for Retarded Citizens/Arkansas, Department of Education Special Show,

Arkansas Association on Deafness, Division of Aging and Adult Services, Arkansas Rehabilitation Association Conference, and the Arkansas Association for Learning Disabilities. In 1991, the Self-Help for Hard-of-Hearing International Conference will be hosted in Arkansas and ARTAP personnel will develop appropriate training activities to be incorporated into the program of this meeting. It is projected that at least 300 consumers and professionals per year will receive training through ARTAP.

Since colleges and universities are principle sources of training for professionals who will be providing assistive technology and related services in the future, ARTAP personnel will develop interdisciplinary, university-based training activities that will be extended to at least 100 students per year from various fields of endeavor, including speech therapy, occupational and physical therapy, rehabilitation counseling, and special education. In each of these interdisciplinary, university-based activities, information regarding the ARTAP implementation efforts will be disseminated.

Contacts will be made with numerous public and private agencies in an effort to develop cooperative in-service training activities whereby information is provided relative to the implementation of ARTAP. These cooperative efforts will result in the provision of at least 12 inservice training sessions per year being provided to identified target audiences.

Coordination of Training Activities

In light of the fact that most public and private agencies/groups are already involved in the provision of training activities to their personnel and/or target service populations, it is important that ARTAP utilize existing training models to the maximum extent possible to provide training in the area of technology and related services. Efforts will be made to incorporate technology training into the various activities funded by the University of Arkansas-University Affiliated Program which currently acts as a conduit for numerous projects related to the field of developmental disabilities. Cooperative training activities for professionals and consumers alike will be developed with the Research and Training Centers within the Division of Rehabilitation Services. Non-profit agencies such as the Arkansas Easter Seal Society and the Arkansas Special Education Resource Center will also be contacted and collaborative training activities will be developed in the area of assistive technology and related services. Another excellent source for the coordination of training regarding technology is the Rehabilitation Continuing Education Program (RCEP). Given this agency's commitment to ongoing

training of professionals involved in technology service provision through the Division of Rehabilitation Services, an ideal mechanism exists which ARTAP may access and contribute to in the area of professional training. A variety of other state agencies will be contacted with cooperative training endeavors developed subsequent to these contacts. These agencies will include, but not be limited to, the Division of Aging and Adult Services, Division of Developmental Disabilities Services, Arkansas Spinal Cord Commission, Children's Medical Services, and the Arkansas Department of Education.

An interesting illustration of cooperation in training involves arrangements that have been made with the Arkansas Highway and Transportation Department and ARTAP. The Highway Department currently conducts a training program for paratransit drivers in the state. It has been agreed that ARTAP personnel can provide valuable information to participants in this program. Basically, the program is designed to terminate in licensing for paraprofessionals who drive AHTD-funded vehicles across the state. In such a collaborative training capacity, ARTAP staff will be able to disseminate important information regarding transportation and related technology services needed by persons with disabilities. ARTAP personnel will house selected information having bearing on funding issues in a library on-site at the Highway Department. A library has been established previously at this site as a resource in the area of transportation. Persons making contact with this agency would be informed that resources are available which address funding issues pertaining to technology and transportation.

Implementation of the System

In the development phase of the TIS, identification of existing technology resources around the state will be completed. This process will result in specific target audiences being identified for ARTAP training efforts. Training in the use of particular technologies will then be provided at each of the various organizational meetings of consumers and professionals. These meetings will include, but not be limited to, the Association for Retarded Citizens/Arkansas Annual Conference, Arkansas Department of Education Special Show, Arkansas Association of the Deaf Biennial Conference, the DHS Division of Aging and Adult Services Conference on Aging, and the Arkansas Rehabilitation Association Conference. At least one international meeting, the Self-Help for Hard-of-Hearing International Conference, will be the target of training activities for ARTAP personnel during the implementation phase of the project.

In order to facilitate maximum information dissemination relating to assistive technology and technology-related services ARTAP will investigate and use distance teaching approaches (e.g., conference calls, teleconferences, and instructional video tapes) in order to reach statewide audiences. These instructional techniques have proven to be highly effective and cost efficient. ARTAP staff will identify distance instruction resources that exist throughout the state, such as public television stations and universities, and then develop cooperative agreements to co-sponsor the instructional programs.

Objective 5.3: To evaluate the ARTAP training system.

The evaluation of the ARTAP training process will include systematically collecting descriptive information on each training activity. This information will include: the topic of the training; the format of e training (e.g., demonstration, lecture, workshop); a list of the presenters; the location of the training; the number and characteristics of the attendees; the costs of the training program; the resources and equipment used; and the cooperative arrangements that facilitated the training. Comparison of this information to established training plans and priorities will enable decisions to be reached concerning the accomplishments of training goals.

Outcome measurements will consist of satisfaction questionnaires completed by the participants and the survey of current training needs regarding technology and services. Analysis of the satisfaction questionnaires and comparison of the results to established training priorities will enable the Training Coordinator to determine the success of the training activity and the progress toward achieving the activity's stated goal. The analysis of this information will also enable the Training Coordinator to determine the effectiveness of various training formats (e.g., comparison of the effectiveness of lecture presentations to video taped programs).

During the third year of this project consumer and professional technology needs surveys will be conducted. These surveys will be similar to the surveys conducted during the Spring of 1989 (see the **Needs Assessment** section for details of these surveys). Comparisons of the results of these surveys will enable the ARTAP staff to determine the overall impact of the training activities to the identified needs. In addition, cooperative agreements for the collection and sharing of information will be established with other agencies and groups, such as the Division of Rehabilitation Services and the

Special Education Resource Center, so that questions concerning technology training needs will be included in their needs assessment activities. Information regarding the effectiveness of the training activities and unmet training needs will be provided to the TIS, to the ARTAP Advisory Committee, and to the Division of Rehabilitation Services.

Goal 6: To develop a statewide system for equipment exchange of used assistive devices.

Frequently, a particular piece of technology is required only for a short period of time to enable the person to gain maximum benefits from the technology. For example, children "outgrow" assistive devices due to increases in size and increases in abilities. At other times, more advanced technology is purchased as it becomes needed by the consumer. In both instances, the consumer is presented with the situation of having "used technology" on hand for which there is no practical application. Generally, there is no way for the persons having such used technologies to recoup any of their investments in the technology via sale or trade-in strategies—options which most people have with regard to other types of tangible goods in our society.

In Arkansas, there are no systematic procedures for the distribution of used assistive technologies available to consumers. This is an area of important need in this state in order to expand the range of technology-related services available to citizens having disabilities.

Objective 6.1: To create a registry of equipment statewide and regionally.

Inherent in the creation of a statewide and regional system for equipment exchange of used devices, is the development of a registry of such available devices on a state and regional level. Information dissemination is a critical component in this process. Ongoing activities relating to implementation of ARTAP will incorporate strategies designed to elicit consumer response to requests for participation in the development of the registry system. The marketing plan used to impact on the public awareness will, of necessity, address the issue of how to best acquire information from consumers as well as how to optimally insure their participation in the system on both the state and regional levels. Policies for the registry will be designed by ARTAP personnel with the input of the ARTAP Advisory

Council, which has a majority consumer constituency. These policies will be shared with all consumers who make contact with the ARTAP system, including requests for services made through the TIS, the TACs, and through the regional technology specialists. The information regarding used assistive devices will be stored in the TIS database to be accessible to all persons in the state having the capability of accessing the system. Efforts will be made to publish print and audio materials relating to the availability of used assistive devices around the state and to disseminate these materials on a regional and state level to potential consumers of such used devices. The information base will be continually updated on a regular basis via the design of a "self-clearing" database. Links to existing equipment registries, such as that at Children's Medical Services, will be developed in year 1 and 2 of the grant.

As with other aspects of ARTAP implementation, the process of developing the statewide system for exchange of used assistive technology will proceed centrally to peripherally. First, the TIS will be developed and become the primary source of information regarding the availability of used technology for consumers. Second, the TACs, once developed, will assume responsibility for the acquisition of information as well as dissemination of information in tandem with the TIS. Third, the regional technology specialists will be given information regarding used assistive technology in their regions, and be trained to secure this information themselves on a regional basis, sharing information with the TIS as it is acquired.

Objective 6.2: To evaluate the Equipment Exchange Program.

Since each consumer will be surveyed within 2 months of his/her receipt of services, as well as annually with regard to level of satisfaction with services received, both a *qualitative* and *quantitative* index of satisfaction with this component of the system will be acquired. Examination of the number of requests for services made of the TIS, the TACs, and the regional technology specialists will also provide evaluative information. Though all requests for services will not pertain to the Equipment Exchange Program, many such requests will and, as such, will be used to examine the utility and efficiency of the system. Another dimension of evaluation will be the examination of the actual number of items in the system. Similarly, given the fact that consumers will be contacted within 2 weeks of their entry into the system to ascertain the status of their requests for services, examination of the number of

matches made between needs and services rendered will be enabled. Finally, telephone contacts made by TIS personnel with consumers who have entered the system in need of selling, trading, or acquiring used assistive technology will function to determine levels of satisfaction with the Equipment Exchange Program.

Goal 7: To improve interagency cooperation in the development of consumer responsive policies and procedures regarding technology services.

Interagency cooperation in the provision of technology funding and services has been consistently noted to be a crucial factor in any technology service system (Developmental Disabilities Program, 1986; Governor's Task Force on Technology and Disabilities, 1987; Mendelsohn, 1989; Office of Technology Assessment, 1982; Technology Access for Arkansans, 1989). Fragmentation in the provision of technology services typically results in the inefficient usage of existing financial resources in the service delivery system.

In Arkansas, professionals have rated the identification and coordination of of policies, resources, and services to be the third highest priority for a technology service system. Professionals have rated the provision and payment for technology and services to be of almost equal importance. A Consumer Advisory Committee designated to establish priorities for the proposed state technology plan identified interagency cooperation in providing funding to purchase services and technology as being the fifth highest priority.

The value of interagency cooperation for technology access is demonstrated by the relationship between the Arkansas Highway and Transportation Department and Project TAARK. These two groups worked together on a comprehensive technology needs assessment in March-May of 1989. Since AHTD was involved in its own 5-year planning activities, it was decided that resources could be shared in a joint survey effort to provide information necessary *for both groups*. As a result of this initial collaborative relationship, AHTD became involved in the preparation and support of this grant application. Continued involvement with AHTD is anticipated as ARTAP personnel explore possibilities for enhancement of the transportation system for persons with disabilities in the state.

persons in the regions.

Support to each regional technology team will be provided through the TIS and TAC personnel as appropriate. Semi-monthly telephone contacts will be made to the coordinator of each regional team to determine needs, share information, and other interactions as appropriate. Each coordinator will compile monthly reports relating to the types of activities in which his/her team has participated during that period of reporting. Monthly payments will be made contingent upon the submission of the reports indicating an active involvement of team members in improving technology access and services to persons with disabilities.

Since each team of regional technology specialists has responsibility almost exclusively to their respective service region, training provided to consumers and professionals in their regions and other types of assistance regarding technology service provision will be a principle activity for the team members. Each member will accept requests for services from persons in his/her region and facilitate the provision of that service to the greatest extent possible. The regional technology specialists will be encouraged to develop local support networks involving consumers, parents, professionals, and the business community. The tasks of the support networks will be to identify and develop solutions to technology access barriers in their communities. The regional technology specialists will use existing resources in the community to the maximum extent possible as well as drawing on the combined resources of the TIS and TACs in the provision of training to persons in their regions.

Objective 8.3: To evaluate the network of regional technology specialists.

As with other aspects of ARTAP project evaluation, multiple techniques will be used to determine the effectiveness of the Regional Technology Specialists Program. The number of referrals made by the specialists in each region will be examined to ascertain implementation impact on each region of the state. Comparisons of the number of referrals contrasted with the population base of each region will provide performance measures necessary for decision-making by ARTAP personnel. Inquiries made to the TACs across the state will also provide information relating to the impact of the regional technology specialists on their respective regions. Evaluation of the monthly reports will also provide information concerning the number and range of activities involving the technology specialists.

ARTAP personnel will periodically contact the TACs and ask specific questions regarding their perceptions of the roles played by the technology specialists. The technology specialists themselves will be surveyed periodically, either by telephone or through direct contact by ARTAP personnel, and questioned about their effectiveness and satisfaction in their roles. Since longevity in a particular position is often an index of satisfaction with a work role, documentation will be maintained of each technology specialist's length of affiliation with the ARTAP program.

The number of training activities conducted by the regional technology specialists in their respective regions will also be used to evaluate this component of ARTAP implementation. Records of attendees present at these training activities will be forwarded to the CIS for summary and evaluation. Surveys of service agencies and groups in each region will be made by ARTAP staff on a periodic basis to ascertain the level of involvement of the regional technology specialists with such agencies and groups, and to determine the perceptions of these service providers towards the technology specialists and their effectiveness in the region. Finally, examination of the number of complaints filed with the TIS, TACs, or other service agencies will provide information necessary for evaluation.

Goal 9: To develop, implement, and evaluate a User-to-User network.

Networking has been shown to be a highly efficient and important means of disseminating information. Excellent examples of such systems are reflected in the Parent to Parent program coordinated by the Association for Retarded Citizens/Arkansas and the Parents of Augmentative Communication Talkers in Georgia (Lennon & Harnden, 1989) . Through these systems, parents of persons who have handicapping conditions are enabled to contact other parents who have problems similar to those experienced by the parents entering the network. The contacts allow those who have already experienced and overcome obstacles relating to service provision to share their experiences and information with others. This facilitates the development of advocacy skills, information dissemination, and needed support for families and consumers.

Given the effectiveness of such networks of resource persons, a network of users of technology across the state will be developed during the implementation of the ARTAP system. This system, User-

to-User, will place parents, consumers, and families in touch with other individuals who have used specific types of technology. Such a referral and support system will provide a tremendous service to potential users of technology who too often purchase technology that is inappropriate for their needs.

Objective 9.1: To identify individuals to participate in a User-to-User network on a state and regional basis.

Participants in the User-to-User network will be identified employing a variety of previously effective approaches. The marketing campaign developed by the marketing specialist will initially facilitate interest in the network based on awareness activities conducted statewide. This will include publication of information in state newsletters, presentations at meetings and conferences, in-service presentations, public service announcements, teleconference presentations, videotape presentations disseminated statewide, and other medium for the transfer of information. Information disseminated through the TIS to each of the TACs will result in nominations of persons deemed to be appropriate for participation being made from each of these sites. Letters and brochures explaining the program and requesting nominations for participants will also be sent to professionals and organizations working with persons who have disabilities. In addition vendors of technology devices will be asked to contact customers to invite them to participate in the network. Identification of the initial pool of participants will be concluded by September, 1990.

Every person who is identified will receive a packet of materials explaining the program and their duties and a release form which must be signed before they can be entered into the network. A registry of all participants in the User-to-User network will be developed employing a computer database housed at the TIS. All nominations and self-referrals will be stored in this database and updated regularly as new nominations and referrals are made to the system. This activity will be completed by October, 1990.

Objective 9.2: To disseminate information relating to the User-to-User network to the TACs, and Regional Technology Specialists.

Once an initial pool of participants in a User-to-User network has been identified and is placed

on the TIS computer database, all TACs will be contacted by ARTAP personnel and given a listing of the names, addresses, and telephone numbers of those involved in the network. The timeline for thecompletion of this activity is November, 1990. Information pertaining to participants in the User-To-User Network will be provided to each team coordinator during their training by TIS personnel by January, 1991. As new participants are identified by the TIS, this information will be forwarded to the coordinators in order that they might, in turn, disseminate this information to their respective team members.

Objective 9.3: To evaluate the User-to-User network.

Several techniques for evaluating the effectiveness of the User-to-User network will be employed. Examining the number of nominations of persons to participate in the network will yield information regarding the effectiveness of the marketing of the program. Comparisons made by region will reflect the level of activity of technology specialists in their respective regions. The number and characteristics of the persons who participate in the User-to-User training sessions will be recorded and analyzed to identify service patterns and gaps. Persons who participate in the training programs will be asked to evaluate the quality and relevance of the training they received. Semi-annually, participants in the network will also be asked to evaluate the quality of the network. The characteristics of the persons who use the system for a source of information or support will be analyzed to identify patterns and service gaps. The number of matches of requests for information to available user "experts" will serve as a valuable technique for evaluating the effectiveness of the system. In addition, satisfaction and recommendation questionnaires, similar to the ones used to evaluate the information system (see **Goal 2**), will be sent to all persons who access the User-to-User network.

Evaluation Plan

The kinds of information that will be collected and analyzed for evaluating achievement of each goal is described in this section. Persons with disabilities, their families and representatives will

participate fully in the evaluation process to help ensure that a consumer-responsive statewide technology access system is created in Arkansas. They will serve both as providers of information when accessing ARTAP services and as evaluators of the evaluation information through staff positions, and through membership on the Advisory Committee and TAARK study groups. Whenever appropriate, a multiple measure evaluation approach will be used to evaluate processes and outcomes of ARTAP (Irwin, Crowell, & Bellamy, 1979). This involves simultaneously using several procedures to measure program processes and outcomes. The advantages of this strategy over a single measure approach to evaluation include: a) the possibility of error is reduced when the same outcome is documented by different measurement instruments that are susceptible to different error influences (Johnson & Bolstad, 1973); b) the need to assess a variety of outcomes in relation to multiple program objectives: and c) that multiple assessment can provide information to a variety of potential users of the evaluation data who have differing needs (e.g., consumers, administrators, and legislators). In general, descriptive statistical techniques will be used to analyze and to report the evaluation findings. Components of the evaluation system were also presented in the **Plan of Activities** section.

In order to ensure that the evaluation of ARTAP is conducted using the most appropriate techniques and in a timely manner, technical assistance will be provided to ARTAP by staff from the Arkansas Rehabilitation Research and Training Center and the University of Arkansas - University Affiliated Program for Developmental Disabilities. The Arkansas Rehabilitation Research and Training Center is part of the nationwide network of Rehabilitation Research and Training Centers. The Arkansas Center focuses on problems and technical assistance in the area of rehabilitation assessment with emphasis in vocational rehabilitation and independent living. The University of Arkansas - University Affiliated Program for Developmental Disabilities is part of the national network of UAPs that are funded by the U.S. Administration on Developmental Disabilities. Technical assistance, interdisciplinary training, and participation in state-of-the-art practices involving persons with disabilities are some of the mandated tasks for the UAP. Personnel from both of these programs will assist ARTAP staff in developing an effective evaluation system, assist in developing data collection and analysis protocols, and assist in implementing the evaluation plans. In addition, ARTAP staff will seek the assistance of and participate fully in the evaluations organized through the national technology technical assistance program funded under P.L. 100-407.

Within the Division of Rehabilitation Services there is also an *internal grant monitoring process* which is an inherent part of any grant secured for the provision of services. This process will also be used to monitor and evaluate the implementation of ARTAP. The TAARK project study groups described previously in this proposal will be continued throughout the implementation phase of the grant. These study groups will submit reports periodically to the ARTAP Advisory Council for consideration and review, focusing on consumer issues, funding mechanisms, activities of national models for technology service delivery, personnel issues, information dissemination and public awareness, and legislation and administrative policies. Such reports will serve to provide supplementary monitoring and evaluation information to the Deputy Director, ARTAP Project Director, and the ARTAP Advisory Council.

In an effort to maximize the input of consumers of technology, the ARTAP Advisory Council members will make informal contacts with consumers of technology throughout the state. These contacts will be initiated by consumers. The names, addresses, and telephone numbers of ARTAP Advisory Council members will be provided as public information through newsletters, surveys, and other mechanisms, so that consumers can make direct contact with the board members . In addition, public forums provided at meetings of the Developmental Disabilities Planning Council, Coalition for the Handicapped, Association for Retarded Citizens/Arkansas (ARC), Division of Rehabilitation Services, and the State Technology Conference will serve as important vehicles for consumer input.

The following are descriptions of the evaluation procedures that are planned for each of ARTAP's nine goals. Due to the interrelationships among goals many of the same data collection and evaluation strategies are shared among the different goals.

Goal 1: To develop an ongoing, consumer-driven planning and evaluation system.

One of the principle means of evaluating the implementation efforts of ARTAP will be through the use of evaluation forms provided to each consumer accessing the system at the various Technology Access Centers (TACs). Each consumer who is provided with a service from these centers will be encouraged to evaluate their satisfaction with the TAC and with the overall system. The completed evaluation forms will be mailed *directly* to the Technology Information System (TIS) for data entry and

action (in the event of dissatisfaction). Random telephone interviews with consumers of technology and technology-related services provided by the system will also be attained periodically to evaluate the effectiveness of the ARTAP system. These contacts will be made by personnel of the TIS, with the information being stored for retrieval and dissemination to the Advisory Committee, to the TACs, and to other groups as requested.

During the third year of the grant, statewide consumer and professional surveys will be prepared, disseminated, and analyzed. These surveys will be designed in such a way as to enable comparison with the results of the TAARK (1989) surveys (see the **Needs Assessment** section for further information about the TAARK technology needs surveys). The survey instruments will be designed by a team of consumers and professionals. Particular concern will be placed on items concerning technology awareness and accessibility.

An important evaluation technique will involve examining the implementation of solutions to the identified barriers. This examination will result in an index or solution/barrier ratio (SBR). A high ratio indicates a high rate of success in solving technology accessibility problems in Arkansas.

A final means of evaluation of ARTAP implementation efforts will focus on periodic examinations of past statistical data relating to ABLEDATA usage and other information contacts contrasted with current contacts made by consumers and professionals around the state. For the past four years, the Division of Rehabilitation Services has been maintaining a record of requests from consumers and professionals regarding assistive devices for persons with disabilities. The number of contacts to ARTAP will be immediately available from computer storage at the various TACs and the TIS, providing quantitative measures of the impact of ARTAP activities on the attitudes and opinions of Arkansans.

Goal 2: To develop a coordinated technology information/service system.

One evaluation technique involves gathering satisfaction and grievance information and anaylzing it for patterns which highlight both strengths and weaknesses of the system. Each person accessing the TIS will be contacted via a telephone call by the TIS staff within 2 weeks of their entry into the system to determine whether needed services were obtained and to ascertain the recipient's level of satisfaction with services received. These contacts would be followed up within 2 months by a mail-

out questionnaire sent to the service recipient from the TIS. Also, service recipients will be made aware of grievance processes on their initial entry into the system. Since the Division of Rehabilitation Services has been designated as the lead agency for the administration of ARTAP, grievance processes would be accessed through the Division of Rehabilitation Services internal procedures for lodging complaints. An alternative form of grievance procedure which will be examined and potentially developed will be through the existing Consumer Protection Division housed within the Office of the Arkansas Attorney General. Persons who have used the information system will also be asked to provide demographic information, information concerning their needs, and how they learned of the TIS services.

Since needs assesssments are an ongoing activity demonstrated by many public and private agencies/groups, TIS personnel will insure that many of these annual needs assessments, e.g., Division of Rehabilitation Services, Governor's Developmental Disabilities Planning Council, Division of Aging and Adult Services, etc., will contain questions having bearing on the TIS. At the beginning of the third year of the ARTAP implementation phase, a comprehensive needs assessment will be conducted involving all persons who have accessed the TIS system, as well as consumers and professionals who are members of a variety of organizations that would provide mailing lists of their membership rosters. A critical facet of this comprehensive needs assessment would be levels of satisfaction with the TIS system.

One important consumer-based evaluation strategy involves analyzing the TIS services using the Information Accessibility Guidelines. These Guidelines were developed by a subcommittee of the Consumer Committee that established the priorities for ARTAP. The Guidelines are intended to sensitize ARTAP staff to accessibilty barriers and to ensure that technology related information and services will be accessible to all persons with disabilities. The responsibility of ARTAP is to match information dissemination and access modes to the needs of individuals with disabilities. Information must be available in tactile, auditory, and visual formats, and the reading and complexity level of the materials must be adapted to meet individuals. This evaluation will be conducted by a consumer subcommittee of the Advisory Committee.

Other forms of evaluation of the TIS would include (1) progress reports submitted from the TAARK study groups which act in an advisory capacity to the ARTAP Advisory Council; (2) input from

the federal technical assistance program; (3) quarterly reports from the TACs ; (4) informal contacts made by consumers with the ARTAP Advisory Council; (5) examination of the number of access contacts made with databases available in the TIS by persons across the state; and (6) anecdotal records maintained by the various regional technology specialists across the state that would be submitted on a regular basis to the CIS.

Goal 3: To facilitate the development and expansion of Technology Access Centers across the state.

Quantitative evaluation techniques will include each TAC recording and analyzing the following information: the number and types of inquiries for technology information they received; the number and purposes of evaluations and assessments that they provided; the numbers of persons who participated in on-site and off-site equipment demonstrations; the number of presentations and other training activities in which TAC staff participated; the number of persons who participated in the TAC's training activities; the number and types of items the TAC added to the TIS database; the numbers and types of publications and other informational materials produced and disseminated by the TAC; and the participation of TAC staff in marketing activities. In addition to recording the number of individuals served by the TACs, information concerning the characteristics of the "clients", including age, type of disabilities, address, technology needs, and how they learned about the TAC's services. Semi-annual summary and analysis of this information will provide an accurate picture of each TAC's activities. This analysis will also delineate the characteristics of the TAC's customers and the effectiveness of various marketing strategies.

Qualitative evaluation will consist of asking persons who have received services from the TAC to indicate their satisfaction with the services, criticism of the services, and recommendations for improvements. Each person who accesses the TAC services will receive a questionnaire. Service recipients will be informed of the ARTAP's grievance processes. Semi-annual summary and analysis of these instruments and complaints will provide information concerning the quality of the TAC's services. This information will be provided to the TIS, to the ARTAP Advisory Committee, and to the Division of Rehabilitation Services.

Goal 4: To establish a marketing and public awareness campaign to promote the benefits and use of technology for persons with disabilities.

Evaluation of the ARTAP marketing and public awareness campaign will involve recording and analyzing a wide variety of events including: the number of times such Public Service Announcement is aired; the number of times that articles appear in press, as well as the types of publications in which they appear; the number of "ad slicks" that are reproduced in written publications; the number of brochures distributed to the general public, professional audiences, consumers, and other groups; the number of news/talk shows on which information relating to technology and its uses; the number of presentations relating to technology usage with persons with disabilities made at conferences and conventions; and, the number of presentations made via the consumer/professional speakers' bureau. A statewide "clipping service" will be designed to locate and excerpt such articles for storage in the TIS. Pre- and posttests will be used in with presentations to determine the level of expanded awareness created. A final component of the evaluation process will be the number of persons who access the TIS and TACs who respond to a question regarding the source of their knowledge of ARTAP and correspondingly voice their awareness of ARTAP as a result of some particular component of the campaign, e.g., a television PSA or brochure.

Goal 5: To develop coordinated training activities for persons with disabilities, their families, professionals, employers and the general public concerning technology-related services.

The evaluation of the ARTAP training system will include systematically collecting descriptive information on each training activity. This information will include: the topic of the training; the format of the training (e.g., demonstration, lecture, workshop); a list of the presenters; the location of the training; the number and characteristics of the attendees; the costs of the training program; the resources and equipment used; and the cooperative arrangements that facilitated the training. Comparison of this information to established training plans and priorities will enable decisions to be reached concerning the accomplishments of training goals.

Outcome measurements will consist of satisfaction questionnaires completed by the partici-

pants and the survey of current training needs regarding technology and services. Analysis of the satisfaction questionnaires and comparison of the results to established training priorities will enable the Training Coordinator to determine the success of the training activity and the progress toward achieving the activity's stated goal. The analysis of this information will also enable the Training Coordinator to determine the effectiveness of various training formats (e.g., comparison of the effectiveness of lecture presentations to video taped programs).

During the third year of this project, consumer and professional technology needs surveys will be conducted. These surveys will be similar to the surveys conducted during the Spring of 1989 (see the **Needs Assessment** section for details of these surveys). Comparisons of the results of these surveys will enable the ARTAP staff to determine the overall impact of the training activities to the identified needs. In addition, cooperative agreements for the collection and sharing of information will be established with other agencies and groups, such as the Division of Rehabilitation Services and the Special Education Resource Center, so that questions concerning technology training needs will be included in their needs assessment activities. Information regarding the effectiveness of the training activities and unmet training needs will be provided to the TIS, to the ARTAP Advisory Committee, and to the Division of Rehabilitation Services.

Goal 6: To develop a statewide system for equipment exchange of used devices.

Since each consumer will be surveyed within 2 months of his/her receipt of services, as well as annually with regard to level of satisfaction with services received, both a *qualitative* and *quantitative* index of satisfaction with this component of the system will be acquired. Examination of the number of requests for services made of the TIS, the TACs, and the regional technology specialists will also provide evaluative information. Though all requests for services will not pertain to the Equipment Exchange Program, many such requests will and, as such, be used to examine the utility and efficiency of the system. Another dimension of evaluation will be the examination of the actual number of items in the system. Similarly, given the fact that consumers will be contacted within 2 weeks of their entry into the system to ascertain the status of their requests for services, examination of the number of matches made between needs and services rendered will be enabled. Finally, telephone contacts made by TIS

personnel with consumers who have entered the system in need of selling, trading, or acquiring used assistive technology will function to determine levels of satisfaction with the Equipment Exchange Program.

Goal 7: To improve interagency cooperation in the development of consumer responsive policies and procedures regarding technology services.

Evaluation will concentrate on three different levels of activities relating to ARTAP involvement in facilitating changes in the policies involving technology access. An examination of the number of pre-grant cooperative agreements versus post-grant agreements will be initiated, providing an index of change within the system. Also, during the process of providing training to policy makers regarding technology access issues, documentation of whether training occurred and the satisfaction with that training will be collected and analyzed. Finally, a comparison will be made between the policy barriers that are identified and the success of the solutions to those barriers.

Goal 8: To establish a network of community-based technology specialists responsive to persons with disabilities and their families.

The number of referrals made by the specialists in each region will be examined to ascertain implementation impact on each region of the state. Comparisons of the number of referrals contrasted with the population base of each region will provide performance measures necessary for decision-making by ARTAP personnel. Inquiries made to the TACs across the state will also provide information relating to the impact of the regional technology specialists on their respective regions. Evaluation of the monthly reports will also provide information concerning the number and range of activities involving the technology specialists. ARTAP personnel will periodically contact the TACs and ask specific questions regarding their perceptions of the roles played by the technology specialists. The technology specialists themselves will be surveyed periodically, either by telephone or through direct contact by ARTAP personnel, and questioned about their effectiveness and satisfaction in their roles. Since longevity in a particular position is often an index of satisfaction with a work role, documentation will be maintained of each technology specialist's length of affiliation with the ARTAP program.

The number of training activities conducted by the regional technology specialists in their

respective regions will also be used to evaluate this component of ARTAP implementation. Records of attendees present at these training activities will be forwarded to the CIS for summary and evaluation. Surveys of service agencies and groups in each region will be made by ARTAP staff on a periodic basis to ascertain the level of involvement of the regional technology specialists with such agencies and groups, and to determine the perceptions of these service providers towards the technology specialists and their effectiveness in the region. Finally, examination of the number of complaints filed with the TIS, TACs, or other service agencies will provide information necessary for evaluation.

Goal 9: To develop, implement, and evaluate a User-to-User network.

Several techniques for evaluating the effectiveness of the User-to-User network will be employed. Examining the number of nominations of persons to participate in the network will yield information regarding the effectiveness of the marketing of the program. Comparisons made by region will reflect the level of activity of technology specialists in their respective regions. The number and characteristics of the persons who participate in the User-to-User training sessions will be recorded and analyzed to identify service patterns and gaps. Persons who participate in the training programs will be asked to evaluate the quality and relevance of the training they received. Semi-annually, participants in the network will also be asked to evaluate the quality of the network. The characteristics of the persons who use the system for a source of information or support will be analyzed to identify patterns and service gaps. The number of matches of requests for information to available user "experts" will serve as a valuable technique for evaluating the effectiveness of the system. In addition, satisfaction and recommendation questionnaires, similar to the ones used to evaluate the information system (see **Goal 2**), will be sent to all persons who access the User-to-User network.

Management Plan

The management plan for insuring implementation of the various tasks described in the ARTAP proposal are delineated in this section. The management plan consists of five components: (1) Staff Resources; (2) Fiscal and Accounting System; (3) Internal Management Plan; (4) Activity Timeline; and (5) Description of Resource Allocation.

Staff Resources

The Division of Rehabilitation Services has an adequate number of personnel to support the ARTAP application. The Assistant Deputy Director of this agency has indicated that 38 staff members are available within the Central Office to act in a support capacity to the program. Additionally, the agency has indicated that the services of the Arkansas Research and Training Center at the University of Arkansas-Fayetteville will be employed in the areas of training and evaluation as well as to monitor the implementation of ARTAP activities.

An organizational chart reflecting the ARTAP framework is depicted in Figure 4 on page 30. Job descriptions for key program personnel have been developed. Specific responsibilities for program activities are listed in the Activity Timeline below.

Fiscal and Accounting System

The Assistant Deputy Director for the Division of Rehabilitation Services is licensed as a certified public accountant. This person will assume responsibility for overseeing the fiscal component of the grant. The Internal Review and Audit Section of the Division of Rehabilitation Services will additionally hold responsibility for monitoring the fiscal resources of the program.

It should be noted that the state operates the Accounting Federal Grants Management System (AFGM) which facilitates tracking of Division of Rehabilitation Services expenditures in accordance with stipulated funding regulations. This system consists of two basic processes. The first process involves the accomplishment of the State's accounting functions, while the second process entails the

accomplishment of tracking and reporting functions specified in the federal grant's application. These two processes are integrated whenever required, i.e., a voucher issuance function is recorded simultaneously to both the accounting and federal grants processes of AFGM. Those functions that are the result of a single transaction being recorded result in the simultaneous recording of both accounting and federal grants procedures.

The Division of Rehabilitation Services manages federal funds in excess of $13,000,000 each year and has established appropriate accounting and auditing procedures to meet OMB Circular A-102 requirements.

Internal Management Plan

To facilitate internal management of ARTAP, a performance evaluation system will be used. This type of system has been designed to insure effective program monitoring. The performance evaluation system will include a procedure for identifying problems in scheduling and costs, and a system for reallocation of resources as necessary. To insure that tasks are completed on time, schedules of weekly activities will be given to each ARTAP staff. Individual progress will be reported by each program worker to the Program Director on a bi-weekly basis. The Program Director will initiate these contacts by telephone calls or personal communication every second Friday during the ARTAP implementation phase. Program staff will be encouraged to identify problem areas at these times. Undoubtedly one of the most likely problems is that activities will not be completed in the scheduled time frame. The Program Director will monitor actual time spent on each task on a bi-weekly basis, comparing the predicted time allotment to the actual time being expended. This procedure will allow the Program Director time for redirecting ARTAP staff to meet important deadlines. In addition, the Program Director will use a microcomputer planning software package, called MacProject II (CLARIS, 1988), to plan, track, and allocate resources for the specified activities.

Monthly staff meetings will be held as a means of ensuring that the entire group has input to the program as a whole. These meetings will last one to two hours in length. Participants will be asked to indicate agenda items one week prior to the meeting. The ARTAP Administrative Assistant will be responsible for recording meeting minutes. These meetings will also serve as a means of recognizing

excellence and of informing ARTAP workers about the current status of the various tasks.

Activity Timeline

A display of the scope and sequence of the major ARTAP tasks is reflected in the Activity Timeline presented below. The major tasks, personnel involved in the tasks, and proposed starting and completion dates are also indicated in this figure. This timeline will remind program workers of job responsibilities and time commitments.

ARKANSAS TECHNOLOGY ACCESS PROGRAM ACTIVITY TIMELINE

Activity	Personnel	Starting Dates	Ending Dates
GOAL 1			
Objective 1.1			
Establish Advisory Council	Division of Rehabilitation Services, Deputy Director (DRS/DD)	10/1/89	10/15/89
Objective 1.2			
Identify Barriers and Solutions	ARTAP Advisory Council, TAARK Study Groups	10/1/89	Ongoing
Objective 1.3			
Evaluate Implementation of Plan	DRS/DD, ARTAP Advisory Council, Program Director	10/1/89	9/30/90
GOAL 2			
Objective 2.1			
Conduct RFP Process	DRS/DD, ARTAP Advisory Council	10/1/89	10/15/89
Hire TIS Personnel			
Director	DRS/DD	10/1/89	11/15/89
Information Specialists & Secretary	DRS/DD, Program Director, Host Organization Executive Director	11/15/89	2/15/89
Marketing Specialist	DRS/DD	1/1/90	1/30/90
Training of TIS Personnel	DRS/DD, Program Director, Public & Private Agencies/Organizations	2/15/90	8/1/90
Objective 2.2			
Dissemination of TIS to Technology Access Centers	Program Director, Information Specialists	7/1/90	9/1/90
Develop Training Notebook for Regional Technology Specialists	Marketing Specialist, Information Specialist (Coordinator of Regional Technology Specialists)	6/1/91	7/15/91
Disseminate Training Notebook to Regional Technology Specialists	Information Specialist, (Coordinator of Regional Technology Specialists)	7/15/91	9/15/91
Evaluate TIS	Program Director	7/1/90	Ongoing

Activity	Personnel	Starting Dates	Ending Dates
GOAL 3			
Objective 3.1			
Develop & Publish RFPs for Technology Access Centers	DHS/DRS	10/1/89	10/15/89
Review Submitted Proposals	ARTAP Advisory Council	10/15/89	1/1/90
Announce Awards	DRS/DD	1/1/90	1/1/90
Develop and Implement TACs	Host Organization Executive Director	1/1/90	3/15/90
Objective 3.2			
Provide Educational Resources to Existing Systems Serving the Educational Community	Information Specialists, ASERC Personnel	1/1/90	Ongoing
Objective 3.3			
Provide Reources to Vocational Center Developed Through DHS/DRS	Program Director, Information Specialists, DRS/DD	1/1/90	Ongoing
Objective 3.4			
Evaluate TACs	Program Director, Host Organization Executive Directors	1/1/90	Ongoing
GOAL 4			
Objective 4.1			
Hire Marketing Specialist	DRS/DD	10/1/89	2/15/90
Development of Plan	Marketing Specialist, Marketing Firm, Community Organizations, ARTAP Advisory Council	2/15/90	4/11/90
Develop Marketing Materials	Marketing Specialist	2/15/90	Ongoing
Review of Marketing Materials	ARTAP Advisory Council, Consumer Groups	7/15/90	8/1/90
Objective 4.2			
Implement Marketing Plan	Program Director, Marketing Specialist, Information Specialists	8/1/90	Ongoing
Production of Materials	Marketing Specialist	2/15/90	Ongoing
Dissemination of Materials	Marketing Specialist	3/1/90	Ongoing

Activity	Personnel	Starting Dates	Ending Dates
Objective 4.3 Evaluate Effectiveness of Marketing Campaign	DHS/DD, Program Director	9/31/90	Ongoing
GOAL 5			
Objective 5.1 Identify Training Needs and Mechanisms	Program Director, TAARK Study Groups, Information Specialist, TAC Host Organization Executive Directors, Regional Technology Specialists	2/15/90	4/1/90
Objective 5.2 Conduct Training Activities	Program Director, Information Specialist, TAC Host Organization Designated Personnel, Public & Private Agencies, Regional Technology Specialists	4/1/90	Ongoing
Objective 5.3 Coordinate Training Activities	Program Director, Information Specialist, TAC Host Organization Designated Personnel, Public & Private Agencies, Regional Technology Specialist	4/1/90	Ongoing
Objective 5.4 Develop and Implement System of Training	Program Director, Information Specialist	2/15/90	Ongoing
Objective 5.5 Evaluate Training Program	Program Director, Information Specialist	2/15/90	Ongoing
GOAL 6			
Objective 6.1 Create Statewide Registry of Equipment	ARTAP Advisory Council, Marketing Specialist, Information Specialist	2/15/90	Ongoing
Objective 6.2 Evaluate Equipment Exchange Program	Program Director, TAC Host Organization Executive Directors, Regional Technology Specialists	2/15/90	Ongoing
GOAL 7			
Objective 7.1 Establish Interagency Council	Governor, DRS/DD, Program Director	6/15/90	8/15/90
Objective 7.2 Evaluate Effectiveness of Interagency Activities	ARTAP Advisory Council, Program Director	8/15/90	Ongoing

Activity	Personnel	Starting Dates	Ending Dates
GOAL 8			
Objective 8.1			
Develop Regional Technology Teams	Marketing Specialist	10/1/90	6/91
Provide Training and Technical Assistance to Regions	Program Director, Information Specialist, TAC Host Organization Personnel	1/91	3/91
Evaluate Network of Regional Technology Specialists	Program Director, Information Specialist	10/1/90	Ongoing
GOAL 9			
Objective 9.1			
Identify Participants to Participate in a User-to-User Network	Marketing Specialist, TAC Host Organization Personnel	2/15/90	10/90
Disseminate Information Relating to User-to-User to TACs and Regional Technology Specialists	Information Specialists, Marketing Specialist	5/1/90	Ongoing
Evaluate User-to-User Network	Program Director, Information Specialist, Regional Technology Specialists	5/1/90	Ongoing

Inclusion of Individuals With Disabilities and Their Families or Representatives

This application describes substantive roles for individuals with disabilities and their families or representatives in:

(i) The development of the application, including the assessment of needs;

(ii) The establishment of goals and objectives for the program;

(iii) The planning and implementation of the functions and activities to be carried out under the program; and

(iv) The evaluations of activities under the grant and the assessment of the progress that the State has made toward the accomplishment of the program's goals and objectives;

Involvement in the Development of the ARTAP Plan

The inclusion of ndividuals with disabilities and their families or representatives in the development of the ARTAP plan and in the assessment of needs is one of the driving elements in the application development process in Arkansas. In response to consumer input, the first item listed in the Division of Rehabilitation Services' mission statement for ARTAP is "ensuring active, timely, and meaningful participation by individuals with disabilities and their families or representatives, and other appropriate individuals with respect to performing functions and carrying activities under the grant."

The entire focus of the grant and application process was an ARTAP consumer-driven planning process. Though the initial Technology Steering Committee of the ARTAP was composed of representatives of 6 organizations, it should be noted that at all meetings of the Coordinated Planning Committee, subsequent to the organizational meeting on January 4, 1989, an average of 38% of the participants were persons with disabilities or parents of persons with disabilities. One of the original organizations, however, was the Association for Retarded Citizens/Arkansas, an orgaiztion which represents thousands of persons with disabilities and their families. Also one of the iginal agency

representatives is a parent of a child with disabilities. Since only 3 of the 15 participants in the first meeting were individuals with disabilities, parents of children with disabilities or their representatives, the participants were requested to nominate at least 2 individuals with disabilities or parents to serve on the committee. At the next meeting, 10 (46%) of the 22 participants were individuals with disabilities, parents of children with disabilities, or their representatives. By May of 1989, the Coordinated Planning Committee had grown to a constituency of 45 persons representing persons with disabilities, their families, and 25 different organizations. This statistic supports the strong commitment in the planning process to facilitate *maximum participation* by persons with disabilities and their families in the design of a comprehensive technology state plan. The purpose of the Coordinated Planning Committee was to develop a state plan for a consumer-responsive statewide system of technology-related assistance, and to develop an application for P.L. 100-407.

Consumer Needs Survey

Consumer participation in the needs assessment ranged from input into the development of assessment methodologies and survey instruments to the provision of information through formal and informal means. A Consumer Needs Study Group was organized to draft documents designed to assess the technology-related needs of persons with disabilities, as well as to identify needs for training among professionals involved in service provision to persons with disabilities. Consumer input was solicited from across the state via the mechanism of a Consumer Survey designed to assess needs of users, or potential users of assistive device technology. The format for the survey included multiple choice questions on specific technology-relevant issues, and open-ended items allowing consumers to express their unique needs and to offer suggestions for those involved in the state planning process. These suggestions were compiled for the review of those establishing priorities for the state plan as well as those designing methodologies for the implementation of those priorities.

The outreach efforts of the Consumer Needs Study Group was substantial. Each participating agency and group was requested to provide a mailing list of persons with disabilities. This request resulted in approximately 12,000 mailing labels being submitted for use in the consumer survey which accessed a range of consumers including persons with mental retardation, hearing impairments, and

multihandicaps. Groups which participated by providing mailing lists included: Advocacy Services; Arkansas Association for the Hearing Impaired; Coalition for the Handicapped; Mainstream Living, which is a Title VII Independent Living Center; Arkansas Easter Seal Society; Central Arkansas Area Agency on Aging; Department of Human Services; Division of Developmental Disabilities Services; Division of Rehabilitation Services; and the Division of Services for the Blind. The first four organizations listed are consumer-based.

In order to address the elderly population of the state, *Arkansas Aging*, a periodical of the Division of Aging and Adult Services and the Arkansas Association of Area Agencies on Aging, was contacted and consent was obtained to reproduce the Consumer Survey instrument in its newspaper. This publication has a circulation of approximately 35,000 within the State of Arkansas. Consent was also obtained to reproduce the Consumer Survey in the monthly newsletter disseminated by the Association for Retarded Citizens/Arkansas which has a circulation of approximately 4,000. These three sources resulted in the potential to reach approximately 51,000 Arkansans. The Consumer Needs Survey had a return rate of 18%.

Establishment of the Goals and Objectives for the Program by Consumer Advisory Committee

The purpose of the Coordinated Planning Committee was to develop a state plan for a consumer-responsive statewide system of technology-related assistance, and to develop an application for P.L. 100-407. During the meeting, six study groups were organized to facilitate the acquisition of information relevant to goals. These study groups included Consumer Needs, Information Dissemination and Public Awareness, Legislation and Administrative Policies, National Service Delivery Models, Personnel Issues, and Funding Issues, and were chaired by the representatives of the six organizations constituting Project TAARK. Persons with disabilities, their family members and their representatives participated in each of the Study Groups based on their individual interests. Each of these Study Groups met independently from January until March to collect information relevant to the issue area targeted by the study group, identify barriers to technology access in Arkansas, and to develop solutions to the barriers.

In May, the Coordinated Planning Committee established a Consumer Advisory Committee composed of individuals with disabilities and parents of children with disabilities. These members were

selected from the Coordinated Planning Committee to establish priorities for the Arkansas grant application for P.L. 100-407. The resulting Consumer Advisory Committee reflected a constituency of persons representing a variety of interest groups: a chairperson with a visual impairment who also diercts a Title VII Part B independent living center; a parent of a child with cerebral palsy who is on the Governor's Committee for Employment of the Handicapped; a parent of a multihandicapped child who is also the Chair of the Governor's Deaf/Blind Task Force: a person with learning disabilities who also serves on the National Learning Disabilities Advisory Board; a person with blindness employed as an executive with AT&T who is on a 2-year loan to the President's Committee for Employment for the Handicapped and serves on the Governor's Committee for Employment of the Handicapped; and an elderly person representing the aging population as a member of the Governor's Advisory Council on Aging. Initial data analyses of the surveys were shared with the committee to assist it in its efforts to establish priorities.

The Consumer Advisory Committee met on numerous occasions in an effort to both prioritize technology goals for the proposed grant application, as well as to offer recommendations pertaining to methodologies for attaining those goals. The recommendations of this committee were presented to the Coordinated Planning Committee at its meeting on May 24, and they prepared written recommendations. Subsequent meetings focused on methodological decision-making processes to deal with the priorities estab. shed by the Consumer Advisory Committee. A representative of the Consumer Advisory Committee was present at meetings of the Technology Steering Committee held on June 8 and June 14 to insure that the integrity of its priorities and recommendations was maintained in the development of state plan methodologies.

Efforts to Ensure Consumer Participation

Throughout the TAARK planning activities, the involvement of individuals with disabilities, their families or representatives, and persons from the private sector has been actively encouraged and facilitated. Inherent in the initial TAARK grant award was a budgetary allotment for stipends to support the involvement of individuals with disabilities and their families at *all* planning meetings. A second strategy involved encouraging a number of very skilled persons with disabilities to participate in the

planning activities, as illustrated by the membership of the Consumer Advisory Committee. These persons quickly assumed leadership roles and were able to guide the planning process, as well as serving as outstanding role models.

Consumer Involvement in ARTAP Implementation and Evaluation

The involvement of persons with disabilities, their families and representatives is a strong component of the evaluation activities of the program's goals and objectives. A Consumer Advisory Committee was designated to establish priorities for a comprehensive technology plan in Arkansas. This group has recommended that the organization of an on-going consumer review panel was the second greatest priority for the conceptualized state plan. The plan calls for the Deputy Director of the Division of Rehabilitation Services to be directly responsible for appointing an Arkansas Technology Access Program (ARTAP) Advisory Council. This council will consist of 15 individuals of which 9 (60%) will be persons with disabilities and parents or representatives of groups of persons with disabilities. An attempt will be made during the appointment process to select a group of persons who will, to the greatest extent possible, represent the various groups of persons with disabilities across the state. This reflects recommendations made by the Consumer Advisory Committee and TAARK (1989).

The specific responsibilities of the Advisory Committee will include advising the Division of Rehabilitation Services Deputy Director, making recommendations regarding overall project development, reviewing the Requests for Proposals (RFPs) for specific technology services as delineated in Goals 2 and 3, and gathering and reviewing evaluation data and reports. An organizational chart of the ARTAP framework is illustrated in Figure 3 on page 24.

Persons involved with the Technology Access for Arkansans (TAARK) project study groups described previously in this proposal will continue to be involved throughout the implementation of the grant. These study groups are composed of a variety of consumers, parents, professionals, etc. The study groups will submit reports periodically to the ARTAP Advisory Council on an on-going basis for consideration and review, focusing on consumer issues, funding mechanisms, activities of national models for technology service delivery, personnel issues, information dissemination and public awareness, and legislation and administrative policies. Such reports will serve to provide supplementary

monitoring and evaluation information to the Deputy Director, ARTAP Program Director, and the ARTAP Advisory Council. Additionally, the ARTAP Advisory Council members will make informal contacts with consumers of technology throughout the state. These contacts will be initiated by consumers. The names, addresses, and telephone numbers of ARTAP Advisory Council members will be provided as public information through newsletters, surveys, and other mechanisms, such that direct contact can be made with these board members by consumers.

Consumer involvement in the evaluation and assessment process will also be insured through a variety of public and private organizations who host public forums annually such that input may be gained from consumers and families regarding the quality of technology services provided in the state. These open forums are included in the meetings of such diverse groups as the Governor's Developmental Disabilities Planning Council, the Coalition for the Handicapped, the Division of Rehabilitation Services, and the Association for Retarded Citizens/Arkansas. Additionally, a statewide Annual Technology Conference will be held in conjunction with ARTAP implementation processes, providing a primary mechanism for consumers and professionals alike to identify barriers toward attainment of ARTAP goals as well as to generate solutions to such barriers. Reports of identified barriers will also be submitted to the TAARK on-going Study Groups for evaluation and problem-solving.

Another means of evaluating implementation efforts of ARTAP will be through the use of evaluation forms provided to each consumer accessing the system at the various Technology Access Centers (TACs). Each consumer who is provided with a service from these centers will be encouraged to evaluate their satisfaction with both that TAC, but also with the overall system.

During the third year of the grant, comprehensive statewide consumer and professional surveys will be prepared, disseminated, and analyzed to determine the impact of the ARTAP project. The survey instruments will be designed by a team of consumers and professionals. These surveys will include all persons who have accessed the TIS and TACs as well as persons who are members of various professional and consumer organizations that are identifiable via available mailing lists acquired by TIS personnel.

Also, service recipients would be made aware of ARTAP grievance processes on their initial entry into the system. Since needs assessments are an ongoing activity demonstrated by many public and

private agencies/groups, TIS personnel will insure that many of these annual needs assessments, e.g., Division of Rehabilitation Services, Governor's Developmental Disabilities Planning Council, Division of Aging and Adult Services, etc., will contain questions having bearing on the TIS. At the beginning of the third year of the ARTAP implementation phase, a comprehensive needs assessment will be conducted utilizing all persons who have accessed the ARTAP program, as well as consumers and professionals who are members of a variety of organizations that would provide mailing lists of their membership rosters. A critical facet of this comprehensive needs assessment would be *levels of satisfaction* with the ARTAP system.

Marketing Activities

Marketing materials and related information will be provided to the TIS, to the ARTAP Advisory Committee, and to the Division of Rehabilitation Services. Consumer and advocacy groups will be provided the opportunity to review the marketing materials and strategies that are developed.

Coordination

In addition to the full participation of consumers in the ARTAP planning process, it was recognized that a wide range of agencies and organizations must work cooperatively in order for ARTAP to succeed. This recognition is reflected in the cooperative planning that began with the development of Project TAARK in 1988. TAARK represents the cooperative effort by 6 agencies and organizations to develop solutions to the technology access barriers facing Arkansans with disabilities. A description of the TAARK goals and structure is provided on pages 3 and 4 of the application narrative.

One of the first activities of TAARK was to develop a committee representing the majority of agencies and organizations involved in providing assistive device services and technology in Arkansas. This committee, called the Coordinated Planning Committee, consists of 48 persons. Thirty-three of the participants represented 25 public and private agencies involved in providing assistive devices and technology services to Arkansans of all ages with disabilities. Nineteen (40%) of the participants were persons with disabilities, parents of children with disabilities, or their representatives. Twelve (25%) of the participants were representatives of private non-profit organizations. Three (6%) individuals represented private businesses, such as assistive device vendors. Fourteen (29%) of the participants were employees of 12 state agencies. A few of the participants are counted twice in these figures, e.g., 4 state agency employees were also persons with disabilities or parents of children with disabilities.

A description of the Coordinated Planning Committee's efforts in developing the ARTAP plan is presented in pages 3-9 of the application and the process is illustrated in Figure 1 (page 4). Following a series of training sessions, the Consumer Committee, a subcommittee of the Coordinated Planning Committee identified the goals and objectives for ARTAP.

As described in Goal 1 (pp.23-28) and illustrated in Figure 3, the study groups that were developed from the Coordinated Planning Committee will continue to have an active role in planning and evaluating the success of programs that are designed to improve technology access for Arkansans

with disabilities. These study groups will work directly with the ARTAP Advisory Council. In addition, although at least 60% of the ARTAP Advisory Council will consist of individuals with disabilities, parents of children with disabilities or their representatives, agencies and organizations will be well represented in the constituency of the remaining 40% of the Council. The ARTAP Advisory Council will have a direct role in the comprehensive evaluation of ARTAP to ensure the development of a truly consumer-responsive statewide system for technology access (see the Evaluation Plan pp 63-72, for a detailed description of these activities).

Goal 7 (pp. 56-59) describes the ARTAP plan for developing an Interagency Council made up of policy-making staff from all state agencies involved in technology access for persons with disabilities. The importance of this activity is reflected in the Governor of Arkansas' commitment to establish this interagency group and to charge them with the task of identifying and developing solutions to barriers caused by state regulations and procedures. The Interagency Council will have direct communication links to the ARTAP Advisory Council. In order to facilitate the activities of this group one of the TIS information specialists will be assigned to serve as the staff person for the Council.

It is expected that the Interagency Council will establish interagency agreements that will result in the substantial improvement of technology access for Arkansans with disabilities. Some efforts have already begun in this regard. For example, recent discussions between the deputy directors of the various divisions of the Arkansas Department of Human Services and the Department of Education have resulted in commitments to provide staff and other resources in the next biennium budgets to continue ARTAP. As reflected in the description of personnel for the TIS (see Goal 2 pp31-34) and in the ARTAP budget, the Division of Rehabilitation Services has already made this commitment by providing four key staff positions and related in kind support to ARTAP.

Plans For Continuation of ARTAP

As reflected in its name, the Arkansas Technology Access Program is designed to be an ongoing program to improve technology access, not a limited duration project. A variety of mechanisms have been built into ARTAP in order to achieve this goal. These include: the development of long-term cooperative relationships between and among consumers and professionals; the establishment of

commitments to support the program from state level policy makers; the use and expansion of existing resources whenever possible instead of creating expensive new "brick and mortar" projects; the development of effective yet low cost monitoring and evaluation mechanisms; the implementation of extensive training programs for consumers and professionals that emphasize the role of advocacy in technology access; the implementation of a statewide public awareness campaign; the development of local rather than centralized networks of technology specialists throughout the state; the creation of low cost mechanisms for obtaining needed devices, such as the Equipment Exchange Program; and, the development of proven low cost technology support systems for persons with disabilities and their families. In addition, ARTAP's Technology Information System is designed to serve as the model for a comprehensive human services information and referral system in Arkansas. Such a system has received support from the Arkansas Legislature and has been discussed by many groups over the past five years. ARTAP will be the first implementation of such a system in Arkansas.

The success of the ARTAP process reflects very strong commitments by consumers and professionals in Arkansas to break down the barriers to technology access, and to enhance the lives and opportunities of persons of all ages with disabilities through the appropriate use of technology. Funding is sought under P.L. 100-407 to help facilitate these efforts. The processes used to develop these cooperative relationships in Arkansas and the ARTAP activities can help to serve as models for other states working on technology access problems.

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