Stan –

Here's the draft I received from Elizabeth.

Susan

LEAD by Design. Invest in technology that LEADS

VR testbed laboratory.

DRAFT 1.0

1.1

Americans with Disabilities and the NII

Information, which will be education, which will be employment, which will be income, which will be possibility, must flow to all Americans on terms of equal accessibility without regard to physical condition. And we are committed to doing that. - President Clinton 5/13/94

new quote

Part I: What Is the Application Area?

Description of ~~a~~ how the Information Infrastructure ~~that~~ will ~~aid~~ deliver for Americans with Disabilities

LEAD by Design

employment

INDIV. EQUITY

Construction of the NII offers great hope for substantially increased financial and physical independence, community participation, and productivity for ~~the disabled~~ people with disabilities.

NATIONAL OPPORT.

As we are designing and building the networks of the future, the information infrastructure that will underlie our economic, social and educational endeavors, we have the unique opportunity to "build in" accessibility from the start. Building an accessible infrastructure ~~will integrate~~ ensures the integration of people with disabilities into the mainstream of our society by providing them the means to increase their financial independence and reduce barriers to social isolation. Technology can equalize opportunity and the cost of implementation can be offset by a reduction in social service expenditures due to the increased ability of individuals with disabilities to manage on their own. This paper presents a strategy for dramatic, comprehensive and coordinated action at the federal, state and local level, and within private industry, to assure that individuals with disabilities will have the opportunity for full participation in our society.

Taken from Blue Ribbon Report

no citation

As the Electronic Industries Association has recognized, " Electronic Devices can mean a world of difference to those with special needs."[1] Computers are an integral part of the living, working, and educational environment. There are on the order of 43 million Americans who have disabilities who will need to access the NII as part of their lives. In addition, we must consider that our population is rapidly aging. The number of people with disabilities or who

(1) Seamlessly the information infrastructure will underlie our economic, social, and educational endeavors.

(2) The needs of people with disabilities must be established as we design and build the networks of the future.

[1] Electronic Industries Association, 1993 Seal of Accessibility

have functional limitations is rapidly growing. The Bureau of the Census reports that by age 55, 25% of us will experience functional impairments. The NII could be the key to long term independence, productivity, and community to a significant portion of our population.

must be designed for full utilization, must be addressed by NII initiatives.

People with disabilities have particular needs to which the NII initiatives ~~must be sensitive.~~ The NII will carry a mix of voice, graphic, and videotext services that ~~may not be fully utilized~~ by people who are deaf or hearing-impaired, blind or visually-impaired, or speech-impaired ~~unless steps are taken now~~ to guarantee their full and equal access. Passage of the Americans with Disabilities Act in 1991 was an important stride forward in this effort.

weak

Approximately 60% of the disabled population is unemployed, often this is due to the time required to simply manage the illness or a disability, including the physically & time consuming functions of traveling from government agency to agency to access social services. An accessible implementation of the NII could not only provide cost savings in health care and social services but free many of the disabled to successfully participate in the labor force.

For individuals with limitations in hearing, seeing, moving, speaking or cognition, the explosion of telecommunications offers opportunities as never before. New technology has the capability of "speaking" for people with speech disabilities and "hearing" for people who are deaf. It can bring information and education into homes and workplaces for people who have difficulties with mobility. It can provide added cues and reminders for people with memory or cognitive disabilities. Overall, it can help support a web of communication that makes it easier for people with disabilities to stay integrated in society.

A Vision of the Future

weak

Scenario 1

Jimm is a mixed media artist with MS. This morning, Jimm applied for an SBA loan via the net for the purchase of new equipment to expand his thriving business. He also included an announcement about his latest virtual gallery opening. He drafted his SBA proposal utilizing consultants from the University of Chicago and BRIE.

This afternoon, he plans to respond to an NIH notice regarding a new research protocol on treating his neuropathy. He had voluntarily submitted his medical records to a government database. The information was accessible by various federal, local and state agencies and they have kept him abreast of the latest medical and technical innovations that faciliate independent living.

Scenario 2

Andrea has a learning impairment. She is five years old. She also suffers from severe asthma and has to be monitored closely by her parents for any signs of breathing difficulties. During allergy season, she spends time indoors after school reviewing on a two way broadband video show "Kids Class" how to count to ten and sing the alphabet. ~~Carol Nelson, the~~ Andrea's teacher, tells stories that help supplement her skills learned during school hours. Carol monitors Andrea's breaths per minute through a counter device that feeds into a video stream back to her classroom.

needs work.

Scenario 3

6.1c

Jerry ~~Taylor is a fifty-two year old male who~~ 52 years old, recently lost his hearing. Since all information devices meet universal design standards, he does not need to purchase any new equipment to receive the close captioned ~~audio~~ text of the auditory information stream. To build skill sets that will improve his marketability as an optics engineer, he has signed up for training through UCLA's remote adult education program. He also uses the Internet to download his assigned reading materials directly from the bookstore.

Needs an introduction to separate from scenarios

- Providing Access and Coordination of Government Services can significantly reduce the number of trips to government agencies that require proof of a disability, and the level of dysfunction. Electronic mail access to agencies can reduce the physical burden that prevent many of the disabled from participating in full employment. ? ?

- Remote classrooms and in-home learning using "real-time video" for education and training by competent, stimulating teachers can provide access to lifelong learning that will allow the disabled to compete in the marketplace.

•Interactive cable systems could allow for full participation in electronic" town hall meetings, and in all telecommunity functions, enabling greater participation in the political process for the disabled.

•Kiosks with interactive video terminals, placed in strategic public locations to convey necessary information about, and access to, local government services.

• Two way broadband Videoconferencing would allow real time signing for the deaf.

• Remote medical monitoring and voluntary participation in medical databases can expand access to, improve quality of, and reduce both cost and physical of burden of health care for the disabled.

needs to be defined

• Universal design principles can both create and improve market share.To remain competitive internationally, the U.S. cannot continue to create unnecessary barriers to full participation in the economy and society; if competitiveness is the goal, universal design will help us get there. Moreover, the pursuit of universal design will open new markets for telecommunications services and equipment--markets that are international in scope. Finally, the concept of universal design is based upon the realization that we all differ in our abilities to move, see, hear, and think: universal design will enable the greatest number of people to actively participate in society through telecommunications.

•TV receivers with built-in decoder circuitry to provide closed captioning of aurally-delivered program material; or

•VCRs with built-in secondary audio program circuitry, to provide "descriptive video:" spoken interpretation of visually presented TV program material.

Consortium for Citizens with Disabilities

Needs to be translated so the concepts are better understood functionally by people who are not familiar with many of these technical terms.

Examples of ~~Applications~~ that could emerge for use in the NII as prepared by the CCD 10/93. Capab.

1. Creation of an NII number to access all state relay systems regardless of origination of call world wide.

2. Creation of NII number for alternative and augmentative communication devices, to access a software modality that converts digitized output(from an Alternative and Augmentative Communication device or computer with modem) into ~~a voice~~ synthesized speech that can then go to any voice system device. ?

3. Greater and more systematic augmentation of telephony amplification and clarity both through the handset or through the network so that ~~the~~ a person with a hearing disability can have amplification without necessarily buying a new personal device(with a T-coil). ~~—telephones~~ (?)

4. Alternative sensory presentation of videotext such as an electronic voice output device that scans information and transforms it into synthesized speech or pre-programmed for braille or alternate output to a character-sensitive or touch sensitive screen. ?

5. Voice-activated systems, including talking menus.

6. Voice dialing.

7. Alternative and augmentative communication (AAC) device connection to the system or network which has built-in ability to create speech or eliminate need for purchasing expensive AAC devices(this could include conversion to digitized speech, via a computer or computer device or software that produces synthetic, human-like speech which will then be transmitted through the usual voice system; this could include integration of new neural network software to learn how people with speech disabilities speak and how to"correct it" into recognizable speech.)

8. Voice recognition and augmentation software systems-computer devices or software that allow people with some recognizable speech to communicate with computers or connect otherwise to a network; the software would"improve" the quality of the speech to be easily understandable by others.

9. Electronic Notepads which can read and learn to read very bad English handwriting and convert it to speech.

10. Electronic notepads on which the screen is Braille and through touch can read and learn to read back a voice output(for people with combined speech and vision disability).

11.Electronic notepads on which the screen is Braille and through touch the software can generate an image of a person on the screen who is signing language(for people with combined speech, hearing and vision disability).

12. Public telephones that are activated by hand-held devices, using infrared technology, such hand-held devices could include pre-programmed radio transmitted instructions on dialing home or wherever.

13. Devices operating with eye-gaze technology that activates public telephones.

14. Eye-gaze or head-movement or puff-&-Sipp activated personal telephone services.

15. Dialing using eye-gaze technology.

16.Numerical keypads that are in the same order as on the phone, on calculators and computer keyboards. *The virtual vision projection technology could create these images on the proper template-see trp grant)*

17. Portable TTD with built-in cellular capability.

18. Affordable cellular service with cellular fax modem.

19. TT's that can link digitally.

20. An intermodal device of some sort for all current Text Telephone(TT) and Alternative and Augmentative Communication (AAC) device that can be linked to the coaxial cable television line in the house so as to access whatever products and services will be going up or down the coaxial cable.

21. Making all cellular phones compatible for use with haring aids.

22. Make CT2 phones, or PCS phones(digital cordless phones which are portable pocket-size radio frequency using devices) not interfere with hearing aids.

23. Ensuring that all radio frequency emitting devices do not interfere with any other device used by a person with any functional disability(hearing, vision, speech, motor,cognitive or multiple) through proper testing of such new devices.

24. A standardized voice mail "get out" ability so that individuals with speech and hearing disabilities can access alternate system. These systems could include features such as:
A. For individuals with hearing disabilities this could be a switching to 1. either a human voice system/and/or 2. an alternate digitized format that allows for sound amplification and/or 3. greater time to access(a slower access mode).

B. For individuals with speech disabilities this could be switching to 1. the slower access mode provided to accomodate the AAC device or 2. a direct link into the voice mail system through another mode(e.g., if there were built-in a voice synthesis capacity in the network that reads from AAC devices some kind of technical connectivity could be made.

25. Ensuring that the digitized format of all information services products(information) can be converted to voice output or brailled documents or abled to be amplified.

26. Development of software(based on new neural self-learning principles) that converts highly technical information products in easily understandible text (for individuals with cognitive disabilities.)

27. Neural software applications developed for those with very slurred or garbled speech to result in a device that generates clear speech.

28. Building in neural software applications to the infrastructure that "second guess" what a person with less clear speech says.

29. Greater advertising of the benefits of telephone relay services to the public so that those who are becoming hard-of-hearing can avoid feeling stigmatized...especially in the area of Voice Carry Over service.

30. Greater advertising of the benefits of telephone relay services to the public so that those who have speech disabilities understand and can use the system more frequently, especially in the area of Hearing and Voice Carry Over service.

31. Devices, or services, derived from applications developed by airforce or other military applications that depend on deployment of sensory awareness techniques(which could included brain electrical output activity) used to control wheelchairs, computers or environmental controls.

32. Augmentation of telephony amplification and clarity of speech that is electronically boosted.

33. Alternate sensory presentation of videotext such as an electronic voice output device that scans information and transforms it into synthesized speech or pre-programmed for Braille or alternate output to a character-sensitive screen; voice dialing; alternative and augmentative communication(AAC) device connection to system(conversion to digitized speech, from a computer or computerized device that produces synthetic, human-like speech which will connect to the system) through the use of infra-red technology; voice recognition systems- computer devices that allow people with some recognizable speech to communicate with computers or connect otherwise to the network;

A Picture of Today

agility
aging
innovation

What is the Public Interest in Promoting the Application?

Elim. Basic Restrictions to our comm. & info exchange with one another when one or more has a disab. that previously precluded participation

The 1993 #'s go here .... 49 million, 19.4 percent of popluation.... 1out of 5 Amercians.

Age

A review of both the 1986 National Health Interview Survey and the Krauss and Stoddard, 1989 Bureau of Census, Series P-70, #8 Survey, 1984 indicates that approximately 15% of the total US Population have some form of physical or sensory limitation. Moreover, the population is steadily growing older. By age 55, 25% of the population will experience functional limitations, by age 65, this percentage will rise to 50%, for the growing number of citizens who will live to be 70 years or older, 75% will experience functional impairment. In fifty years, it is estimated that more than a third of the US population will be over age 55 and a sixth will be over 70(based on US Congress Office of technology assessment OTA-BA_264). The 65+ population is growing by about 6 million per decade.[23]

elim. indiv. assoc. w/ aging

NII Products/standards that meet the accessibility needs of the disabled are meeting the needs of a significant part of not only the US population but the world market(GET NUMBERS FROM D. KAPLAN.) Internationally, 24 other countries have populations in which 11% are people 65 years of age or older, including most of Western Europe and Canada.

Hx Source of Innovation

~~(Third world countries have~~

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[2]Making Software More Accessible for People with Disabilities, A Trace Center White Paper, Release 1.2 . June, 1992.

[3]EIA Seal of Accessibility Development Plan Version 1.0 9/17/93

LEAD by DESIGN ensures an age that we'll still be active part. in society - Scientists Knowledge workers

The Electronic Industries Foundation has reported that, " manufacturers who have found ways to simplify the user interface have seen positive consumer response in terms of increased sales and decreased product returns... A growing body of research suggests that there are ways to design products that can accommodate functional limitations, and actually enhance their ease of use for everyone.[4]"

This is particularly important for the NII, as it is not the technically sophisticated networks that will determine success and marketplace advantages of the NII but as the California Public Utilities Commission reports, " affordable applications, low-cost customer equipment and consumer education and training." For many consumers, the dearth of applications and affordable equipment, inadequate knowledge of how to use these applications, is the stumbling block to full participation. **Universal design that meets the needs of the disabled promises to facilitate construction of applications that all consumers value and provide all users with choices on the best method for their acquiring knowledge on how to use the systems. Everybody learns best in different ways, self paced lifelong learning is one of the promises of NII.**

define

[4]EIA Seal of Accessibility Development Plan Version 1.0 9/17/93

Historical + Current Evidence of Benefits

General Services Administration

How Organizations Benefit from Accessible Information Environments

The GSA reports, "As implementation of Federal accessibility statutes proceeds, federal agencies are discovering that effective utilization of accommodation tools promotes productivity and ensures access to work-related and public information. Organizations benefit significantly from the ability to recruit and retain quality employees and the ability to effectively interact with all clients, including those with disabilities.

Agency experiences with accommodation solutions that incorporate maturing technologies such as speech synthesis, speech recognition, or document scanning, also provide an effective means for evaluating near-term applications with potential benefit to all users. Many employees in hands busy, eyes busy, or noisy environments can benefit today from flexible interface alternatives that have already been adopted by people with disabilities. Accommodation tools and practices are also being employed to minimize or prevent the visual fatigue and repetitive motion injuries associated with keyboard-intensive environments. As the workforce ages, accessible information environments will support the requirements of people who develop age-related limitations of vision, hearing, or mobility. As planning by Federal agencies increasingly reflects the total information environment, including electronic interfaces with the public and other agencies, accessibility represents a solid foundation to maximizing the value of the evolving information systems."[5]

Individual testimony on benefits

Scenario 1.

e-mail

I am a C7 quadriplegic that has completed a course in desktop publishing. I have been disabled for two years and very eager to get back into the work force. I have learned I'm still employable regardless of my disability.

I recently learned about telecommunications and the different networks for communicating. With electronic mail I communicate with various people from all around the world.

I use electronic mail for many functions. When working on a project for someone, I'm able to show them the work as it progresses. ~~my~~ life has really opened up with my career change and the electronic information systems.

Scenario 2.

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[5] Draft of 1993 Annual report to Congress and COCA Handbook, Managing Information Resources for Accessibility, January 1993 Draft Edition.

11

? State of California?

I am a C/5 Quadriplegic living in the Silicon Valley and currently working on an internship with the Networking and Communication Department. I have been disabled for ten years from a motor vehicle accident in 1983.

I use computer telecommunications daily in numerous different functions. Telecommunications has opened up a new world, allowing me to communicate via email with colleges, government agencies, and organizations. I also can access job bulletin boards and put my resume on file in my attempt to find permanent employment.

Software such as Mosaic and TurboGopher allow computer users to access enormous amounts of information over wide-area networks across campuses and around the world. With Gopher client software, you can easily search for information and retrieve documents from hundreds of servers containing material on every conceivable topic.

My horizons have widened through the use of telecommunications by allowing me to communicate with other disabled persons with similar problems. Additionally, I have gained vast amounts of information regarding numerous subjects while navigating through the telecommunications system.

The future success of telecommunications is phenomenal, especially for the disabled community. It not only allows a person unable to go out into the community to access endless amounts of information, but also permits disabled persons, such as myself, to eventually return to the workforce and become productive citizens again.

I have a dream of some day starting a nationwide bulletin board for attendant care for the disabled community. It would be an attendant registry that would permit disabled persons to hire attendants anywhere in the United States and find qualified and compatible employees.

I thank you for your time and hope that this letter lends some information to you regarding the bright future of telecommunications in the disabled community.

Scenario 3.

My name is Rachel Dubin and I am 17 years old. I am an oral profoundly hearing-impaired student who is fully mainstreamed in the 12th grade at the Park School in Baltimore, MD. We have had CompuServe since sometime around the middle of this summer and I have learned how to use it. Because of CompuServe, we have E-mail capability, enabling us to receive from Galludet news of developments within the deaf/hearing impaired

University

community. I did not really have access to E-Mail until early October, when a friend of mine who is at UVA proposed that we e-mail each other. **At that time, I had no idea how it worked, so quickly and eagerly learned .. on my own.** E-mail turned out to be easier than I thought, and it has been wonderful because it has enabled me to communicate with my friends from around the Atlantic Seaboard region. My e-mail phone book is a growing tool, and I now regularly communicate electronically with her, with a friend at school, and with another friend up in Boston.

The electronic super-highway" is a boon for deaf/hearing impaired people because it enables them to communicate via the written word, which is a very effective alternate means of obtaining vital information in a relatively short period of time. It is my hope that the White House will make access to the information highway universal.

Thank you for allowing me to voice my concern regarding this matter. E-mail is such a wonderful thing and I am fortunate to be living in an age where communication opportunities (especially for the deaf/hearing impaired are expanding.

Scenario 4.

I am using e-mail everyday on campus at a Galludet University, and because of my social shyness, it is much easier for me to socialize on the keyboard. I also find it great for research, and am doing my best to learn about Internet services as quickly as possible.

~~Already~~, I have only been on campus for a year and a half, and I already feel like a pro sometimes, since people ask me to help them on the VAX. My interaction with the system convinced me of the desirability of "me" getting a degree in computers, although I have not yet been able to ascertain exactly which one would be the most important for "internetting." I see a bright future on the "electronic highway" for graduate level papers, the growing availability of research information for graduate level papers, electronic books to send information to the public (and easily update with new versions), and development of photo capabilities on more sophisticated systems, it will soon become indispensable. In addition computers, are easier to adapt to different needs. For example, I have a visual perception learning disability which makes it essential for me to track down information in a search pattern, and ordinary books cannot be searched electronically using key words. Electronic books can, however, so I know when I have my own computer. Instead of just access to computers such as at work, I will be freed from a lot of confusion and be a much better student later when I try to get my graduate degree.

awkward phrasing

Personal information: I have been hard of hearing since birth, 50db equilaterally with little change over some 30 years. I am also a freelance

Certify for greater support vices his per.

writer which activity ~~while~~ will also be enhanced by access to Internet Information.

Sceanrio 5.

Rodney Lewis, soon to be a senior at Rogers High School in Puyallup (Washington), has no use of his arms or legs and needs a mouth wand to operate a computer. He began using a computer at age 6, and learned to read and write at a terminal. He lets the mouth piece slip out of his mouth and gently rests against his chin. ?

Now he publishes his own newsletter on the Seattle music scene, called The Curmudgeon.

When asked a question, Lewis balances his wand on a box strategically placed near his terminal. It's a gesture done as easily as others cross their arms.

Basic as running water

For him, a computer "is sort of like running water. You don't know what you'd do without it."

Part II

There are Barriers to Access for People With Disabilities

For people with disabilities, the explosion of telecommunications offers both a grand opportunity and the risk of establishing new barriers.

Why like?

Unfortunately, even though "accessible" technology exists, it is often not integrated into mass marketed equipment and services. As a result, telecommunications can become a barrier that "locks out" people with disabilities, rather than inviting them to participate more fully in society. Substantial barriers to access continue for even the most basic telecommunications services:

Public Critics + Benefit

- convenient telephone voice communication between deaf, hard of hearing, speech impaired individuals and the hearing/speaking public, despite the increasing development of intra- and interstate telecommunications relay services;

- access by individuals with visual limitations to elementary visual information displayed on terminals of every sort -telephone status LEDs, Caller-ID, public pay telephones;

- use of telephone keypads, keyboards and controls/switches by individuals with limitations in reach or articulation prevent full access to voice and data communications;

- complicated choice menus, whether visual or aural, limit the usefulness of audiotext, videotext or computer system software for individuals with limitations in cognition or memory.

Barriers are not only technical; they are also economic. With an unemployment rate that exceeds 60%, people with disabilities are one of the lowest-income groups in the country, yet the cost of equipment and services that people with disabilities must bear is often much higher than for the general population. For example, a residential telephone for an individual without a disability can be purchased for under $50 including advanced communications features. An individual who cannot speak or is deaf must spend $200 or more for a TTY (text telephone), without advanced features. On the extreme end of the scale, a deaf-blind individual needs a unique device, TeleBraille 2, costing several thousand dollars, just for very basic telephone communication. An individual with upper mobility limitations requiring an alternative switch technique to operate devices, must pay about $400 for a telephone that can only reach a human operator, nothing more. [this needs clarification]

For an individual needing access to information, such as most daily newspapers provide, but who cannot read print or hold the paper, electronic databases typically charge up to $15 per hour or more for access to newspaper databases. Of course, the individual first must have a personal computer, modem, access software for converting the screen display into speech or an alternative method of entering keystrokes. **In short, whether it's the equipment needed to communicate or the enhanced services required to access information in an alternative manner, telecommunications for individuals with disabilities is costly.**

Part II: Where Are We Now?

U.S. Policy is Beginning to Move Towards Access

2

This accessibility policy is based on two laws, the 1992 Reauthorization of the Rehabilitation Act of 1973 (Pub.L. 102-569, Section 508) and the Telecommunications Accessibility Enhancement Act of 1988 (Pub.L. 100-542). These statutes have been implemented in the Federal Information Resources Management Regulation (FIRMR) promulgated by GSA. The FIRMR requires that agencies identify computer and telecommunications accessibility requirements for current and prospective employees and public information services and address the functional aspects of these requirements in solicitation documents and when subscribing to

telecommunications services. (See Appendices F, G, H, I and J for text of the laws, regulations, and bulletins).

These laws do not represent a radical new direction for agencies, but serve to reinforce through a strong IRM focus, the existing mission requirements under the Rehabilitation Act of 1973. This Act requires federally conducted or federally sponsored programs to be accessible to persons with disabilities and mandates that management policies must not discriminate in the hiring, placement, and advancement of persons with disabilities. In 1992, Congress improved this legislation and amended Section 508 on electronic equipment to make more explicit the importance of information technology to meet mission responsibilities for accessibility to Federal programs and facilities. The second statute, the Telecommunications Accessibility Enhancement Act, mandates a proactive approach within the government to advancing accessibility to the Federal telecommunications system by hearing impaired and speech impaired individuals.

The Americans with Disabilities Act of 1990 (ADA) has adapted and extended many of the existing responsibilities of the Rehabilitation Act for implementation outside the Federal government. The law requires barrier-free access to places that serve the public, such as theaters, restaurants, and museums. State and local government services, transportation, and telecommunications services must also be accessible. Discrimination on the basis of disability in private sector employment is also prohibited. As implementation of ADA continues, accessibility to information resources represents just one important area where Federal departments can demonstrate to the private sector successful implementation strategies and the benefits of accessibility policies.

The existing voice-based telecommunications system was designed and put into place without consideration of the access needs of persons with disabilities. For decades, individuals with hearing, speech and mobility limitations have had to depend on the help of others, make do with very inadequate communication, or simply do without the ability to use the phone.

However, recent changes in public policy and programs have shifted some of the burden of paying for inaccessibility; from people with disabilities and their families to larger institutions.

In order to begin to alleviate these inequities, two types of programs have been established: (1) intra-state and inter-state telecommunications relay

services[6] are mandated by Title IV of the ADA; and (2) A number of states also have programs that provide adaptive equipment to eligible individuals such as TTYs, amplified telephone handsets, large button phones, and speaker phones[7].

These programs are still fairly new. California's programs, which were among the first in the country, were established in the late 1980's. The consumer demand for their services is rapidly increasing; it is not possible to predict when usage, and costs, will level out. In California alone, the annual cost of these two programs is $32 million (per year?). In California, the costs are paid through a trust that is created by a surcharge on telephone ratepayers. In New York, the telephone companies fund these programs out of their rate base. In other states, the costs may come out of the general fund. In every state, though, one thing is true. Everyone pays a great deal for the lack of access in the voice based telephone system.

The Federal government has also begun to take responsibility for making technology accessible and usable by their employees who have disabilities. The Federal government has historically employed significant numbers of people with disabilities under an Affirmative Action Plan[8]. That law requires that the government make "reasonable accommodations" to enhance the efficiency and productiveness of these employees, including purchasing adaptive equipment and technology.

To promote further "reasonable accommodations" for government employees, Congress passed Section 508 of the Rehabilitation Act, which requires GSA (the agency that purchases and leases electronic office equipment and services), to ensure that technology which is purchased by the government will be accessible to employees with disabilities. This purchasing policy reflects a recognition by the government that it makes economic sense to purchase electronic office equipment and telecommunications services that are accessible, or capable of interfacing with adaptive equipment, instead of making accommodations through expensive re-designs or retrofits.

Where?

These advances will benefit people who work for the Federal government, and will help create a market for accessible equipment. However, it also demonstrates that market forces alone will not open up the world of

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[6] Operator-based services which enable a TTY user to communicate with a voice caller and vice versa, relay programs serve as a text-to-voice and voice-to-text translator.

[7] The range of equipment provided varies greatly from state to state.

[8] Section 501 of the Rehabilitation Act, as amended in 1992, requires the federal government to serve as a "model employer" of qualified individuals with disabilities and to engage in affirmative practices of outreach and institutional accommodations for that purpose.

telecommunications to all people with disabilities. We need to develop a national policy to build a telecommunications infrastructure that will be accessible to all Americans.

GSA's Information Resources Management (IRM) Service is working with other agencies to provide information environments that are accessible by people with disabilities. Some people with limited hearing, vision, or mobility require enhancements to existing information technology in order to effectively use work-related information or public information services. The Federal government in its role as a major employer and information technology consumer is using its "buying power" in the marketplace to communicate to industry its policy to acquire information technology products and services that are usable by people with disabilities. This policy is based on two recent laws, Pub.L. 100-542 and Pub.L. 102-569. These laws address the requirement that the acquisition and management of Federal Information Processing (FIP) resources be conducted in a manner that ensures access to computer and telecommunications products and services by employees with disabilities and citizens with disabilities accessing public information services. The implementing regulations for these laws are contained in the Federal Information Resources Management Regulation (FIRMR), 41 CFR Chapter 201.

The statutory requirements of the Federal government to accommodate people with disabilities are now complemented by similar responsibilities nationwide due to the enactment of the Americans with Disabilities Act in 1990. Although several industry trends, such as the graphical user interface, have inadvertently threatened continued use of computers by blind individuals, the growing national commitment to accessibility is likely to ensure that the initial speech output limitations of these designs are overcome and accessibility will prevail.

Continued commitment is required to overcome remaining obstacles to access. The availability of cost-effective enhancements to support most individual access requirements currently exceeds effective utilization. GSA's Clearinghouse on Computer Accommodation together with agencies' own technical support programs are assisting managers to become familiar with accessibility management procedures, products, and services that accommodate the information resource needs of people with disabilities.

European Benchmarking

The European Union's (EU) policy on technology and its impact on its disabled populations reflects the political transition the continent is undergoing. The EU is working to set up a unified market that requires

standards that are accepted by all member nations. With the exception of Britain, who has already privatized BT(formerly British Telecom) , all telephone companies are still owned by the government. Privatization is effectively scheduled for the end of the century. Without the levers of competition in computers and telecommunications, Japan, and especially the United States have been major suppliers of innovative products and services. Consequently, the EU's focus of research is more on identifying what needs to be done to expand existing telecommunication services to a wider audience of disabled individuals.

The institution charted with the responsibility to ensure that the need of disabled people were properly formulated and disseminated is COST, an acronym for Cooperation in the Field of Scientific and Technical Research. An international team was assembled to promote research into the field of telecommunications and teleinformatics with the aim of proposing solutions to the problems related to the needs of the disabled. The major focus of the research was to expand the accessibility of telephone service through modification of the devices to meet the needs of blinds sight impaired, deaf hearing impaired, coordination and mobility impaired individuals.

European countries to date have used a variety of standards as the basis of manufacturing special devices for the disabled. For example, existing text telephone systems across the EU are not compatible. Consequently, an individual using a text telephone in London calling Munich may not be able to get his/her signal properly transferred, and understood. The first challenge to the Continent is insuring that exiting protocols for disabled communication are translatable community-wide.

European social policy towards the disabled reflects a philosophy that it is cheaper for government to invest in supplying, without charge, a disabled person whatever technology they need to assist them at work and home. Any steps taken to increase their level of financial and emotional independence is seen as yielding benefits to the society as well as the individual. In general the United States has far more advanced tools, but far fewer individuals with access to them.

Selected Private Activities

World Institute on Division on Technology Policy focuses on creation of public policy that will give people with disabilities access to the information age. They have launched WIDNet, unique electronic communications system that focuses on disability policy.

The Archimedes Project
Disability access research at Stanford University's Center for the Study of Language and Information.

Mission Statement: The mission of the Archimedes Project is to improve access to information for individuals with disabilities by influencing the early design stages of tomorrow's technology.

Providing Leverage: Equality of opportunity , equal access to accommodations, and equality before the law are basic American principles. In a world moved by information, these principles entail another: equal access to information. We are far short of realizing this principle with respect to individuals with disabilities.

The Archimedes Project has two goals. One is to apply basic research about information and communications to the design of access for people who are disabled. The other is to educate those who will develop the next generation of technology about the advantages for the whole community of designing general access. In both instances maximum leverage is obtained by emphasizing design rather than retrofit.

Access for the Handicapped, Inc.

The CPB/WGBH National Center for Accessible Media (NCAM) proposes a project to establish a working prototype of a system to make and existing daily newspaper accessible to blind and low-vision communities and other print disabled people through state-of-art- digital technology. This prototype will transfer newspaper's written text into electronic form and deliver the material via various means into the home of the end user.

The main activities of this project will be: 1) to re-survey and update existing knowledge about- print access delivery systems in the U.S. and worldwide; 2) to create and or locate digitally accessible daily newspaper; 3) to test an acquired or modified prototype with end-users; and 4) to make

recommendations for both refinements to the prototype and eventual widespread, multi-market implementation.

Private Sector
~~Industry-Sourced Projects:~~

EIA Seal of Accessibility Committee

~~This is an initiative~~ by the Electronic Industries Association to create a seal of Accessibility that would indicate that a mainstream consumer electronic product can be used successfully by people with functional limitations. The objectives of the committee are to:

Develop accessible design guidelines that will enable manufacturers to design products that will be easy to use by all consumers, including those who experience functional limitations as a result of aging or disabling conditions

Create a marketing symbol that enables manufacturers to conveniently communicate to consumers that a product is usable by individuals with functional limitations.

Info./California Automated Kiosks

future

As part of the states RFP, the vendor is required to explore auxiliary aids and services provided by the kiosk accessible and usable by disabled individuals. The State, in conjunctions with the vendor, seeks to determine the best methods of providing services to the disabled without creating and undue financial burden or otherwise require a fundamental alteration in the nature of services provided by the kiosk. Two test kiosks with access will be tested initially.

Instead of citizens traveling to government offices, they will now have the option to complete government business though one of those kiosks located in public sites such as grocery stores. Over a two year period almost 250,000 people have used one of the fifteen kiosks.

~~Professional Association Sourced projects~~
Non-Profit Sector

Barrier Free

The AAAS supports a project on Science, Technology , and Disability. This directorate strives to improve access to science and engineering education and careers for people with disabilities. They have produced a series of booklets(Barrier Free: Access in Word and Deed, a Resource Directory of Scientists and

Electronic Networks.

engineers with Disabilities, and a videotape," The Problem Solvers" funded partly by the Directorate for Engineering of NSF and NASA.

Selected Electronic Networks

Adapt provides access to current disability information spanning over 100 disability topic areas.

America On Line includes a database on health topics, and such as health topics, and discussion and support groups on topics such as disabilities and adaptive technologies.

Appalling includes Empower bulletin board with folders on New Assistive Technology Products; Assistive Technology News and Articles; Disability Discussions; American with Disabilities Act Information and reference materials

Compuserve provides information on assistive technology and/or disabilities includes the Handicapped Users Database, Disabilities Forum, Rehabilitation Database, IBM Special Needs Forum, and the Education Forum

DeafTek USA Intenational Network totally dedicated to the deaf and hard of hearing. Electronic mail service which offers private communication and a bulletin board service.

Prodigy Includes bulletin boards such as Disabilities, hearing loss, and arthritis.

SCAN (Shared Communication and Assistance Network)
SCAN is a wide ranging electronic network with local, state, regional, and national level that offer mail, file transfer, bulletin boards, and databases.

SERIES Computer Network

The network funded by the National Institute on Disability and Rehabilitation Research disseminates information through personal mail, public conferences, group meetings, resource databases and document libraries.

SpecialNet SpecialNet is devoted to the information needs of special education teachers and administrators and includes electronic mail, and bulletin boards such as assistive devices; computer applications and software, federal legislation and new products.

WIDnet A network that specializes in disability policy related information featuring electronic mail, chat, conferencing, bulletin boards, forums, databases and libraries.

Selected Online Databases

Govt.

ABLEDATA An information and referral center for assistive technology which maintains a national database of assistive technology and rehabilitation equipment.

CARL, et al. A database consisting of supplier information on Braille books, large print books; sound recordings; computer disks; and tactile graphics.

Development Disabilities Technology Library
Contains information of publications related to rehabilitation technology, contract information on resource agencies and organizations in the fields of disabilities.

ECER Database maintained by the Council for Exceptional Children. Contains abstracts of journals, commercially published books and doctoral dissertations that cover all aspects of the education and development of people of all ages who have disabilities and are gifted.

Handicapped Users Database (HUD)

Individuals interested in the use of technology for persons with disabilities.

HYPER-ABLEDATA A microcomputer-based version of ABLEDATA listing over 17,000 assistive technology products.

NCHTRM Database is a listing of rehabilitation training materials collected by the Clearing House, that are available for purchase at cost to the rehabilitation community.

REHABDATA A bibliographic database covering more than 40,000 citations of materials in the NARIC library and includes research reports, books, journal articles and audiovisual materials.

ABLE INFORM A 24-hour bulletin board system providing on-line access to information on disabilities, assistive technology and rehabilitation.

BayTalk BBS A 24-hour a day bulletin board that features programs and utilities for those with limited manual dexterity.

Black Bag BBS A medical information network that provides health information on over 96 different topics.

The Blind Ambition BBS

Contains information on the Leader Dogs for Blind training program.

Braille Inn Speakout

Bulletin board system with messages and files available to download that include assistive device catalogs and manuals, computer and demonstration programs and utilities.

CSDB BBS A 24 bulletin board system whose main purpose is to allow students at the Colorado School for the Deaf and Blind to communicate comfortably in a safe environment.

Developmental Disabilities Connection

A bulletin and e-mail system that provides a forum for discussing problems and reaching solutions regarding procuring the most appropriate assistive technology for individuals with disabilities.

Deaf New World BBS

A 24-hour bulletin board system with e-mail, bulletins, classified ads, games, private conferencing feature, real-time chat, and shareware files

DRAGnet BBS

A 24 hour bulletin board system supported by the Disability Resources, Activities, and Groups network. Focuses and collecting and disseminating information resources for individuals with disabilities and service providers.

4 Sights Network

A bulletin board and database providing information on rehabilitation, educational technology resources, the American With Disabilities Act and a variety of concerns for blind and visually impaired people.

Fido Racer

An electronic mail and bulletin board system on the use of computers by persons with disabilities.

The Handicapp News BBS

An electronic bulletin board system that contains 50 conference message system areas that cover all different types of disabilities.

JAN A bulletin board system containing information on job site accommodation. Employers can problem solve with consultants and other employers. ADA-related focus.

Government Sponsored

NCHRTM BBS

A bulletin board system with e-mail services, message areas that include but are not limited to such topics such as ABLED Echo; chronic fatigue, disability issues; etc.

Project Enable

An information resource on disabilities, rehabilitation, employment and education An extremely active bulletin board linked into other major networks such as FIDOnet and ADAnet. Over 150 special interest groups/discussion areas.

RESNA.TA Bulletin board providing an opportunity for states and organizations to share information of interest as they develop and administer assistive technology services.

Rehab Info Serve

A bulletin board system provided by the Sacred Heart Medical Center. Dedicated to rehabilitation medicine.

Special Needs BBS

An electronic computerized medium to exchange, disseminate information for the purpose of promoting the needs of persons with disabilities.

Selected Public Activities

As a major buyer of information technology, the Federal government is stimulating industry to respond to its accessibility requirement. It is anticipated that the marketplace pull to readily accessible information systems will become even stronger as businesses and state governments implement

plans for accessible environments in response to the Americans with Disabilities Act.

Federal Government Activities

GSA

The Office of GSA Information Resources Management provides leadership by demonstrating through its own business practices, how to include customers with disabilities as early beneficiaries of information technology advances.

To facilitate capacity-building and service sharing among federal agencies, COAT is distributing a resource guide on Accessible technology Programs and Initiatives within the Federal Government.

The GSA piloted the first public information kiosks to integrate user options requested by customers with vision, hearing, or mobility limitations. 10 accessible kiosks are scheduled for installation in the coming year.[9]

The Computer Telecommunications Accessibility Resource Exchange(CARE) is a collaborative network of access service providers representing 27 agencies and facilitated by the GSA/COCA. On Internet.

COAT, through, COCA, has been invited by ARPA to submit customer requirements for accessible user interfaces to its Technology reinvestment projects(TRP). **In, 1994 ,approximately 500 million dollars will be awarded in 14 categories that target the development of dual use technologies that benefit both military and commercial applications.**

NEC National Economic Council

Elizabeth – these need to be re-worked to reflect if in fact they are funded and what the connection to disab. issues

1993 Technology Development grantees include:

• **Developing Speech Recognition for Future DSP's in Hand-held Computers,** Dragon Systems and Analog Devices, are working to develop software for a handheld computer which **the user interacts with by voice, rather than by keyboard.** This $7 million effort will have far-reaching applications in business, education and military applications. It is anticipated that it will give U.S. manufacturers a global competitive edge and help in reversing the current trade imbalance.[10]

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9 GSA IRM Annual report to Congres 1993

10 Technology Reivestment Project, Technology Deployment, Oct.22, 1993, pp2.

• **Technology Access for Product Inovation(Tap-IN),** Batelle will lead a consortium including NASA regional technology Transfer Center(RTTC's), the federal Laboratory consortium, and the U.S. Chamber of Commerce. These organizations will be integrated into a nationwide network to help small defense dependent business **access and apply federal technology to product development and diversification opportunities.** $54 million over 36 months.

• **Apple Computer,** proposes a $6.0 million program over 18 months to accelerate the development of new authoring tools that educators and trainers who are not computer experts can use to **generate instructional materials** in 1/10th the time currently required. The proposes project a **$40 billion commercial and defense market for computer-based training by 1997.**

• **Boeing Computer Services,** Honeywell Military Avionics, Virtual Vision, Inc. and Carnegie Mellon propose a $5.1 million project\over 24 months to develop a portable head-mounted display with a position sensing system. This will enable **" hands free" presentation of information.** ***The technology of superimposition of images on faces of objects or on"face shields" has great potential in improving operational access for the visually and movement impaired(see items 13-16 of CCD task force).***

Dept. of Education

~~From David Whipp at the~~ West Virginia Rehabilitation Research and Training Center funded by the **National Institute on Disability and Rehabilitation Research.** NIDRR funds Project Enable and Dial-Jan. Together, through connections to worlwide networks of BBS, around 50,000 new messages come into the system monthly. It covers over 30 file areas containing 4000 downloadable files on a variety of topics (specific disability, employment, education (k-12) and support for job seekers. The system has been shaped by the primary users: people with disabilities, their supporters and rehab professionals. New Zealand modeled their national disability information system after Project Enable.

Dave's hope is that the NII will allow the use of full motion video on systems like Project Enable, allowing for multimedia training on the system without the need to purchase for home use a CD-ROM player.

NSF

Do*IT

Do-IT is the most outstanding program using the Internet and precollege students with disabilities. The project is funded by NSF Education and Human Resources and is a result of the AAAS Access to Engineering project, funded by the NSF Engineering Directorate.

DO*IT is run by the University of Washington. The program recruits individuals with disabilities into science, engineering, and mathematics academic programs and careers through Project DO*IT (Disabilities, Opportunities, Internetworking, and Technology.)

This program enables high school students with disabilities to explore careers in science, engineering, and mathematics and to gain prerequisite knowledge to enter these fields of study and employment.

Frequent electronic communication and personal contacts bring high school students with disabilities together with"mentors". These mentors are practicing engineers and scientists from around the world. Most of them have disabilities themselves. Participants communicate electronically from home using computers, modems, software, adaptive technology, and Internet network connections. Participants who do not have the required technology already are loaned equipment and software.

Access to Mosaic for Individuals with Disabilities.

Programming funds have been allocated to determine the accessibility requirements in three major areas of physical dysfunction: vision(sound synthesis, voice recognition, and font sizing), hearing(TTY applications, closed caption, data collection), and coordination(key manipulation).

Dept. of Labor

Family Friendly Workplace Initiatives

~~Dept. of Health and Human Services~~

Dept. of Commerce

FCC

Dept. of Transportation

Architectural and Transportation Compliance Board

NEA

NEH

Smithsonian

President's Council

Dept of Ed

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Dept. of Labor

Family Friendly Workplace Initiatives

Dept. of Health and Human Services

Dept. of Commerce

FCC

Dept. of Transportation

Architectural and Transportation Compliance Board

NEA

NEH

Smithsonian

President's Council

Part III: Where Do We Want To Be?

Achieving these benefits requires the development of several components of a universal infrastructure. These components are:

Universal Design Standards for gateways to the NII

- ATMs, PCS, Settop Boxes
- software interfaces

They are necessary to achieve accessibility for the most people at the lowest cost.

Universal Design Laboratory and Testbed Project to speed the development of interface standards for software as well as electronic appliances. Precompetitive research could accelerate the implemenation and relieve "undue burden" on industry.

Community trials of all interface standards in a variety of typical settings such as home, office, shopping center environemnts.

Graphical User Interface Acccesibility Design Project

Few technological areas are changing faster then the field of computers. The PC is less than twenty years old, yet we have already gone through several evolutionary changes. The manufacturers and designers of systems to make computers accessible to persons with disabilities have had to constantly keep up with these changes.

Once IBM introduced their PC and the Disk Operation System (DOS) became a widely excepted standard, programmers of speech, Braille, large print and manufacturers of special keyboards made great strides in providing techniques to make PCs accessible. In the general software market, programmers during the eighties and early nineties began using more and more sophisticated screen layouts. The human computer interface moved into the realm of pull-down menus, color bars and special cursors. Programmers of adaptive equipment have added a variety of features to their programs to make these features accessible. Although challenging, most of these screen innovations have not posed problems that programmers could not overcome.

In the late eighties, the advent of the graphical user interface posed a very strong challenge to computer accessibility. At first, it was assumed that there was no answer to the problem. People who could not see the screen were not going to be able to access these new interfaces. The graphics screen could not be read by a speech or Braille system. Fortunately, these fears have not been realized. Programmers are beginning to make advances in developing speech and Braille systems that can translate the graphics screen information into an accessible form. As of this publication, these access programs are having limited success with the graphics environment. The main focus is on accessing the Windows environment. There is limited access for the Apple Mackintosh graphical interface and IBM has developed a screen reader to operate in the OS2 graphical environment.

In the realm of the graphical user interface, the biggest challenge will be to just keep up with change. Most of the access software is produced by small companies with limited resources. Producing programs that will work in the graphics environment

takes many hours of manpower. The most serious problem arises when we realize that unlike the DOS environment, access programs in the graphics environment are version specific. A program written to give access to Windows version 3.1 will not work with version 3.0, and most likely will not work with Windows 4.0. Additionally, a Windows access program only works with Windows and does not give access to other graphical environments. Anyone facing the prospect of acquiring an adaptive system to work with any graphical interface has had to insist on proof that the system will work in the specific environment.

Curriculum Development Laboratory to support the development of curricular materials that meet accessibility guidelines. Development of standards and for multiple formatting of information for developers and producers of instructional materials.

Disability data repositories and Creation of a database of disablled indiiduals with a unique personal identification numbers. If confidentiallty cvan be maintained then the reduction of physical and time burden on reconfirming disability status can be significantly reduced and failitate delivery on government and private sector services.

Nomenclature development of a consistant definition for level and presence of a disability applicable nationwide....?????

TRP

ADA

Telecom policy

Part IV: How Are We Going To Get There?

Issues and Questions to be addressed

How should the federal government facilitate a public-private partnership for the developing of comprehensive, coordinated public telecommunications policies that guarantee basic communications accessibility to people with disabilities?

Does the Communications Act of 1934's reference to Universal Service need to be updated to read:

" ... so as to make available, to all people of the United States, including people with disabilities, a rapid, efficient, nation-wide and world-wide ...communications service with adequate facilities and reasonable charges..."

Does the ADA's definition of a "commercial facility" need to be clarified so that "commercial facilities" include those goods and services offered through telecommunications?

How do we approach the adoption or revision of federal and state regulations to protect the access of individuals with disabilities in the provisions of federal, state, and local programs and services through telecommunications technologies such as information kiosks, electronic town meetings, voting and other interactive services?

What mechanisms should be implemented to coordinate federal efforts?

Should the White House form a Task Force on Telecommunications and Disabilities, within the NII Task Force, to assist the Federal government in assuring that the infrastructure is designed to be used by the widest range of citizens and federal employees?

How can the White House utilize the formidable expertise of its high level appointees with disabilities to assist the Task Force in its future policy formation and deliberation?

Should we recommend that Congress require the FCC to create a high level unit whose mission is to work with disabled citizens on telecommunications issues?

References

Blue Ribbon Panel

GSA Accessibility Manual

Contacts for Nine Testimonials

1.

Engracia Porter

P6/(b)(6)

2.

Deane Denney

P6/(b)(6)

3.

Rachel Dubin

P6/(b)(6)

4.

Theresa Shellabarg
Internet tshellabarg@gallua.gallaudet.edu

5.

L.J. Schwarz
Internet @ gallua. galluadet.edu

6.
Dennis Troglio
Contacted through
Jerry McGaughran

P6/(b)(6)

Center for Career Programs
Gallaudet University
800 Florida Avenue, NE
Washington, DC 20002

7.

Rodney Lewis
contact through August 21st issuend
(assume 1993) of the Seattle Times or DO-IT program through the University of Washington

8.

Molly Hozschlag

P6/(b)(6)

9.

Katie Tryon Rauh

P6/(b)(6)

P6/(b)(6)

1 800 439 2370 via New England Telephone Relay System for voice

References

"Connecting Each to All" , Alliance for Public Technology, 1993

Acknowledgements

Deborah Kaplan

Susan Brummel

Michella Allioto

Steve Saleh

Ron Fellman (DOJ) Tech Kate Sellman: Stone Sellman
Michaela Millota David Lytell (NIST)
Brian Miller -- interpretation (OSTP)
Susan Brumbaugh - GSA
Aug. 4 -- Dis Bd. -- mgr - prof advocate
electronic accessibility

5 -- Ind
Bob Williams.

Paul Schmeda Blind
Jenifer Simpson -- UCP
Nil Sunnebrahi -- Exec. Dir TDI
Roanna -- Larry Irving ???

4th of May -- 1st collection of papers --
Tom Cahill (NEC) -- Elizabeth
Carlson 1st draft -- for 2nd set
→ (DOJ + NII -- end of June)
IITF Comm. on Application & Technology
-- will set another chance to review
Nov
Recommendation dist. Sept -- with
and Sec. Brown/Commerce
— dial me ash right ?s -- & [illegible]

Get Liz's paper from David Lytell's shop

Coltho
RESNA — Inter Assoc. for
Advancement of Rehab Technology
Tech.

Kaplan
Bob & Kaplan
Williams
Sellman
Scadden
Brumbaugh

TOPS FORM 7548
Litho in U.S.A.

NII and people w/ disabilities (and input)
Benefits --

Steve — Info-sharing
Linking disability and business experts
disabilities off-the-shelf tech
$500 on Internet
· Cont as buyer

Open remarks CHR
Q: Facilitate?
cit. participation mechanisms
30-40 -- listening
introductions --

Debbie -- Nuts & admin
Process
Structure es. expertise in NIF
FCC
IEEF

Kate -- CHR in the loop
NII as intro
someone silting silting next fellow
· highly technical -- language
and engineers
CHR board

Welcome + NII -- agnostic + accessible to people w/ D
II overview + NII
III

engage / beyond formal b.c.
CHT
Photo -- strong message relevant
Willing critical d.m. /pt + barriers;

TOPS FORM 75481 Litho in U.S.A.

very technical -- but political
consensus
• bullets -- semi-formal

1983 last meeting -- last time
serious discussion

Leg on Hill

CCIR -- beginning on all
welcome inter-facilitation

Hill Bldg 3626
1826

NIDDR doing most of the
engineering work

Slow: congrat Conf -- Fed gov rule
on digital access, education sort
: outcome -- technical issues
for buildings NTI

Kingston -- govt staff at FCC to handle
challenge of regs.

Q: leadership from WH; symbolism signals to
private industry
• All projects -- NSF
DARPA re pamphlets to NTI

• Leg
• Process Q: some problem/
disability expertise ITTF
Cerebral Palsy -- Pop. Sec.
90 minutes -- working groups
Sally Katzen
DARPA and NSF -- Larry

TOPS FORM
7548T

Litho In U.S.A.

Larry - Telecom comm —
Sally Office of Info & Reg. —
Comm on Applications + Technology

Damages: Tit III -- DOJ - case
+ civil penalty
private suits
injunctive relief, fees only
no damages

Tit II -- private sector damages
(& agencies)
refused from Patton
no damages
only 2 refusals -- a
hospital (AHS)

Eveltell -- no consequence
refused to abide BOR;
refused matters to BOR.

Tit II -- 6 year backlog of Tit II
no deadline not to investigate

Complaint: ADR
Point time consumed to resolve
lack of resp - private
suits -- statutory
damages
injunctive relief - [illegible]
(prisoners litigation)
don't understand
meaningful issue

TOPS FORM
75481

Litho in U.S.A.

The National Institute on Disability and Rehabilitation Research's (NIDRR's) Americans with Disabilties Act (ADA) Technical Assistance Initiative

History: In the fall of 1991, the Senate Report accompanying NIDRR's Appropriation bill directed NIDRR to fund "technical assistance related to the implementation of the ADA" and the House report directed NIDRR to fund"...up to ten new reginonal centers on disability." In response to these directives, NIDRR established an ADA technical assistance initiative with the following five components.

Five Components:

(1) Regional Disability and Business Technical Assistance Centers (DBTACs)
(2) National Training Projects (NTPs)
(3) Materials Development Projects (MDPs)
(4) ADA Grant Coordination Contractor
(5) Interagency Collaboration

Project Model:

NIDRR's technical assistance program is designed to develop and support a network of technical assistance providers that operates at a regional, State, and local level. Each of the regional DBTACs has established a network of State affiliates. In the next five year cycle, a network of local affiliates will be established by the State affiliates.

ADA Grants and Contracts History:

October 1991	October 1994
10 DBTACs - 5 Year Grants	10 DBTACs (continued)
2 NTPs - 3 Year Grants	6 NTPs - 3 Year Grants
(1) Independent Living Centers	(1) Independent Living Centers
(2) Peer and Family Networks	(2) Family Organizations
3 MDPs - 2 Year Grants	(3) School Districts
(1) Public Accommodations and Accessibility	(4) State and Local ADA Coordinators and Policymakers
(2) Employment	(5) Hispanics with Limited Proficiency in English
(3) Employment	(6) Standards for Accessible Design
1 ADA Grant Coordination Contractor - 3 Years	1 ADA Grant Coordination Contractor - 3 Years

4,500,000
1,500,000
300,000
6,300,000
annually

Average Annual Budgets: (1) DBTACs: $450,000; (2) NTPs: $250,000; (3) MDPs: $250,000; (4) ADA Contractor: $300,000.

The DBTACs and State affiliates are administered by a wide range of agencies:

	DBTACS	State Affiliates
Independent Living Centers	1	16
Disability Organizations	2	9
Disability Coalitions		8
Governors' Committees on Disability	1	8
State Disability Agencies		13
Disability-related Business-based programs	2	7
Disability-related University-based programs	4	7

Note: The number of State affiliates exceeds 50 because some of the larger States have more than one affiliate.

Accomplishments:

(1) Regional Disability and Business Technical Assistance Centers

a. Receive 6,000 per month on 800# that automatically routes caller to the DBTAC serving the area code of the caller.

b. Train over 60,000 persons per year on all parts of the ADA using a variety of methods and formats:

1. Business ---------- 29%
2. Government ---------- 27%
3. Individuals with Disabilities- 24%
4. Service Providers ---------- 12%
5. Other ---------- 8%

c. Distribute 540,000 documents per year at no cost or cost of shipping and duplication. All materials distributed by the DBTACs are either produced by the Department of Justice (DOJ) or the Equal Employment Opportunity Commission (EEOC) or reviewed by them for legal sufficiency.

d. Provided 80,000 instances of technical assistance per year. Technical assistance defined to include: making referrals, answering technical questions, and providing on-site consultation, making TV/radio appearances, and writing newspaper and magazine articles.

e. All of the grantees share information with each on a daily basis using a electronic bulletin board housed at the University of West Virginia. The EEOC and Access Board are participants on the bulletin board.

f. Special Initiatives: The DBTACs have undertaken a wide range of special initiatives in addition to their core functions. Some of these special initiatives are:

1. A Minority Outreach Project in Los Angeles that began with $25,000 from the Region IX DBTAC and grew to $120,000 with matching grants from the local and State agencies. The outreach is targeted to minority community organizations, consumers, and disadvantaged business enterprises.

2. A Hispanic Outreach Project in Texas that developed new ADA materials in Spanish and piloted the use of mass media as a means of reaching persons who are Hispanic and have limited proficiency in English.

3. The development of materials about the implications of the ADA for persons who with mental retardation. Note: A similar project was undertaken by one of NIDRR's field-initiated research projects regarding persons with psychiatric disabilities.

4. The development of TV and radio PSAs about the ADA in English and Spanish.

5. The development of a pilot curriculum about the ADA and disability awareness for elementary and secondary school students.

6. Each of the DBTACs makes $50,000 available to the Independent Living Centers in the region to promote the implementation of the ADA through technical assistance activities.

(2) National Training Projects (NTPs)

The Peer and Family Training Project trained approximately 2,400 person per year on all aspect of the ADA.

The Independent Living Center Training Project trained approximately 75 persons per year on all aspects of the ADA. This training was intensive and intended to enable the trainee to train other persons associated with Independent Living Centers.

(3) Materials Development Projects (MDPs)

The MDPs developed over 60 products including videos, self-evaluation instruments, fact sheets, facility surveys, PSAs, and slide shows. These materials were distributed by the DBTACs and publishing houses and were reviewed by the DOJ and the EEOC for legal sufficiency.

(4) ADA Grant Coordination Contractor

The Coordination Contractor convened semi-annual 3 day meetings of all of the Project Directors, facilitated the distribution of materials from other Federal agencies to the DBTACs, and collected and compiled monthly evaluation data on all of the grantees.

(5) Interagency Collaboration

a. NIDRR has provided funding to the DOJ and EEOC to defray costs of publishing their ADA materials and sponsored a joint meeting of the NIDRR-DOJ technical assistance grantees.

b. At each of the Project Directors' meetings, representatives of all relevant Federal agencies update the grantees on the status of their technical assistance and enforcement activities and answer technical questions.

c. NIDRR has cooperated with the Office for Civil Rights with the Department of Education to develop and publish self-evaluation guides for schools, universities and public libraries.

d. There are staff liaisons at the EEOC, DOJ, and Access Board with each of the DBTACs to assist them to answer technical questions accurately and in a timely manner.

TECHNOLOGY ASSISTANCE

NIDRR supports consumer-driven state plans for the delivery of assistive technology. Some grants also explore innovative ways of financing these devices.

SMALL BUSINESS INNOVATIVE RESEARCH GRANTS

New products useful to persons with disabilities and the rehabilitation field are encouraged through grants to small businesses. This three-phase program takes an idea from development to market readiness.

INTERNATIONAL PROGRAM

NIDRR's legislation encourages active outreach to other countries with similar rehabilitation concerns. NIDRR cooperates in jointly-funded programs with India and Yugoslavia. It has also taken part in several projects with the USSR in cooperation with the Department of State and other international agencies. NIDRR also conducts a world-wide program for the exchange of experts and information on rehabilitation.

INTERAGENCY ACTIVITY

The Director of NIDRR chairs a statutory committee that provides a forum and a resource for all federal entities conducting or supporting rehabilitation research. The Interagency Committee on Disability Research promotes networking, information sharing, and cooperative efforts among its members and the programs they fund.

REGIONAL DISABILITY AND BUSINESS TECHNICAL ASSISTANCE CENTERS

The Americans with Disabilities Act opens new opportunities for persons with disabilities. It also places new responsibilities on employers, transit and telecommunication systems, state and local governments and public accommodations. To assist in all these areas, NIDRR funds Regional Disability and Business Technical Assistance Centers. These centers will provide technical assistance, training and resource referral on all aspects of the ADA. Their work will be complemented by two other NIDRR ADA programs: four Materials Development Projects and two National Peer Training Projects.

For additional information, contact:

THE NATIONAL INSTITUTE ON DISABILITY AND REHABILITATION RESEARCH

U.S. Department of Education
400 Maryland Avenue, S.W.
Washington, D.C. 20202-2572

Telephone: (202) 205-9151 (Voice)
(202) 205-9136 (TDD)
Grant Information Line: (202) 205-8207

NATIONAL INSTITUTE ON DISABILITY AND REHABILITATION RESEARCH

- **Disability Research:**
  from statistics to enabling technology

- **Rehabilitation Research:**
  from enhancing capabilities to treatment systems

NIDRR

The National Institute on Disability and Rehabilitation Research (NIDRR) is part of the Office of Special Education and Rehabilitative Services (OSERS) in the U.S. Department of Education.

NIDRR contributes to the independence of persons of all ages who have disabilities by seeking improved systems, products, and practices in the rehabilitation process. It does this through grants, contracts, and cooperative agreements with universities, Indian tribes, research groups, nonprofit organizations, some profit-making companies, and individuals. Recipients of funds range from graduate student fellows to university consortia.

REHABILITATION RESEARCH AND TRAINING CENTERS (RRTCs)

This is NIDRR's largest program. Each center focuses on a particular aspect of the behavioral, medical or vocational rehabilitation of people with disabilities. Some centers concentrate on a specific disabling condition, such as: deafness, low vision, spinal cord injury, or long-term mental illness. Others study activity areas important in the lives of people with disabilities, including independent living, housing, service delivery, and information systems. Knowledge contributed by the RRTCs has greatly influenced the fields of rehabilitation medicine, psychosocial rehabilitation, integration, vocational strategies, and architecture.

REHABILITATION ENGINEERING CENTERS (RECs)

These centers seek solutions to disability-related problems through technology. Areas of study include sensory loss, mobility impairment, chronic pain, communication difficulties, the adaptation of assistive devices, and technology transfer.

FIELD INITIATED RESEARCH

These projects allow NIDRR to fund activities that blend well with its overall mandate but which fall outside the usual range of priorities. Institutions of higher education, nonprofit organizations, and profit-making businesses are eligible to apply for these grants.

RESEARCH AND DEMONSTRATION PROJECTS

To supplement the work of the RRTCs and RECs, the Institute supports research and demonstration projects that seek solutions to specific problems encountered by individuals with disabilities and the professionals who work with them. Some of these have included model care systems for traumatic brain injury, the creation of a specialized dataset for the collection of clinical and scientific information, and job development and placement for agricultural workers with disabilities.

RESEARCH FELLOWSHIPS

Fellowships named for the late Mary E. Switzer are building future research capacity. NIDRR makes these grants on two levels. Distinguished Fellowships are awarded to individuals of doctorate or comparable academic status who have had seven or more years' experience relevant to rehabilitation research. Merit Fellowships are given to persons in earlier stages of their research careers.

RESEARCH TRAINING AND CAREER DEVELOPMENT GRANTS

These grants train physicians, therapists of various types, rehabilitation engineers, and other professionals in research methods and statistical analysis.

DISSEMINATION AND UTILIZATION GRANTS

Through this type of grant, the Institute places information derived from research as well as the products of its grants and contracts in the hands of policy makers, rehabilitation practitioners, educators, technology developers, and persons with disabilities.

INNOVATION GRANTS

One-year grants, for a maximum of $50,000, support inventive approaches to old and newly identified problems. These projects test new concepts, evaluate prototype aids and devices, develop and test rehabilitation training curricula and disseminate specific research findings.

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