

Assistive Technology in the Trenches

**Service Providers,
Entrepreneurs,
and Researchers**

Federal Labs Consortium
Portland, OR 2008



Today's presentation

- Overview of Assistive Technology
 - What is AT?
 - R&D
 - Stakeholders
 - FLC Initiative
- Involving the end user in AT R&D
- Improving transportation accessibility
- AT developer/entrepreneur

Assistive Technology

- Makes it possible for pwd to:
 - Do what they want to do
 - Go where they want to go
 - Maintain/improve health
- Devices or technology
- Universal designs
- Environmental modifications
- Doing something differently



People with disabilities

- 50 million Americans: 17.5%
 - Over 2.2 million Americans use w/c's
- As people age, incidence of disability increases
 - Today, over 59.6 M ≥ 55 years
 - Projected to skyrocket to 102.7 million by 2025
- Disabilities include:
 - cognitive, physical, sensory, vision, hearing
- Areas of specialization
- Barriers
 - Access, Attitudes, Usability, Funding

Federal Labs Consortium's Assistive Technology Initiative

- Identify technology
- Connect with AT companies
- Advocate for federal \$ for AT research
- Examples of FLC involvement
 - Joint project: Tech Transfer RERC
 - Dept of Commerce/BIS study
 - Interagency Committee on Disability Research
 - Duke RERC on AAC
 - RESNA sponsorship and attendance

RESNA

- Rehabilitation Engineering and Assistive Technology Society of North America
- Professional association focused on AT
- 1,100 members (Lenker, 2000)
- International members and sister orgs
 - RESJA, ARATA, AAATE
- Annual conference in June
- 2008: Washington, DC

- Technology Transfer SIG

Membership

- Multidisciplinary
 - Researchers
 - Practitioners (therapists, rehab engineers)
 - Product developers
 - Manufacturers
- Universities
- Governmental agencies
- Private companies
- Rehabilitation facilities
- Independent consultants

Special Interest Groups (SIGs)

- Service Delivery & Public Policy
- Personal transportation
- AAC Communication
- Dysphagia (swallowing)
- Quantitative Assessment
- Special Ed
- Technology Transfer
- Sensory Loss
- Wheeled mobility & seating
- Electrical Stimulation
- Computer applications
- Rural Rehabilitation
- Robotics & Mechanotronics
- Job Accommodations
- Info Networking
- Gerontology
- International appropriate technology
- Tech Act
- Universal Access
- Cognitive disabilities
- Telerehabilitation
- Consumer Perspectives

Federal agencies support AT research

Research and development

- Service delivery models
- Technology assessment
- Product development
- Outcomes measurement

● Dept of Education

- *National Institute on Disability and Rehab. Research (NIDRR)*
- *Rehabilitation Engineering Research Centers*

- NIH
- USDA
- DOT
- DOD

Rehabilitation Engineering Research Centers

- Funded by NIDRR: National Institute on Disability and Rehabilitation Research
- Research
- Assistive technology development
- Service delivery models
- Information dissemination
 - State-of-the-Art conference
- Technology transfer component

RERC Research Areas

- Spinal cord injuries
- Vision
- Hearing enhancement
- Cognitive technologies
- Wireless technologies
- Wheeled mobility
- Workplace accommodation
- Rehab Robotics
- Prosthetics and Orthotics
- Recreation
- Landmine survivors
- W/c transportation safety

RERC Research, cont'd.

- Children w/Orthopedic disab.
- Universal Design
- Communication Enhancement
- Information technology
- ***Public Transportation***
- Telerehabilitation
- ***Accessible Medical Instrumentation***
- Telecommunication
- Technology Transfer

Technology Transfer RERC

- Stakeholder forums/White papers
 - Wheeled mobility
 - Powered wheelchair technology
 - Educational technology
 - Augmentative communication
 - Vision
- Push-Pull
- Demand-Pull
- Fortune 500

Communications Enhancement Technology Watch Project

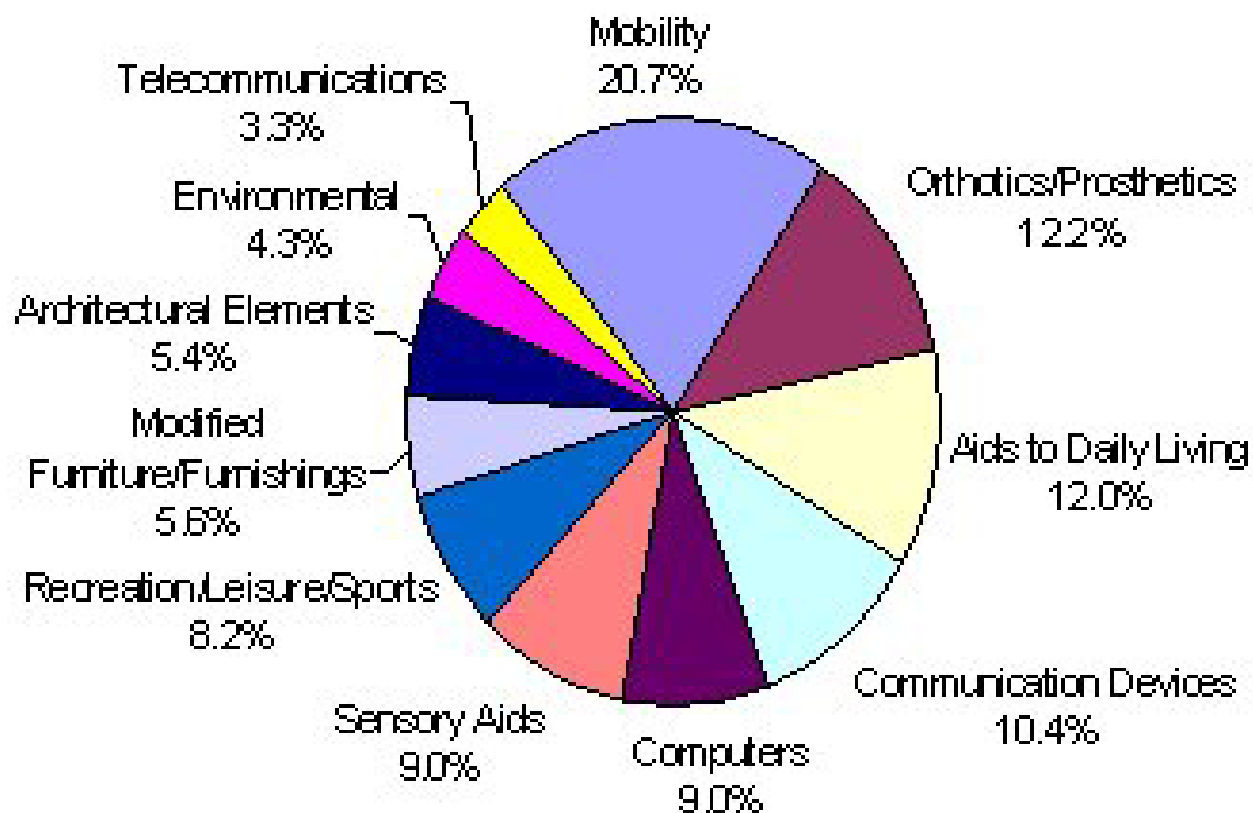
- Southeast FLC with the AAC-RERC
- Movement Recognizer
 - computer program "learns" an individuals' movement patterns
 - communicates the meaning to another person or system
- SeeSpeak
 - converts spoken words or sounds into graphic symbols
 - can be read by care givers, family
 - clinical trials with autistic children
- <http://www.southeastflc.org/success/2003.html>

SBIR/AT Research

- **Beneficial Designs (Nevada)**
 - Trail accessibility, trail surface measurement instrumentation, trail barriers
- **Three River Holdings (Arizona)**
 - Handrims, GameCycle, Smart wheelchair
- **BlueSky Designs (Minnesota)**
 - Accessible tent, watercraft transfer, mounting technology
- **Koester Research (Michigan)**
 - Software for computer access assessment
- **Assistive Technology Sciences (Pennsylvania)**
 - Smart wheelchairs, mobility technology
- **AbleLink (Colorado)**
 - Handhelds for people w/cognitive disabilities
- **Nextek Mobility (New Mexico)**
 - Parallel All Wheel Steering
- **Mealtime Partners (Texas)**
 - Automated feeding
- **Anthrotronix (Maryland)**
 - Kids learning system

Technology Assessment of the U.S. Assistive Technology Industry

Chart 1 - Product Focus of Surveyed U.S. AT Companies



BIS recommendations to fill AT needs

- Improve manufacturing efficiency
- Improve technology insertion
- New designs to lower production cost
- Increase pwd's awareness of AT
- Increase funding for AT
- AT manufacturers
 - Leverage technical capabilities
 - Use technical resources such as federal labs
- Increase support for AT innovation

Assistive Technology: Tech Transfer

- Broad mission
 - Individual researchers or companies typically focus
- RERC research results influence manufacturers of AT, mainstream technology, systems
- SBIR: a good vehicle for investment in AT

Making the business case

- Manufacturers want a good ROI (so do funders)
 - less apt to invest in unproven technology
- Good design vs. cost to implement
- Pricing, sales and business decisions impacted by reimbursement
- Value = Increased health and independence