Assistive Technology in the Trenches

Service Providers, Entrepreneurs, and Researchers
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 individual's movement patterns
  - communicates the meaning to another person or system
- SeeSpeak
  - converts spoken words or sounds into graphic symbols
  - can be read by caregivers, family
  - clinical trials with autistic children
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

- Mobility: 20.7%
- Orthotics/Prosthetics: 12.2%
- Aids to Daily Living: 12.0%
- Communication Devices: 10.4%
- Computers: 9.0%
- Sensory Aids: 9.0%
- Recreation/Leisure/Sports: 8.2%
- Modified Furniture/Furnishings: 5.6%
- Architectural Elements: 5.4%
- Environmental: 4.3%
- Telecommunications: 3.3%
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