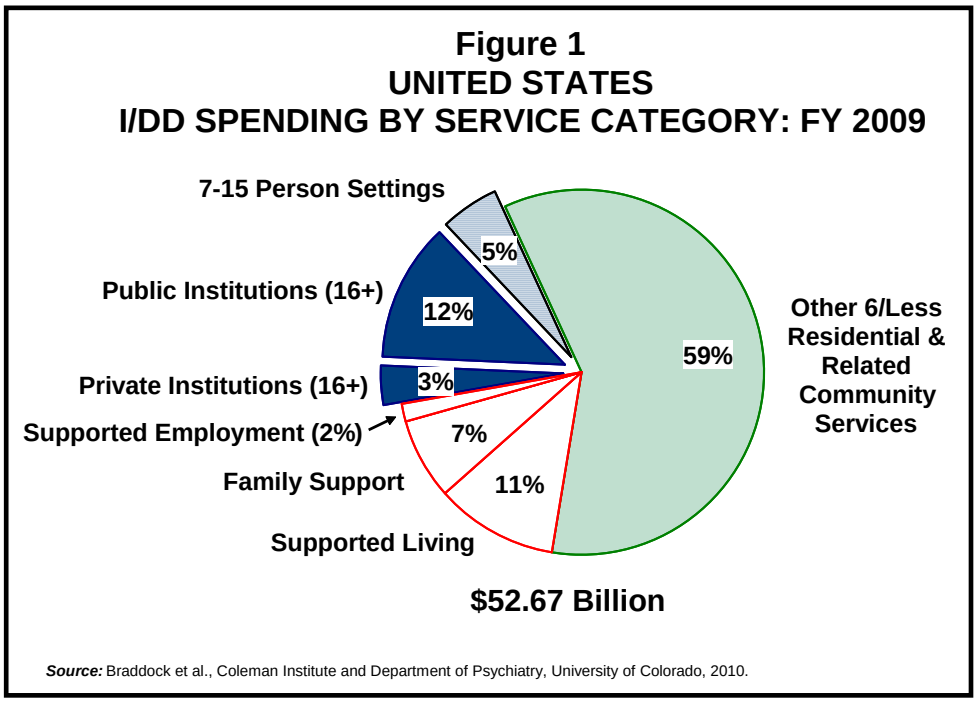
A PROPOSED INITIATIVE IN DEVELOPMENTAL DISABILITIES TECHNOLOGY AND THE NETWORK OF UNIVERSITY CENTERS OF EXCELLENCE IN DEVELOMENTAL DISABILITIES EDUCATION, RESEARCH AND SERVICE (UCEDDs)

Technology is a major contributor to the independence, productivity and quality of life for all segments of our society today. People with developmental disabilities, however, are extremely underserved in accessing such technologies compared to non-disabled citizens. Moreover, public spending for developmental disabilities in American society currently exceeds $52 billion per year in long term care services and supports (Braddock et al., 2010) (see *Figure 1*).



A national network of "Research and Development Centers of Excellence in Developmental Disabilities and Technology" is proposed. The explicit purpose of these Centers will be to develop and disseminate new technologies to increase the independence, productivity and quality of life of people with developmental disabilities.

DEVELOPMENTAL DISABILITIES DEFINED

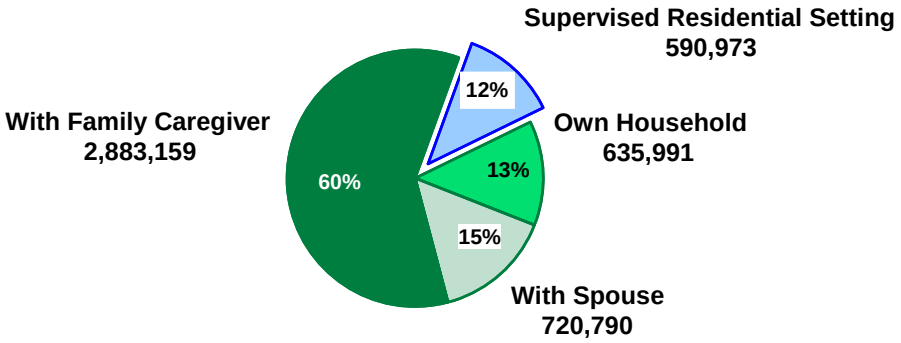
Developmental disabilities are severe, life-long disabilities attributable to mental and/or physical impairments which manifest themselves before the age of 22 years and are likely to continue indefinitely. They result in substantial limitations in three or more of the following areas (Administration on Developmental Disabilities, 2010):

- Self-care
- Comprehension and language
- Skills (receptive and expressive language)
- Learning
- Mobility
- Self-direction
- Capacity for independent living
- Economic self-sufficiency
- Ability to function independently without coordinated services (continuous need for individually planned and coordinated services).

Persons with developmental disabilities use individually planned and coordinated services and supports of their choosing (e.g., housing, employment, education, civil and human rights protection, health care) to live in and to participate in activities in the community.

As indicated in *Figure 2*, there are an estimated 4.8 million children and adults with intellectual and developmental disabilities living with family caregivers, in supervised residential settings, or in their own or a spouse's or other relative's household.

Figure 2
UNITED STATES
ESTIMATED DISTRIBUTION OF INDIVIDUALS
WITH I/DD BY LIVING ARRANGEMENT, 2009



TOTAL: 4,830,913 PERSONS

Source: Braddock et al., Coleman Institute and Department of Psychiatry, University of Colorado, 2010, based on Fujiura (1998).

ADVANCES IN TECHNOLOGY AND DISABILITY

A confluence of fundamental advances in microelectronics, computer science, communications and the health and rehabilitative sciences has created tremendous potential over the next decade and beyond to develop new technologies for people with developmental disabilities, and to extend the knowledge base in the developmental disabilities field

dramatically. Some of the advances in technology include:

- Advances in software development permitting creation of assistive devices to adapt to the learner's personal cognitive style and environment;
- Advances in wireless and sensor technology leading to opportunities to the development of "smart-care and smart residential/living" supports for people with developmental disabilities;
- Global positioning systems applications;
- Improved access to computers and the internet;
- Improved voice recognition systems with one-word commands for performing many tasks;
- Improved "eye-gaze" technologies;
- More efficient products operated by brainwaves or other bio-feedback mechanisms; and
- Advances in areas such as nanotechnology, bio-imaging, neural regeneration, and the behavioral genetics of disabilities.

PROPOSED RESEARCH AND DEVELOPMENT CENTERS ON DEVELOPMENTAL DISABILITIES AND TECHNOLOGY

The proposed Centers on Developmental Disabilities and Technology will advance the independence and quality of life of individuals with developmental disabilities through technology research, development, and dissemination; foster public-private partnerships in the development, commercialization and dissemination of new technologies pertinent to developmental disabilities; and, contribute to the nation's economic productivity while reducing income maintenance and long term care costs for federal and state governments.

- The Initiative should authorize core administrative funding and research resources across the nation for 5 to 10 "Research and Development Centers of Excellence in Developmental Disabilities and Technology";
- The Centers would be located in multidisciplinary, university-based settings (UCEDDs) and closely linked functionally to commercial enterprises and to private foundations supporting developmental disabilities. The Coleman Institute at the University of Colorado will consider providing planning grants for prospective applicants for federal funding and also assist with commercialization of technology products subsequently developed;
- Core disciplines would include, but not be limited to, computer science, electrical and computer engineering, biomedical engineering, psychology, imaging science, rehabilitation science, and special education;

- Centers would involve consumers with developmental disabilities and their families, service providers, employers, and schools to facilitate the development and dissemination of viable new technologies to increase the social, economic, and educational participation of persons with developmental disabilities. Centers would also advance scientific knowledge about disability and technology;

- Centers would compete for and secure research and development funding and related resources from the National Institute on Disability and Rehabilitative Research; National Institutes of Health; the U.S. Departments of Education, Labor, and Transportation; the National Science Foundation; state governments; private industry; and foundations;

- The Centers would coordinate their activities with entities such as existing federal technology laboratories, engineering research centers, rehabilitation research and training centers, Technology Act information and technical assistance grantees in the states, the nation's ten Regional Disability and Business Technical Assistance Centers on the Americans with Disabilities Act, other University Centers of Excellence in Developmental Disabilities, independent living centers, and federally-funded Developmental Disabilities Research Centers.

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Envisioning the Future Summit
U.S. Department of Health and Human Services,
Administration on Developmental Disabilities

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