Accessing Technology Solutions for Community Living

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Colorado CANDO Meeting

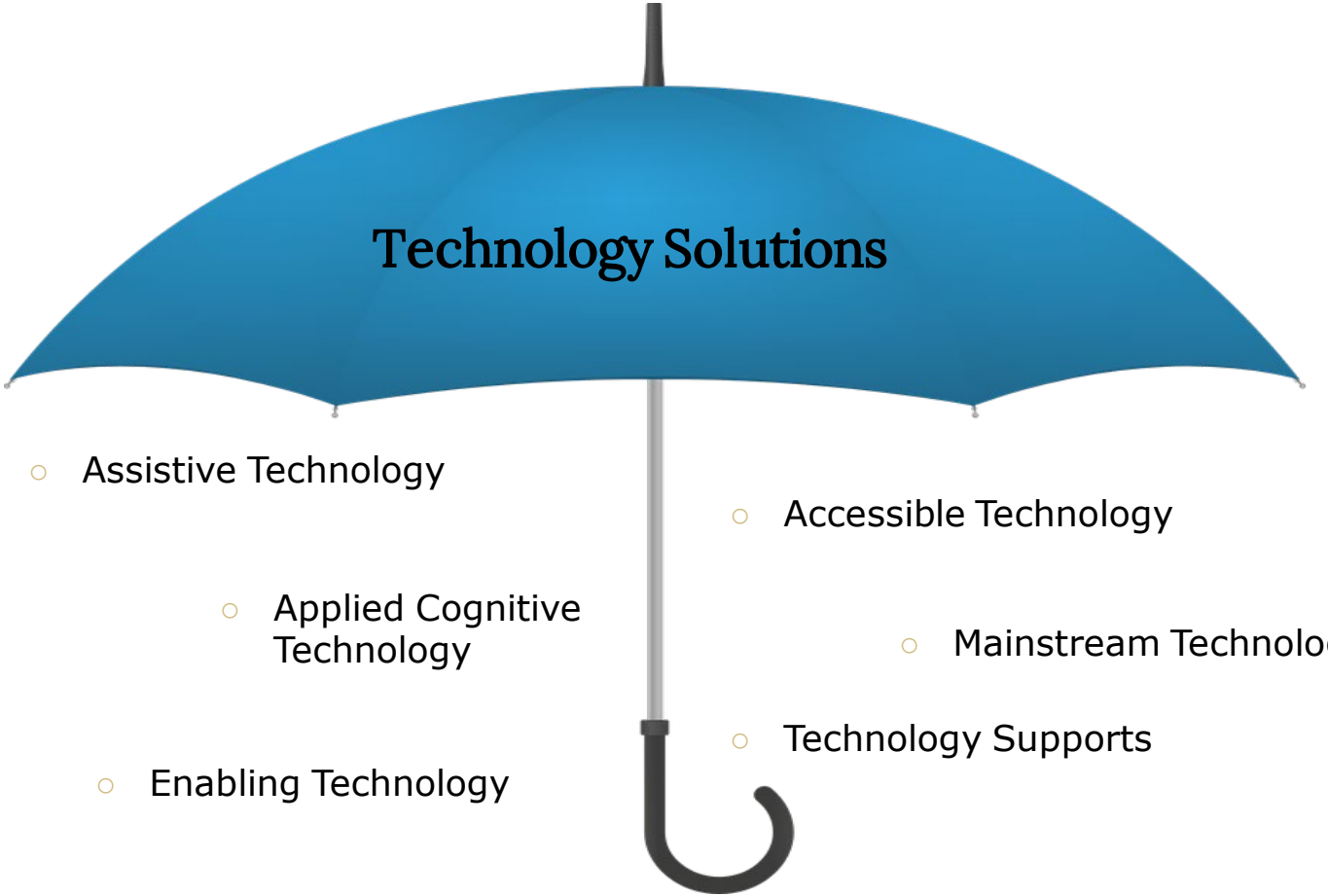
Coleman Institute for Cognitive Disabilities
UNIVERSITY OF COLORADO
Boulder | Colorado Springs | Denver | Anschutz Medical Campus

AGENDA

- Introduction
- Ubiquity of Technology
- Technology for Community Living
- Driving Innovation through Disruption
- Advancing Technology First
- Be an Agent of Change

Coleman Institute For Cognitive Disabilities

The mission of the Coleman Institute for Cognitive Disabilities is to catalyze and integrate advances in technology to promote a meaningful quality of life for people with cognitive disabilities and their families.


Technology Solutions
Assistive Technology
Applied Cognitive Technology
Enabling Technology
Accessible Technology
Mainstream Technology
Technology Supports

1

Ubiquity of Technology

92%

92% of the world’s currency is digital (Forbes, 2020)

77.7 Million

In 2020, 77.7 million people are expected to experience augmented reality (AR) at least once per month.

(eMarketer, 2020)

71%

71% of U.S. adults who earn less than $30,000 annually own a smartphone (Pew Research Center, 2019)

306 Billion

2020 forecast - 306 billion emails sent daily worldwide

(Statista, 2019)

$120 Billion

In 2019, consumers spent $120 billion on apps, subscriptions and other in-app spending (TechCrunch, 2020)

3x

By 2023, the number of employees with disabilities will triple due to artificial intelligence and emerging technologies that reduce or remove barriers to access. (Gartner, 2020)

30%

30% of U.S. adults have used a dating site or app

(Pew Research Center, 2020)

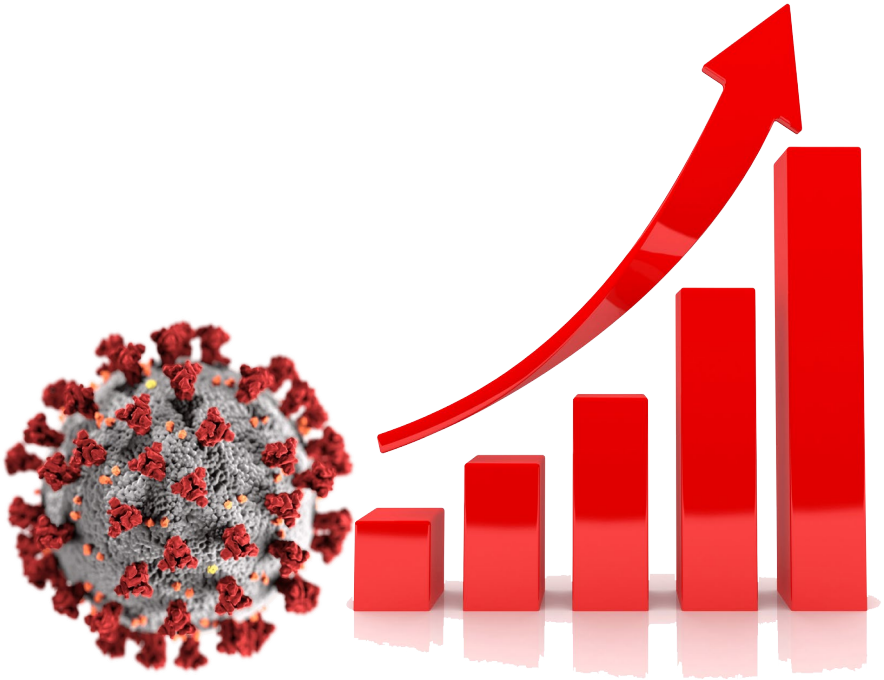
1%

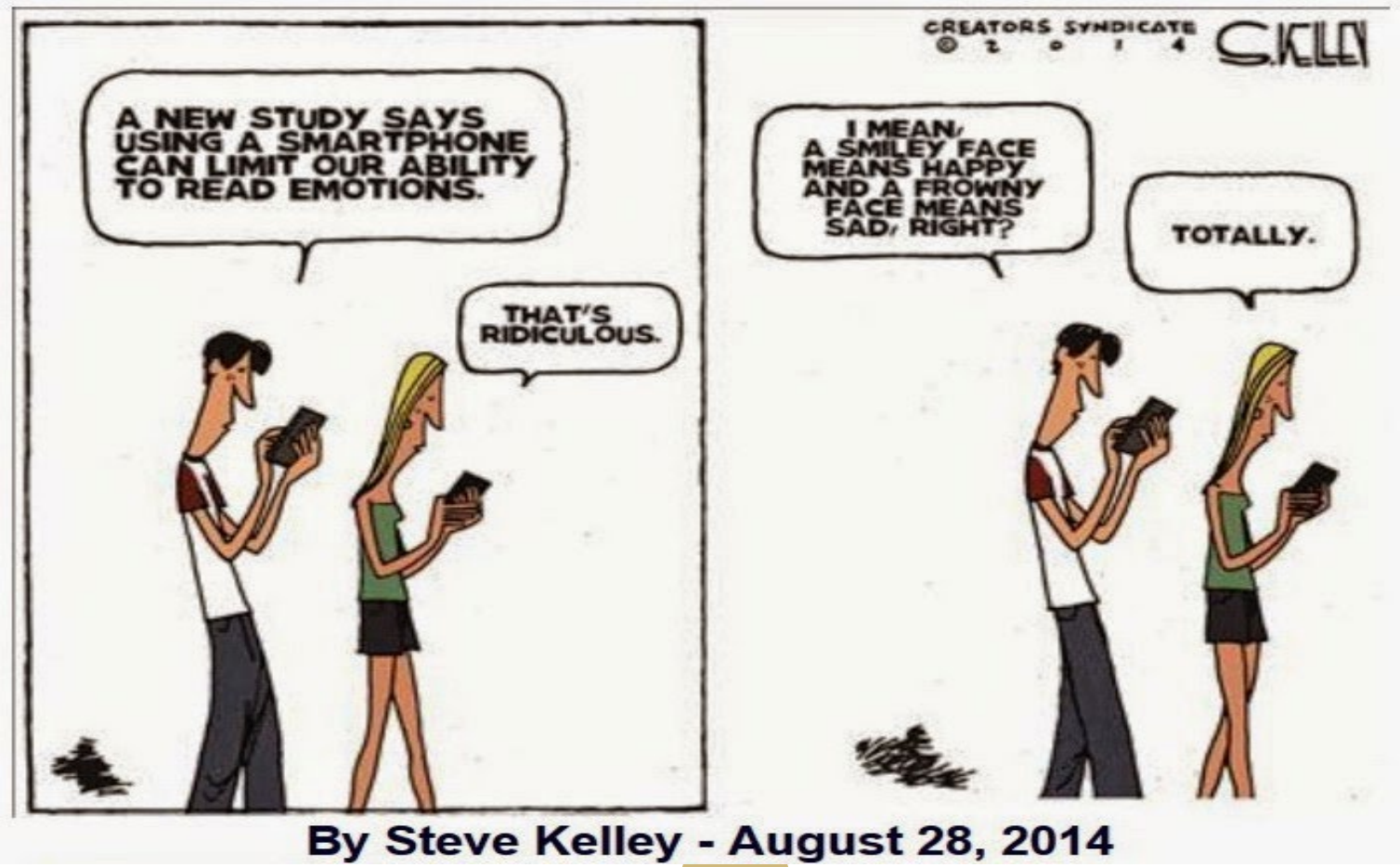
1% of the general population may qualify for a potential diagnosis of Internet Gaming Disorder (APA, 2020)

4.6 Million

In 2017, 4.6 million students in public institutions participated in distance education (Educationdata, 2019)

All Statistics Before Covid-19 Pandemic




CREATORS SYNDICATE ©2014 S.KELLEY
A NEW STUDY SAYS USING A SMARTPHONE CAN LIMIT OUR ABILITY TO READ EMOTIONS.
THAT'S RIDICULOUS.
I MEAN, A SMILEY FACE MEANS HAPPY AND A FROWNY FACE MEANS SAD, RIGHT?
TOTALLY.
By Steve Kelley - August 28, 2014

The ubiquity of technology is changing the world around us and how we must interact and survive within that world

Digital and Technology Gaps Widening

- 23% of people with disabilities say they never go online (Pew Research Center, 2017)
- People with disabilities have lower technology adoption rates
- 39% of people with IDD had access to a smartphone (FINDS, 2018)
- 39% of people with disabilities say they can use the internet very well (Pew Research Center , 2016)

Barriers to Technology

- Lack of universal design
- Digital literacy and technical skills
- Equal opportunity – gate keepers
- Knowledge translation
- Social context
- Systemic barriers
- Failure to address “useworthiness” alongside usability
- Economic Barriers

2

Technology for Community Living

Community Living

Where and With Whom a Person Lives

Persons without Disability

- 58.5% of Americans live where they were born (Bloomberg, 2019)
- One person households are on the rise (U.S. Census Bureau, 2019)
- 65% of people live in family household (U.S. Census Bureau, 2019)
- 52% of young adults (18-29) live with parents (Pew Research Center, 2020)
- 2019 held the lowest moving rate since 1947 (New York Times, 2019)

Persons with Disability

- 72% of people with IDD lived with family members (Tanis, 2019)
- 10% lived in residential settings in 2017
- 18% lived alone or with a roommate
- 24% lived with caregivers over the age of 60

(Tanis, 2019) – State of the States in Intellectual and Developmental Disabilities Longitudinal Data Project of National Significance

What a Person Does During the Day

Persons without Disability

- Average hours per day of activities by the average American
  - 8.84 hours sleeping
  - 7.62 hours working on days worked
  - 5.19 hours engaged in leisure and sports
  - 1.78 hours engaged in household activities
  - 1.36 hours caring for and helping household children

(American Time Use Survey, 2019)

Persons with Disability

- 19% go out on errands or to appointments more than 5 times per month
- 28% went to a coffee shop or restaurant more than 5 times per month
- 17% went out for entertainment more than 5 times per month
- 31% went shopping more than 5 times per month

(National Core Indicators Survey 2017-2018)

Where a Person Works and How They Earn Money

Persons without Disability

- 76.4% participation in the labor force in July 2020 (ODEP, 2020)
- 10.4% Unemployment in July
- Occupations with the most job growth in 2019
  - Home health and personal care aids
  - Fast food and counter workers
  - Cooks, restaurant
  - Software developers and software quality assurance analysts and testers
  - Registered Nurses

  (BLS, 2020)

Persons with Disability

- 33% participation in the labor force in July 2020 (ODEP, 2020)
- 14.8% Unemployment in July 2020
- Top occupations for people with disabilities in 2019
  - Service occupations
  - Production
  - Transportation
  - Material moving

  (BLS, 2020)

Quality of Relationships with Others During Daily Activities

Relationship quality depends on beliefs about a relationship partner's responsiveness – that is, on the perception that a partner understands, values and supports important aspects of the self. People who perceive their relationship partner as responsive feel close, satisfied, and committed in those relationships.

- Canevello & Crooker, 2010

Quality of Relationships

Persons without Disability

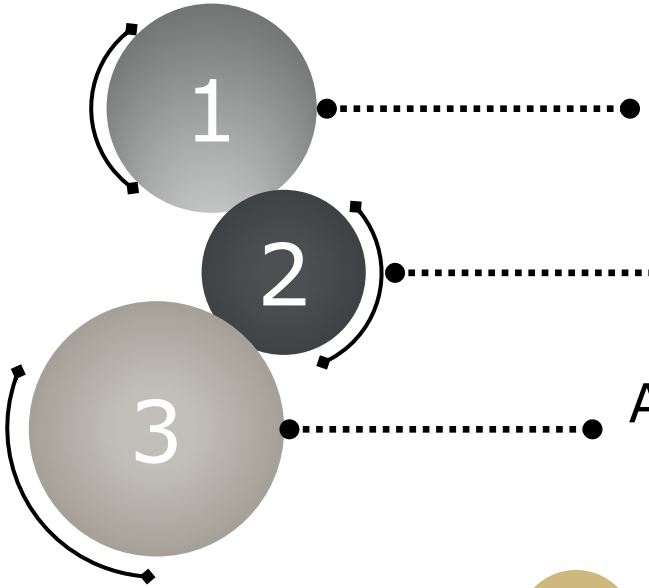
- Most read article in *Journal of Social and Personal Relationships* "Can you connect with me now? How the presence of mobile communication technology influences face-to-face conversation quality" (Przybylski & Weinstein, 2013)
- The average American has 5 close friends (Cigna, 2018)
- Users of social media have more close relationships on and off-line (WebMD, 2019)
- Meeting online is the most popular way for U.S. couples to connect (Rosenfeld, 2019)

Persons with Disability

- People with IDD have 3.1 people in their social networks (Verdonschot, 2009)
- 89% of people with IDD have friends that are not staff or family
- 70% of people with IDD say they have a best friend
- 33% of people with IDD say they sometimes feel lonely

(National Core Indicators, 2017-2018)

Ideal Hobbies



A Passion – engage in something you love

A Diversion – escape from daily life

A Sense of Purpose

(Brickey, 2000)

Personal Interests

Persons without Disability

- Top rated hobbies
  - Reading
  - Watching TV
  - Team Sports
  - Shopping
  - Traveling Crafts
  - Watching Sports
  - Bicycling
  - Playing Cards
  - Hiking

Persons with Disability

- Most important aspects of recreations and leisure to youth with IDD
  - Provide an opportunity to meet new people
  - Develop intimate friendships
  - Have fun

(Christensen, 2013)

Where and With Whom a Person Worships

Persons without Disability

- 55% of U.S. adults engage in daily prayer (Pew Research Center, 2019)
- 19% of Americans identify as no religious affiliation (Gallup, 2019)
- 29% of millennials report no religious affiliation (Gallup, 2019)

Persons with Disability

- 59% of people with IDD did not attend a religious service or spiritual practice in past month (National Core Indicators, 2017-2018)
- Only two qualitative studies of religious expression in adults with IDD (Carter, 2019)

Health and Wellness

Persons without Disability

- Leading causes of death of Americans in the U.S.
  - Heart disease
  - Cancer
  - Unintentional injuries

(CDC, 2019)

- Global wellness economy is valued at $4 trillion in 2018 (Forbes, 2019)
- 64% of adults visited a dentist in the past year (National Center for Health Statistics, 2017)

Persons with Disability

- Leading causes of death for older people with IDD
  - Respiratory failure
  - Dehydration/malnutrition
  - Cardiovascular Disease

(Oppewal, 2018)

- More likely not to have seen a dentist in the past year (Hall & Kurth, 2019)

Learning and Personal Growth

Persons without Disability

- 18.9 million students enrolled in college in 2018 (Census Bureau, 2019)
- 6.6 million students in the U.S. enrolled in online education (Educationdata, 2017)
- 94% of employees would remain in a job if provided with opportunities for training and professional development (LinkedIn, 2019)

Persons with Disability

- Less than 6% of colleges and universities in the U.S. have programs for students with IDD (Higher Education Today, 2019)
- Limited online accessible learning tools
- Emerging online learning tools for employment testing with students with IDD 3C Institute's dynamic e-learning platform (DeLP) WORK program (3CI, 2019)

Ecological Inventory

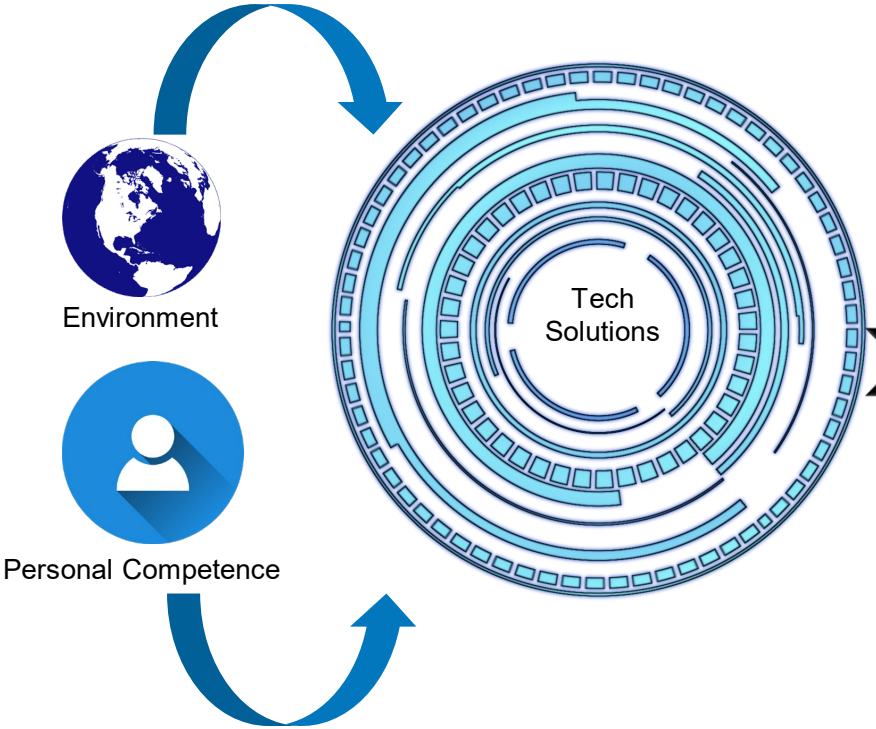
- Identify the discrepancies in experience and opportunity for people with disabilities in domains of daily life
- How to bridge the gap in natural routines and rhythms of American culture

Normalization was a simple concept.. People with and without disabilities should have access to the normal routines and rhythms of American culture.”

James Conroy

Technology Provides Access to the Routine and Rhythms of American Culture

Technology as a Bridge and Accelerator

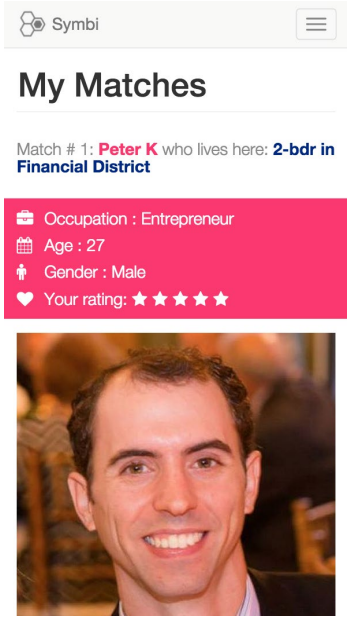


Environmental Fit

Where and With Whom a Person Lives

Connected Communities

Smart Home Technology



Roommate Apps

What a Person Does During the Day

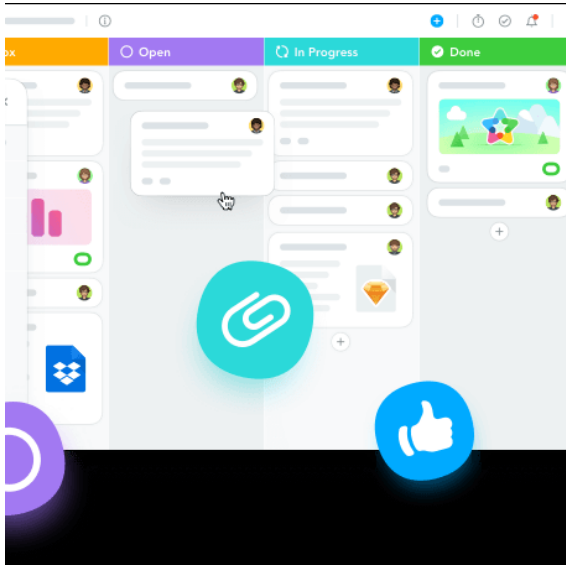
Virtual Exercise

Video Tutorials

HOBBY GLOBE

Find a Hobby App

Where a Person Works and How They Earn Money

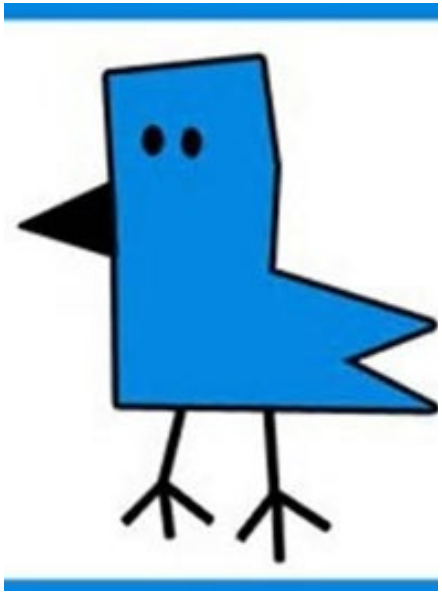


Task Management

Video Conferencing

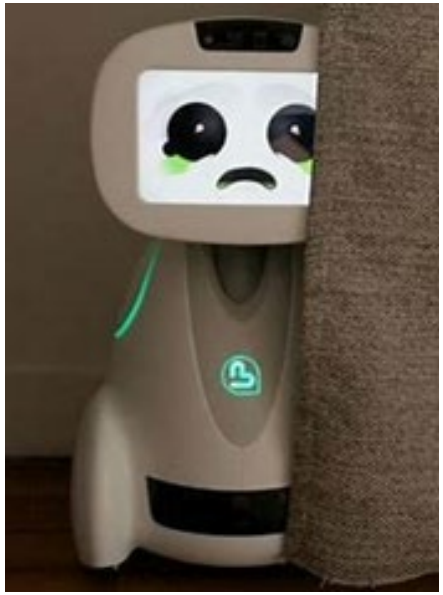
Augmented Reality Training

Quality of Relationships



Social Networking

Communication Technology



Social Robotics

Personal Interests

Accessible Gaming

Compose Music

Virtual Reality Sports

Where and With Whom a Person Worships

Virtual Religious Services

Meditation Technology

Verse eBooks

Health and Wellness

Health Data

Medication Dispensers

Telehealth

Learning and Personal Growth

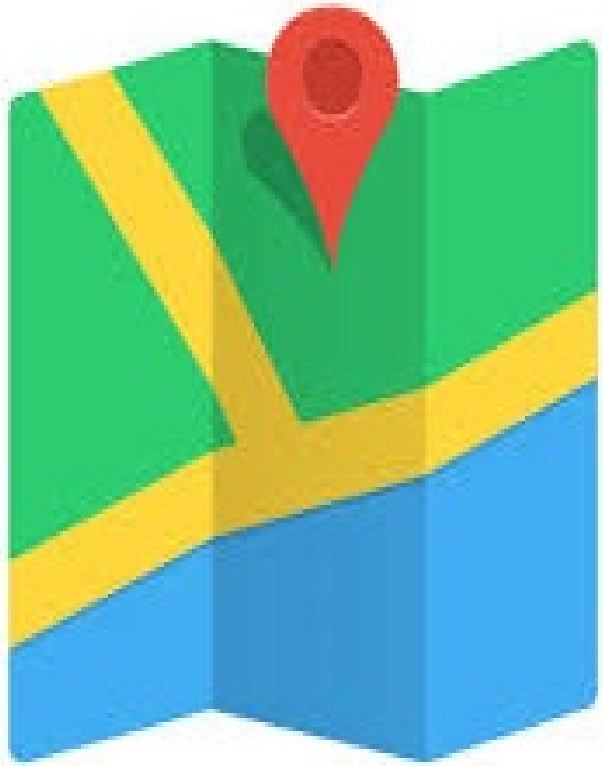
Differentiated Learning Online Tools

Task-Based Apps

Literacy Tools

Technology Solutions Provide Opportunities to Achieve High Quality Community Living

Community is No Longer a Physical Location But an Experience



Olmstead v. L.C. (1999)

- Most significant Americans with Disabilities Act Supreme Court Case
- Recognition of the rights of people institutionalized in congregate facilities to live and receive needed services and supports in the “community”

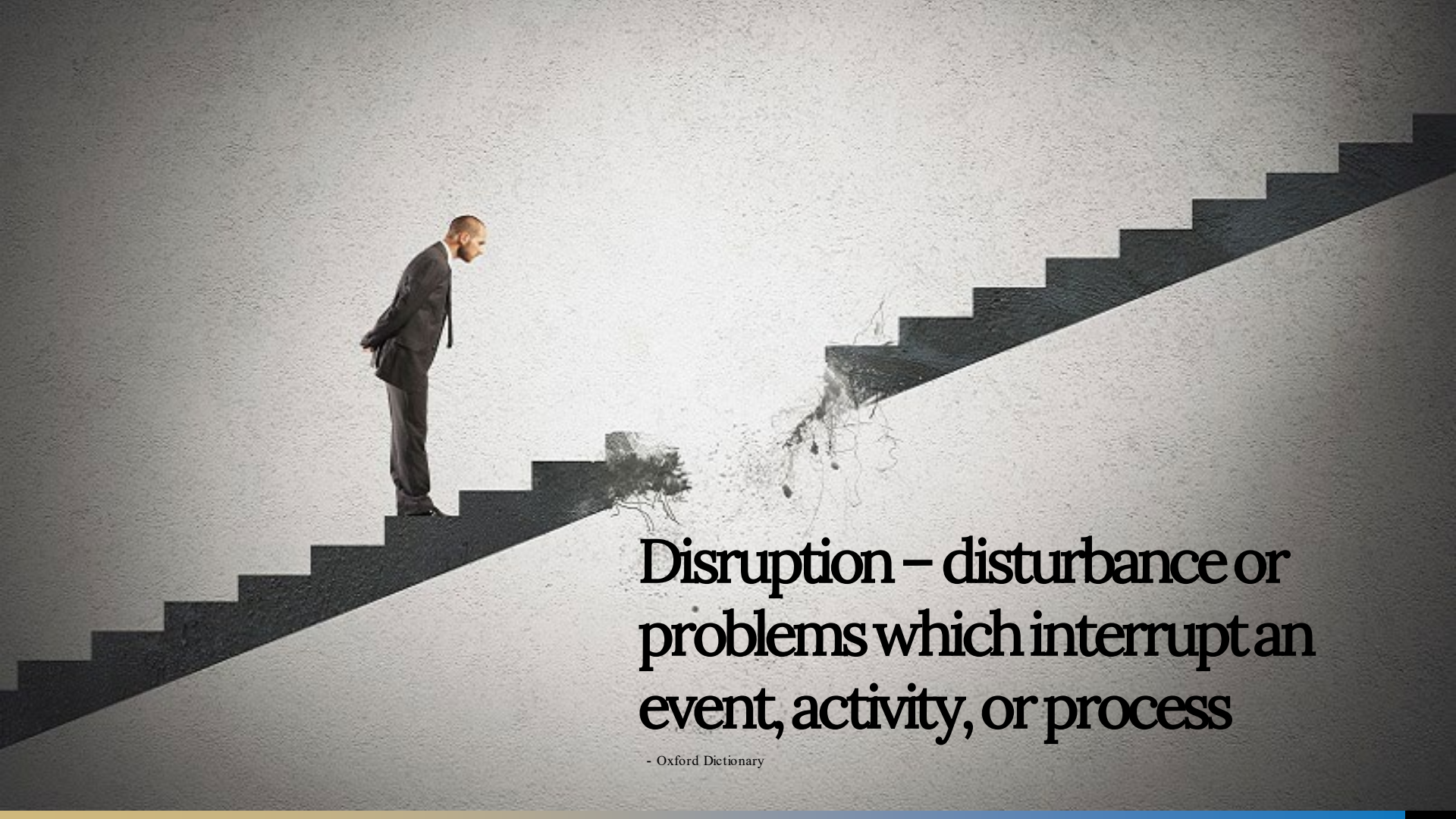
“

[Department of Justice] has expanded its Olmstead work to look beyond just where people live to examine how people live and spend their days. Simply moving someone from an institution to a community-based residence does not achieve community integration under Olmstead if that person is still denied meaningful integrated ways to spend their day and is denied the opportunity to do what so many people do.

Lack of Access to the Digital Community is Lack of Access To Community Living

4

Driving Innovation through Disruption



Disruption – disturbance or problems which interrupt an event, activity, or process

- Oxford Dictionary

The Age of Uncertainty – National Crises

01 Public Health - Pandemic

02 Economic Recession

03 Civil Unrest and Social Injustice

04 Climate Change and Natural Disasters

05 Foreign Conflict

06 Technological Mistrust

Imperial College London

TABLE OF DISRUPTIVE TECHNOLOGIES

A dashboard of 100 wonderful, weird (and possibly worrying) ways the world might change in the foreseeable future

POTENTIAL FOR SOCIO-ECONOMIC DISRUPTION → HIGH

De Digital footprint eraser 91 DE	**Ps** Personal digital shields 92 DE	**Ht** Human head transplants 93 HA	**Hc** Human cloning & de-extinction 94 HA	**Da** Distributed autono-mous corporations 95 DE	**Sp** Space solar power 96 SP	**El** Space elevators 97 SP	**Vr** Fully immersive virtual reality (VR) 98 DE	**Co** Artificial consciousness 99 EA	**Qt** We can't talk about this one 100
Ci Conversational machine interfaces 81 MI	**Le** Life-expectancy algorithms 82 DE	**Sa** Stratospheric aerosols 83 SP	**Br** Battlefield robots 84 EA	**Ad** AI advisors & decision-making machines 85 DE	**Ab** AI board members & politicians 86 EA	**Is** Invisibility shields 87 SP	**Ph** Factory photosynthesis 88 SP	**Th** Transhuman technologies 89 HA	**Te** Telepathy 90 HA
Ss Planetary-scale spectroscopy 71 SP	**Ip** Implantable phones 72 MI	**He** e-tagging of humans 73 DE	**Mp** Male pregnancy & artificial wombs 74 HA	**Dn** DNA data storage 75 DE	**Gv** Genomic vaccines 76 SP	**Qs** Quantum safe cryptography 77 DE	**Cp** Cognitive prosthetics 78 HA	**Ud** Data uploading to the brain 79 HA	**Rd** Reactionless drive 80 SP
Gh Predictive gene-based healthcare 61 DE	**Ak** Automated knowledge discovery 62 EA	**Rs** Autonomous robotic surgery 63 EA	**Em** Emotionally aware machines 64 MI	**Xx** Humanoid sex robots 65 MI	**Bh** Human bio-hacking 66 HA	**Me** Internet of DNA 67 DE	**Tc** Thought control - machine interfaces 68 MI	**Dr** Dream reading & recording 69 HA	**Wh** Whole Earth virtualisation 70 DE
Md Mega-scale desalination 51 SP	**Sw** Self-writing software 52 EA	**Mm** Public mood monitoring 53 DE	**Pb** Programmable bacteria 54 SP	**Et** Peer-to-peer energy trading & transmission 55 DE	**La** Lifelong personal avatar assistants 56 MI	**Sd** Smart dust 57 DE	**Lc** Low-cost space travel 58 HA	**Pc** Planet colonization 59 HA	**Sh** Shape-shifting matter 60 SP
Mc Medical tricorders 41 DE	**Sf** Smart flooring & carpets 42 DE	**Dt** Diagnostic toilets 43 DE	**Se** Smart energy grids 44 SP	**Bf** Algal bio-fuels 45 SP	**Op** Human-organ printing 46 SP	**Bs** Artificial human blood substitute 47 SP	**Nm** New materials 48 SP	**Fu** Fusion power 49 SP	**Mr** Self-reconfiguring modular robots 50 SP
Dl Distributed ledgers 31 DE	**Pa** Precision agriculture 32 SP	**Av** Autonomous vehicles 33 EA	**Id** Intention decoding algorithms 34 MI	**Df** Drone freight delivery 35 EA	**Ap** Autonomous passenger aircraft 36 EA	**Fp** 3D-printing of food & pharmaceuticals 37 SP	**Sr** Swarm robotics 38 EA	**Fd** 4-dimensional materials 39 SP	**Ze** Zero-point energy 40 SP
Rc Robotic care companions 21 MI	**Sc** Smart controls and appliances 22 DE	**Cm** Cultured meat 23 SP	**Ro** Delivery robots & passenger drones 24 EA	**As** Autonomous ships & submarines 25 EA	**Rg** Resource gamification 26 SP	**Wa** Water harvesting from air 27 SP	**Eb** Broadcasting of electricity 28 SP	**Bp** Bio-plastics 29 SP	**Be** Beam-powered propulsion 30 SP
Cr Cryptocurrencies 11 DE	**So** Concentrated solar power 12 SP	**Pp** Predictive policing 13 DE	**Eh** Micro-scale ambient energy harvesting 14 SP	**Wt** Airborne wind turbines 15 SP	**Ac** Avatar companions 16 MI	**Mh** Metallic hydrogen energy storage 17 SP	**Sg** Smart glasses & contact lenses 18 HA	**Pe** Pollution eating buildings 19 SP	**Ff** Force fields 20 SP

Example of organizations active in each area

1 Monit (South Korea), Abena Nova (Denmark), Siempre Secos (Spain)

2 Statoil (Norway), Siemens (Germany), Volturn (US), UMaine (US)

3 Green Skies Vertical Farms (US), Aero Farms (US), Neo Farms (Germany), Urban Crop Solutions (Belgium)

4 WiTricity (US), Powermat (Israel), Apple/Power By Proxi (US), Qualcomm (US), Mojo Mobility (US), Mopar (US), Fulton Innovation (US)

5 Google/Alphabet (US)

6 ReWalk (US), Rex Bionics (US), SuitX/US Bionics (US), Ekso Bionics (US), Lockheed Martin (US)

7 Google/Alphabet (US), Samsung (Korea), Hexoskin (Canada) Owlet (US), Komodo Tech (Canada), Shiftwear (US), Lechal (India), OM Signal (Canada)

8 The Boring Company/Elon Musk (US), China Aerospace Science and Industry Corporation (China)

9 Reaction Engines (UK), NASA (US), Boeing (US), Lockheed Martin (US), Airbus (France)

10 Deep Space Industries (US), Planetary Resources (US), Made in Space (US)

11 Bitcoin (Japan), Ripple (US), Litecoin (US)

12 Solarreserve (US), Abengoa (Spain), North China Power Engineering (China), Shanghai Electric (China), Zhejiang Supcon Solar (China), NWEPDI (China)

13 PredPol (US), ECM Universe (US)

14 Pawegen (UK), ECEEN (China)

15 Google/Alphabet (US), Joby Energy (US), Altaeros (US), Kitegen (Italy), Enerkite (Germany)

16 Pullstring (US), Amazon (US), Alphabet/Google (US), Nintendo (Japan), Invisible Girlfriend/Boyfriend (US)

17 NASA (US)

18 Alphabet/Verily (US), Amazon (US), Vuzix (US), Everysight (Israel)

19 Elegant Embellishments (Germany), iNova (Spain), Studio Roosegaarde (Netherlands), Prosolve 370e (Germany)

20 Dstl (UK), Boeing (US)

21 Softbank (Japan), AIST (Japan), Blue Frog Robotics (France), Care-o-bot (Germany), Riken/Sumitomo Riko (Japan), Mayfield Robotics (US)

22 Amazon (US), Google/Alphabet (US), Philips (Netherlands), Samsung (South Korea), Dyson (UK), Miele (Germany), iRobot (US)

23 Impossible Foods (US), Memphis Meats (US), Super Meat (Israel), Finless Foods (US), New Harvest (US)

24 Wing/Alphabet (US), Starship Technologies (UK), Volocopter (Germany), eHang (China), Piaggio (Italy)

25 Leidos (US), Boeing (US), Rolls Royce (UK)

26 Joulebug (US), Waterpebble (UK)

27 Permalution (US), Sun to Water (US)

32 Blue River Technology (US), Hortau (Canada)

33 Google/Waymo (US), Voyage (US), Nvidia Automotive (US), most major auto-makers

34 Amazon (US), Google/Alphabet (US), Philips (Netherlands), Samsung (South Korea), Dyson (UK), Miele (Germany), iRobot (US)

35 Google/Alphabet (US), Amazon (US), Flirtey (US)

36 Airbus (France), Boeing (US)

37 FabCafe (Japan), NASA (US)

38 SRI International (US)

39 Stratasys (US), Autodesk (US)

40 NASA (US)

41 Basil Leaf Technologies (US), Dynamical Biomarkers Group (US/Taiwan), Scanadu (US)

42 Starwood Hotels (US), MariCare (Finland), Scanalytics (US), Futureshape (Germany)

43 Flowsky (Japan), Scanadu (US)

44 Tesla (US), ABB (Switzerland), Siemens (Germany), IBM (US), Itron (US)

45 Synthetic Genomics/ExxonMobil (US), Global Algae Innovations (US), Algenol (US)

46 Organavo (US), Envision TEC (Germany), RegenHU (Switzerland), Cellink (Sweden), Seraph Robotics (US)

47 Hb02 Therapeutics (South Africa), Biospace (US)

48 For example Vantablack by Surrey NanoSystems (UK)

49 ITER (EU/France), Tokamak Energy (UK), Alphabet/Google/Tri Alpha Energy (US), General Fusion (Canada), Helion Energy (US), Lockheed Martin (US)

50 Festo (Germany)

51 Israel Desalination Enterprises Technologies (Israel), Acciona (Spain), Fluence Corporation (US)

52 Microsoft (US), Google/Alphabet (US), Open AI (US)

53 Open Utility/Essent (UK/Netherlands), Knowelsys (China)

54 Gingko Bioworks (US), US Naval Research Laboratory (US), US Army Research Lab (US), Darpa (US)

55 Open Utility (UK/Netherlands), Power Ledger (Australia), LO3 energy (US), Energy Web Foundation (Switzerland)

56 Konami Corp (Japan), Mitsuku (UK)

57 MOOG (US), Darpa (US)

58 Space X/Elon Musk (US), Blue Origin (US), Virgin Galactic (UK), Rocket Lab (US), Axiom Space (US), SpaceIL (Israel), Firefly Aerospace (US)

59 Space X (US), UAE Mars Mission (UAE), NASA (US)

60 Intel (US)

61 Kite Pharma/Gilead Sciences (US), 23andMe (US), Phenogen Sciences (US), Regeneron (US), Veritas Genetics (US)

66 BioTeq (UK), Grindhouse Wetwear (US), Dangerous Things (US), see also The Eyeborg Project and the Cyborg Foundation

67 Alphabet/Google Genomics (US), Amazon (US), Illumina (US), Oxford Nanopore Technologies/Metrichor (UK)

68 CTRL-Labs (US), Emotiv (US), Neuralink (US), maybe Facebook (US)

69 No example found

70 Improbable (UK)

71 European Organization for Astronomical Research in the Southern Hemisphere (European consortium of 16 countries)

72 No example found

73 Epicenter (Sweden) and Three Square Market 32M (US) are close

74 No example found

75 Twist Bioscience (US)

76 Vaccinogen (US), EpiVax (US), IBM (US), Juno Therapeutics (US)

77 Alphabet/Google (US), KETS (UK), IDQ (Switzerland), Isara (Canada)

78 Darpa (US)

79 Kernel (US), Neuralink/Elon Musk (US), 2045 Initiative (Russia), Darpa (US), General Electric/Braingate (US), possibly Facebook (US)

80 NASA (US), Cannae (US)

81 Apple (US), Amazon (US), Alphabet/Google (US), Microsoft (US)

82 No example found

83 CIA (US)

84 Lockheed Martin (US), QinetiQ (UK), Boston Dynamics/Softbank (US/Japan)

85 Woebot (US), Pefin (US), LV (UK)

86 Deep Knowledge Ventures (Hong Kong), Tieto (Finland)

87 BAE Systems (UK), Toyota (Japan). NB. Big difference between optical camouflage and bending light to make things disappear

88 Breakthrough Energy (US), RIPE (US), Joint Centre for Artificial Photosynthesis (US)

89 SENS Research Foundation (US), Methuselah Foundation/Peter Thiel (US)

90 Facebook (US), Neuralink/Elon Musk (US)

91 Suicide Machine (Netherlands), Just Delete Me (US)

92 No example found

93 Turin Advanced Neuromodulation Group (Italy)

94 Sooam (South Korea), Revive and Restore (US)

95 No example found

96 Rebeam (US), Solaren Corp (US)

Disruptive Technology Trends 2019

1. Web 3.0
2. Simulation and digital twins
3. The market of One
4. Edge computing
5. The voice economy
6. Strategic automation
7. Ubiquitous AI
8. Spatial Computing
9. Quantum Computing

https://disruptionhub.com/disruption-trends-9-for-2019/

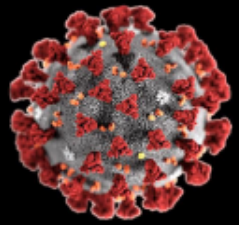
Leveraging Disruptive Technology

1. Web 3.0 – Personalization vs. Customization
2. Simulation and digital twins – Health Sensor Technology
3. The market of One – Advanced Co-Design
4. Edge computing – Data Ethics
5. The voice economy – Universal Design
6. Strategic automation – Hybrid Jobs
7. Ubiquitous AI – Community Inclusion
8. Spatial Computing – Accessible Design
9. Quantum Computing - ???

https://disruptionhub.com/disruption-trends-9-for-2019/

Coleman Institute Affiliated Projects

1. Colorado Emergency Response Desktop
2. Contextually Aware Haptic Communication Systems
3. Accessible Data Visual Analytics
4. Accessible Manuals for Technology Set-up
5. Augmented Reality and Daily Living Skills



Colorado Emergency Response Desktop

What is the Colorado Emergency Response Desktop?

Cognitively accessible software that leverages evidence-based tools to address the immediate needs of social connection, accessible information, and advance digital skills for people with intellectual and developmental disabilities

Who Developed the Colorado Emergency Desktop?

AbleLink Smart Living Technologies

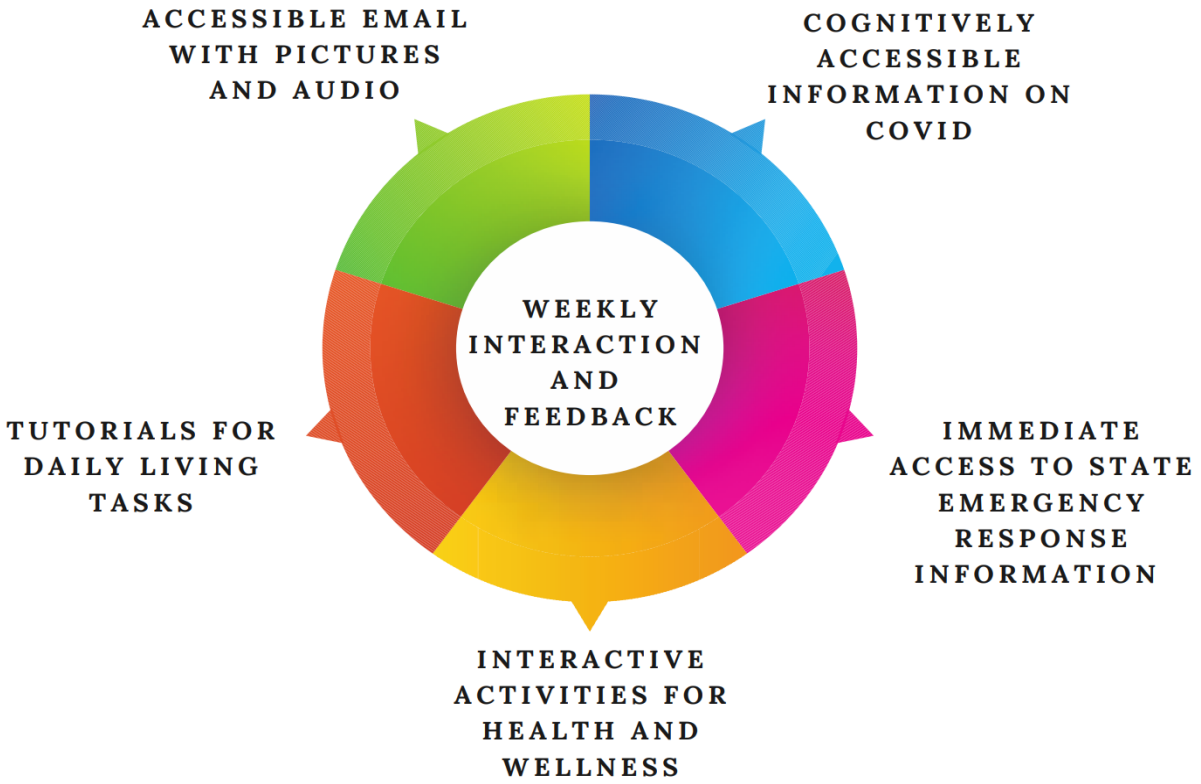
Colorado Developmental Disabilities Council — CDDC — Advocacy • Inclusion • Systems Change

Coleman Institute for Cognitive Disabilities
UNIVERSITY OF COLORADO
Boulder | Colorado Springs | Denver | Anschutz Medical Campus

Who can participate?

- Person with an intellectual or developmental disability
- Person who has been displaced by COVID-19
- Person living on their own in their own home/apartment
- Person living at home with their family
- Member of Colorado Speaking for Ourselves

What does it do?

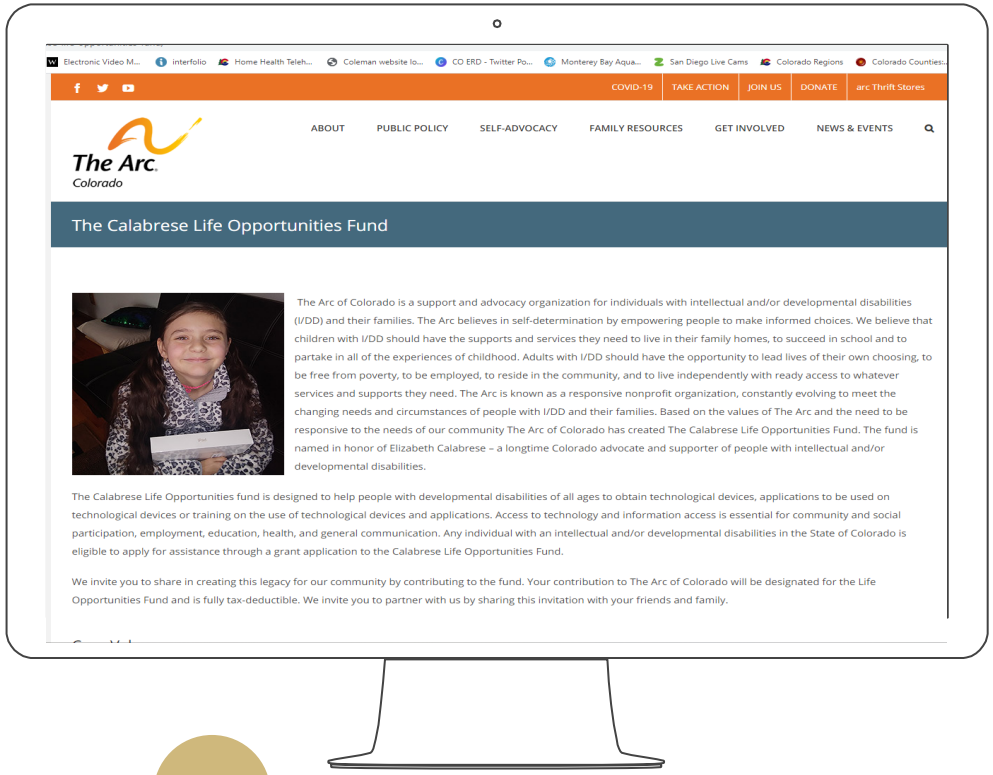

ACCESSIBLE EMAIL WITH PICTURES AND AUDIO
COGNITIVELY ACCESSIBLE INFORMATION ON COVID
WEEKLY INTERACTION AND FEEDBACK
TUTORIALS FOR DAILY LIVING TASKS
IMMEDIATE ACCESS TO STATE EMERGENCY RESPONSE INFORMATION
INTERACTIVE ACTIVITIES FOR HEALTH AND WELLNESS

What do I need?

- Desktop computer
- Windows 10
- Does not work on smartphone
- Does not work on tablet

What if I do not have a computer?

The Arc of Colorado Calabrese Life Opportunities Fund



How do I get it?

1. **Complete the Engagement Form**

   colemaninstitute.org/covid-19/

2. Get Email Download from Colman Institute

3. Download Software on Your Computer

4. Get Started!!

https://www.surveymonkey.com/r/6SKCQD8

What if I need help?

- Every Monday at noon a webinar is hosted by Coleman Institute to introduce the program and features
- Every Wednesday at 3:00 a technical assistance webinar is hosted by AbleLink

Expansion of the ERDS

- States Implementing/In Discussions of Adapting the ERDS to their state
  - Arizona
  - Pennsylvania
  - Oklahoma
  - District of Columbia
  - Tennessee
  - Maryland

Technology for JOY

The definition of assistive technology - *Any item, piece of equipment, or product system… that is used to increase, maintain, or improve functional capabilities of individuals with disabilities*

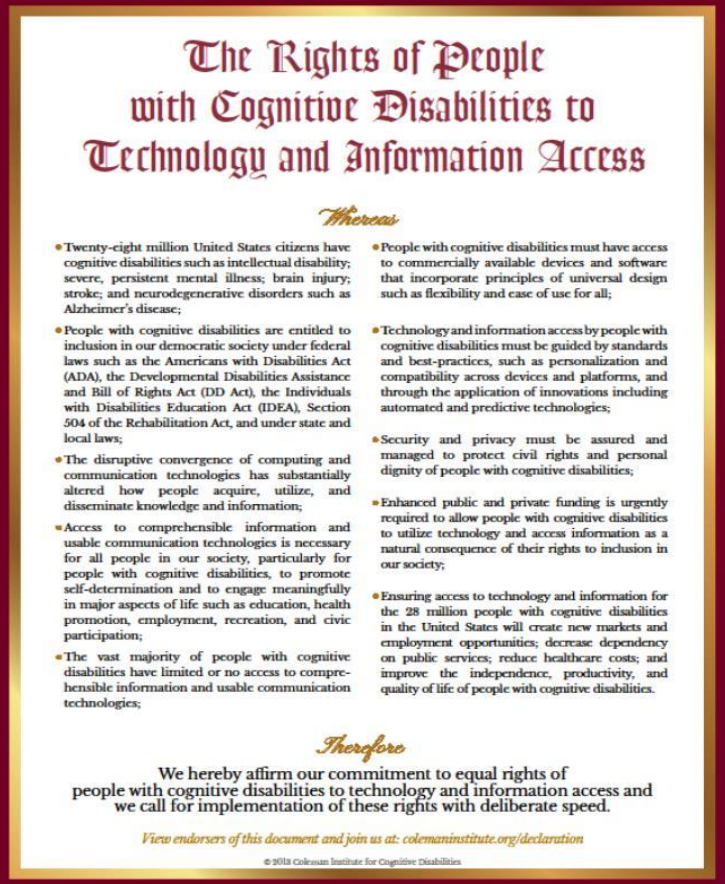
Technology for people with disabilities is used as therapy or remediation nowhere in the definition is the value of technology for wellness, pleasure, or joy.

5

Advancing Technology First

The Convention on the Rights of Persons with Disabilities recognizes the critical role that information and communication technologies (ICT) and assistive technology play in enabling and empowering persons with disabilities and in ensuring that they fully enjoy human rights and fundamental freedoms.

Conference of State Parties to the Convention on the Rights of Persons with Disabilities – Twelfth Session



The Rights of People with Cognitive Disabilities to Technology and Information Access

Whereas

- Twenty-eight million United States citizens have cognitive disabilities such as intellectual disability; severe, persistent mental illness; brain injury; stroke; and neurodegenerative disorders such as Alzheimer's disease;
- People with cognitive disabilities are entitled to inclusion in our democratic society under federal laws such as the Americans with Disabilities Act (ADA), the Developmental Disabilities Assistance and Bill of Rights Act (DD Act), the Individuals with Disabilities Education Act (IDEA), Section 504 of the Rehabilitation Act, and under state and local laws;
- The disruptive convergence of computing and communication technologies has substantially altered how people acquire, utilize, and disseminate knowledge and information;
- Access to comprehensible information and usable communication technologies is necessary for all people in our society, particularly for people with cognitive disabilities, to promote self-determination and to engage meaningfully in major aspects of life such as education, health promotion, employment, recreation, and civic participation;
- The vast majority of people with cognitive disabilities have limited or no access to comprehensible information and usable communication technologies;
- People with cognitive disabilities must have access to commercially available devices and software that incorporate principles of universal design such as flexibility and ease of use for all;
- Technology and information access by people with cognitive disabilities must be guided by standards and best-practices, such as personalization and compatibility across devices and platforms, and through the application of innovations including automated and predictive technologies;
- Security and privacy must be assured and managed to protect civil rights and personal dignity of people with cognitive disabilities;
- Enhanced public and private funding is urgently required to allow people with cognitive disabilities to utilize technology and access information as a natural consequence of their rights to inclusion in our society;
- Ensuring access to technology and information for the 28 million people with cognitive disabilities in the United States will create new markets and employment opportunities; decrease dependency on public services; reduce healthcare costs; and improve the independence, productivity, and quality of life of people with cognitive disabilities.

Therefore

We hereby affirm our commitment to equal rights of people with cognitive disabilities to technology and information access and we call for implementation of these rights with deliberate speed.

View endorsers of this document and join us at: colemaninstitute.org/declaration

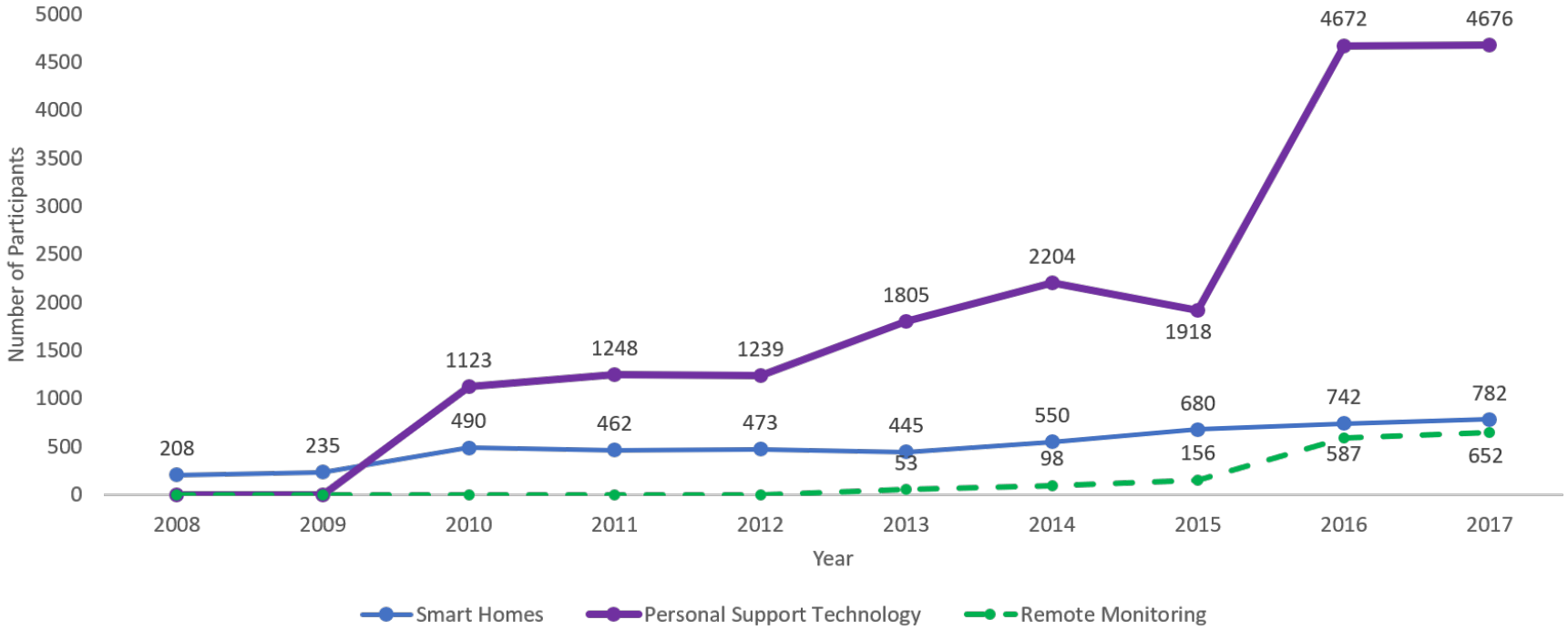
The Right to Technology

- *Rights of People with Cognitive Disabilities to Technology and Information Access*
- Global Cooperation on Assistive Health Technology, - research and innovation World Health Organization
- Bologna Declaration AAATE

Technology as a Basic Utility

- Utilities: “Services constituting the minimum requirements for modern living provided to homes”
- Electricity
- Gas
- Water
- Telecommunications
- Internet/Broadband

Reported Number of Participants Using Technology Solutions by Year



Survey of Statewide Technology Initiatives Supporting People with Intellectual and Developmental Disabilities

NASDDDS
National Association of State Directors of Developmental Disabilities Services

Coleman Institute for Cognitive Disabilities
UNIVERSITY OF COLORADO
Boulder | Colorado Springs | Denver | Anschutz Medical Campus

2019 Survey Results (N=32)

Technology Funding
12 different funding authorities were identified to purchase technology services, applications devices or other solutions

Funding Authorities
Majority of states utilized **HCBS Waiver funds** to purchase technology solutions. Medicaid State Plan Authorities and voc rehab were also used

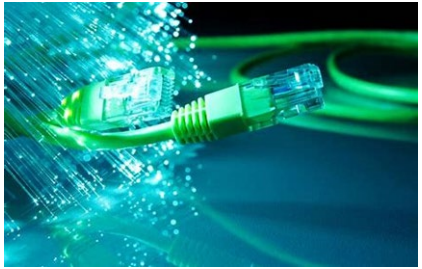
Funding for Ongoing Upkeep and Training
56% of states reported funding for ongoing technology **training** to learn, upkeep and update purchased technology

Remote Technologies
16 states reported funding for electronic or remote technologies specifically for **supported living**

Teleservices
11 states reported funding for **telemedicine** while **8** states reported funding for **telecare**

Consideration in ISP
6 states reported consideration of technology supports and services as a **requirement within the ISP**

Investments in Technology



Technology First began as a movement but has transformed to a "framework for systems change where technology is considered first in the discussion of support options available to individuals and families through person-centered approaches to promote meaningful participation, social inclusion, self-determination and quality of life" (Tanis, 2019)

States Engaged in Technology Consortiums

- Ohio*
- Missouri*
- Minnesota*
- Colorado
- Connecticut
- Delaware
- Washington, DC
- Oklahoma
- Alaska
- Hawaii
- Indiana
- New York
- Tennessee
- Pennsylvania
- Washington
- Wisconsin
- North Carolina

* Using Technology First language

Why are States Investing in Technology First?

Technology First solves the most pressing challenges of our field today

1. Promote autonomy, self-direction and community integration
2. Address the direct care workforce shortages
3. Drives more efficient and effective practices – cost efficiencies

Technology for People With Intellectual/Developmental Disabilities and Their Families

NASDDDS' National Policy Workgroup Subcommittee

Summary of Discussions, Promising Practices, and Considerations for State I/DD Agencies

Barbara Brent, NASDDDS Director of State Policy and
Emily Shea Tanis, PhD, Director of Policy and Advocacy, Coleman Institute for Cognitive Disabilities at the University of Colorado

NASDDDS
National Association of State Directors of Developmental Disabilities Services

www.nasddds.org | @NasdddsUS | 301 North Fairfax Street, Alexandria, VA 22314

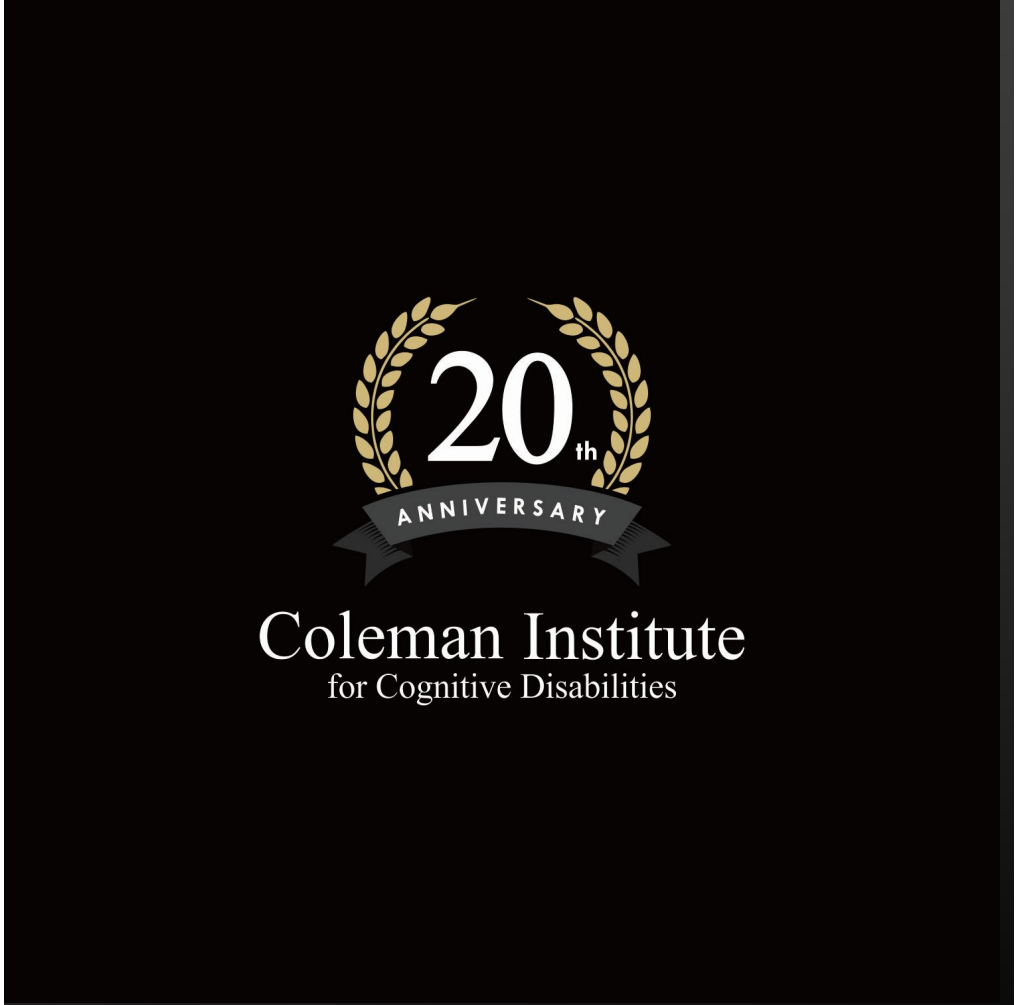
www.stateofthestates.org | Coleman Institute for Cognitive Disabilities | 10901 W. 120th Ave., Suite 200, Broomfield, CO 80021

Elements of Technology First Initiatives?

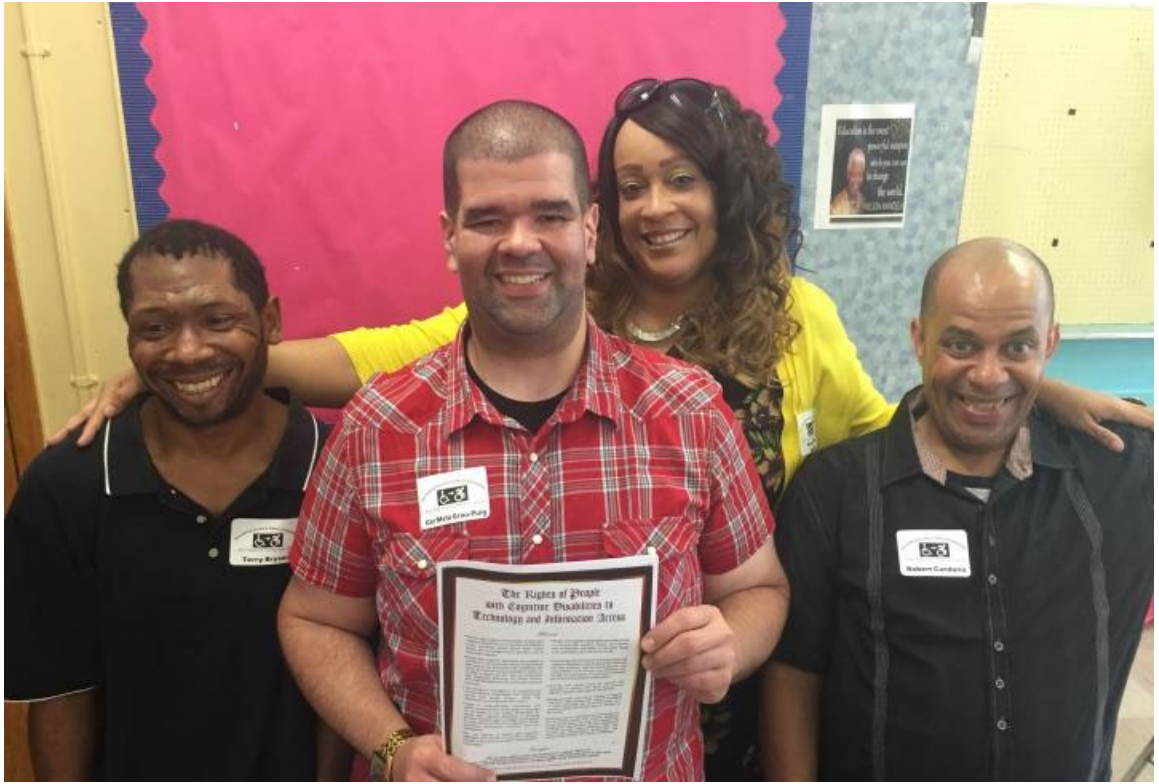
- Set of core values
- Implementation team
- Resource allocation
- Communication
- Disruption in the status quo through innovation
- Leverage through collaborations
- Capacity building
- Fidelity and data driven decision-making

Coleman Institute for Cognitive Disabilities at the University of Colorado to Convene the Colorado Technology First Advisory Council

October 2020



6 Be an Agent of Change

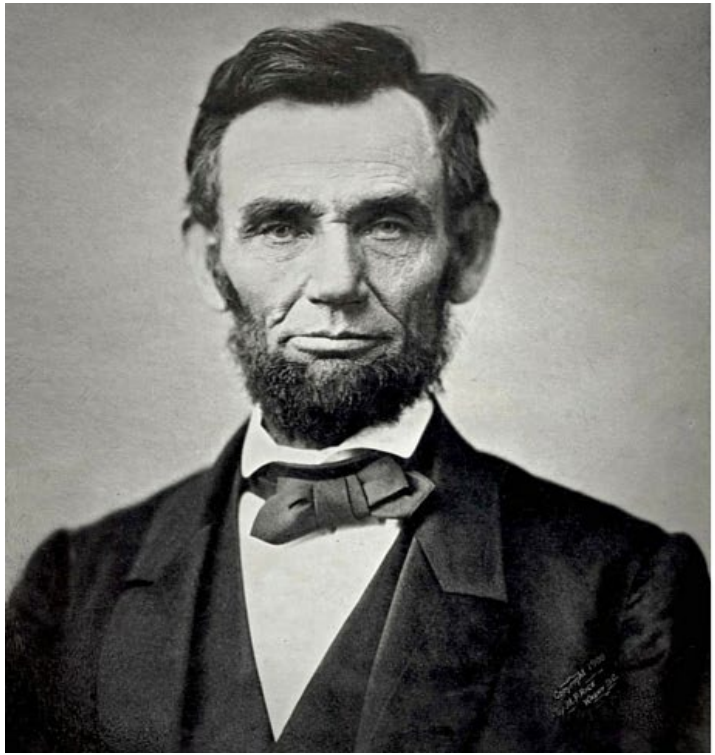

The Rights of People
with Cognitive Disabilities to
Technology and Information Access

Be an Ally

What Can You Do?

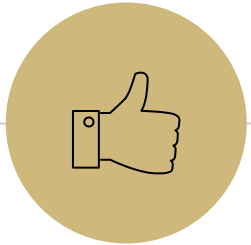
- Take advantage of the technology you already know
- Build on a culture of innovation and adaptability
- Person-centered approach to technology solutions – Use technology to accomplish a goal
- Participate meaningfully in designing and creating new technologies
- Engage in technology related systems change and policy efforts
- Share your stories of technology solutions


ability
build
innovation
opportunities
limitless
independence
possibilities
drive
achieve
Wow!
So you wear these on your ...



THE BEST WAY TO PREDICT THE FUTURE IS TO CREATE IT.

- ABRAHAM LINCOLN



Thanks!

Any questions ?

You can find me at

- Shea.tanis@cu.edu