Transformation through Disruption: Technology solutions and their role in systems change and employment outcomes.

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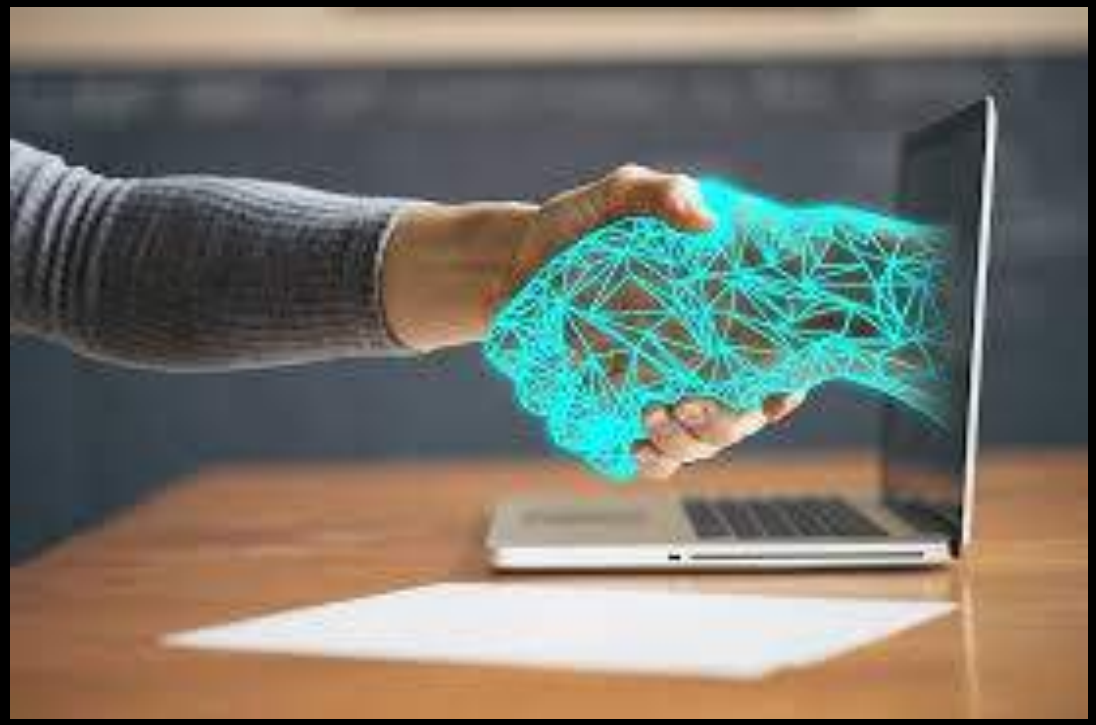
YES! Center
Exploring the Intersection of Technology and Employment Systems Change for Youth with Disabilities Webinar Series
October 22, 2020



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Coleman Institute for Cognitive Disabilities

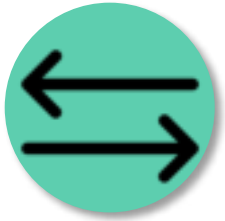
The mission of the Coleman Institute for Cognitive Disabilities is to catalyze and integrate advances in technology to promote a meaningful quality of life for people with cognitive disabilities and their families.

20th ANNIVERSARY

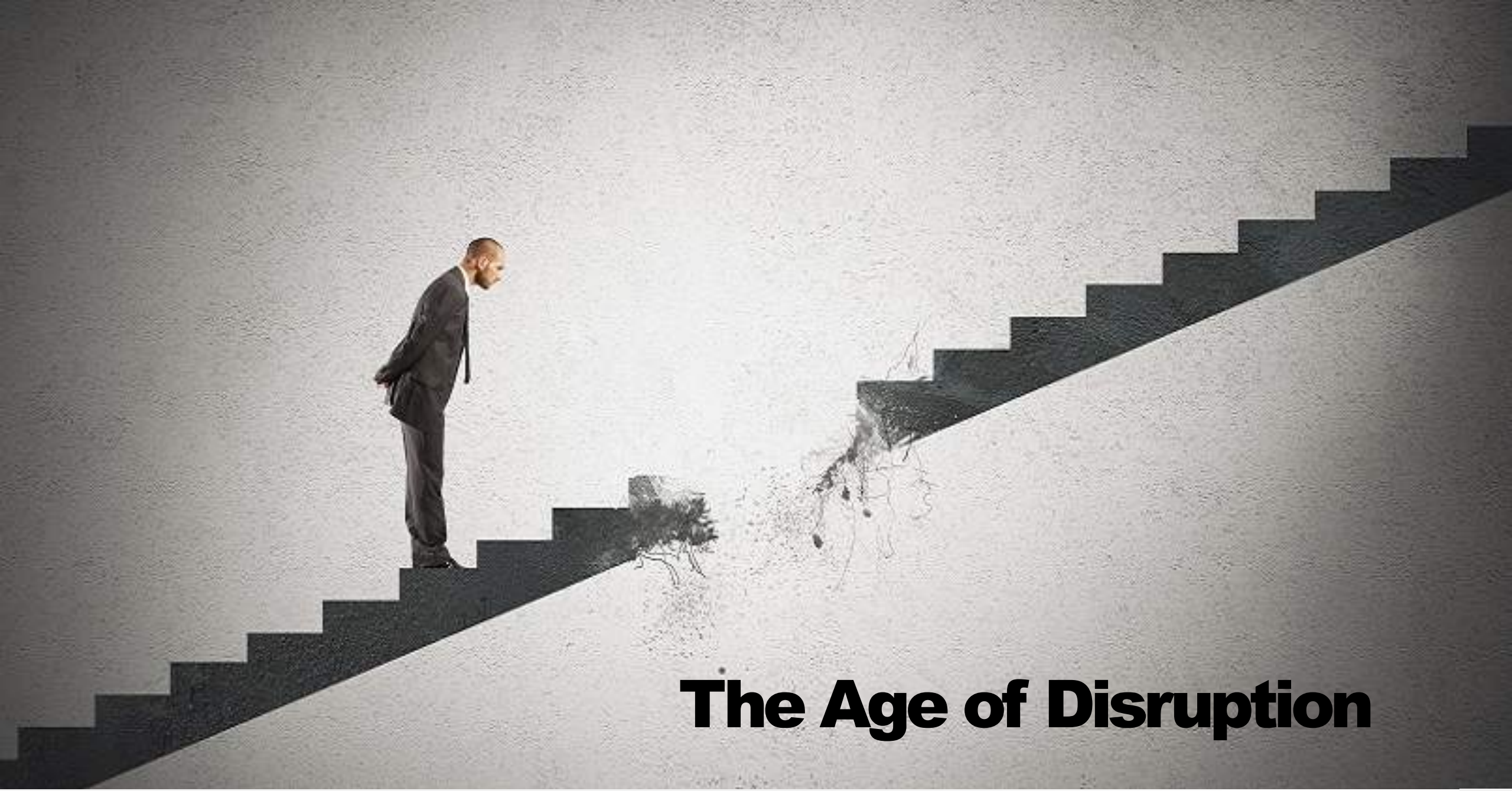
Learning Objectives

Attendees will describe the opportunities provided by the current economic, and socio-political climate

Attendees will discover innovative and disruptive technologies that encourage autonomy, self-efficacy, resilience, and enhance employment opportunities for people with disabilities



Attendees will reflect on the alignment between Technology First and Employment First systems-change efforts and how to make advancements in their own states


The Age of Disruption

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 Mistrust of Technology

Impact on Transition-Age Youth

- Change in routines
- Virtual learning and continuity of learning
- Information access
- Cultural impacts
- Loss of natural supports
- Loss of security and safety
- Economic insecurity
- Health and wellness

Innovation Born Out of Crisis

- 1943
- Two sons serving in the navy in World War II
- Worked at the Green River Ordnance Plant in Illinois packing ammunition boxes
- **Problem:** Wanted to save soldier's lives by fixing the weak tape tabs covered in waterproof wax used to open ammunition boxes

Vesta Stoudt

Solution: Duct Tape

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Crisis Drives Innovation

- Problem-solving is at the heart
- Uniting around a purpose
- Seeing the system differently
- Creating a bias toward action

Clark, L. (2020, March). Innovation in a time of crisis. Harvard Business Publishing Corporate Learning

Types of Vulnerability that Open the Door To Disruption…

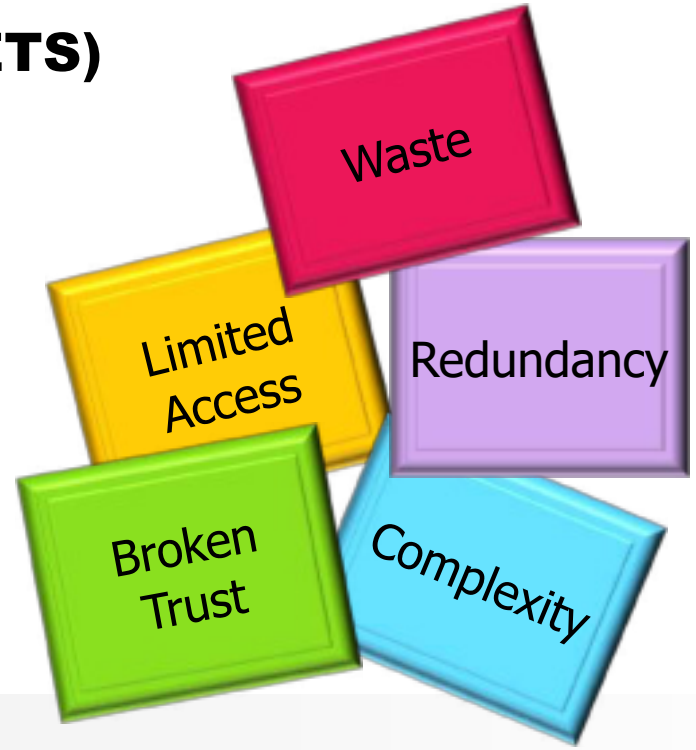
1. Waste – Where there is unlocked value in an underused asset
2. Redundancy – Layers of superfluous roles and processes
3. Complexity – When there are ways to simplify complex and frustrating customer experiences
4. Limited Access – When products and services are out of reach for many or don't require full ownership
5. Broken Trust – When trust in institutions has failed

Rachel Botsman

Research Focus: How technology is transforming the social glue of society, trust between people.

Processes or Systems Open to Disruption

- ✓ Formal educational systems
  - ✓ Transition process – coordination of services and supports
- ✓ Opportunities for self-direction
- ✓ Employment services and supports
  - ✓ Pre-Employment Transition Services (Pre-ETS)
  - ✓ Skill development
- ✓ Resource allocations – blended and flexible
- ✓ Technology related programs and services
- ✓ Healthcare
- ✓ Federal programs for people with disabilities



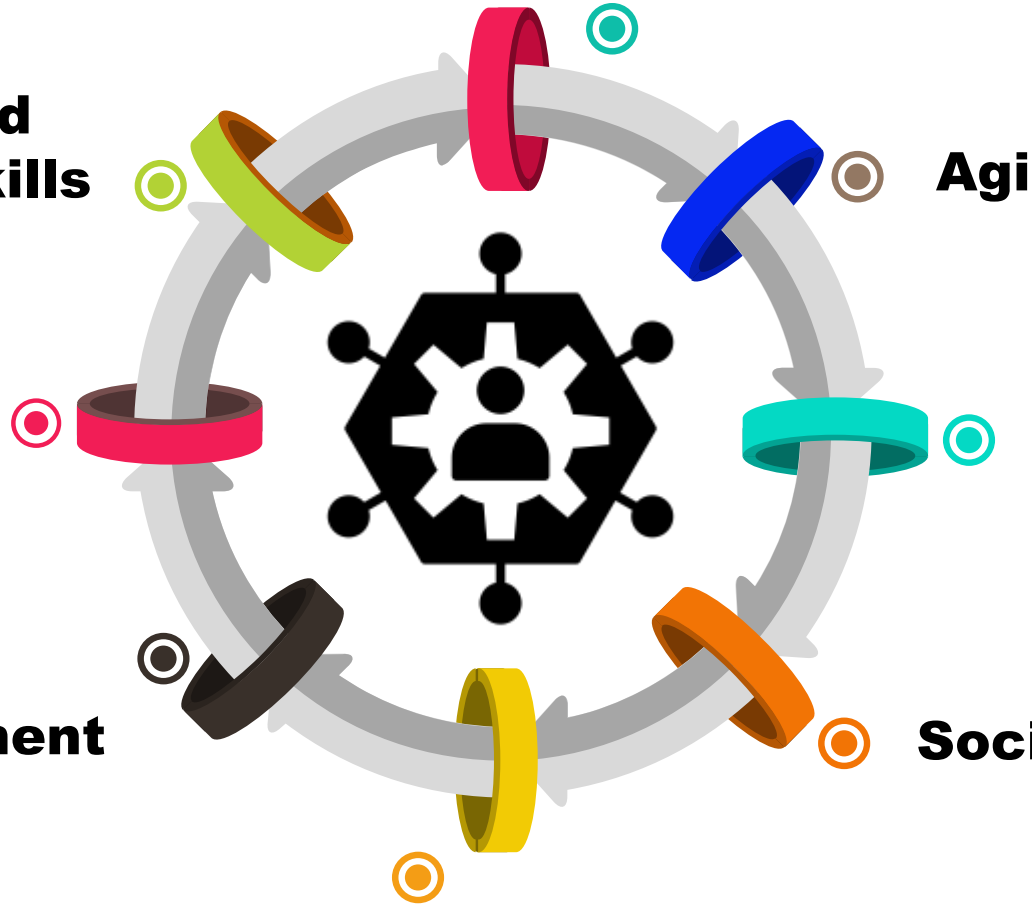
Who Will Flourish?

- Nimble organizations, systems, and services
- Programs and services that adapt and capitalize on shifting landscapes
- Technology adept programs and services
- Non-traditional workers who demonstrate 21st century job skills

Valued Job Skills

Time Management Engineers

Digital Competence and Technology Related Skills



Agile - Transferable Skills

Human Ingenuity and Strategy

Cultural Competency

Data Management Skills

Social Capital

Emotional Intelligence

Why is it important that we talk about technology now?

Because the digital transformation that is occurring before our very eyes has the potential to further marginalize the disability community which will undeniably impacting people's health and well-being, or it could activate the innovators of tomorrow causing education, public services, and job markets to pivot to equity and quality.

Innovative and Emerging Technology Solutions for Transition-Age Youth

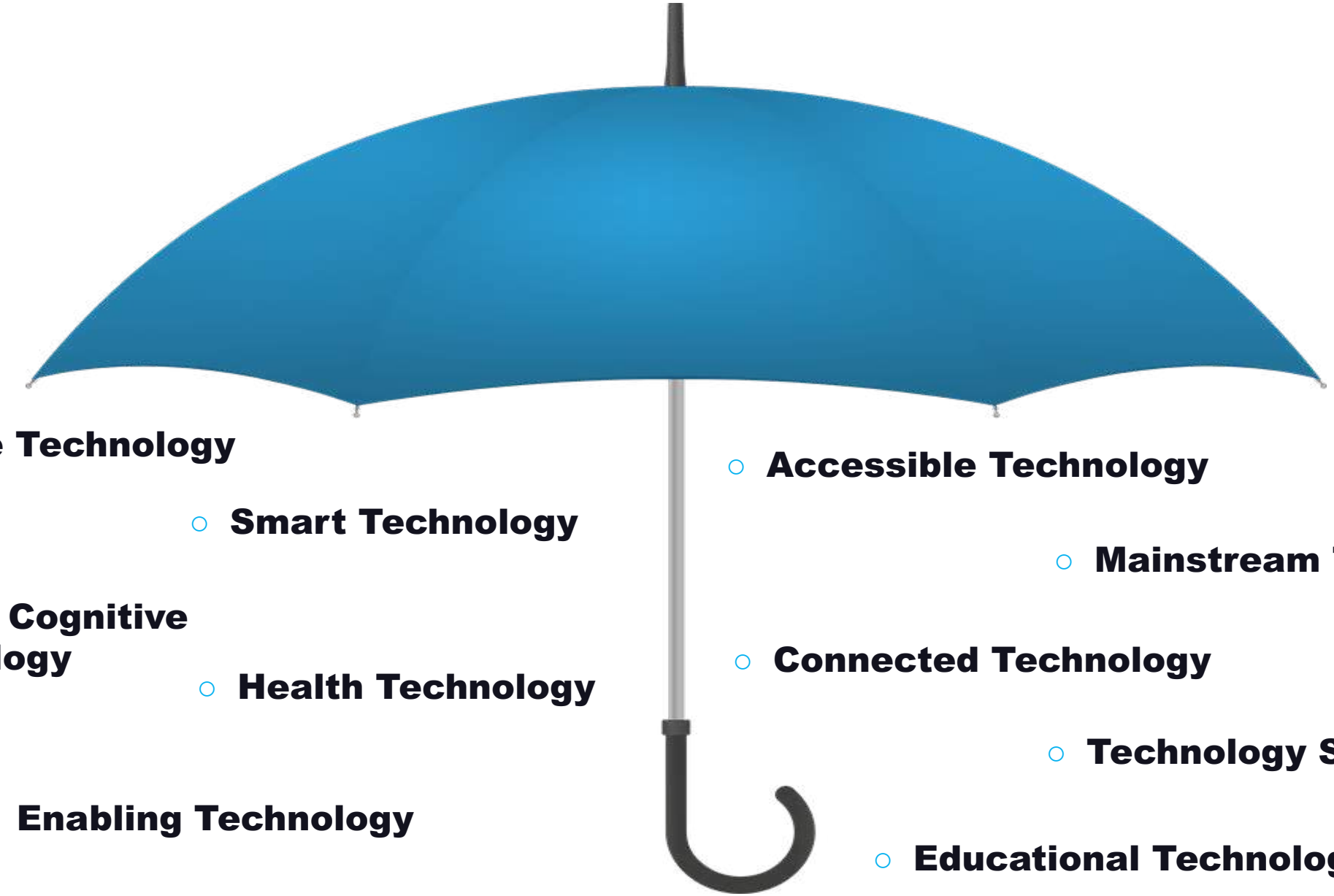
The ubiquity of technology is changing the world around us and how we must interact, survive, and thrive within that world.

Digital and Technology Gaps Widening for People with Disabilities

- 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)
- Exacerbated by COVID-19

Barriers to Technology

- Equal opportunity – gate keepers (teachers, family members, providers, etc.)
- Lack of universal design
- Digital literacy and technical skills
- Knowledge translation
- Social context
- Systemic barriers
- Failure to address “useworthiness” alongside usability
- Economic barriers

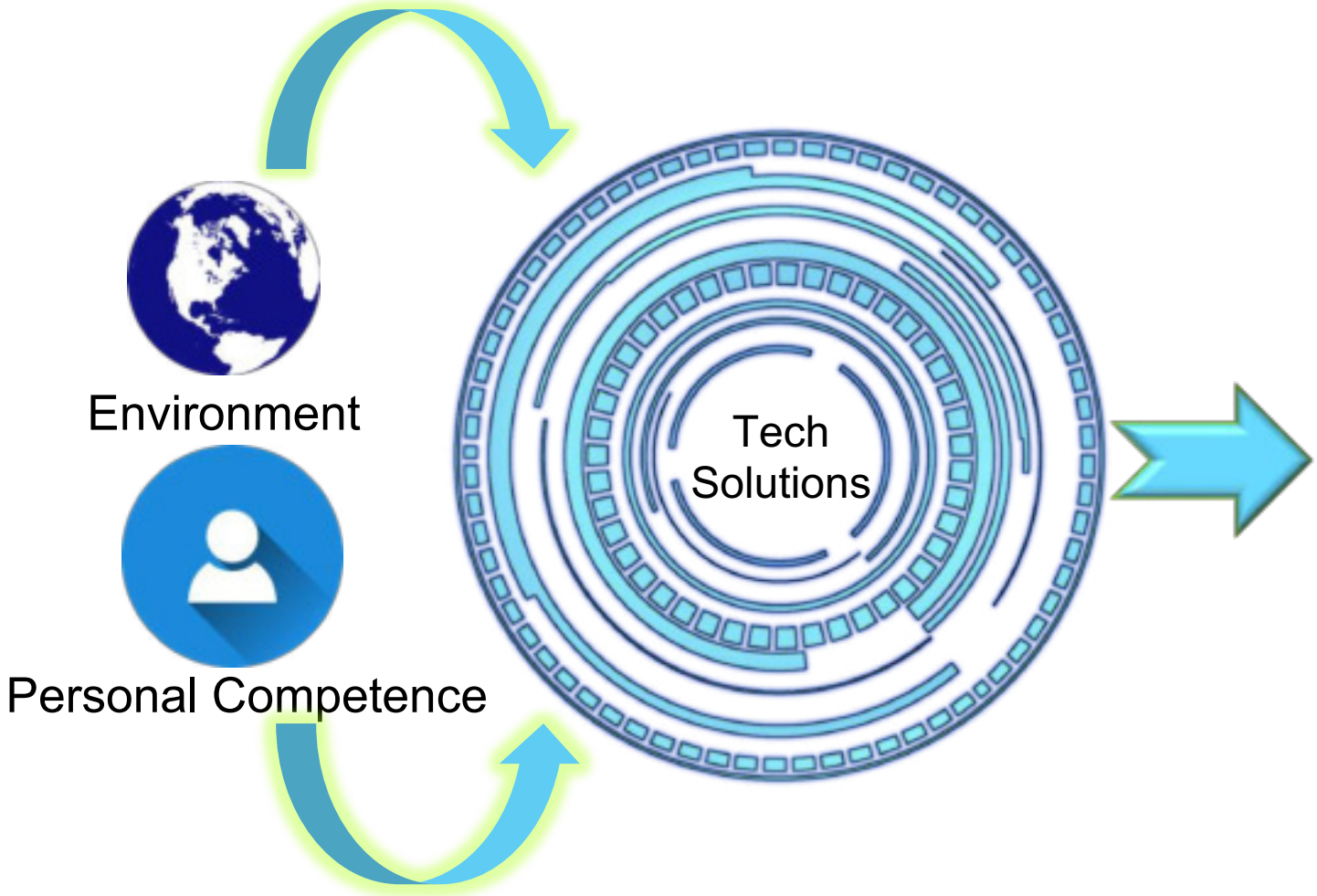


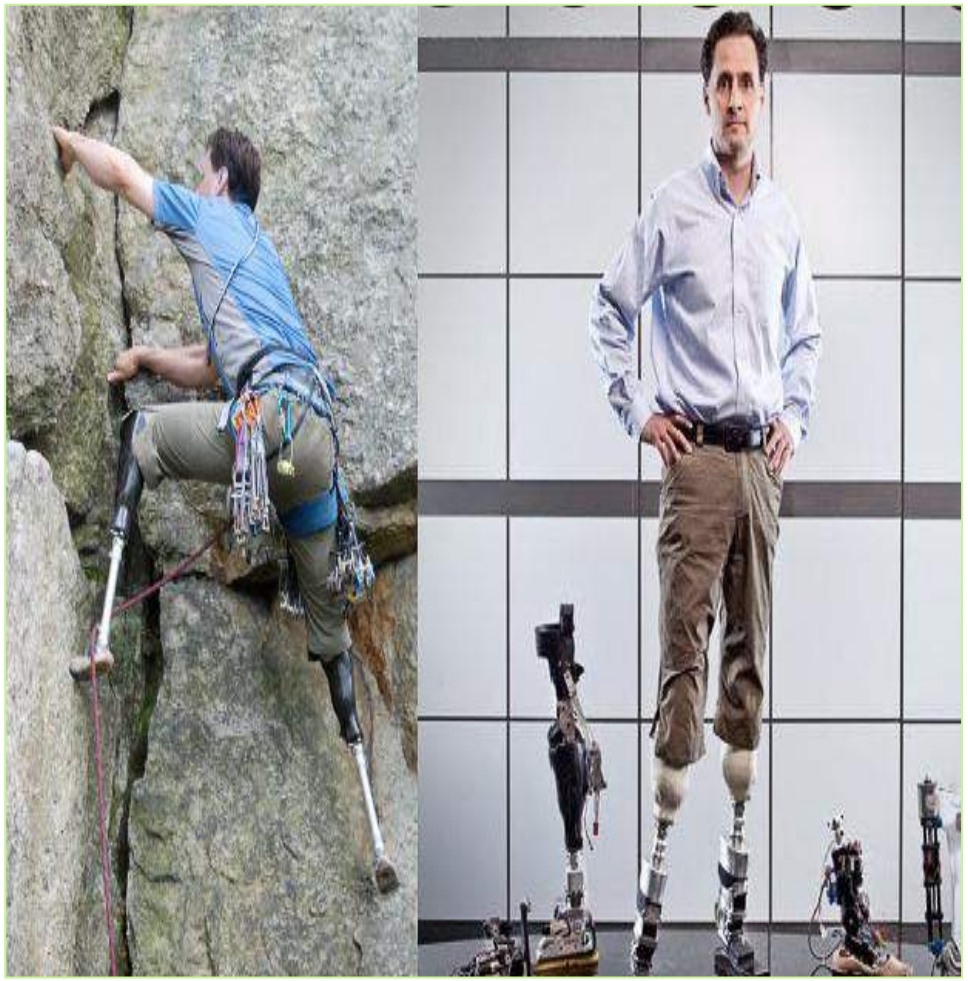
- Assistive Technology
- Smart Technology
- Applied Cognitive Technology
- Health Technology
- Enabling Technology
- Accessible Technology
- Mainstream Technology
- Connected Technology
- Technology Supports
- Educational Technology

Meme

I HAVE TERRIBLE NEWS FOR YOU
YOU SUFFER FROM SOS (SHINY-OBJECT-SYNDROME)

Technology as a Bridge and Accelerator





Environmental Fit

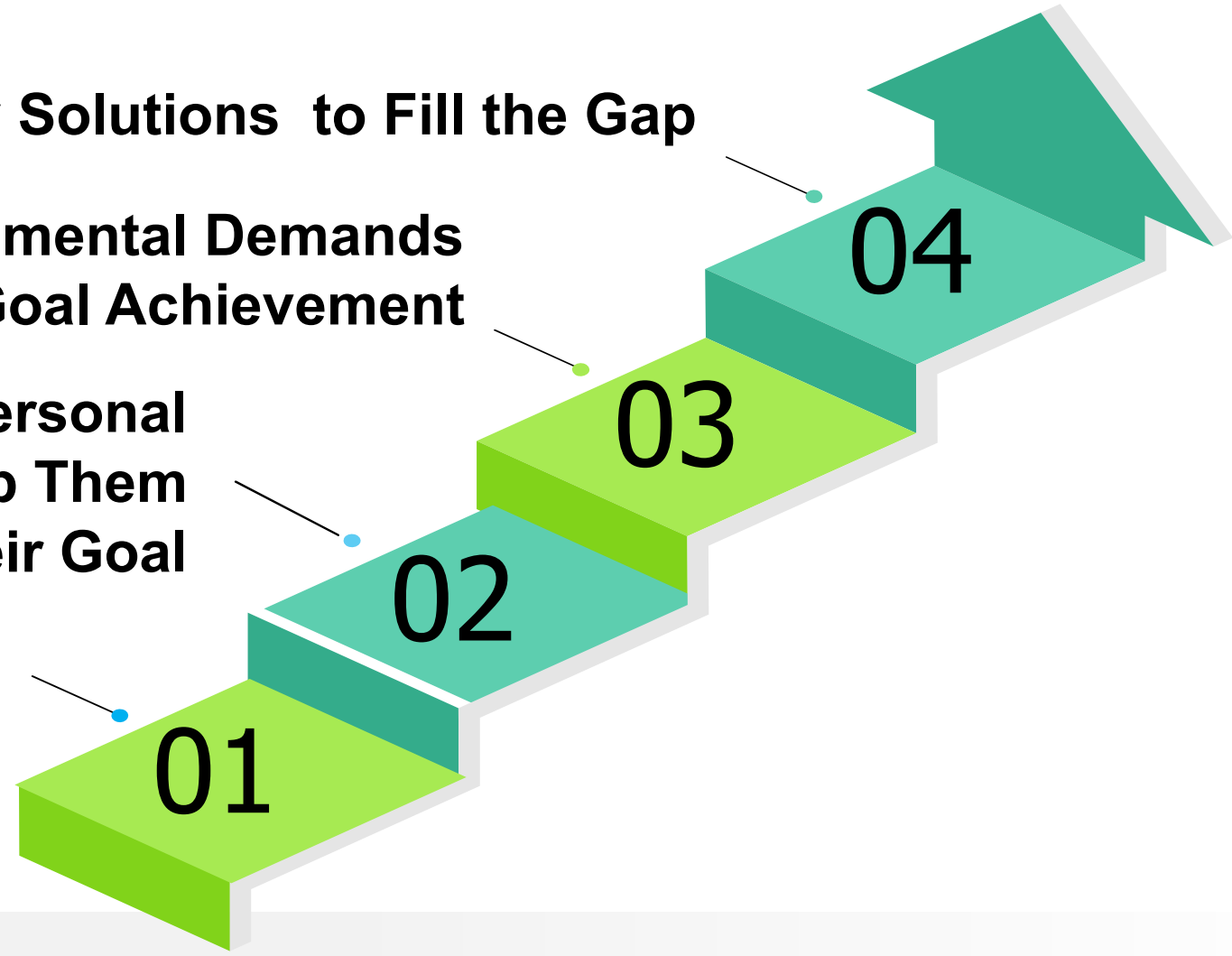
Process for Identifying Technology Solutions

Search for Technology Solutions to Fill the Gap

Identify Challenges or Environmental Demands That May Create Barriers to Goal Achievement

Identify the Youth's Personal Strengths/Assets That Will Help Them Achieve Their Goal

Help Youth to Set a Goal



Considerations When Identifying Technology Solutions

* If specialized equipment work with a certified AT Specialist or certified medical professional

Person-Centered

Self-Directed utilizing techniques of feature matching

Outcome-Driven

Helps the individual accomplish their goals

Universally Designed

Procurement and investigation of accessible solutions

Trial

If given the opportunity trial products first

Collective Family Empowerment

- Family members are critical to producing successful outcomes
- Understand cultural, linguistic, behavioral preferences
- Consider the entire family unit (siblings, cousins, grandparents)
- Families are auxiliary markets
- Over 70% of people with IDD live their adult lives with family members
- Consider family supports

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Principles of Universal Design for Procurement

Equitable Use

The design is useful and marketable to people with diverse abilities

Flexibility in Use

The design accommodates a wide range of individual preferences and abilities

Simple and Intuitive Use

Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level

Perceptible Information

The design communicates necessary information effectively to the user, regardless of ambient conditions to the user's sensory abilities

Tolerance for Error

The design minimizes hazards and the adverse consequences of accidental or unintended actions

Low Physical Effort

The design can be used efficiently and comfortably and with a minimum of fatigue

Size and Space for Approach and Use

Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility

United States Access Board
https://www.access-board.gov/guidelines-and-standards/communications-and-it/26-255-guidelines/825-principles-of-universal-design

Instead of identifying if technology solutions were addressed in planning, report why it is not being used to achieve student goals.

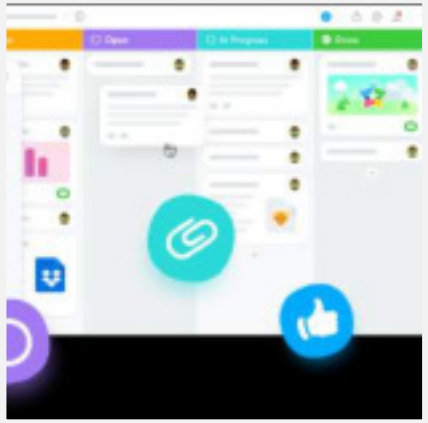
Jobs and Employment Technologies

Communication Technologies

- Text-to-Speech
- Speech-to-Text
- Augmentative or Alternative Communication Systems (AAC)

Virtual Engagement

- Live Captioning and Transcription Services paramount
- *Fable* Accessibility Crowd testing cites Zoom as most accessible



Task Management Systems

- American Federation for the Blind lists accessible task management systems
- Todoist
- Any.do
- Wunderlist
- TickTick

Real-Time Assistance

- Dial-in Services - AIRA
- Augmented Reality Training and Assistance – Boeing

Learning Management Systems

- Learning management systems like CANVAS and Blackboard
- Universal Design Online Content Inspection Tool (UCF)

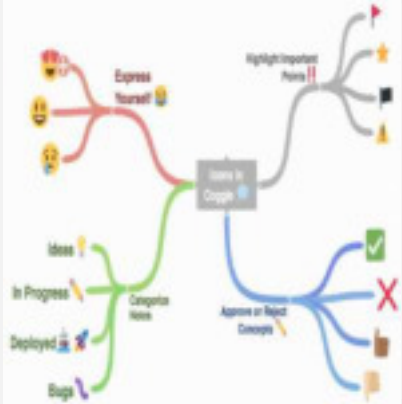
Jobs and Employment Technologies Continued

Supportive Software

- Writing Supports – Grammarly
- QuickBooks built with accessibility guidelines

Apps

- Serene for productivity
- Calendly for scheduling
- Toggl for time-tracking



Tools for Work Discovery

- Virtual Job Shadowing
- Mind Mapping – Coggle

Tools for Job Applications

- Virtual Reality Job Interviews – Kessler Foundation
- Augmented Reality
- Multimedia Portfolio

Built-in Accessibility Features

- Look at mainstream tools for accessibility features
- Closed Captioning
- Text-to-Speech
- Many More

Postsecondary Education and Vocational Technologies

Inclusive Colleges

- Think College!
- Cyber.org
- Microsoft Learning

Technology Portfolio

- List of Technologies Used
- About Me Story App
- Personal Webpage

Skill Development

- YouTube Videos
- Mixed-Reality
- Online Courses
- Credential Stuffing

Information Access

- Easy Reading
- Content Clarifier IBM
- Text Simplification
- Bookshare by Benetech

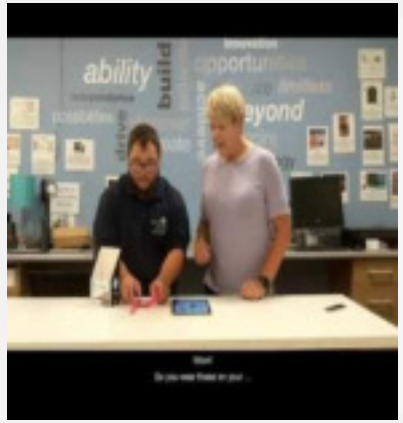
Self-Advocacy

- Self-Determination
- Self-Advocacy Virtual Meetings (SFO CO)
- Social Media
- Communication First

Technology Supports and Solutions

Accessible Technology

- Accessible web
- Colorado Emergency Response Desktop Suite – Coleman Institute Project



Peer Technology Alliance

- TIP Squad CT
- Technology Testing
- AccessCSforAll
- Scratch

Digital Literacy

- Digital Citizenship
- Personal Data Management
- Common Sense Education
- iKeep Safe

Financial Technology

- Budgeting
- Digital Payments
- Clarity Money

Technology Exploration

- Bridging Apps
- Cybersecurity
- Gaming
- Robotics

Consider Exploring and Teaching About Disruptive Technologies

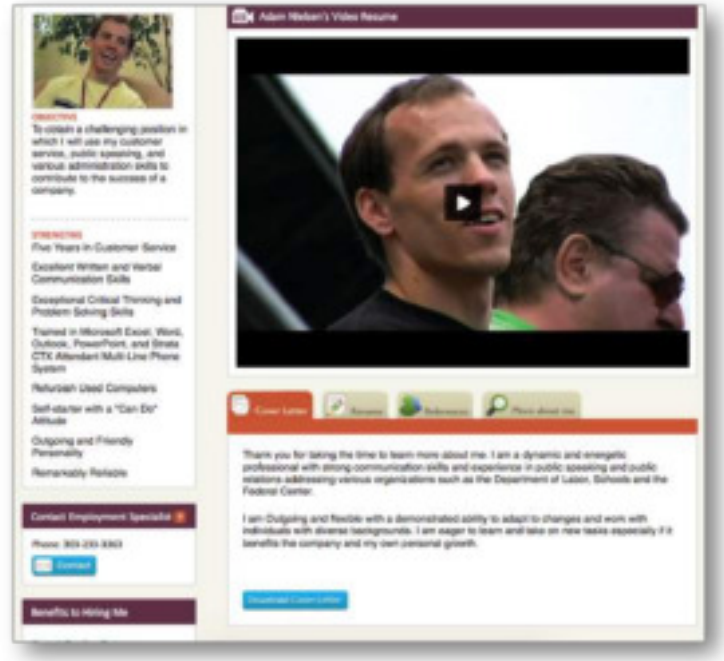
- Ubiquitous AI
- Intelligent spaces
- Wearables
- Digitally extended realities
- Voice economy
- Robots and cobots

Coleman Institute Affiliated Projects

- Colorado Emergency Response Desktop
- Contextually Aware Haptic Communication Systems
- Accessible Data Visual Analytics
- Accessible Manuals for Technology
- Augmented Reality and Daily Living Skills

Coleman Institute Affiliated Projects Continued

- Technology Innovations for People (TIP Squad) Peer-Technology Research and Training
- Declaration Champions
- Multimedia Portfolios – Video Resume
- Technology First



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Complementary Systems- Change Efforts

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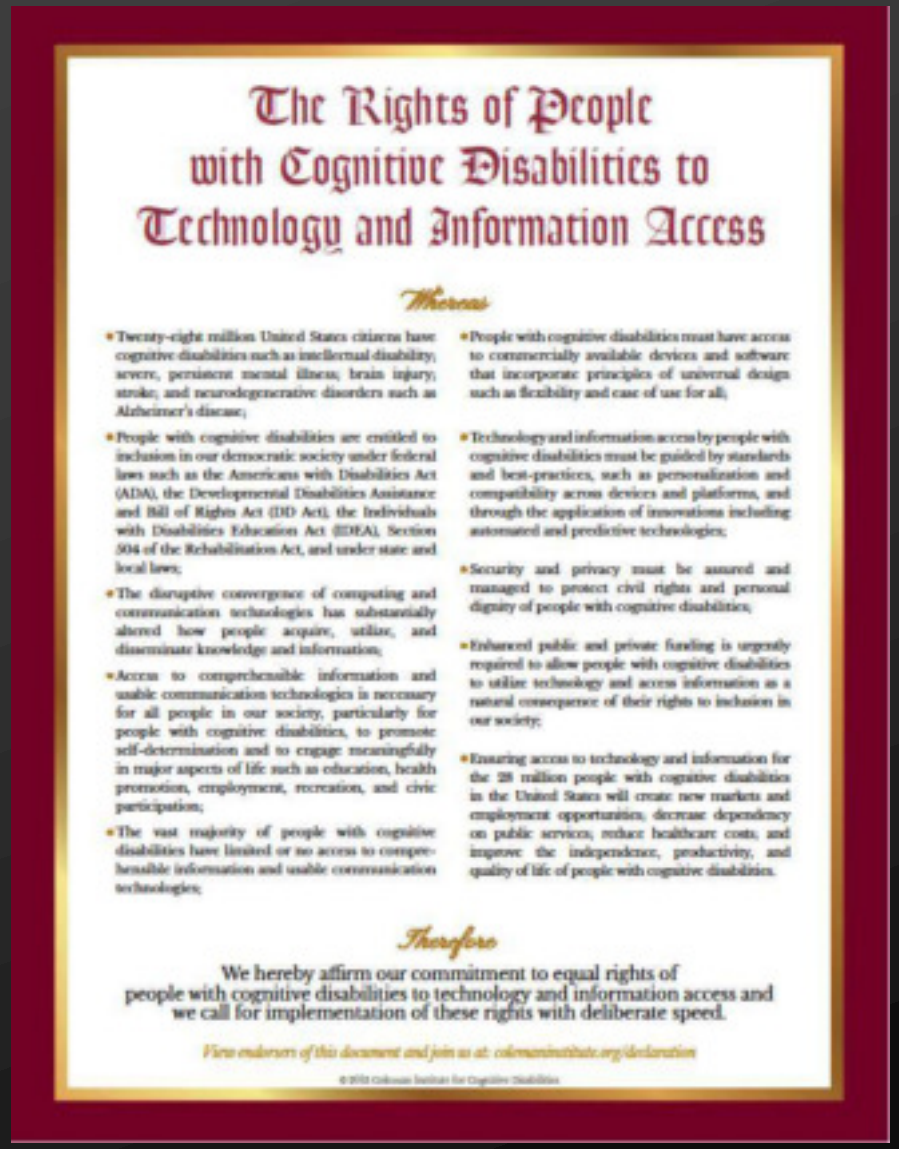
Champion the Right to Technology

- *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



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

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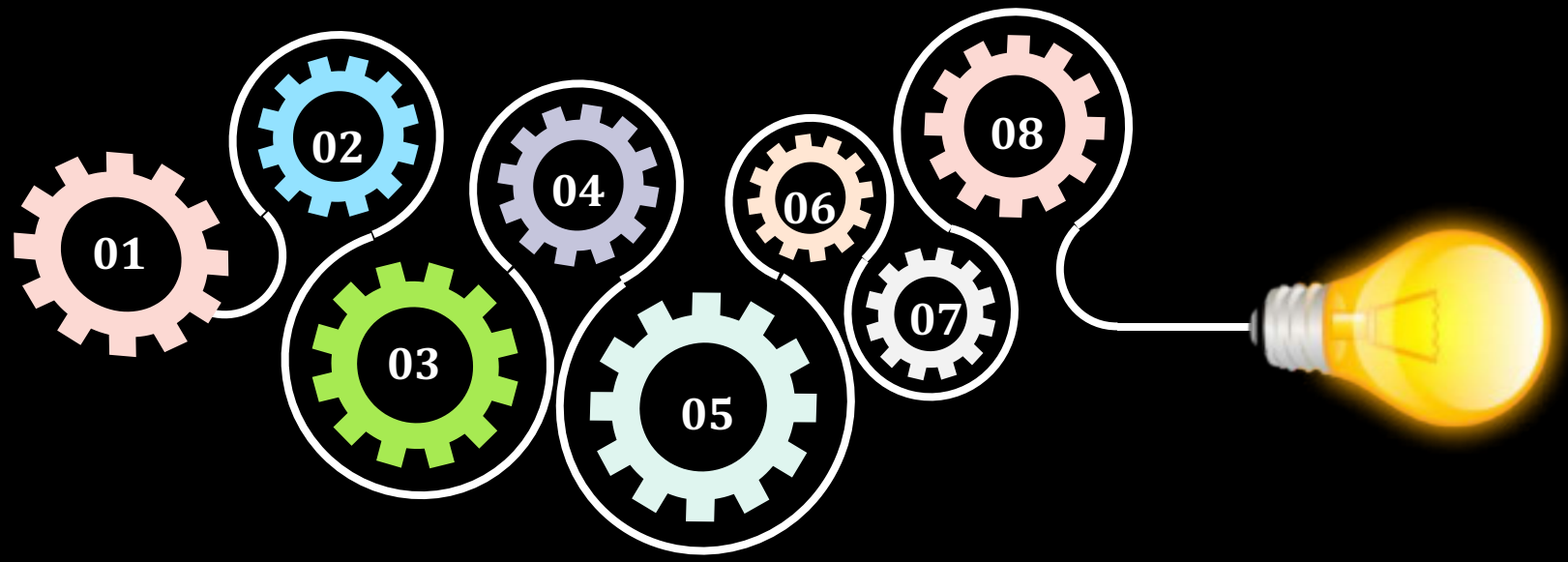
Technology First began as a movement but has transformed to a “framework for systems change where technology is considered first in the discussion of support options available to individuals and families through person-centered approaches to promote meaningful participation, social inclusion, self-determination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

- Tanis, 2019

Why are States Investing in Technology First?

- Promotes autonomy, self-direction, and community integration
- Addresses the direct care professional workforce shortages
- Drives more efficient and effective practices – cost efficiencies
- Addresses the need to embrace innovative solutions

Elements of a Technology First Initiative



1. Set of Core Values
2. Implementation Team
3. Resource Allocation
4. Communication
5. Disruption in the Status Quo Through Innovation
6. Leverage Through Collaborations
7. Capacity Building
8. Fidelity and Data Driven Decision-Making

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

NASDDDS Technology Report

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

Complementing Efforts

Person First	Technology First	Employment First
Person at the center and driving decisions and activities	Technology as humanity's equalizer to achieve outcomes	Preferred outcome

Alignment of Systems-Change Efforts: Technology First and Employment First

- Emphasize person-centered approaches
- Complementary not competing initiatives
- Technology skill adoption can be seen in all phases of the employment lifecycle and augment outcomes
- Technology First helps to reimagine the 21st century employer and employee
- Outcome-driven implementation practices
- Rights-based to fulfill the goals of the ADA

How to Advance or Initiate Efforts in Your State

- Join or initiate systems-change efforts (Technology First or Employment First)
- Establish advisory councils to guide and drive implementation
- Leverage through collaborations
- Consider causal relationships when modernizing policies and collecting data
- Look for opportunities to combine activities (i.e. pilot programs on technology in employment)
- Learn from partners in other states
- Look to greater efficiencies and sustainability
- Build a culture of innovation

Walls of Isolation and Segregation

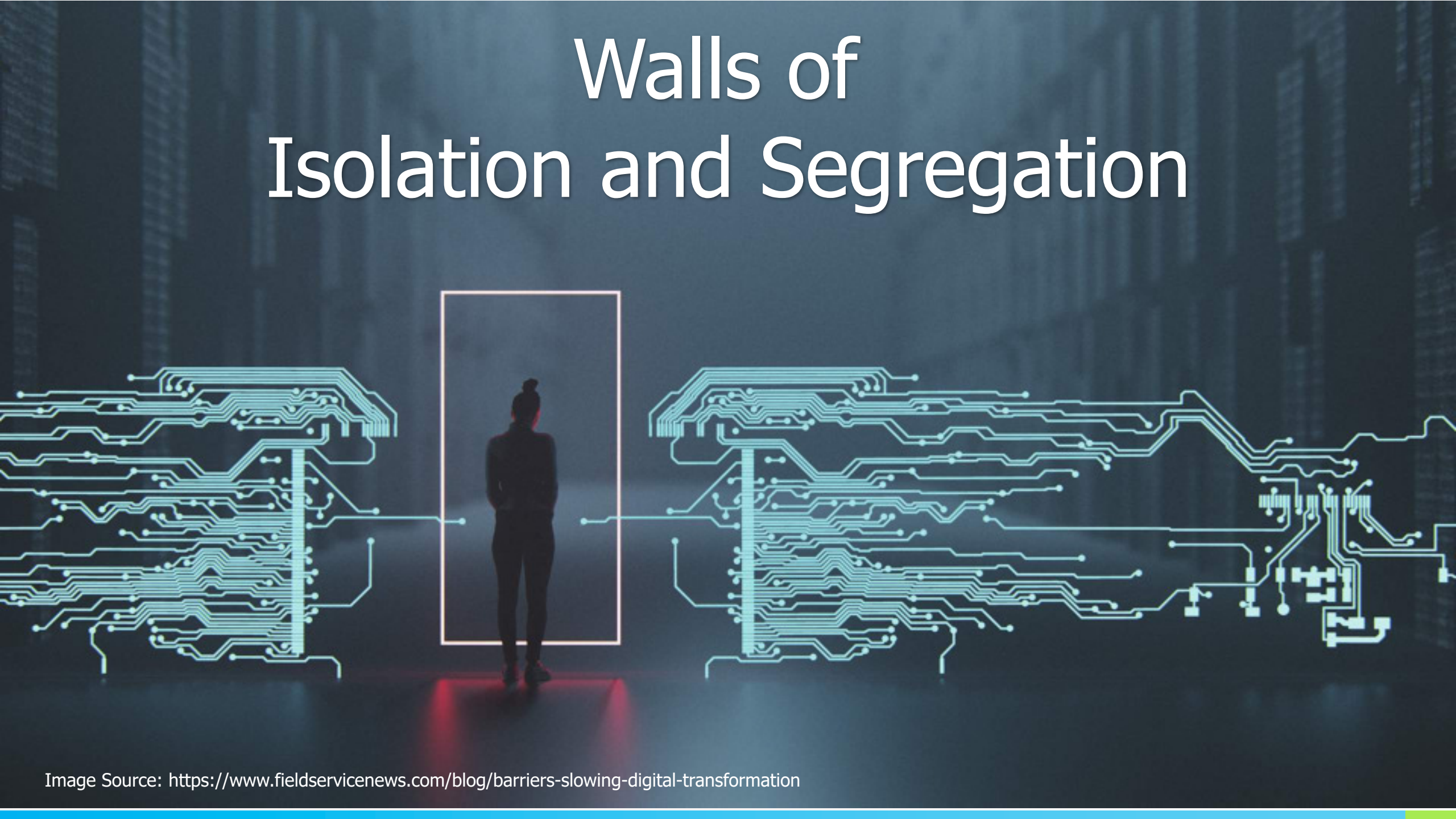


Image Source: https://www.fieldservicenews.com/blog/barriers-slowing-digital-transformation

Thank You!

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