Digital Biomarkers and CTF Technology Session

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Zach Popp, Project Manager

NACC Team

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National Alzheimer's Coordinating Center

Presentation Overview

- Planned Pilot Protocol
- Technology Demonstration
- Interviewing ADRCs on Technology Footprint and Interests
- Digital Biomarker Supplement Overview
- Q&A
- Re-Cap and Closing

Change is hard.

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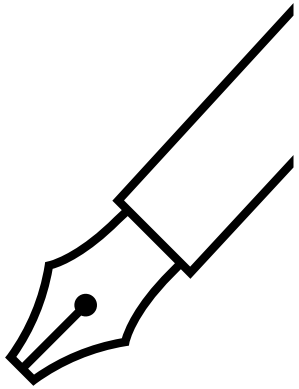
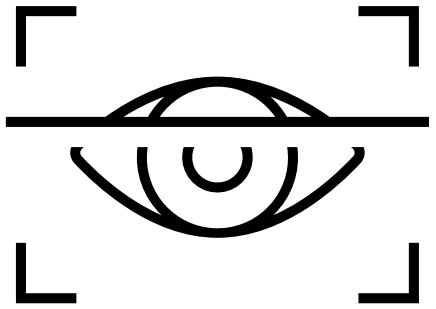
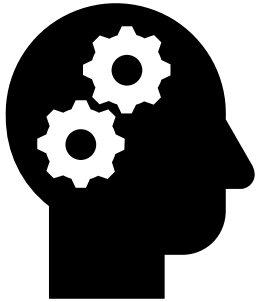


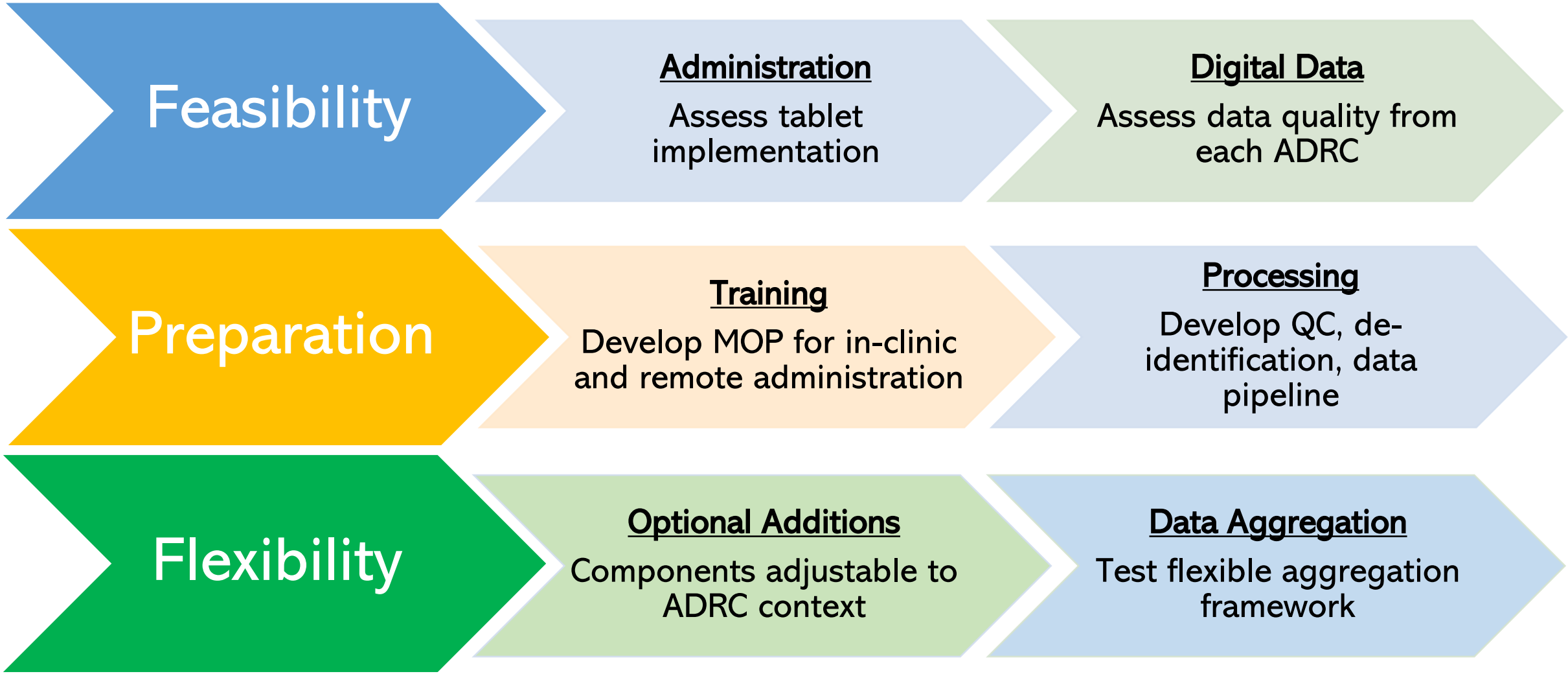


Zachary Popp, Project Manager

UDS 4.0 Digital Planned Pilot Protocol



Digital UDS Pilot: Key Contributions



Digital UDS Pilot: Key Components

E-Consent

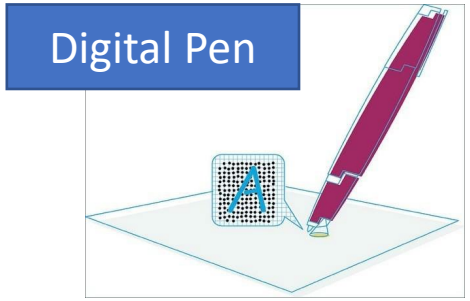
Drawing – Linus (DCTclock)

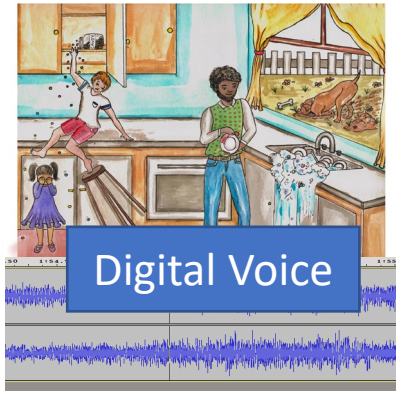
Linus Digital Voice
- (Complex Picture Description + Recall)

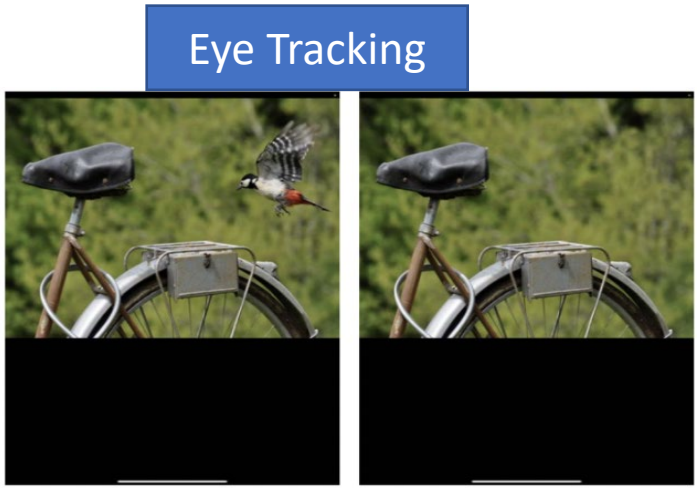
VisMET with Linus

TabCAT
- Favorites Learning
- Favorites Delay
- Favorites Recognition
- Match
- Flanker
- Line Orientation
- DART

CART Questionnaires







Demo: Digital UDS Tech

Zach Popp, Program Manager

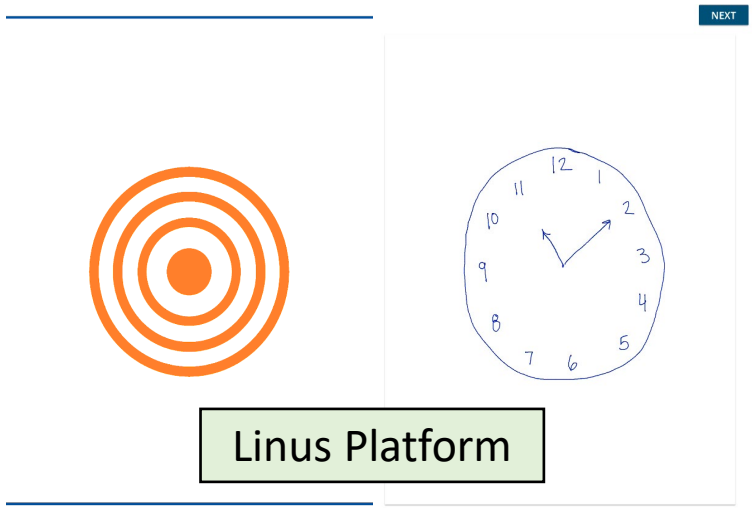
Boston University Alzheimer's Disease Research Center

Tech Demo to Occur During Q&A

- E-Consent Framework
- Linus Clock Drawing + Other Pen Tasks
- TabCAT Test Demo and Automated Report
- CART Questionnaire Examples

1	AWAY	In the past week, have you been away from home overnight?
2	VISITORS	In the past week, have you had visitors who stayed with you in your home for a night or more?
3	MEDICATIONS	In the past week, have you had a change to any of your medications OR started a new one?
4	FALLS	In the past week, have you had a fall, including a slip or trip, in which you lost your balance?
5	ACCIDENTS/INJURIES	In the past week, have you had any other injuries or accidents?
6	HOSPITALIZATION/E	alizations or emergency
7	HEALTH CHANGE/ILL	limited you more than
8	LIFE SPACE	es in your home-space
9	ASSISTANCE	ing you with medication management, bathing,...?
10	MOOD - BLUE	Have you felt downhearted or blue for three or more days in the past week?
11	MOOD - LONELY	In the past week I felt lonely.
12	PAIN LEVEL	Please rate your pain by indicating the number that best describes your pain on average...
13	PAIN INTERFERENCE	During the past week, how much did pain interfere with your normal activities or work...?

CART Questions



Interviewing ADRCs on Technology Footprint & Interests

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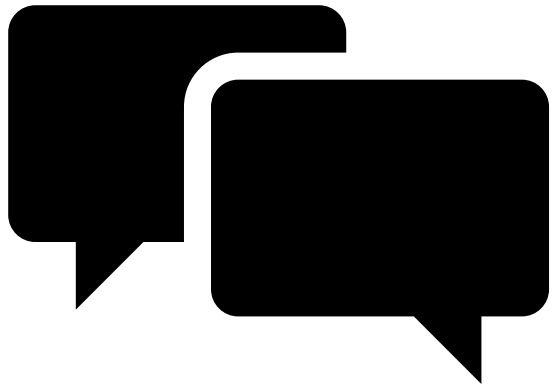


Fitting Methods to the Science


Morocco


Japan

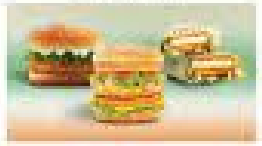

United Kingdom


Spain

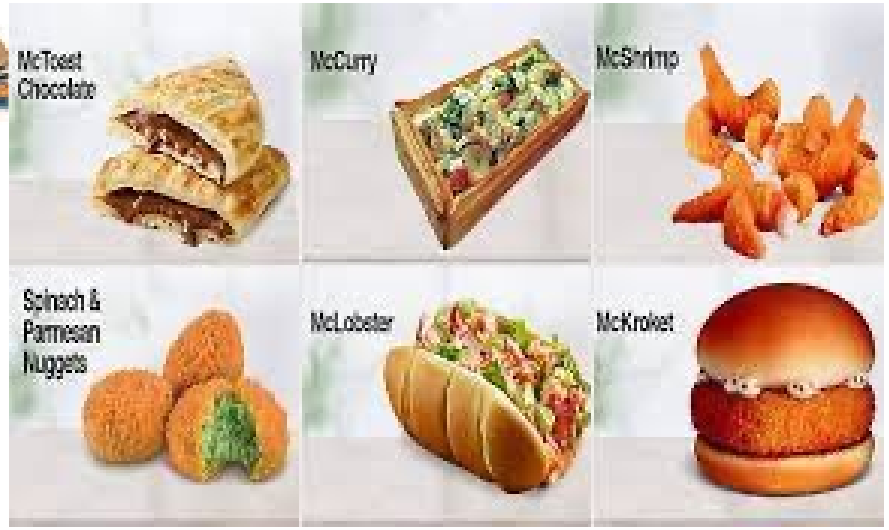

Germany


Turkey


Hong Kong


India

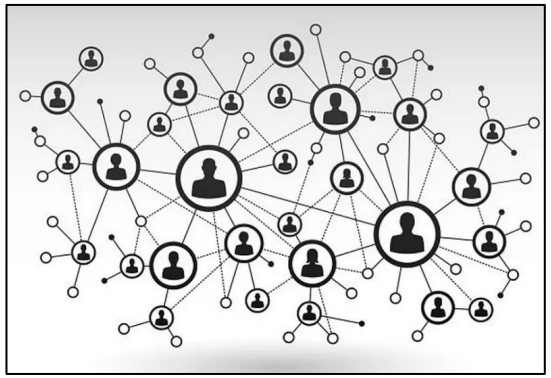

Mexico



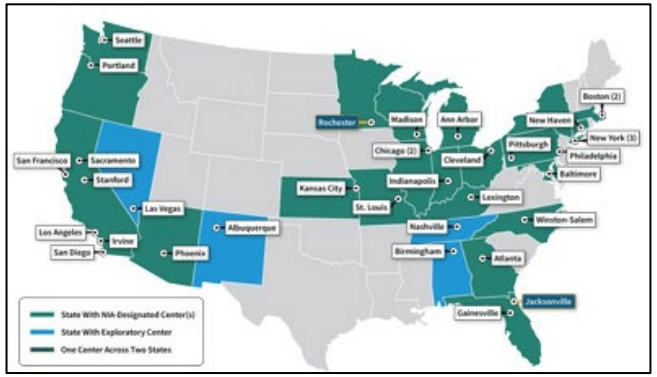
Technology Inventory

NACC
National Alzheimer's Coordinating Center

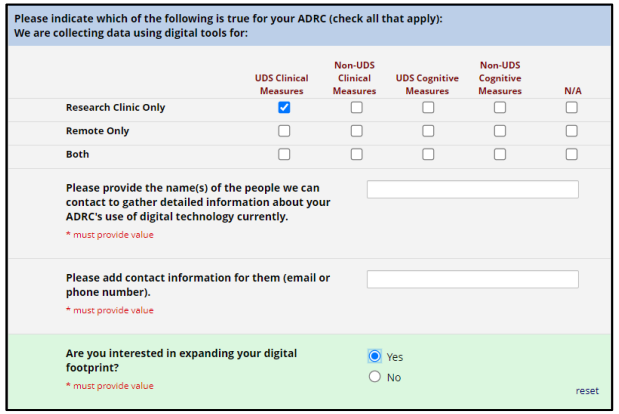
NACC survey



Goal: Build a network that encourages innovation in the digital space as the ADRC network moves into UDS 4.0 and beyond.



Connect ADRCs


Please indicate which of the following is true for your ADRC (check all that apply):
We are collecting data using digital tools for:

	UDS Clinical Measures	Non-UDS Clinical Measures	UDS Cognitive Measures	Non-UDS Cognitive Measures	N/A
Research Clinic Only	☑	☐	☐	☐	☐
Remote Only	☐	☐	☐	☐	☐
Both	☐	☐	☐	☐	☐

Please provide the name(s) of the people we can contact to gather detailed information about your ADRC's use of digital technology currently.
* must provide value

Please add contact information for them (email or phone number).
* must provide value

Are you interested in expanding your digital footprint?
* must provide value
◉ Yes
○ No
reset

Goal: Gather contact information for those in ADRC network using digital technologies and determine who is the right person to contact for interest in digital expansion.

Interview to gather information on logistics, data, and domains of interest for expansion

Collate all data to form an inventory of what is being done in the digital space

Goal: Make this digital inventory available for ADRCs to access and connect with each other to share resources, protocols, administration techniques, etc.

Questions?

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Optional Recommended Components

Drawing – Linus
(MiniModal, Trails A, Trails B, Pathfinding)

Linus Digital Voice
- Open-Ended Questions
- Animal Fluency

Voice and Facial Capture
- SOLO
- Hume AI

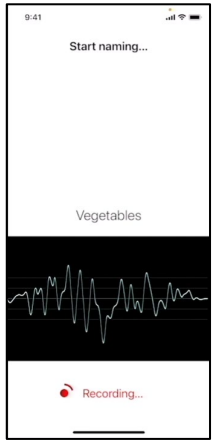
TabCAT
- Additional Tasks

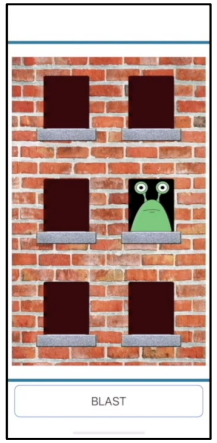
Optional Remote Components

Linus – DANA

Linus Digital Voice

Gait and Balance





CART

Voice and Facial Capture
- Solo
- Hume AI

Digital at BU: Use of Linus

Initial Voice Tasks

- Story Recall
- Object Recall
- Sentence Reading
- Category Naming

"floppy disks"

"initial estimates of cost"

"Christmas tree"

"baseball"

"quarterback"

Adjusted Voice Tasks

- Complex Picture Description
- Complex Picture Description Recall
- Open-ended Questions
- Category Naming

Participant-Driven Open-Ended Responses

Digital at BU: Use of Linus

Identify New Tasks + Integration Opportunities

How do you like using the smartphone?

How had the weather been for the past few days?

hume

Digital at BU: Overview

BU ADRC Digital Technology Study

N=26

DANA Hi-Frequency Study

N=33

17 Tests completed in 12 months

Digital Phenotyping of Brain Health

N=90+

Futurizing Brain Health Platform

N=7