Subgroups and topical outlines

High level descriptions are available below. For South BD Hub collaborators, more detailed notes are available upon request by emailing *info@southbdhub.org*

A. Data Sharing & Infrastructure Development

Overview given by Alan Karr, RTI International, karr@rti.org
Topics discussed (including spokes-level below, planning-level, and nonstarters)

-federated end to end trust service

-privacy and security-cybersecurity and encryption

-unstructured data

-service and demand

-collaboration study-leverage upcoming open science

A1. Service and Demand – Last mile dist. service for BD services and tools

Presenter: Weikuan Yu, Florida State University, yuw@cs.fsu.edu
Slides available--refer to the breakout slide deck PDF

A2. Federated end to end trust service

Presenter: Rhian Resnick, Florida Atlantic University, rresnick@fau.edu
Audit and access control for data and collaboration

Enable ability to share data when faced with access and audit requirements

Enable universities with minimum infrastructure to move from one location to another and track how used and by whom

Sharing volumes and files, remote and local access control, encryption, downloading copy of data

Using federated key infrastructure similar to existing auth services

B. Health Disparities, Health Analytics, Precision Medicine

B1. Neuroscience – Data, analysis, and community outreach

Presenter: Edmon Begoli, JICS, UTK, ebegoli@utk.edu

Slides available--refer to the breakout slide deck PDF

B2. Neuroscience – Building a community to decode the brain: Multiscale data, brain science applications, technologies

Presenter: Tianming Liu, University of Georgia, tliu@uga.edu

Slides available--refer to the breakout slide deck PDF

B3. Health Disparities – Grassroots partnerships for organizing and sharing BD, eliminating barriers to health disparities, and educating STEM

Presenter: Cheryl Brown, University of North Carolina at Charlotte, cbrown@uncc.edu
Slides available--refer to the breakout slide deck PDF

B4. Longitudinal data extraction for healthcare analytics

Presenters: David Gutman, Emory University, dagutman@gmail.com; Maria Mayorga, North Carolina State University, memayorg@ncsu.edu
Characterize data and disease

Modeling time, data before and after diagnosis, examine what changed, how can changes be visualized, attributes of patients, prescriptions, care received, differences between those diagnosed and undiagnosed, selected with certain attributes.

Long timescales for e.g., dementia, shorter timescales for e.g., sepsis

B5. Large scale medical informatics, complete the pathway of missing information when patient is outside of hospital

Presenters: Gari Clifford, Emory University, gari.clifford@bme.gatech.edu; Indranil Bardhan, University of Texas at Dallas, bardhan@utdallas.edu
The infrastructure to support discharge and readmission prediction

Use nontraditional data such as activity for phone, wearables, patient feedback and push back to patient or doctor

Gives a 360 view after discharge to close the loop

B6. Trusted library of data for social good

Contact: Hye-Chung Kum, Texas A & M, kum@tamhsc.edu
Please contact Hye-Chung directly for any information pertaining to this effort.

C. Urban Planning, Habitat Planning

C1. Transportation

Presenter: Nick Duffield, Texas A & M University, duffieldng@gmail.com
Huge amounts of data from recent advances, but knowledge gap and tech challenges such as diverse locations, type, etc.

High value existing datasets hard to use, size, complexity

Community building, cross-sector membership, interdisciplinary and vertical engagement

Grow and integrate datasets, access mgmt., tech challenges, data access, and tools

Incentivizing small no. of shovel-ready, high-impact projects, develop best practices

Act as a prototype beyond the 3-yr horizon

C2. Synthetic, living cities

Presenter: Samarth Swarup, NDSSL, VBI, VT, swarup@vbi.vt.edu
Slides available--refer to the breakout slide deck PDF

D. Education & Workforce Development

Education, addressing education disparities and workforce development

Presenter: Jennifer Priestly, Kennesaw State University, jpriestl@kennesaw.edu
Slides available--refer to the breakout slide deck PDF

E. Industrial Big Data

Presenter: Terry Jones, ORNL, trj@ornl.gov
Power grid with onset of renewables, wind, solar, etc.

Concern for extreme weather conditions and terrorism

Data from climate, sensor, load

Viz, application to security, to factories, and to machining, mech and materials research

Using BD to improve factory processes

e.g., airplane data, improvement of engine from in-flight data

F. Social & Economic Modeling, Security & Privacy, Policy Prediction

F1. The BD safe space

Presenter: Hans Klein, Georgia Tech, hans@gatech.edu

Themes of governance and inter-org dynamics

Silos/multiple DBs, data standards, ownership, rules and regs

Modes of sharing: open data, territoriality, property/market information

Info for navigating the regulatory thicket—permissions, privacy, access, lawyers, IRB, issue is spending too much time doing this navigation

Rules compliance—interpretation, detection, enforcement

Best practice rules and alternatives to rules—practice, culture, ethics, inter-org negotiations.

BD Safe Space—data center under controlled conditions

F2. Data4Rent

Presenter: Don Brown, University of Virginia, deb@virginia.edu

Rental model for data

Retain ownership of data

Retrospective analysis of data

First connected phones, expand to other devices, initial narrow pool of users then widen

G. Natural Hazards, Coastal Hazards

Overview by Rick Luettich, UNC Chapel Hill, rick_luettich@unc.edu

G1. Natural Hazards: Data-focused solutions
Presenter: Masha Sosonkina, Old Dominion University, msosonki@odu.edu
Very diverse user base, from public to tech
Data spatio-temporal
User base not data scientists, but equip them to explore data
Connect data to gridded georeferenced images, connect via interface they understand, spoke work done on the backend
e.g., predicted evacuation compliance
Provide science as a service system in a smaller manageable area, lessons learned on rapid timescale, then take further to domain experts beyond the 3 yrs

G2. Natural Hazards: Problem-focused solutions
Presenter: Stephen Medeiros, University of Central Florida, Stephen.Medeiros@ucf.edu
Coastal hazards not uniform, e.g., flooding in NY vs. Miami, Norfolk
More project and application focused
Target smaller geographic region initially, economic and societal predictions, length of outages, evacuation, etc.
Aggregation and integration, stratify by temporal events, hurricanes and storms, examine what happens to data during events
Automation, sharing, optimal standards
Grow spoke to involve partners in modeling and simulation, or risk mitigation
Expand to larger regions, incorporate, education, real estate planning

H. Materials & Manufacturing

Discovery to application of new material

Presenter: Surya Kalidindi, Georgia Tech, surya.kalidindi@me.gatech.edu

Advanced materials and manufacturing--large lag time from discovery to application of new materials

Data capture protocols are highly customized to individual groups and often do not tie together related datasets, missing important metadata

Create tools for automation of data and metadata capture

Announcement: Ashok Goel seeking collaborators in the area of Environmental sustainability/biodiversity