

# **MBDH Overview**

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# MIDWEST BIG DATA HUB

Accelerating the Big Data Innovation Ecosystem



The Midwest Big Data Hub is supported by the National Science Foundation through award #1550320.



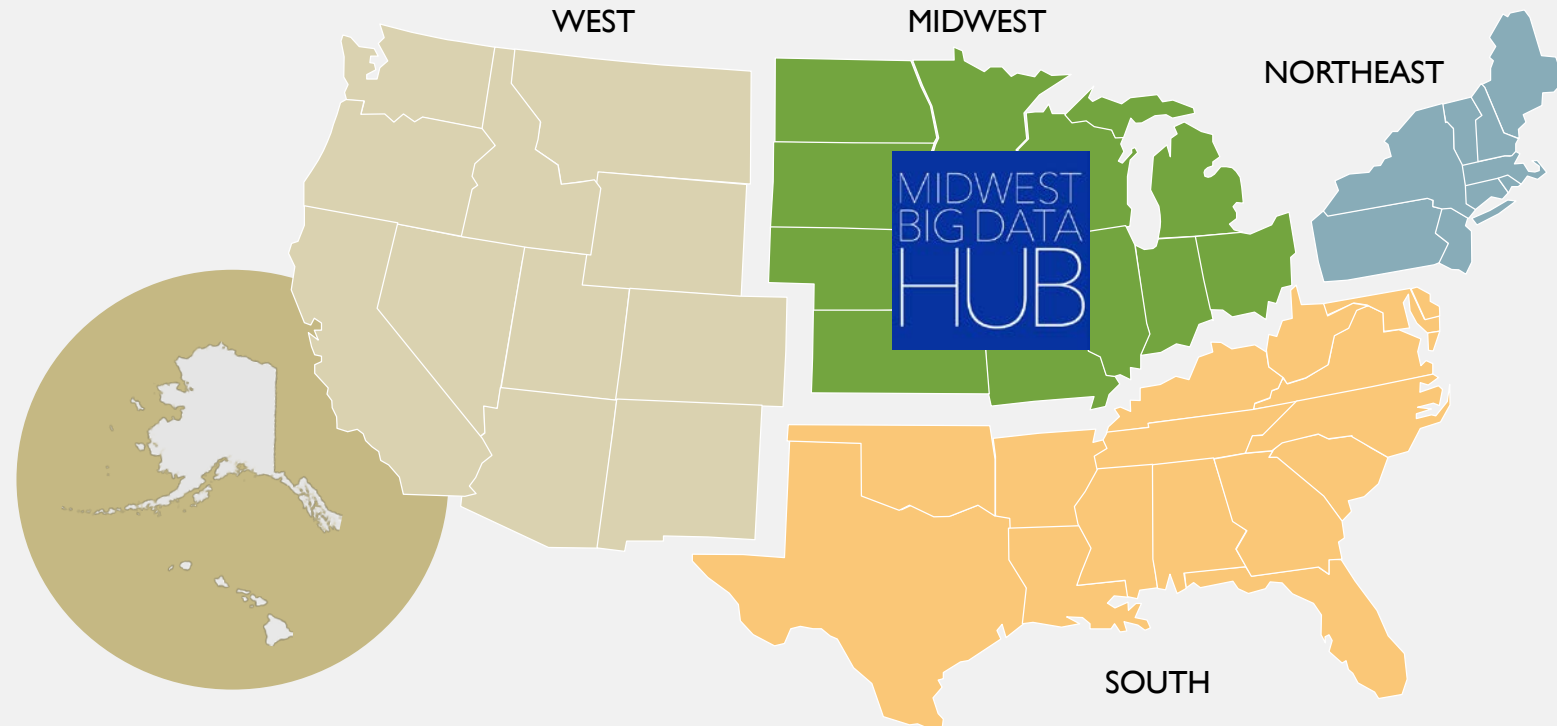
IOWA STATE  
UNIVERSITY



UND  
UNIVERSITY OF  
NORTH DAKOTA



# REGIONAL BIG DATA INNOVATION HUBS



**The Midwest Big Data Hub** is one of four NSF-funded Big Data Regional Innovation Hubs that is a partnership of the **University of Michigan, Iowa State University, Indiana University, the University of North Dakota, and the University of Illinois at Urbana-Champaign.**



# MIDWEST BIG DATA HUB

## *Cultivate communities and resource networks*

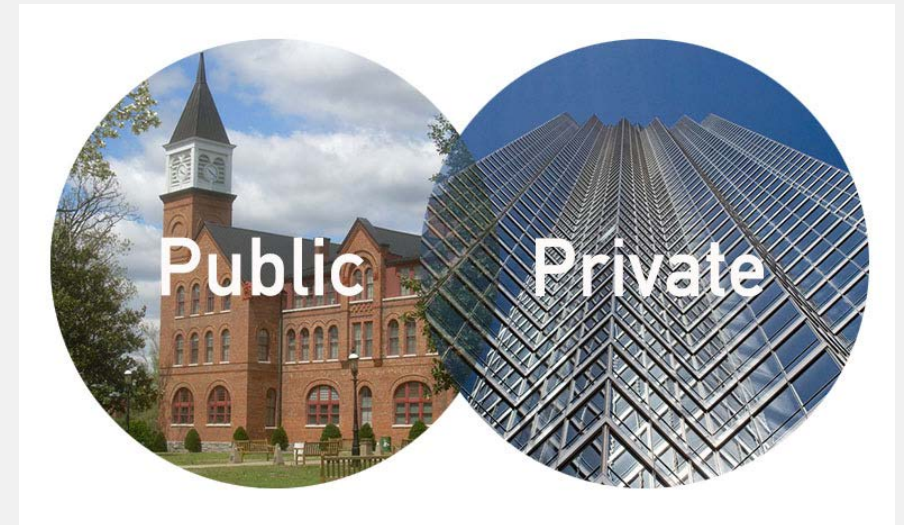
- Develop network of organizations, expertise, computing resources, and data
- Catalyze new collaborative research
- Serve as trusted convening authority

## *Reduce friction in Data-to-Discovery / Decision systems*

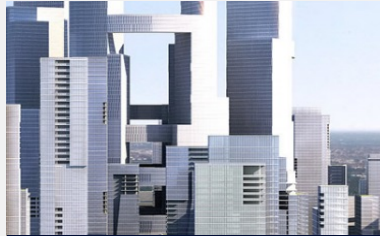
- Enable access and use of data and cyberinfrastructure
- Policy and governance
  - Testing consortia-type models
  - Access arrangements (policy; templates for data use)

## *Build capacity in data science and Big Data applications*

- Broadening participation in data science
- Workforce development, training and education



# THEMATIC COMMUNITIES IN THE MIDWEST HUB



**Urban Science & Smart Cities**



**Business Analytics**



**Materials & Manufacturing**



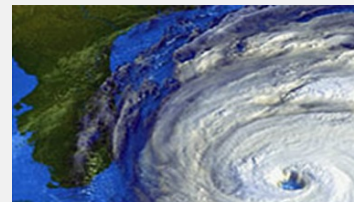
**Agriculture**



**Health & Biomedicine**



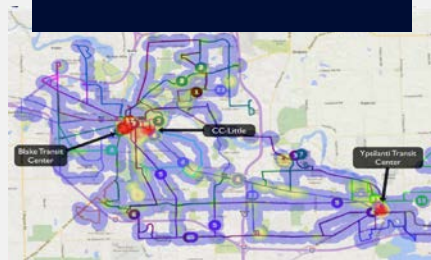
**Neurosciences**



**Community Resilience**



**F-E-W**



**Transportation**



**Network Sciences**

## CROSS-CUTTING “HORIZONTALS”

- Data governance, sharing and use policies
  - Privacy, Security, and Ethics
- Data, Tools, Services, and Methods
- Sensors, Robotics, Unmanned Systems
- Data science education, workforce development
- Cybersecurity throughout networked cyberinfrastructure

# MBDH “SPOKE” / PLANNING AWARDS FROM NSF

## 7 Awards - \$3.3M

- Digital Agriculture - Unmanned Aircraft Systems, Plant Sciences and Education (UND; IA State; GPN; UN-L)
- Collaborative: Advanced Computational Neuroscience Network (ACNN) (UM; OSU; CWRU; UI)
- Collaborative: Integrative Materials Design (IMaD) - Leverage, Innovate, and Disseminate (UC; UIUC; UM; UW-M; NWU)
- Big Data Innovations for Bridge Health (UN-O; UN-L)
- Cyberinfrastructure to Enhance Data Quality and Support Reproducible Results in Sensor Originated Big Data (Purdue)
- Networked Resilience of Communities Facing Natural and Social Emergencies (Illinois)
- EAGER: Incorporating Citizen Science into Real-Time Sensor-Based Estimates of Traffic-Related Air Pollution Exposure (OSU)



# EXAMPLES OF PROJECTS AND PARTNERSHIPS

- Open Commons Consortium-Adv. Center for CyberGIS
  - Demonstration project with the ROGER cyberGIS resource on opening ~200TB of NOAA environmental data
- *Internet<sup>2</sup>*
  - Best practices for distributed teams sharing large data
- Microsoft Azure Cloud Services Partnership (all hubs)
  - providing \$ 3M in credits across Hubs + technical support + training
  - Projects underway at Indiana Univ. (2) and Univ. of Minnesota (1)
- National Data Service
  - MBDH community access to hardware/software test-bed environments
  - Inclusion in the NDS Labs Workbench catalogue
- Materials Informatics joint community engagement
  - MBDH and South BD Hub
- MBDH Data Science Meet-up Groups (Omaha; Fargo)





# OPPORTUNITIES TO ENGAGE

- Participate in workshops, webinars and live-streamed talk series
- Join a MBDH Working Group
  - Data: Tools, Services, & Methods
  - Data Science Education, training, & workforce development
    - Broadening participation in Data Science
      - e.g. Data Science across the Curriculum
- Cross-cutting technical and education activities
  - Generate and disseminate success stories, case studies, and lessons learned
  - Best practices!
  - Governance, sharing & use arrangements

# SAVE THE DATE!

- Transportation Data Challenge
  - September 30 – Lincoln, NE
  - Nebraska Transportation Center & Mid-America Transportation Center
- All Hands Meeting
  - October 2-3 – Omaha, NE
  - Partnering with Kiewit Corp, UN-L, UN-O, Creighton Univ., and local MeetUp groups
  - Oct. 4 – Bridge Health workshop
- MBDH Partners' Big Data Summit
  - Fall 2017 - Minneapolis



# THANK YOU

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*#bdhubs*

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Award  
#1550320



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