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2016
GLOBAL
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DISTRIBUTED BIG DATA & ANALYTICS INNOVATION WORKING GROUP

DBDA Innovation Working Group

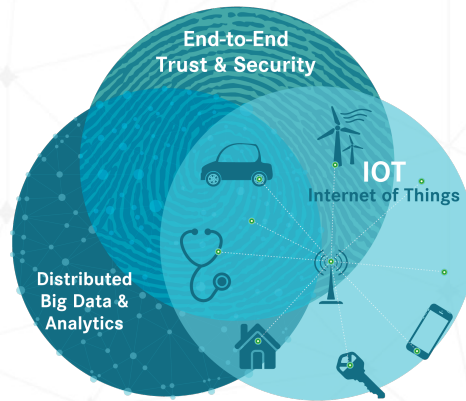
AGENDA

- **Evolution of the DBDA Innovation Working Group:** Marc Hoit, North Carolina State University
- **National Science Foundation Northeast, Midwest & South Big Data Hubs:** Emily Nichols, Internet2
- **Introducing the Smart Campus Initiative:** Emily Nichols, Internet2
- **Open Discussion:** Marc Hoit, North Carolina State University
- **Next Steps:** Emily Nichols, Internet2



Collaborative Innovation Program

**Established three new Collaborative Innovation Working Groups
During Global Summit 2015 based on March 2015 Member Survey**



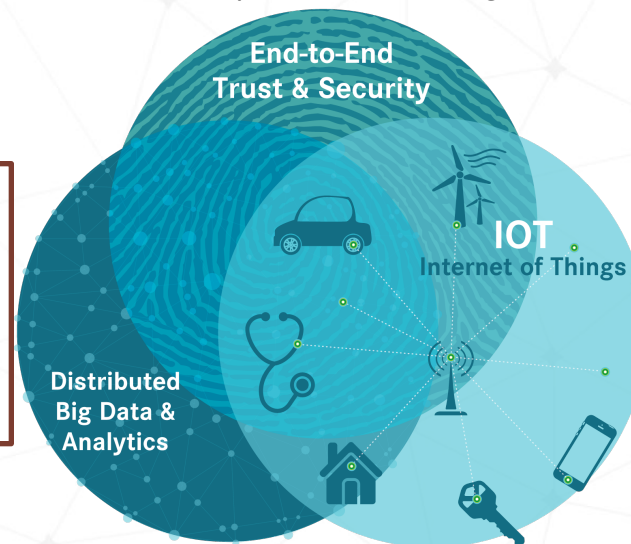
Collaborative Innovation Program Current Focus Areas

E2E Trust & Security:

- End to End Trust and Security for IoT
- TIPSS – Trust, Identity, Privacy, Protection, Safety, Security
- SDP (Software Defined Perimeter), Network Segmentation

Distributed Big Data & Analytics:

- Genomics
- Smart Campus/Smart Cities
- Digital Humanities

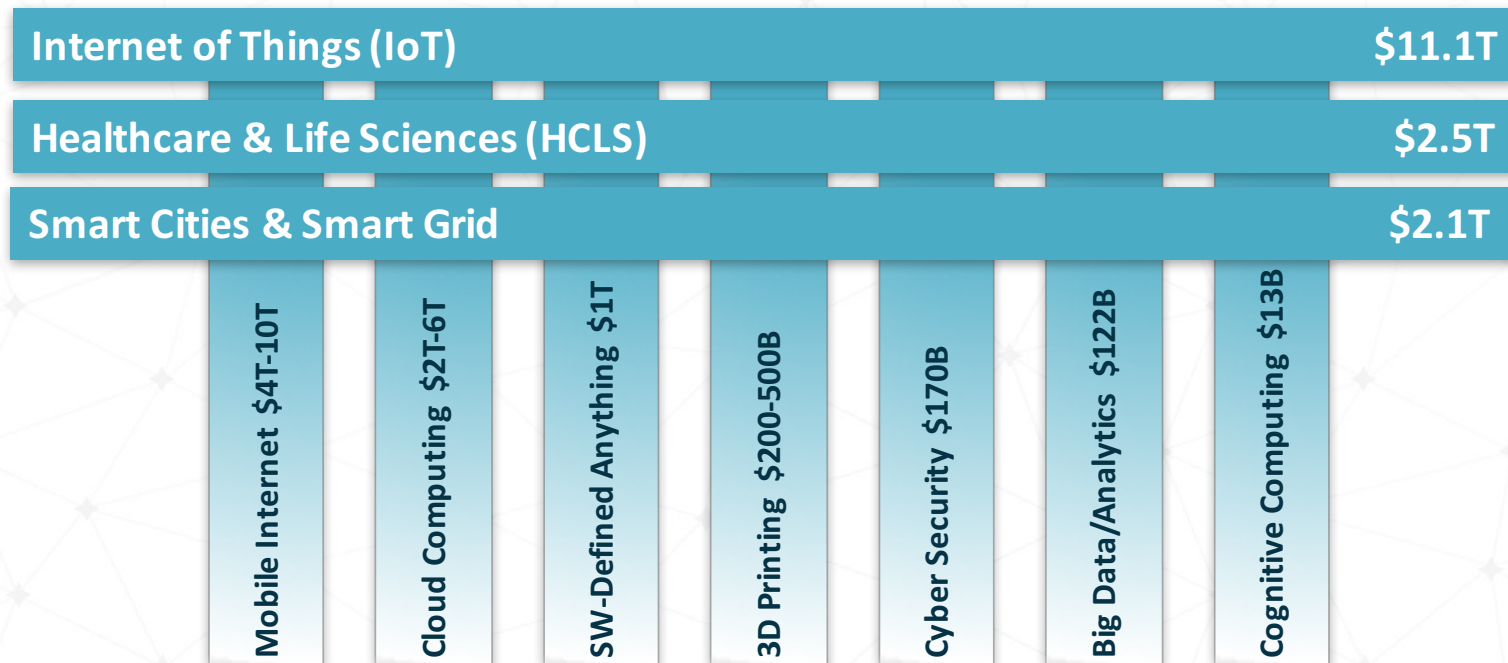


Internet of Things:

- IoT Sandbox
- Smart Campus/Smart Cities
- Smart Grid Testbed

Join a working group: <http://bit.ly/CINCGS16>

The Internet of Things, Healthcare & Life Sciences, and Smart Cities could represent \$15T in global economic value in 2025



Economic value includes revenues, cost reductions & service improvements achieved

Sources: Internet2 CINO analysis; BizTech; Deloitte; Consultantcy.uk; Forbes; Markets and Markets; McKinsey; US Department of Agriculture, Economic Research Services.



NORTHEAST BIG DATA INNOVATION HUB

René Bastón, Executive Director
Kathy McKeown, PI
Coordinated by Columbia University

Midwest Big Data Hub Accelerating the Big Data Innovation Ecosystem



*Ed Seidel
PI (Illinois)*



*Beth Plale
Co-PI (Indiana)*

**IOWA STATE
UNIVERSITY**

*Sarah Nusser
Co-PI (Iowa State)*



*Brian Athey
Co-PI (Michigan)*



*Josh Riedy
Co-PI, (UND)*

NSF South Big Data Hub



Georgia Institute of Technology



THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL



*Melissa Cragin
ED (Illinois)*

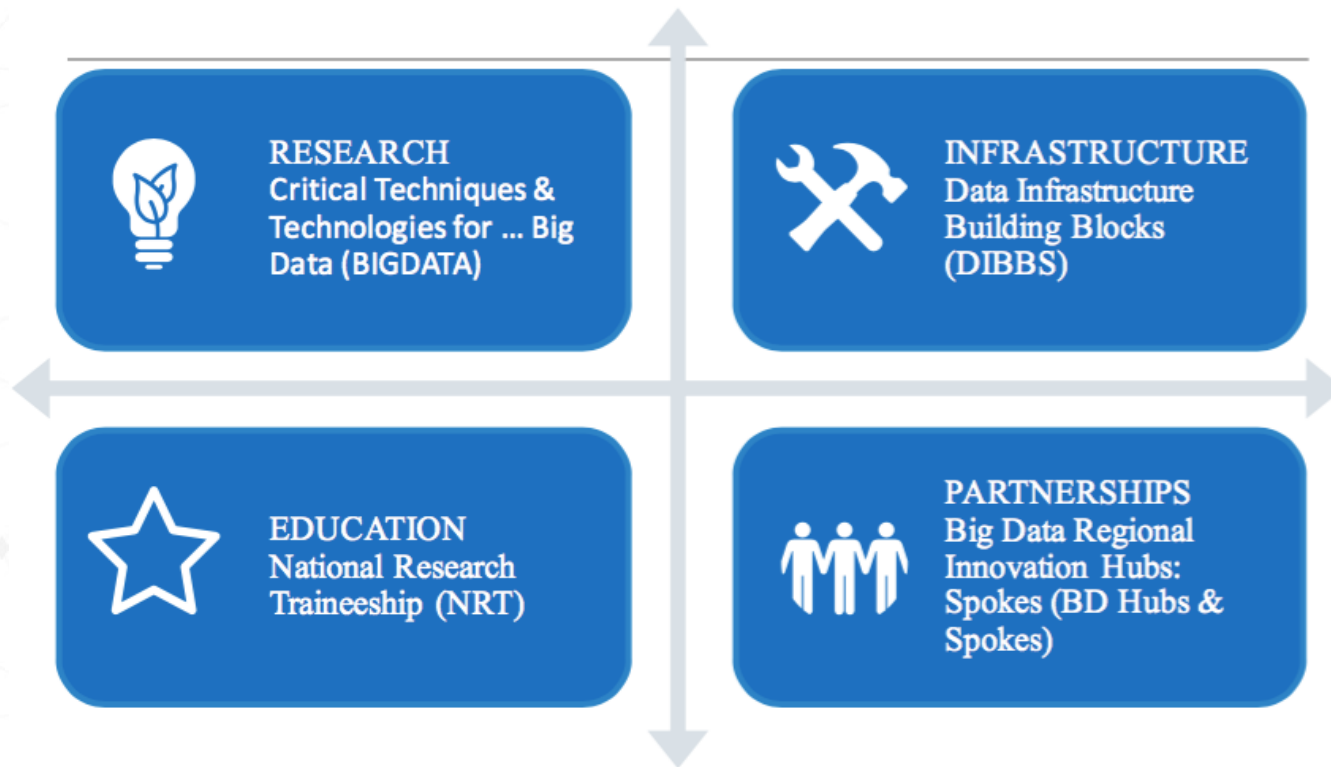
Renata Rawlings-Goss, Co-Executive Director
Lea Shanley, Co-Executive Director
Srinivas Aluru, PI
Stan Ahalt, PI

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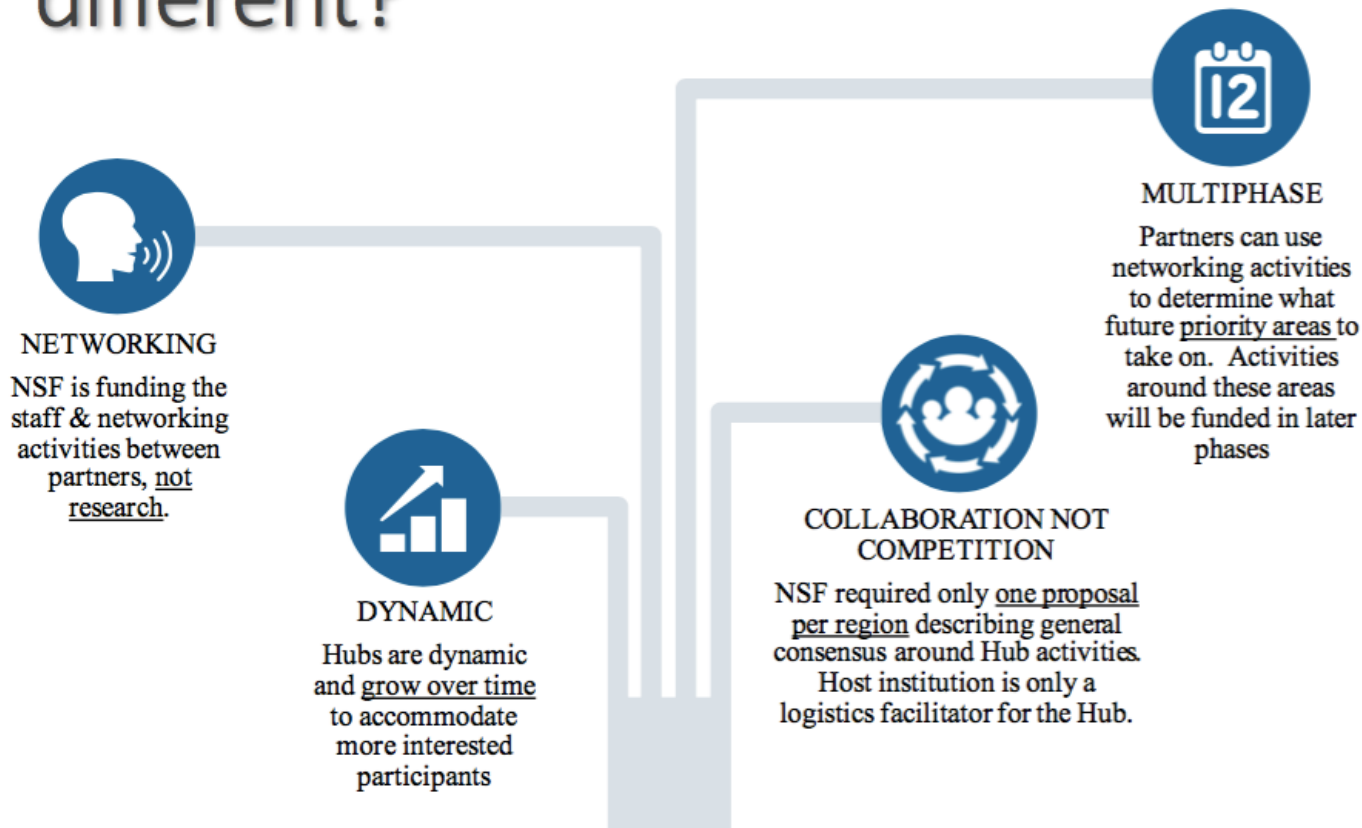
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The NSF Big Data Portfolio

Within the broader NSF portfolio, BD Hubs and BD Spokes focuses on building partnerships around Big Data



How is the BDHubs Program different?



Alaska & Hawaii are part of the West region
US Territories can participate in any region

MIDWEST
106 Personnel
79 Organizations
12 states

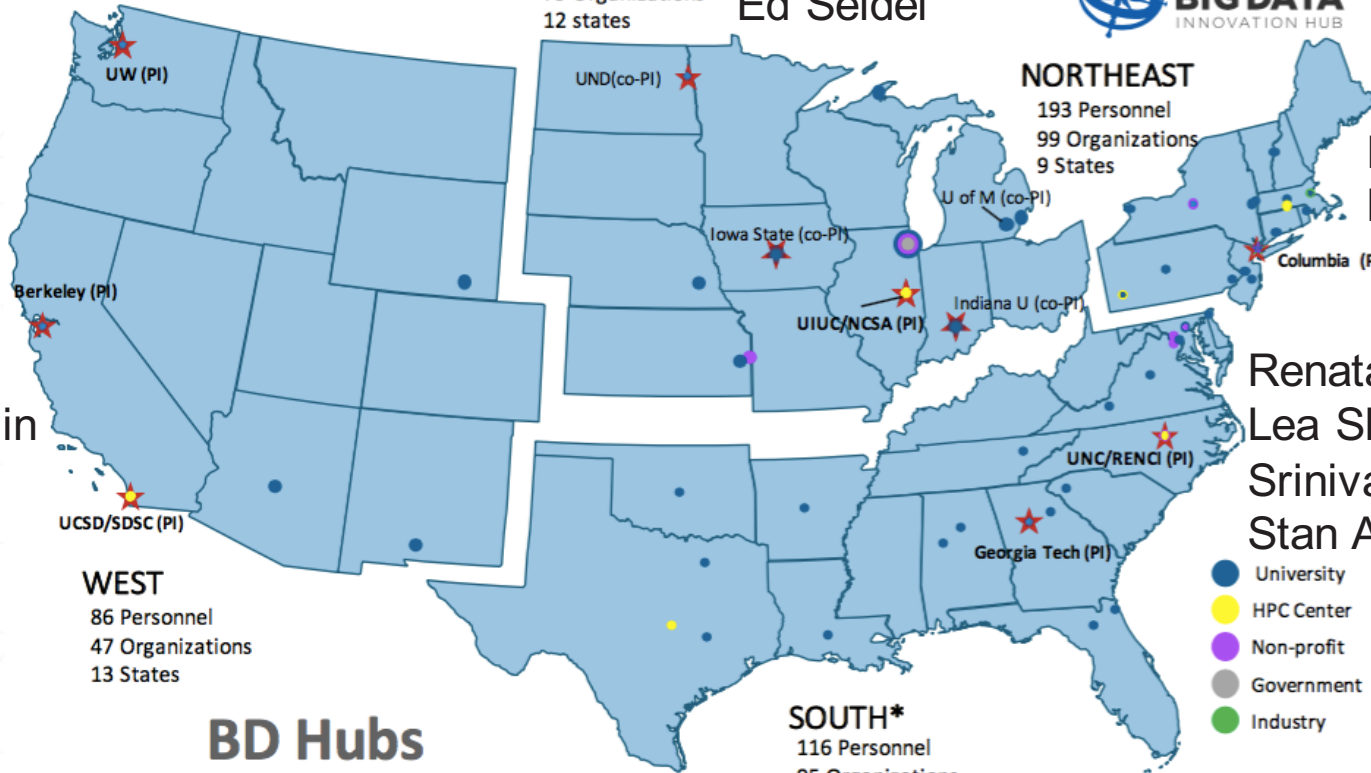
Ed Seidel



NORTHEAST
193 Personnel
99 Organizations
9 States

Rene Baston
Kathy McKeown

Meredith Lee
Michael Franklin

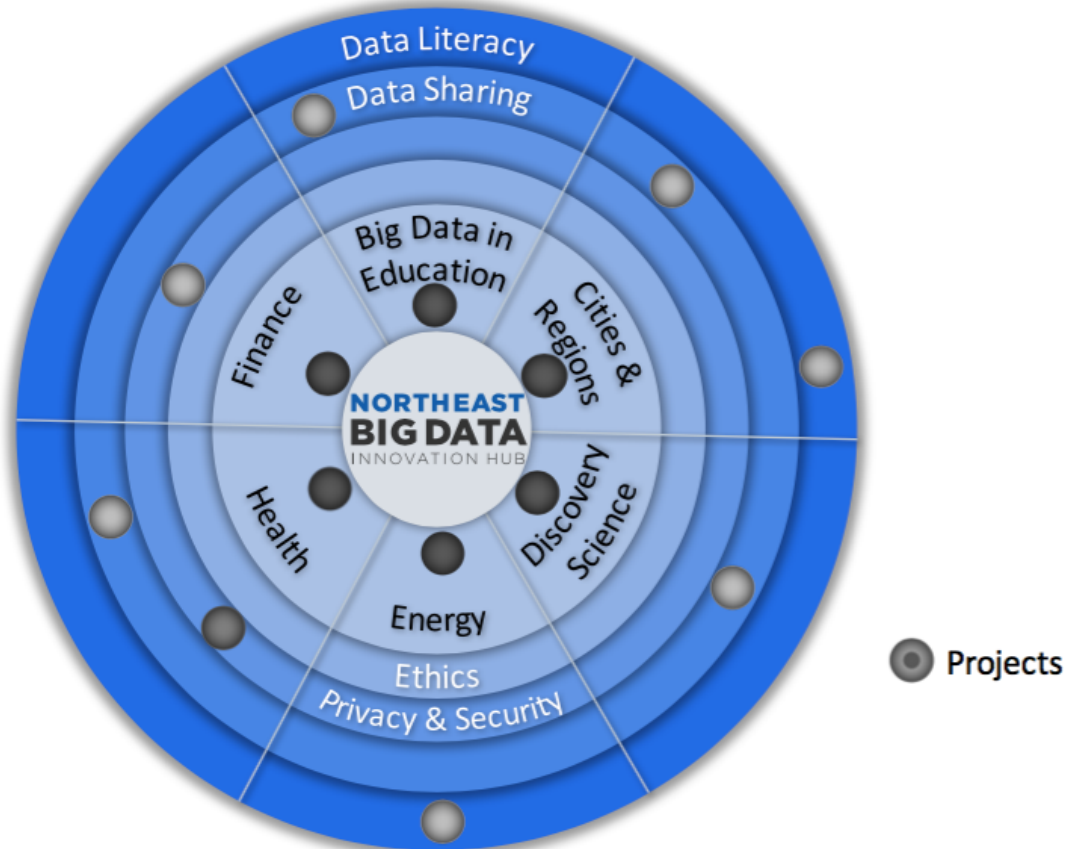


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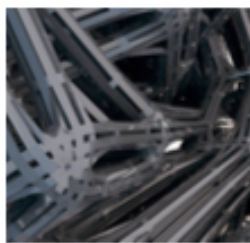
Points indicate affiliations of individuals named as steering council members and/or task leads.

*South points indicate Senior Personnel

Priority Areas



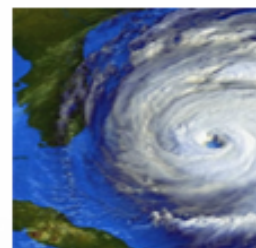
Southern Theme Communities (Community Led Working Groups)



Big Data Sharing
and Infrastructure



Healthcare



Coastal Hazards



Economics,
Privacy, Security
and Policy Issues



Industrial Big Data
and Energy



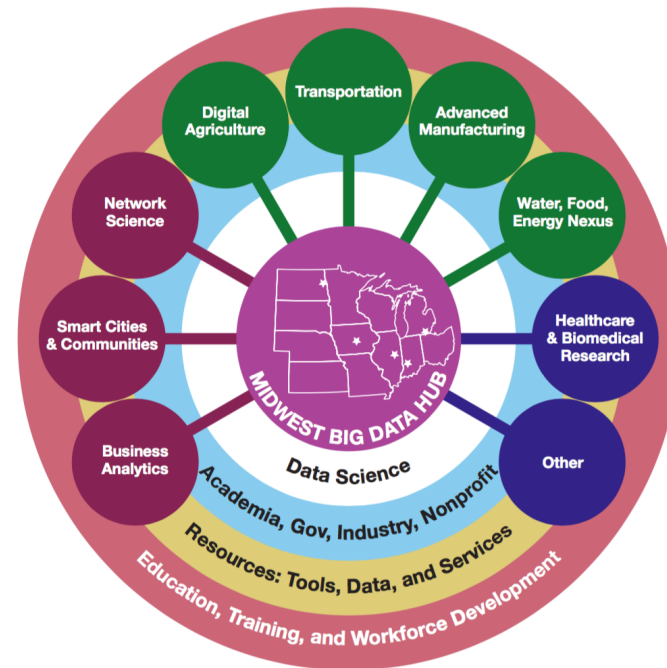
Materials and
Manufacturing



Habitat Planning

Spokes underway at the Midwest Hub

- Network Science
- Metropolitan Science
- Business Analytics
- Digital Agriculture
- Transportation
- Advanced Manufacturing
- Food, Energy, Water
- Healthcare & Biomedical Research
- Others as proposed...
 - *Materials*



Midwest Big Data Hub

Accelerating the Big Data Innovation Ecosystem



IOWA STATE
UNIVERSITY





SOUTHBDHUB.org

For More Information

Visit our website:

<http://northeastbdhub.dsi.columbia.edu>

Email us:

northeastbdhub@columbia.edu

Follow us on Twitter:

[@NEbigdatahub](https://twitter.com/NEbigdatahub)

Questions?

Contact us at:

www.southbdhub.org

info@southbdhub.org

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Ed Seidel

eseidel@ncsa.illinois.edu

<http://midwestbigdatahub.org>

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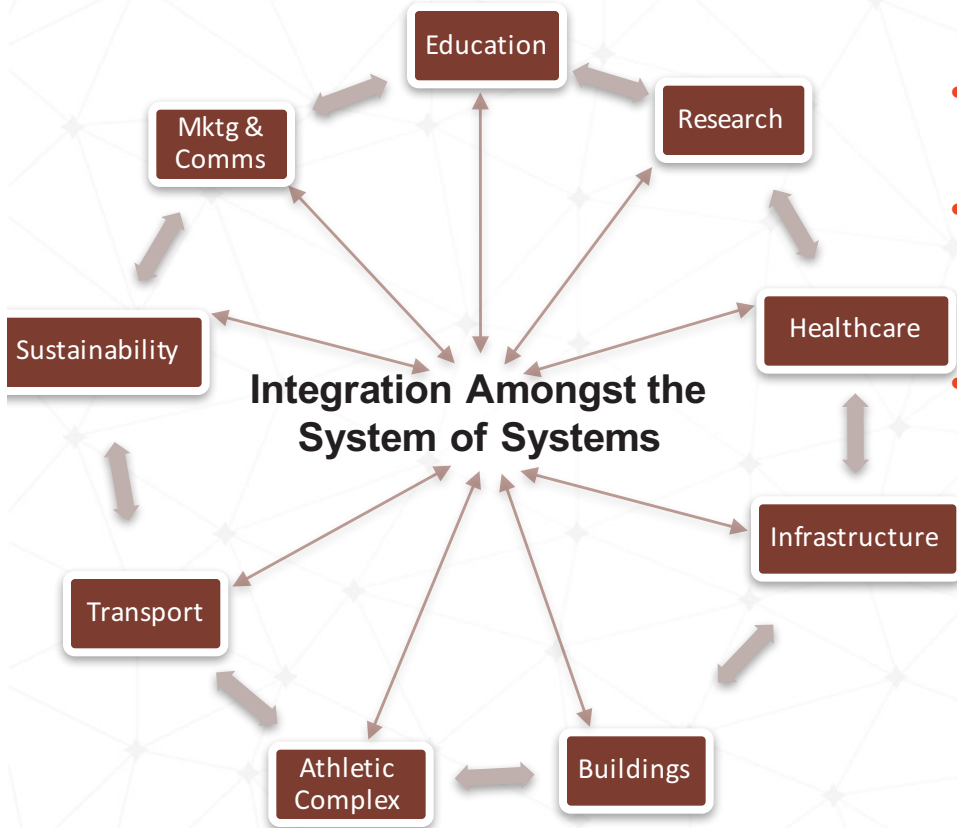
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Welcome to the Smart Campus Initiative

- Forum to share learnings and develop new insights and practical recommendations
- Create focused task forces to support collaborative development of practical recommendations
- Guided by a Smart Campus CIO Advisory Council



Defining a Smart Campus



- A Smart Campus leverages data to **improve student success and campus operations**
- Requires integration of Information Technology and Operational Technology to **better inform decision making** in each domain and across the campus
- Achieving a Smart Campus will involve cross-campus collaboration with multiple stakeholder partnerships. These partnerships will include, but not be limited to:
 - Facilities
 - Administration
 - Central IT
 - Research Community
 - Campus Security
 - Faculty & Students

Addressing TIPSS is essential to achieving safe, secure, scalable future smart city and campus architectures

Trust
Intity
Privacy
Protection
Safety
Security



Smart Campus Initiative: IoT Systems Risk Management Task Force

Some participating schools/networks:

- Clemson
- Cornell
- Indiana University
- MIT
- Princeton
- Rice
- Virginia Tech
- University of Pittsburgh
- University of Washington
- University of Wisconsin-Madison
- Yale
- HEA-Net (Ireland)

Some roles/titles of participants:

- AVC Operations & Maintenance
- AVP & Chief Facilities Officer
- Associate CIO
- Chief Technology Officer
- Deputy CIO/Chief of Staff
- Enterprise Architect
- Infrastructure Director
- IT Service Owner for Research
- Network Development Manager
- Research Cyber Infrastructure Liaison
- Security Manager
- Senior Applications Systems Engineer

Smart Campus Initiative: IoT Systems Risk Management Task Force

Proposed topics for Quarterly Report Outs to Smart Campus CIO Advisory Council:

Quarter 1 – Sept 2016: Ability to profile IoT Systems exposure w/public tool (e.g., Shodan.io or Censys.io)

Quarter 2 – Dec 2016: Vendor management – Requirements doc for IoT Systems vendors (process, checklist, etc.)

Quarter 3 – March 2017: Cost model for IoT Systems selection, procurement, & management

Quarter 4 – May 2017: Recommendations for further work in 3 – 5 areas

- network segmentation management ?
- organizational/culture change ?
- development of IoT Systems risk language/taxonomies ?
- dependence on non-interoperable proprietary IoT Systems ?
- other ?

Open Discussion

- Digital humanities researcher needs
- Other areas to explore

Next Steps

- We will continue to support and engage with NSF Big Data Hubs in support of our members. Let us know how we can help you! Email CINO@internet2.edu
- As we explore digital humanities, let us know you'd like to participate in a call with digital humanities researchers to better understand their needs. Email CINO@internet2.edu
- Let Chuck Benson know if you're interested in participating in the IoT Systems Risk Management Task Force. Email iotsys-tf-request@internet2.edu
- Save the date! CINC Up Call for entire Collaborative Innovation Community on Monday, June 6 at 2PM ET. Topic: OpenFog Consortium presented by Mung Chiang, Princeton University and OpenFog Consortium Board Member
- Let us know if you'd like to participate in the DBDA Working Group, or any of the other Collaborative Innovation Community Working Groups. Email CINO@internet2.edu

Join us for other Collaborative Innovation Community Meetings during Global Summit

- **Sunday, May 15**
 - Healthcare and Life Sciences Working Meeting: 10:30AM-12PM, Cook Room, 3rd Floor
 - Smart Campus Initiative & Innovations: 4-5:30PM, Kane Room, 3rd Floor
- **Monday, May 16**
 - Internet of Things (IoT) Innovation Working Group Meeting: 8-9:30AM, Kane Room, 3rd Floor
 - End-to-End Trust & Security Innovation Working Group Meeting: 10-11:30AM, Kane Room, 3rd Floor
- **Tuesday, May 17**
 - Distributed Big Data and Analytics Innovation Working Group Meeting: 7:30-8:45AM, Kane Room, 3rd Floor
- **Wednesday, May 18**
 - Gender Diversity in the Internet2 Community: 7:15-8:45AM, Addison Room, 4th Floor
 - Innovation Development and Management – Think Local, Act Global: 12-1:15PM, Kane Room, 3rd Floor



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