

NIU 's Role in IT Expansion- Opportunities for Academic Programs Enhancement

February 3, 2012

NIU Broadband Initiatives

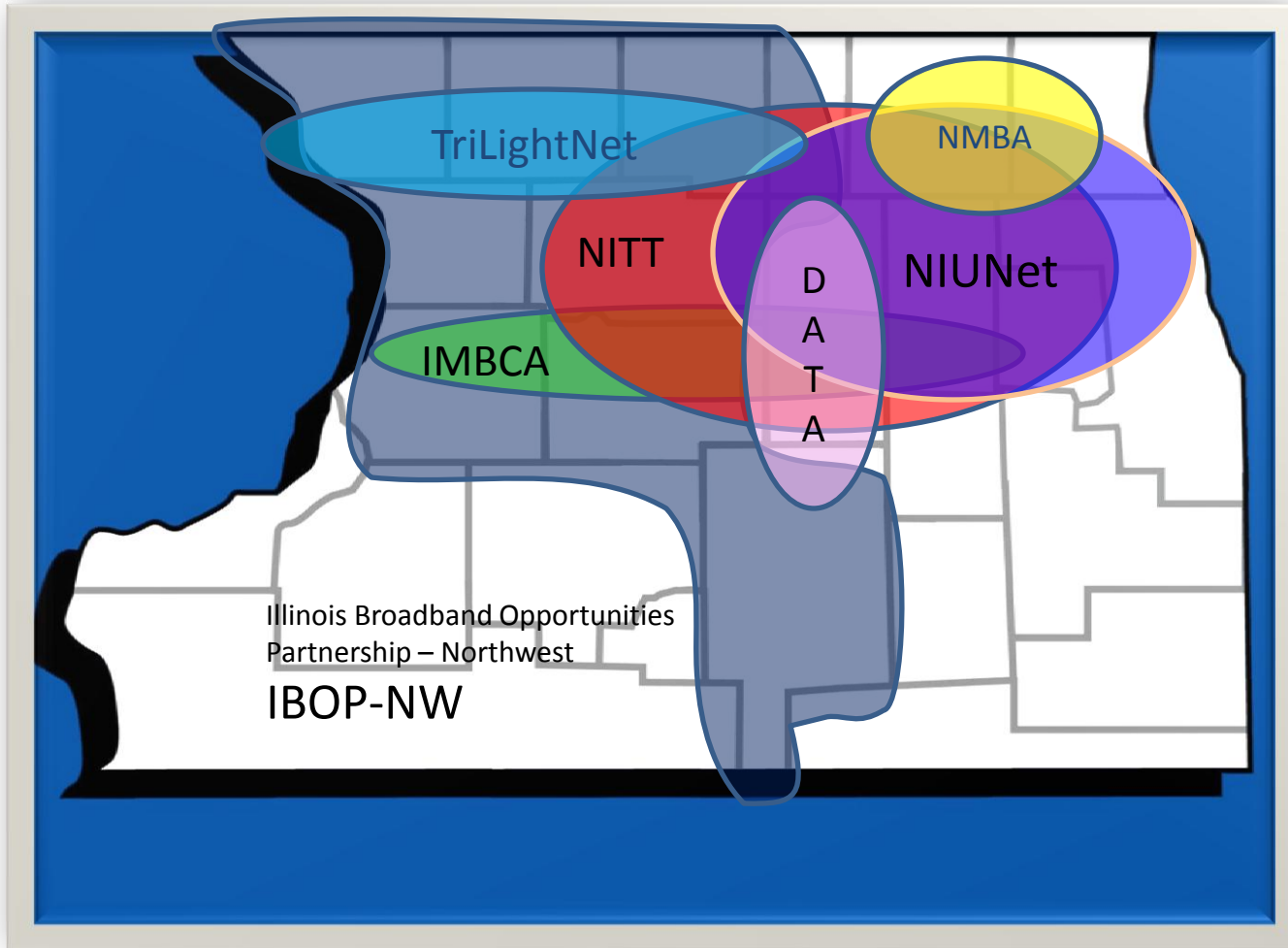
- In three years NIU will have strategically planned and assisted in the build out of over 2,200 miles of fiber optics in Illinois.
- Over 750 Community Anchor Institutions (CAI's) will have high speed broadband access capabilities.
- In Northern Illinois, a 10 county region will have high speed broadband access capabilities directly into NIU.

Regional Impact Projects

Broadband Networks - \$117 million in grants from federal, state, and local sources

- \$83.5 million for construction of 2200 miles of networks through rural and suburban areas (NTIA/Department of Commerce, State of Illinois, local agencies, and private business partners)
- \$20,000 for research on current and potential users (NTIA)
- \$33.5 millions for rural healthcare delivery, digitization of medical records, and other services (FCC, Department of Commerce, Department of Health and Human Services, State of Illinois, and local partners)

NIU Broadband Initiatives



NIUNet - Northern Illinois University Research and Education Network.

IMBCA – Illinois Municipal Broadband Communications Association for Economic Development.

NITT – Northern Illinois Technology Triangle for Economic Development.

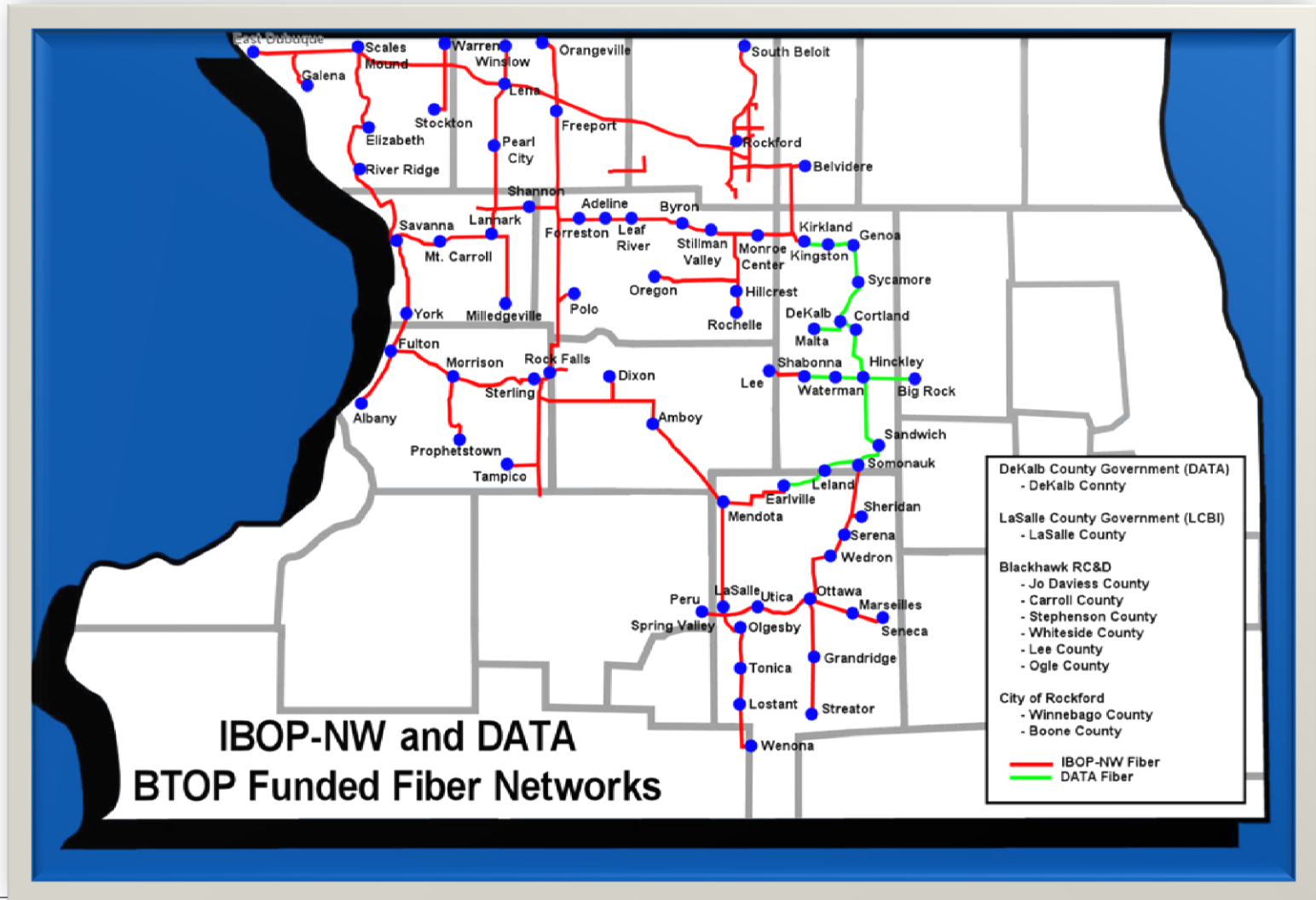
TriLightNet – A medical network for HIE development and healthcare.

NMBA – Northwest Municipal Broadband Authority – A municipal and education network.

DATA – DeKalb Advancement of Technology Authority – A BTOP funded grant for DeKalb County.

IBOP-NW – The Illinois Broadband Opportunities Partnership – A nine county BTOP funded grant to NIU.

IBOP-NW and DATA



NIU Broadband Initiatives

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NIU Broadband Initiatives

Potential Partner Community Anchor Institutions

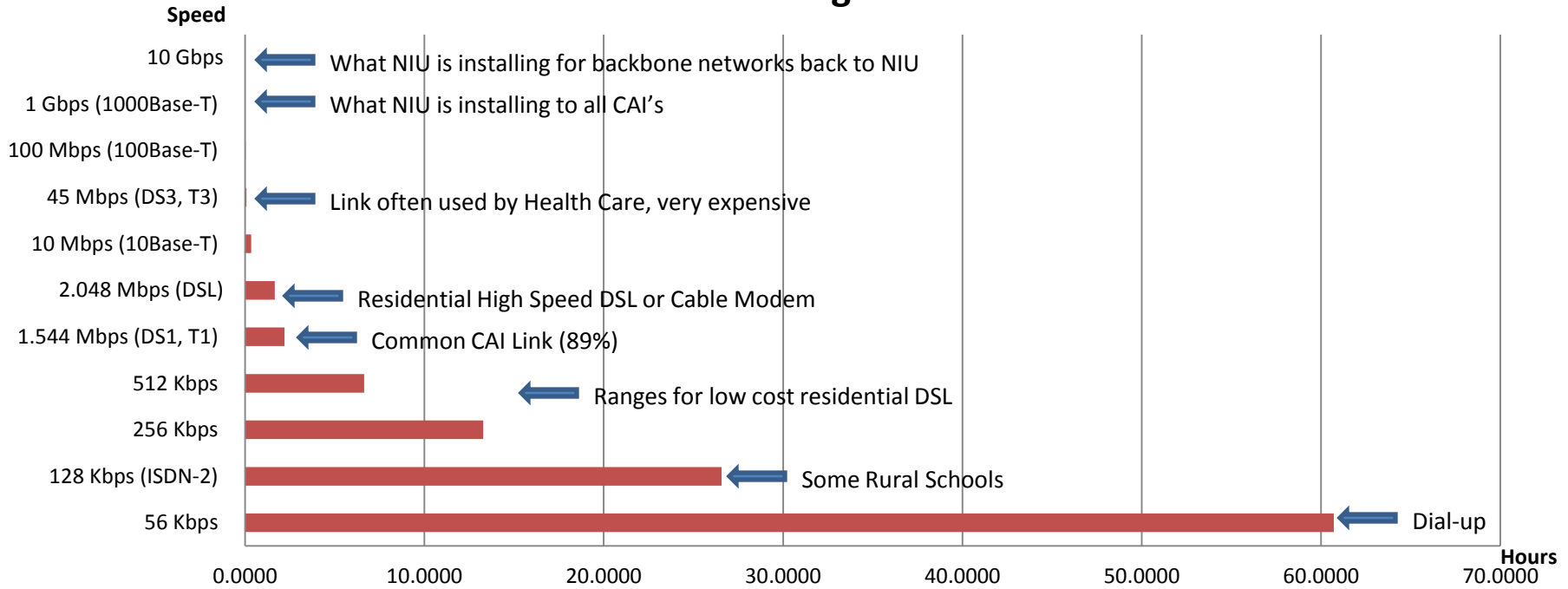
- Colleges (10)
- K-12 Buildings (230)
- Libraries (50)
- Health Care Organizations (225)
- Public Safety (90)
- State, County Local Gov. Offices (130)



Numbers may be approximate

NIU Broadband- Impacts

Time to Download a Average Movie in Hours



	56 Kbps	128 Kbps (ISDN-2)	256 Kbps	512 Kbps	1.544 Mbps (DS1, T1)	2.048 Mbps (DSL)	10 Mbps (10Base-T)	45 Mbps (DS3, T3)	100 Mbps (100Base-T)	1 Gbps (1000Base-T)	10 Gbps
Time to Download a Average Movie in Hours	60.7142	26.5625	13.2811	6.6406	2.2019	1.6600	0.3400	0.0756	0.0339	0.0033	0.0003

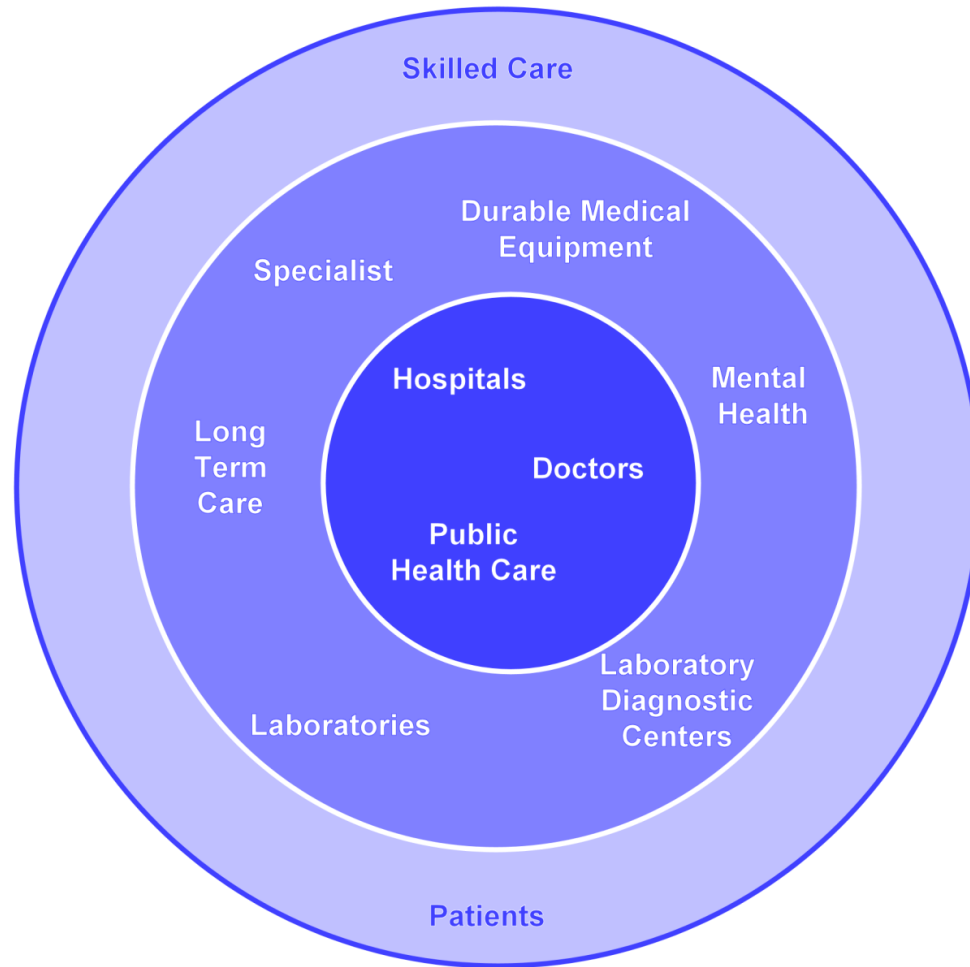
Collaborative Opportunities for NIU

- Research
- Instruction
- Public Service
- Community Engagement
- Innovation

- **Healthcare**
- Business
- Education
- Energy
- Environment
- Government



Context: Broadband, Healthcare, HIE



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Drivers for Adoption

Improve Treatment Outcomes 66%

Better Access to Specialists 47%

Increase home care support 41%

Remote access to services 50%

Source: e-Strategy Report, North Carolina

Context: Broadband, Healthcare, HIE

Barriers to Adoption

Security 65%

Privacy 62%

System Compatibility 56%

IT Skills 43%

Source: e-Strategy Report, North Carolina

Impacts: Broadband, Healthcare, HIE

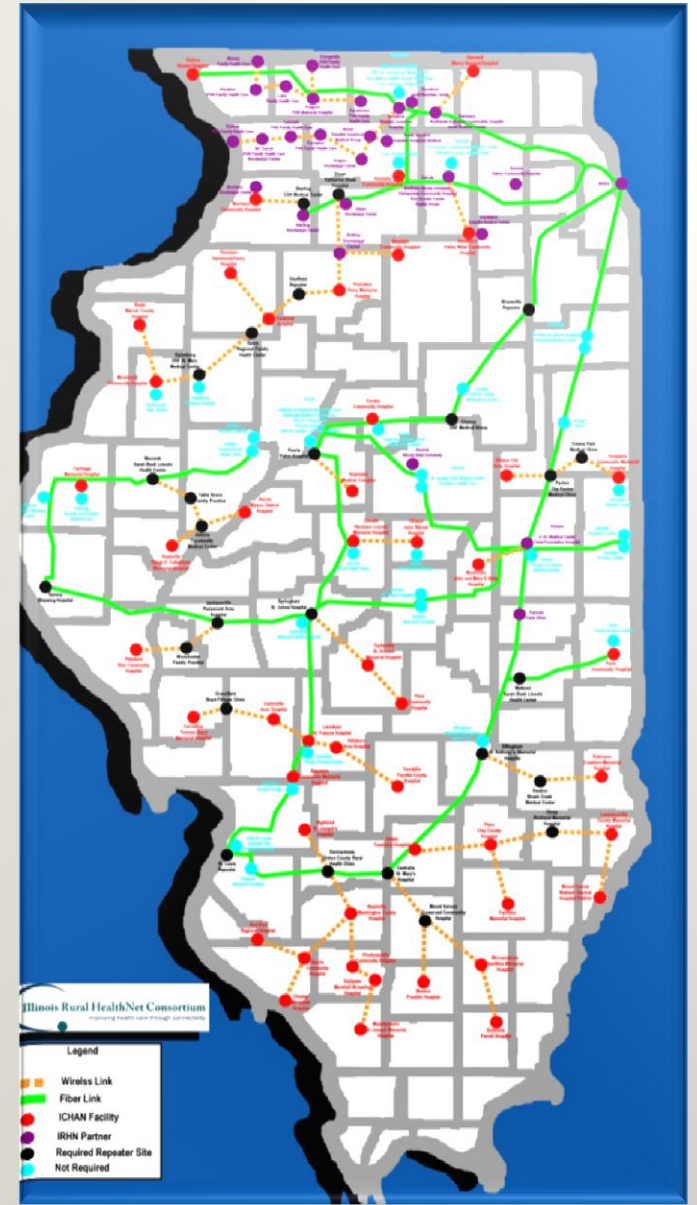
- Expanded use of technology for lab and specialty uses
- Ability to participate in statewide and nationwide exchange of health information
- Ability to participate in federal incentive programs tied to use of electronic medical records.
- Improved access to training and education for healthcare providers

IL Rural HealthNet (IRHN)

Connecting over 75 HealthCare Facilities in Illinois

\$22M Grant awarded to create the IRHN modeling NIUNet.

Used primarily for Health Information Exchange (HIE), Telemedicine and Telehealth.



IL-HITREC- Vision

*For PPCPs to utilize the interoperable health information technology system in Illinois to improve the quality and efficiency of patient care by providing assistance to **1300 priority primary care physicians, who will meet meaningful use requirements.***

Context: Home Based Telehealth

	<i>Currently Using</i>	<i>Willing to Explore</i>
Peer Support	13%	49%
Emergency call Support	5%	64%
Remote Consulting	4%	63%
Remote Health Monitoring	3%	60%

Source: e-Strategy Report, North Carolina

Future: Broadband, Healthcare, HIE

- Avatar applications that decrease the need for patient travel from their local healthcare services- yet provide precise measurement and evaluation
- Holographic imaging of physicians from trauma centers to assist and guide physicians in rural settings.
- At-home or group patient visits with providers
- Continuous monitoring of chronic diseases

Funding Opportunities

Title: Advances in Patient Safety through Simulation Research (R18)

Purpose. The Agency for Healthcare Research and Quality (AHRQ) is interested in funding a diverse set of projects that develop, test and evaluate various simulation approaches for the purpose of improving the safe delivery of health care. Simulation in health care predominately is a training technique that exposes individuals and teams to realistic clinical challenges through the use of mannequins, task trainers, virtual reality, standardized patients or other forms, and allows participants to experience in real-time the consequences of their decisions and actions. The principal advantage of simulation is that it provides a safe environment for health care practitioners to acquire valuable experience without putting patients at risk. Simulation also can be used as a test-bed to improve clinical processes and to identify failure modes or other areas of concern in new procedures and technologies that might otherwise be unanticipated and serve as threats to patient safety. Applications that address a variety of simulation techniques, clinical settings, provider groups, priority populations, patient conditions, and threats to safety are welcomed.

Collaborative Opportunities for NIU

- Research
- Instruction
- Public Service
- Community Engagement
- **Innovation**

- Healthcare
- **Business**
- Education
- Energy
- Environment
- Government



Demand for Small Business Online Education

Application	Very Likely
Online research	49.1%
Live Webinars	33.9%
In-person seminars, etc	26.0%
Online courses	21.0%
Classroom courses	17.4%

Context: Small Business Online Applications

- **Purchasing** 75%
- **Shipment and tracking** 54%
- **Banking** 63%
- **Customer support** 34%
- **Selling/ Accepting orders** 40%
- **Training** 27%
- **Inventory Tracking** 21%

Broadband = Economic Opportunity

Illinois E-Commerce Success Stories

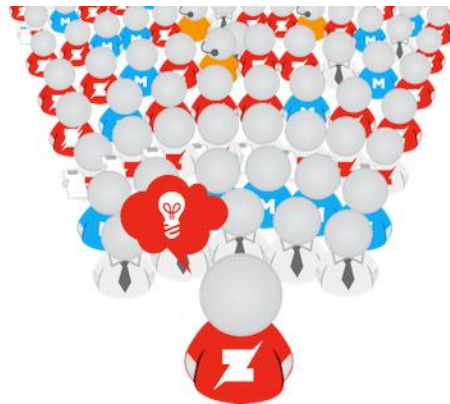
- **Groupon**



- **grubHub**



- **Zorch**

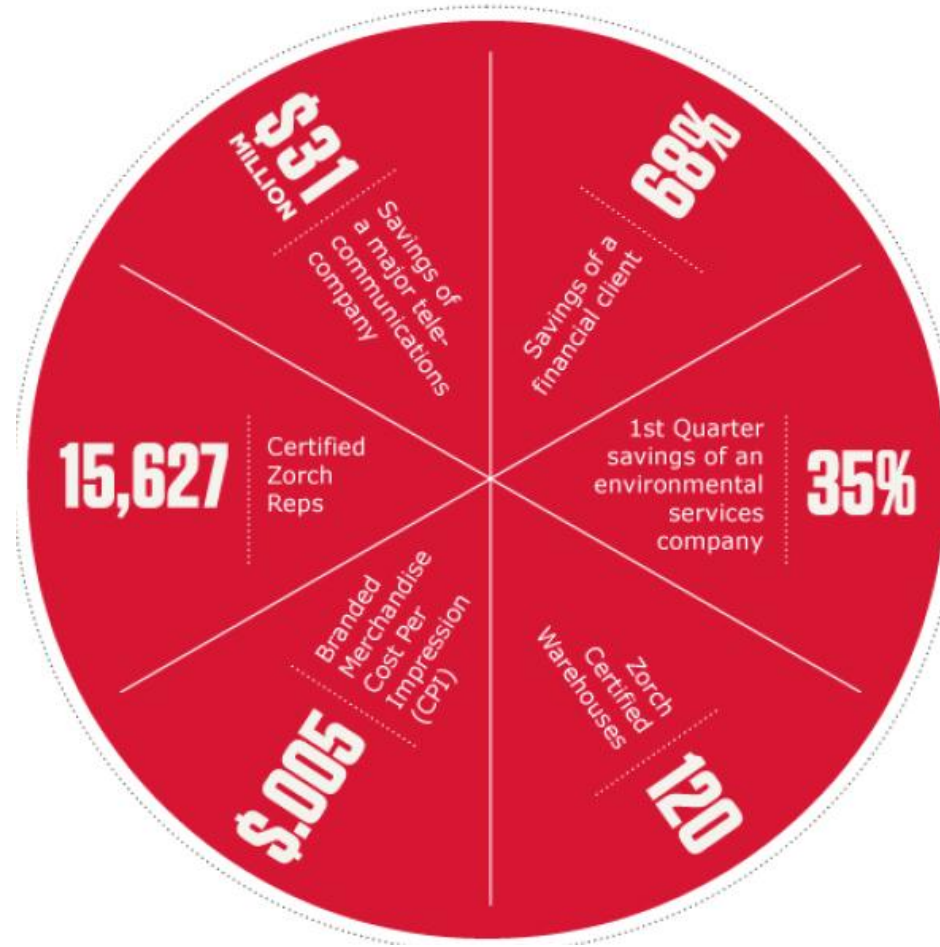


Broadband = Economic Opportunity

“..this company was founded with the mission of producing great quality products that would promote the most valuable brands in the world.

Zorch built a brand ecosystem inside a one-of-a-kind sourcing portal. Buyers source easier, clients save millions, suppliers are happier, products are better....all is right with the world. Goal exceeded...”

Nicole Loftus
Zorch CEO



NIU

NORTHERN
ILLINOIS
UNIVERSITY

Investment Priorities



1. Collaborative Regional Innovation
2. Public Private Partnerships
3. National Strategic Priorities
4. Global Competitiveness
5. Environmentally Sustainable Development
6. Economically Distressed and Underserved Communities

Investment Priorities



- 1. Collaborative Regional Innovation:** *Initiatives that support the development and growth of innovation clusters based on existing regional competitive strengths. Initiatives must engage stakeholders; **facilitate collaboration among urban, suburban and rural (including Tribal) areas**; provide stability for economic development through **long-term intergovernmental and public/private collaboration**; and, **support the growth of existing and emerging industries.***
- 2. Public Private Partnerships:** *Investments that **use both public and private sector resources and leverage complementary investments** by other government/public entities and/or non-profits.*
- 3. National Strategic Priorities:** *Initiatives that encourage job growth and business expansion in clean energy; green technologies; sustainable manufacturing; **information technology (e.g., broadband, smart grid) infrastructure**; communities severely impacted by automotive industry restructuring; natural disaster mitigation and resiliency; access to capital for small and medium sized and ethnically diverse enterprises; and, innovations in science, health care and alternative fuel technologies.*

Broadband Challenge & Opportunity

*“I used the term (information superhighway) in a study I wrote for the Rockefeller Foundation in 1974. I thought: if you create a highway, then people are going to invent cars. That's dialectics. **If you create electronic highways, something has to happen.**”*

Nam June Paik

Creator of the term "telecommunication superhighway", and among the first to use telecommunication satellites for artistic exchange



Visual Arts– Digital
Tech Degrees and
Certificates

PROGRAM	INSTITUTION
Arts Technology	Illinois State
Internet and Mobile Media	Columbia College
Game Design	Columbia College
Game and Interactive Media	Tribeca Flashpoint Academy
Visual Effects and Motion Graphics	IL Institute of Art
Graphic Arts Technology	College of DuPage; Harper College
Multi-Media Design & Development	DeVry University

NIU's Challenge & Opportunity

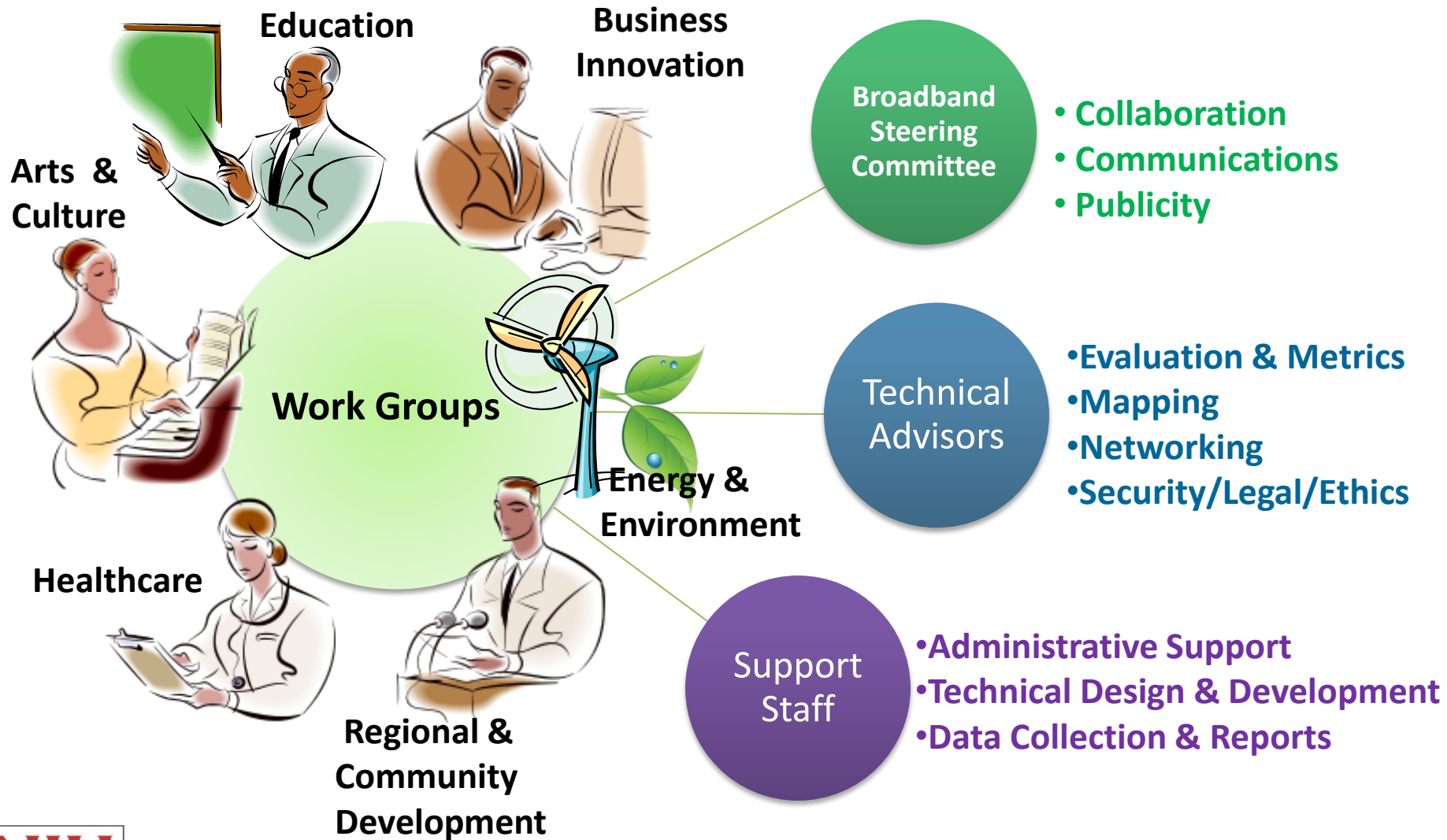
- With lightning-fast speeds and ubiquitous presence, the network under construction has the capacity to support innovations in arts and culture, business, education, energy and environment, government, healthcare, and public safety.
- Beyond incremental improvements that take advantage of greater speed and bandwidth, work groups might also explore innovating in ways that were simply not possible without the broad range of capacities provided by the network.
- Although well-positioned to lead creation of these innovations, NIU will need to be agile, responsive, and competitive to maximize the benefits of the 2200 miles of fiber optic cable now being installed.

NIU Activities to Date

Meetings held with interdisciplinary groups in 2010 and 2011.

- **Brainstorming** about broadband opportunities
 - Identify and engage potential user communities
 - Training needs?
 - Curricular implications?
 - External funding opportunities?
- **Action Plan**
 - Create content-based workgroups
 - Establish In4Grants on-line workspace
 - Input from NIU leadership

NIU Strategy



Content Based Workgroups

- Interdisciplinary teams of faculty and staff aligned with content areas
- Provide coordination and facilitation of broadband activities related to the content area
- Identify key user groups and work directly with them to ascertain needs that can be addressed through broadband activities
- Catalog existing broadband expertise, applications, tools, and other activities in the content area
- Develop, implement, and evaluate activities that utilize the broadband network
- Seek support for development of broadband activities; e.g., external funding, engaged learning activities for students, internal NIU resources
- Disseminate info about work group activities to the NIU community
- Utilize the project space established at <http://www.In4Grants.com>

NIU Strategy

Steering Committee

- Facilitate work group activities by providing technical and administrative support
- Assist the work groups with coordination, communications, and publicity
- Identify additional university specialists for support; e.g., mapping, networking, security, legal issues
- Create a mechanism for collecting data about the development and use of the broadband network to meet requirements of state and federal funders.
- Utilize the project space established at <http://www.In4Grants.com>

NIU Activities to Date

- NIU Exhibit- Research, Development and Innovation Day, Springfield, March 16, 2011
- Funded/Pending Projects
 - BTOP network construction: \$83.5 million from federal, state, and local sources
 - BTOP Evaluation: Training Senior Citizens in Internet Use, a joint project involving the Center for Governmental Studies, the School of Nursing and Health Sciences, and the Department of Sociology. Funding: \$160,000 from My Way Village Inc.
 - Market Research and Data Collection for the Illinois Broadband Development Project, a research project of the School of Nursing and Health Studies. Funding: \$20,000 from Illinois Fiber Resources Group.
 - The Public Opinion Lab has been asked to submit a subcontract proposal to Metropolitan Chicago Information Services pertaining to a funding opportunity from Partnership for a Connected Illinois titled "Technical Assistance for Broadband Planning and Adoption." The goal is to benchmark broadband uses and benefits and examine facilitators of and barriers to uptake of broadband services among households, community anchor institutions, and businesses in Illinois.

Impact of Regional Development at NIU

1. New curriculum, certificates, degree programs
2. Engaged learning opportunities for students
3. Increased interdisciplinary activities
4. Direct involvement of faculty with regional partners
5. Presidential Engagement Professors
6. New challenges

New Interdisciplinary, Real-World Curricula, Certificates and Degrees

IL-HITREC Services for Broadband Network Partners *Education & Outreach*

- Webinars – CME and CNE credits
- Case studies

Workforce Development

- Health Informatics training for new hires, existing staff
- Community college consortia program
 - 5 regional consortia include 70 community colleges
 - Each college will create non-degree training programs that can be completed in ≤ 6 months

New Interdisciplinary, Real-World Curricula, Certificates and Degrees

- Center for NGO Leadership and Development
 - Community Engagement and Civic Leadership Major and Certificate
- Institute for the Study of Environment, Sustainability, and Energy
 - Biodiversity and Environmental Restoration
 - Energy Studies
 - Human Experience
 - Environmental Policies
 - Non-Governmental Organizations
 - Water

New Interdisciplinary Curricula

Virtual Lab School (VLS)

- Involves faculty from five colleges
- Teaches NIU students to deliver instruction in the online environment
- Delivers professional development and mentoring for new teachers
- Facilitates remote supervision of student teachers
- Coordinated by P-20 Center, a university-wide unit

Engaged Learning for Students

- Engineers in Residence (aerospace cluster project)
- Undergraduate internships for talented students from underrepresented groups
- Data collection on Senior Citizen use of broadband
- Pre-professional academies (2+2+2) linked to emerging workforce needs
- Work-study placements in innovative settings

Incentives and Rewards for Faculty

- Presidential Engagement Professorships
 - Publicity
 - Award ceremony
 - Base salary increment and \$20,000 over four years
 - Course release
- Professors exemplified regional and global impact
- Awards raised awareness and clarified definition of “engagement” to highlight mutual benefits

Challenges to Regional Impact

Institutional conditions

- Commitment to regional action and innovation
- Culture of reciprocity (engagement vs. extension)
- Strategic investment of time and talent
- Communications
- Sufficient resources
- Outreach and engagement support structure

Challenges to Regional Impact

Partnership development and management

- Multiple and diverse partners – 750 local partners for broadband networks and 20+ agencies for JIAC
 - Differing priorities and perspectives
 - Differing contractual requirements
- Partnership management skills; e.g. diplomacy, negotiations, facilitation
- Established, long-term, effective partnerships

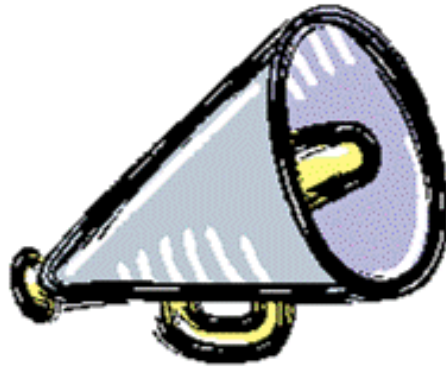
Challenges to Regional Impact

Funding Agency Expectations

- Well-established partnerships
- Proof of concept
- Increased detail and frequency in reporting

Regulatory Environment

- Procurement laws
- State and federal audit guidelines



**FEEDBACK
WANTED**

