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

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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 (CAIs) will have high speed broadband access capabilities.

- In Northern Illinois, a 10 county region will have high speed broadband access capabilities directly into NIU.
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

IBOP-NW and DATA
BTOP Funded Fiber Networks

NIU
NORTHERN ILLINOIS UNIVERSITY
NIU Broadband Initiatives

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NIU Broadband Initiatives

Potential Partner CAIs

- 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 an Average Movie (in Hours)

- 10 Gbps: What NIU is installing for backbone networks back to NIU
- 1 Gbps (1000Base-T): What NIU is installing to all CAIs
- 100 Mbps (10Base-T): Link often used by Health Care, very expensive
- 45 Mbps (DS3, T3): Residential High Speed DSL or Cable Modem
- 10 Mbps (10Base-T): Common CAI Link (89%)
- 2.048 Mbps (DSL): Ranges for low cost residential DSL
- 1.544 Mbps (DS1, T1): Some Rural Schools
- 512 Kbps: Some Rural Schools
- 256 Kbps: Some Rural Schools
- 128 Kbps (ISDN-2): Some Rural Schools
- 56 Kbps: Some Rural Schools

<table>
<thead>
<tr>
<th>Speed</th>
<th>Time to Download a Average Movie in Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>56 Kbps</td>
<td>60.7142</td>
</tr>
<tr>
<td>128 Kbps</td>
<td>26.5625</td>
</tr>
<tr>
<td>256 Kbps</td>
<td>13.2811</td>
</tr>
<tr>
<td>512 Kbps</td>
<td>6.6406</td>
</tr>
<tr>
<td>1.544 Mbps</td>
<td>2.2019</td>
</tr>
<tr>
<td>2.048 Mbps</td>
<td>1.6600</td>
</tr>
<tr>
<td>10 Mbps</td>
<td>0.3400</td>
</tr>
<tr>
<td>45 Mbps</td>
<td>0.0756</td>
</tr>
<tr>
<td>100 Mbps</td>
<td>0.0339</td>
</tr>
<tr>
<td>1 Gbps</td>
<td>0.0033</td>
</tr>
<tr>
<td>10 Gbps</td>
<td>0.0003</td>
</tr>
</tbody>
</table>
Collaborative Opportunities for NIU

• Research
• Instruction
• Public Service
• Community Engagement
• Innovation

• Healthcare
• Business
• Education
• Energy
• Environment
• Government
Context: Broadband, Healthcare, HIE
Context: Broadband, Healthcare, HIE

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**

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security</td>
<td>65%</td>
</tr>
<tr>
<td>Privacy</td>
<td>62%</td>
</tr>
<tr>
<td>System Compatibility</td>
<td>56%</td>
</tr>
<tr>
<td>IT Skills</td>
<td>43%</td>
</tr>
</tbody>
</table>

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.
IL-HITREC Services

*Education & Outreach*
- Webinars – CME and CNE credits
- Case studies

*Workforce Development*
- Health Informatics training
  - New hires and existing staff
- Community college consortia program
  - 5 regional consortia will include 70 community colleges
  - Each college will create non-degree training programs that can be completed in ≤ 6 months
**Context:** Home Based Telehealth

<table>
<thead>
<tr>
<th>Service</th>
<th>Currently Using</th>
<th>Willing to Explore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Support</td>
<td>13%</td>
<td>49%</td>
</tr>
<tr>
<td>Emergency Call Support</td>
<td>5%</td>
<td>64%</td>
</tr>
<tr>
<td>Remote Consulting</td>
<td>4%</td>
<td>63%</td>
</tr>
<tr>
<td>Remote Health Monitoring</td>
<td>3%</td>
<td>60%</td>
</tr>
</tbody>
</table>

Source: e-Strategy Report, North Carolina
**Future: Broadband, Healthcare, HIE**

- Avatar applications that provide precise measurement and evaluation while decreasing the need for patients to travel away from their local healthcare sites
- 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 healthcare. Simulation in healthcare 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 healthcare 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

<table>
<thead>
<tr>
<th>Application</th>
<th>Very Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online research</td>
<td>49.1%</td>
</tr>
<tr>
<td>Live Webinars</td>
<td>33.9%</td>
</tr>
<tr>
<td>In-person seminars, etc</td>
<td>26.0%</td>
</tr>
<tr>
<td>Online courses</td>
<td>21.0%</td>
</tr>
<tr>
<td>Classroom courses</td>
<td>17.4%</td>
</tr>
</tbody>
</table>
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
“...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
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
<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>INSTITUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts Technology</td>
<td>Illinois State</td>
</tr>
<tr>
<td>Internet and Mobile Media</td>
<td>Columbia College</td>
</tr>
<tr>
<td>Game Design</td>
<td>Columbia College</td>
</tr>
<tr>
<td>Game and Interactive Media</td>
<td>Tribecca Flashpoint Academy</td>
</tr>
<tr>
<td>Visual Effects and Motion Graphics</td>
<td>IL Institute of Art</td>
</tr>
<tr>
<td>Graphic Arts Technology</td>
<td>College of DuPage; Harper College</td>
</tr>
<tr>
<td>Multi-Media Design &amp; Development</td>
<td>DeVry University</td>
</tr>
</tbody>
</table>
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 on January 11 and May 10
• **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

**Broadband Steering Committee**
- Collaboration
- Communications
- Publicity

**Technical Advisors**
- Evaluation & Metrics
- Mapping
- Networking
- Security/Legal/Ethics

**Support Staff**
- Administrative Support
- Technical Design & Development
- Data Collection & Reports

**Work Groups**
- Education
- Business Innovation
- Energy & Environment
- Arts & Culture
- Healthcare
- Regional & Community Development

**NIU Strategy**

[Diagram showing Work Groups and their connections to Support Staff, Technical Advisors, and Broadband Steering Committee.]
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 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.
FEEDBACK WANTED