

Municipal Broadband, Technology Trends & Future Economic Success

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Today's Discussion

- Status of state broadband initiatives
- Key success factors for broadband effort
- Technology trends and their link to economic development
- Next steps for West NGN

Update on other Broadband Initiatives

- Greensboro/High Point/Burlington
 - Announced Nov 16 - North State preferred vendor
- RTP Town Center
 - Investigating a local loop and options for RTP
 - Hired consultant to create plan
- Fayetteville
 - New team including city manager
- Pembroke & UNC-P
 - Has local electric Coop, meeting upcoming
- Boone & App State
 - Own the electric poles, on hold with CIO change

Keys for Economic Development Success

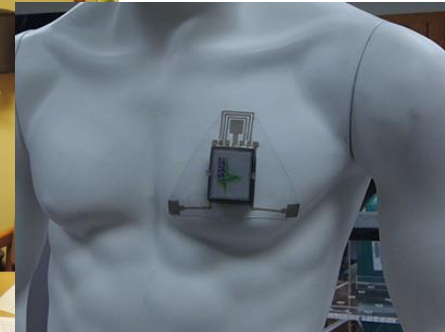
- Effort needs to provide value for provider
 - RFP needs to make the case for decreased cost & risk
- Connectivity is only one part of access:
 - Digital inclusion & economic expansion needs:
 - Endpoint devices/access models
 - Training/education, entrepreneurship
 - Examples & models of success

10 Predictions for Growth of Technology

- Telemedicine improves health
- Growth in attacks and need for Cyber security
- Higher demand for aggregated and verified information
- Focus on verified skills and not degrees
- AI and cognitive computing underpin more decision making
- Growth in virtual & augmented reality
- More everyday use of automation & robots
- Continued reduction in business friction
- Personal assistants run you life
- On demand customizable everything

Telemedicine Improves Health

- More use of distributed, remote & continuous diagnostics using technology
 - Requires local support (home health care, health techs, mobile technology)
 - Growth in “workflow” help for consumers (connecting devices, home systems, etc)



Growth in Cyber Attacks

- Increase of Cyber Warfare (state and organized crime)
 - Identity Theft
 - Phishing
- Need for education on protection
- Need for support (equivalent to home security, new cyber police)

Types of cyber attacks experienced by companies in the United States as of August 2015



Sources:
Ponemon Institute; Hewlett-Packard (HP Enterprise Security)
© Statista 2015

Additional Information:
United States, August 2015; 58 U.S. organizations



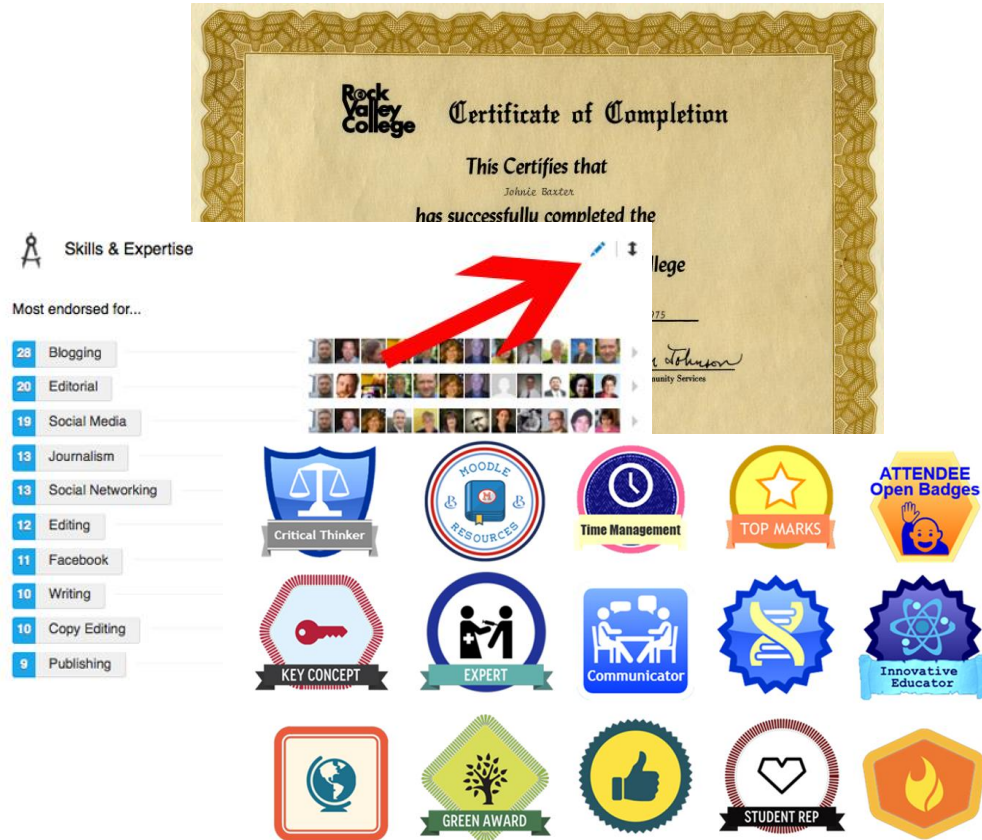
Higher Demand for Verified & Aggregated Information

- How do you trust information?
 - Trusted sites: WebMD, Wikipedia,
- Automating trust
 - Google uses algorithms
 - Angie's list & Wikipedia use crowd sourcing
 - News sites use verified sources (mostly)
- Municipalities, Higher Ed need to become trusted brokers

The image displays two screenshots of popular online platforms. The top screenshot is the WebMD homepage, featuring navigation links for 'CHECK YOUR SYMPTOMS', 'FIND A DOCTOR', and various health topics. It includes a prominent 'Check your symptoms. Ask an MD' section with a search bar and a '179 Doctors are online' indicator. Below this is a 'WebMDsymptomchecker' section with a form for 'For Me' (Gender: Male, Age: Choose one) and a 'The Air Quality' section. The bottom screenshot is the Angie's List homepage, which has a green header with 'Angie's list' and a 'Join Now' button. The main content area is titled 'WHY CHOOSE ANGIE'S LIST' and lists four key features: 'Real Results, Real People', 'Background Checks', 'Phone Support', and 'Angie's Guarantees'. Each feature is accompanied by a brief description and a checkmark icon. The footer includes a green bar with the text 'WE'VE DONE THE RESEARCH' and 'FIND HIGHLY RATED LOCAL SERVICE NOW', along with another 'JOIN NOW' button.

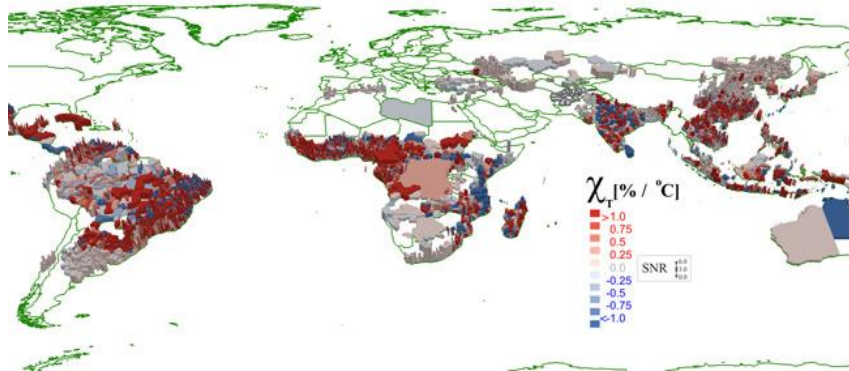
Focus on Verified Skills not Degrees

- Verified skills will replace the resume for hiring
 - Credentials, Badges & Certificates
- Huge need for programs to deliver targeted skills
- Need for skills verification mechanisms



AI & Cognitive Computing Underpin More Decision Making

- Watson, “Big Data”, Google AI: Predictive Analytics will control more decisions
 - AI management & training
- Need professionals to help municipalities adapt & integrate



Daily bias-adjusted NMQ: Annual 2002-2011



Growth in Virtual & Augmented Reality

- Real time translation
- Mapping and GIS integration (Pokemon Go)
- Simulation
- Municipalities need to make info accessible and tagged



More Everyday Use of Robots & Automation

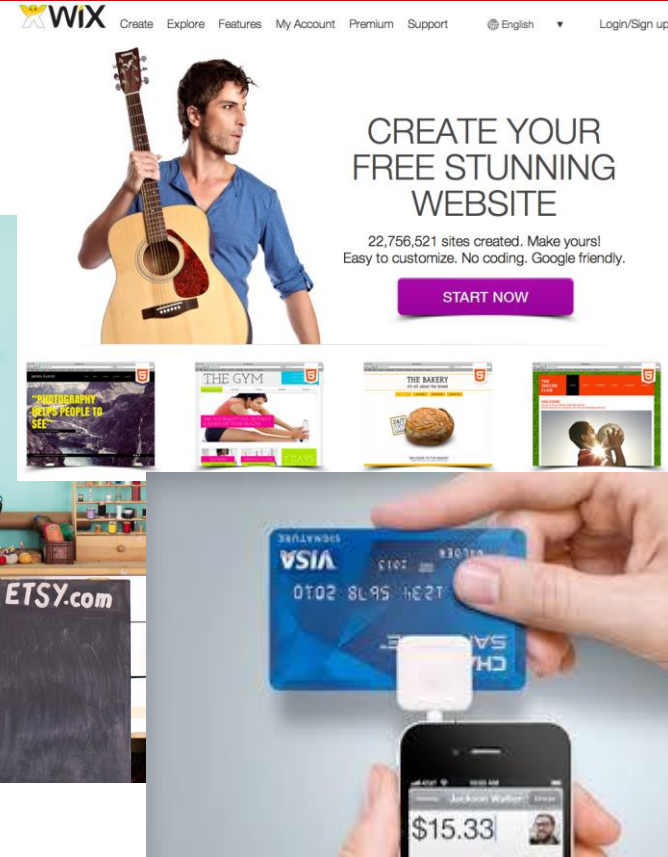
- Robotic virtual presence
- Exoskeletons
- Robot Surgery
- Will need technical support, repair, installation



BERKELEY LOWER EXTREMITY EXOSKELETON, 2004

Continued Reduction in Business Friction

- Ease of starting business
 - Mobile banking
 - Web business
 - Cloud accounting, ordering
- Municipalities & Higher Ed: focus on small business start-up, support, training



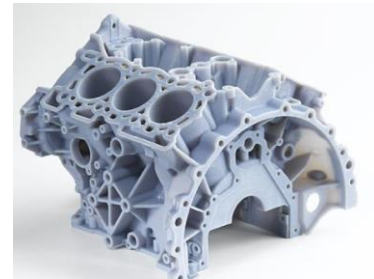
Personal Assistants Run Your Life

- Smart Homes
- Smart Assistants (Siri, Alexa, Google Now, Cortana)
- **Key:** Integrated information (calendar, contacts, search, driving, medical, gym)
- Municipalities & Higher Ed: Data Science, open data



On Demand Customizable Everything

- Advanced manufacturing for higher end products
 - Custom shoes, clothes, etc
- 3D print shops, on demand, shared (think tech shops merged with Kinkos)
- Higher Ed:
 - Next generation of designers & manufacturers
 - Municipalities: How to transform services to support these changes



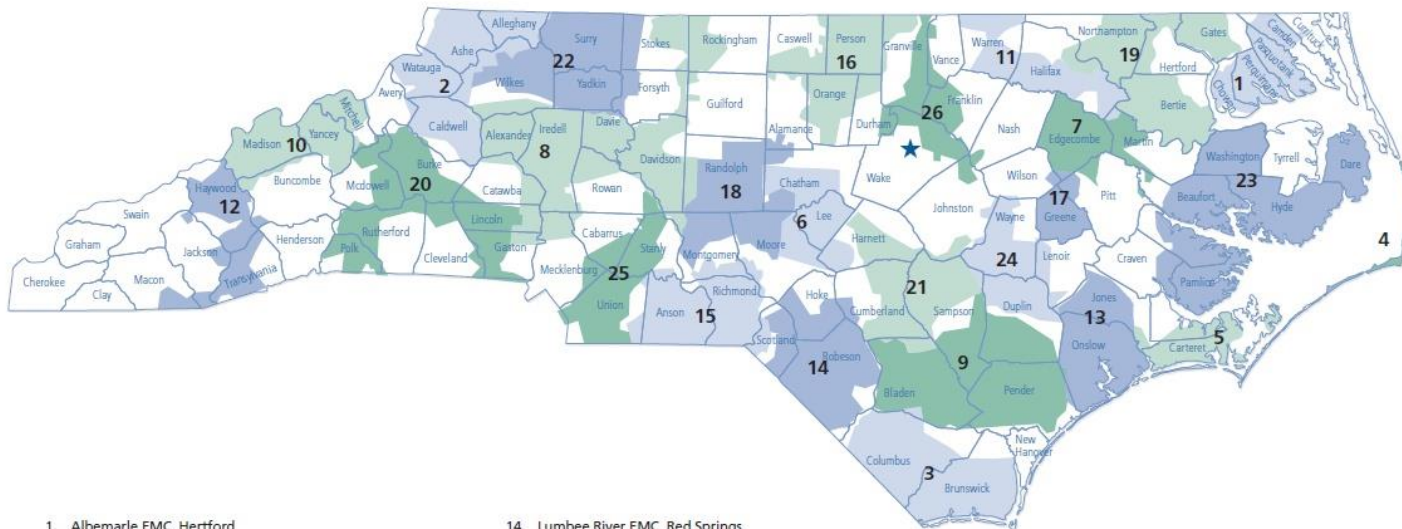
How to Take Advantage of the Trends

- Choose the trends that best fit your region
 - HUB & Broadband effectiveness committee can organize
 - Focus on a few to be excellent
- Develop rural outreach strategy
 - Map and select “hubs” to support areas
 - “Hub” can be library, community center, school
 - Partner with existing community organizations

Next Steps for RFP & Growth

- RFP process and competition is growing around NC & nation
- Expansion to rural areas - expand the collaboration:
 - Rural electric coop's
 - Telehealth Networks (<http://nctn.web.unc.edu/>)
 - Municipal Regional Network
 - Connect municipalities to reduce connection costs
 - Connect libraries, schools fire houses, etc
 - Grants:
 - USDA
 - Golden Leaf
 - Combine with Smart City Grants

NC Electric Coop's



1. Albemarle EMC, Hertford
2. Blue Ridge Electric, Lenoir
3. Brunswick EMC, Shallotte
4. Cape Hatteras Electric Cooperative, Buxton
5. Carteret-Craven Electric Cooperative, Newport
6. Central EMC, Sanford
7. Edgecombe-Martin County EMC, Tarboro
8. EnergyUnited, Statesville
9. Four County EMC, Burgaw
10. French Broad EMC, Marshall
11. Halifax EMC, Enfield
12. Haywood EMC, Waynesville
13. Jones-Onslow EMC, Jacksonville

14. Lumbee River EMC, Red Springs
15. Pee Dee EMC, Wadesboro
16. Piedmont EMC, Hillsborough
17. Pitt & Greene EMC, Farmville
18. Randolph EMC, Asheboro
19. Roanoke Electric Cooperative, Ashoklee
20. Rutherford EMC, Forest City
21. South River EMC, Dunn
22. Surry Yadkin EMC, Dobson
23. Tideland EMC, Pantego
24. Tri-County EMC, Dudley
25. Union Power Cooperative, Monroe
26. Wake EMC, Wake Forest

★ North Carolina Electric Membership Corporation (NCEMC)
3400 Sumner Blvd., Raleigh, NC 27616

Tarheel Electric Membership Association Inc. (TEMA)
8730 Wadford Dr., Raleigh, NC 27616

North Carolina Association of Electric Cooperatives, Inc. (NCAEC)
3400 Sumner Blvd., Raleigh, NC 27616

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3400

"Our Age of Anxiety is, in great part, the result of trying to do today's jobs with yesterday's tools."

~Marshall McLuhan~

1911-1980