

First mile investment in telecommunications infrastructure

A brief overview

Key goals

- Create a competitive marketplace
- Encourage private investment
- Reduce data and telecom costs for all
- Reduce overbuilding and redundant facilities
- Create local markets for new services

Roads, water systems, and sewer systems were usually privately maintained before communities began management of them for the common good.

Community investment in duct allows small and regional entrepreneurial telecom companies to compete with "old" monopoly service providers. It also reduces costly overbuilding.

DUCT/FIBER

A community colocation facility allows a vendor to enter a community and provide competitive services affordably. An MSAP data exchange point in the colo facility enables high bandwidth services.

COLOCATION FACILITIES, MSAPS

NEIGHBORHOOD EQUIPMENT SITES (NSAPs)

Wired and wireless services may both be used in communities. Geography, service needs, and costs will determine which is appropriate.

NSAPs, or Neighborhood Service Access Points, provide equipment location points in neighborhoods for vendors who wish to offer services

WIRELESS SITES, TOWERS

Neighborhood sites for wireless towers should be managed by the community to reduce visual clutter and to provide optimum service

Joining the Knowledge Economy: Six key challenges

*Vision: Where does the community want to go?
21st century telecom infrastructure
Savvy entrepreneurs*

*Continuous innovation
Skilled workforce
Quality of life*

The First Mile: Sociology Trumps Technology

Andrew Michael Cobill, Ph.D.

Design Nine

Blacksburg, Virginia

Why the first mile?

- It's where the money is...affordable access in residential neighborhoods will drive local economies for the next 20 years
- The proper role of technology is to support human relationships--personal, business, and civic

What is broadband?

- 25 megabits/second
- Dedicated, not shared with 250 of your closest neighbors
- Four channels of high definition television/videos (3-5 megabits each)
- Voice telephone
- Radio
- Music downloads
- Web surfing
- Outgoing data--Web server, video streaming, videoconferencing

Networks as transportation systems

- We really are building information roads.
- We need data transportation systems so that private sector companies can sell services to everyone in the community.
- Community investment in the transportation system expands the marketplace.
- The farmer's market is another model. The community provides a marketplace for buyers and sellers engage in commerce.

Why should communities invest?

- No incentive for the private sector to put a road past every house.
- No incentive for the private sector to supply water to every home.
- No incentive for the private sector to provide sewer service to every home.
- No incentive for the private sector to supply public safety services to the whole community.
- No incentive for the private sector to build parks and swimming pools.
- No incentive for the private sector to provide an education to every child in the community.
- Government-provided services have not destroyed the private sector.
- Public services created new markets: water and sewer enabled the washer/dryer appliance business.

Wired vs. wireless

- It's not a debate, it's both.
- Wireless is great way to get started, and helps build demand for wired access.
- It is not either/or, it is and/both.

Land use is more important than technology

- Poor right of way management is already choking development in some communities (like Blacksburg, Virginia)
- Lack of right of way in new developments and subdivision is drastically increasing future costs and shutting off new forms of economic development
- Poor zoning decisions (like Rural Residential classifications) is wasting rural land and permanently degrading quality of life in small communities

The best things in life are free

- Communities spend too much time complaining that they don't have money and/or chasing grants
- Zoning and building code changes are free.
- Require all new sub divisions to set aside proper telecom right of way, including NSAPs (Neighborhood Service Access Points).
- Require developers to install telecom duct and turn it over to the community in the same way that they install water, sewer, and roads and turn it over to the community.
- Require all new buildings to have structured wiring meeting Cat5e/Cat 6 standards, all home runned back to a common access point on an outside wall.
- Just before repaving streets, using the Corning or Emtelle systems to install duct and/or fiber. Make this part of the street maintenance budget.
- When installing or replacing street lights, use light poles with built in mounting brackets for wireless access points.

Cart before the horse strategies

- Excessive focus on infrastructure at the expense of local content
- Excessive focus on infrastructure at the expense of building future demand
- Excessive focus on infrastructure at the expense of aggregating existing demand

Project killers

- Spend money without creating a clearly articulated vision for the community that describes what the community should look like in twenty years.
- Simple readiness test: If the community does not have or will not take the time to write a futures-oriented vision (just 2-3 pages), it's not ready.
- Political leaders who do not recognize the need for change, or actively oppose it. The idyllic agriculture-focused concept of rural communities is long gone.
- Regional squabbling is poisonous, because the competition is not the next county, it's the next country. The competition is India, Singapore, Korea, and New Zealand. Regional projects aggregate funding, intellectual capital, and demand.

Economic development vs. entrepreneurship

- Call centers are reforming, not transforming
- 90% of new jobs in the U.S. are created by small businesses
- Telework failed because it was reforming, not transforming
- Work at home entrepreneurship is transforming
- Affordable broadband is the enabler
- No distinction between the business district and residential neighborhoods
- The neighborhood is the business district of the future
- The dejobbed small businessperson is the future (www.sohodojo.org)

Lessons from Blacksburg

- Not a special case: 3-5 years ahead of other communities
- Stick with it--this is 30-40 year task
- Stable funding leads to stable leadership
- Education project, not a technology project
- Content builds demand (information services provided by a community network)
- Aggregate demand
- Continuous innovation
- Vision, vision, vision -- a futures orientation is the single most important success factor
- Most communities don't want to do the hard work of thinking about the future

The future

- 21st century core values (ethical, moral, spiritual values that define the community)
- Transformational leadership--leaders as facilitators
- The Information Age/Economy is over--Knowledge Economy moving quickly to the Web Economy
- Reprogram the DNA of the community--interdependent, nonlinear systems as models for transformation
- Ecological planning--parallel processes that establish nodes of early adopters in multiple webs of relationships (collaboration)
- Knowledge Democracy--egovernment is NOT egovernance. Egovernance (using technology to support consensus-based decision making in the community) is still in the future.

About the author

Dr. Andrew Michael Cohill is an information architect with more than thirty years experience in technology and telecommunications. His educational degrees include a B.S. in Computer Science, a Master's degree in Information Systems (specializing in ergonomics), and a doctoral degree in architecture. He has worked in large and small businesses, in state government, and in academia. He worked for AT&T before, during, and after the breakup in the mid-eighties, and worked at AT&T Bell Labs as well as the manufacturing arm of the company. He has extensive experience in software and data base systems development. His software R&D group at Virginia Tech was designing and deploying Internet-based software in the early nineties, before the Internet became a household word.

In 1993, Virginia Tech selected him to lead the Blacksburg Electronic Village project. Over the next decade, Cohill made Blacksburg a worldwide phenomenon; throughout the late nineties, Blacksburg was widely hailed as the most wired community in the world. More recently, Cohill was selected by the Governor of Virginia to lead the Virginia eCommunities Task Force; in 2000, Cohill advised Hewlett-Packard on the design and management of HP's Digital Villages initiative. He has consulted with more than 100 communities worldwide on telecommunications planning and long term strategy development. He is in wide demand as a speaker and advisor on technology issues because of his non-traditional approach to community development and his dedication to approaching technology issues as part of a larger view of the community. Passionately committed to ensuring that communities get the right technology to prosper in the future, Cohill began working full time as a consultant in the spring of 2002. He is also Executive Director of the Knowledge Democracy Center, and works closely with Communities of the Future on a variety of joint projects.

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