Innovation Diffusion and Broadband Deployment in East St. Louis, Illinois, USA

Martin Wolske and Lisa Bievenue

Context: Broadband Technology Opportunity Program (BTOP)

The American Recovery and Reinvestment Act set aside $4.7 billion USD to establish the BTOP to advance President Obama's national broadband strategy:

- **To provide access to broadband service to consumers;**
- **To provide broadband education, awareness, training, access, equipment, and support to community anchor institutions that serve vulnerable communities;**
- **To improve access to, and use of, broadband service by public safety agencies; and**
- **To stimulate the demand for broadband, economic growth, and job creation.**

Context: East St. Louis, Illinois, USA

Once known as an All American City, East St. Louis is now one of the most economically distressed cities in the central US:

- Population declined from 83,000 in the 1950's (~50% black) to 30,000 in 2008 (98% black); 35% live below the poverty line
- Businesses declined from 1,527 (mainly large industrial) in 1967 to 202 (mainly small) in 2008
- Median household income is $21,324 USD compared to $46,590 USD for the state of Illinois
- Total population of Metro East is 70,000; surrounding cities and villages are smaller and in most cases are even more economically distressed
- BTOP proposals emphasize region-wide need for broadband support and development

Context: Champaign/Urbana, Illinois, USA

- Home to the University of Illinois at Urbana-Champaign
- Population has been increasing, currently just over 112,000 between the two cities (15% black; 4% hispanic)
- The median household income is $36,574 in Champaign and $27,819 in Urbana (East St. Louis $21,324; state $46,590)
- There is considerable disparity between the economically wealthy neighborhoods in southwest Champaign and the most marginalized neighborhoods of north Champaign/ Urbana
- BTOP proposals especially focused on the marginalized neighborhoods, although the region-wide fiber optics network would support everyone

Context: Proposal Development

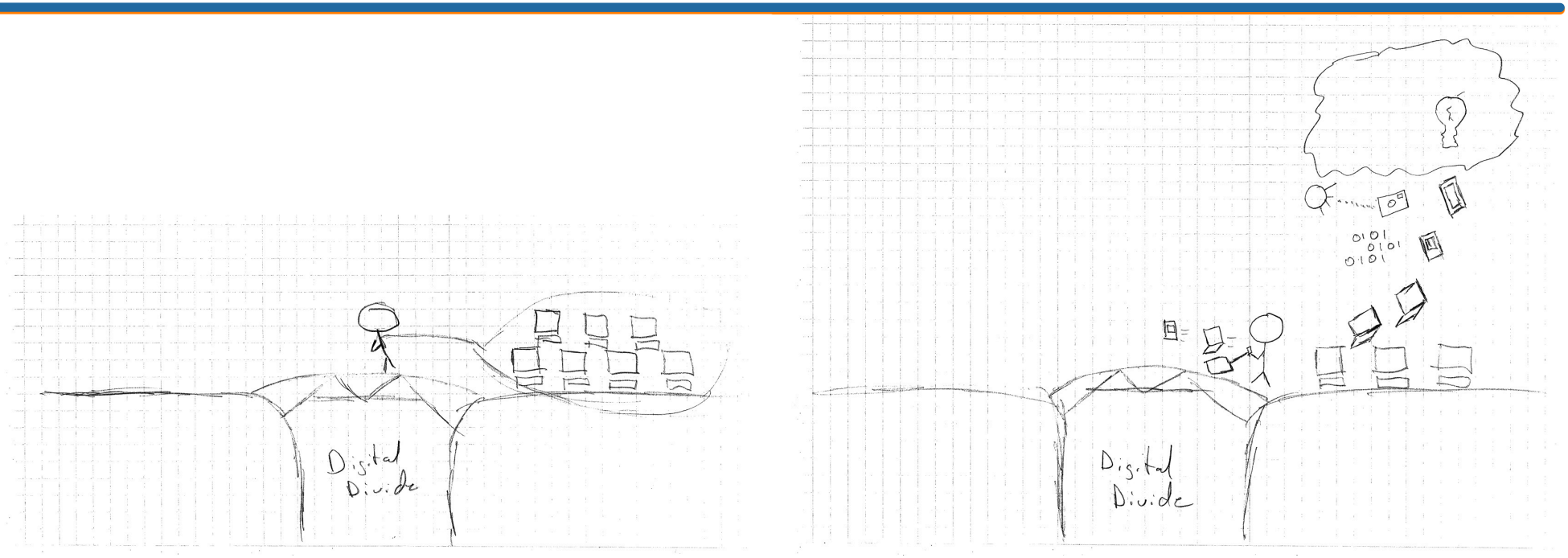
There were three categories within which organizations could apply:

- Comprehensive Community Infrastructure (CCI)
- Public Computing Centers (PCC)
- Sustainable Broadband Adoption (SBA)

Martin Wolske worked extensively on BTOP proposals in all three categories for East St. Louis and consulted on the PCC and SBA proposals for Champaign/Urbana

Lisa Bievenue worked extensively on all BTOP proposals for both communities.

Approaching the Digital Divide



Keep shoveling until the community can reach the educational and economic levels needed to directly implement new information and communication technologies (ICT) themselves

BTOP Proposal Development: Champaign/Urbana vs. East St. Louis

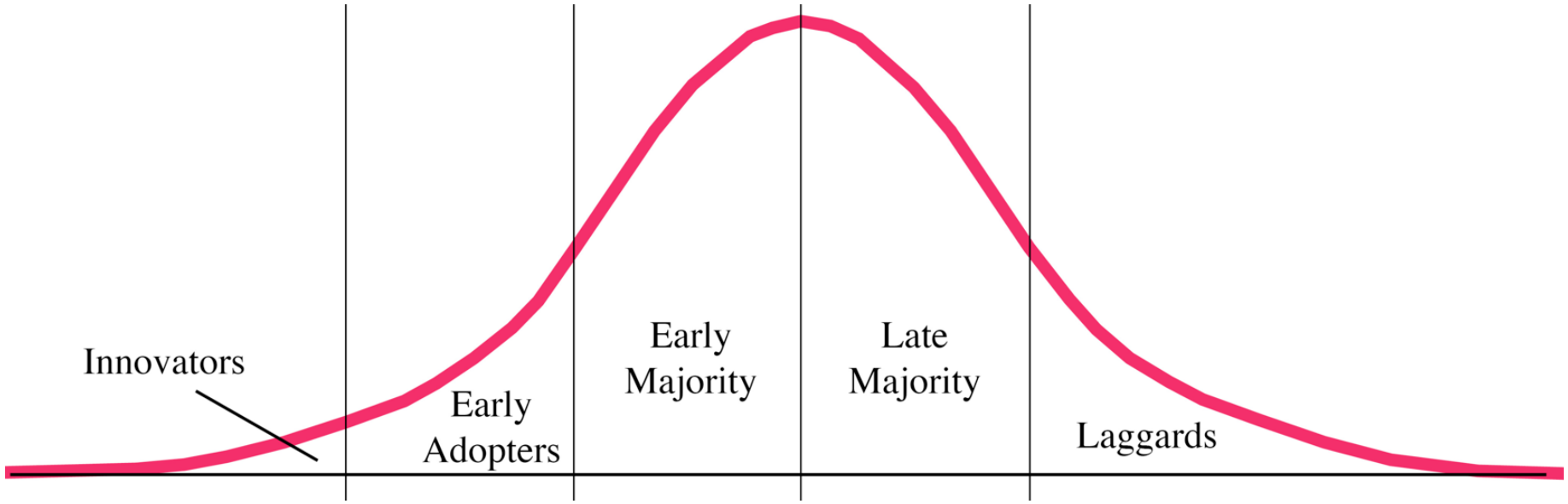
Given the disparities in economic, educational, and technical well-being between Champaign/Urbana and East St. Louis, it was expected that in Champaign/Urbana there would be:

- **a greater up-front understanding of broadband technologies;**
- **a deeper understanding of their value to the community; and therefore,**
- **more human capital to assist in grant development.**

Unexpected reality:

- **Similar population of technology geeks;**
- **Similar population of technically unaware/skeptics; and**
- **Overall, similar levels of assistance for grant development**

Diffusion of Innovation: Everett Rogers



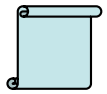
Invention – developing new knowledge, processes, or technologies

Innovation – putting inventions to effective use for an organization or community

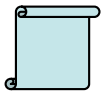
Each organization or community must have innovators and early adopters for diffusion of innovation to occur from within

Building blocks for achieving adoption critical mass from within a community

Innovators: tinkerers; because they participate in other innovative communities they are first to try new inventions

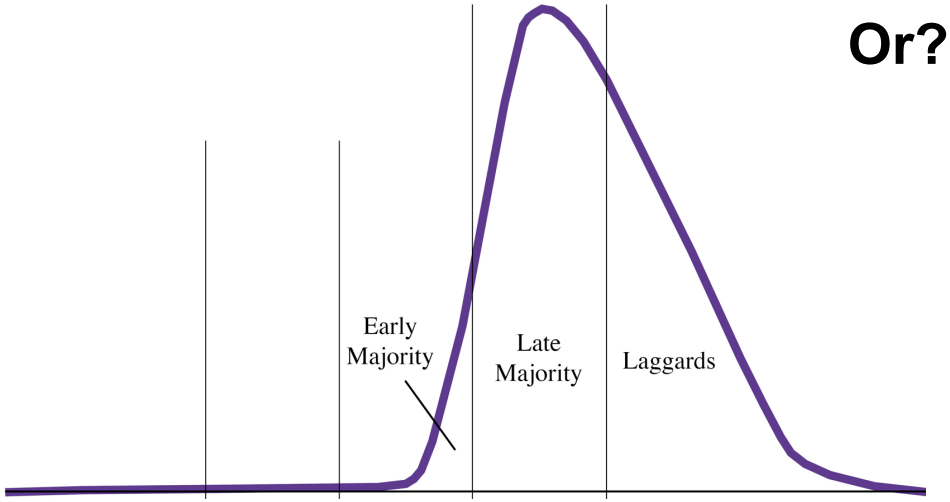
- **$$ to try**
- **  to try**
- **  to try**

Early Adopters: community opinion leaders use *high-risk, high-return projects* to achieve breakthroughs for their group

- **$$ for the community???**
- **  for the community???**
- **  for the community???**

Then…

Marginalized communities and ICT diffusion



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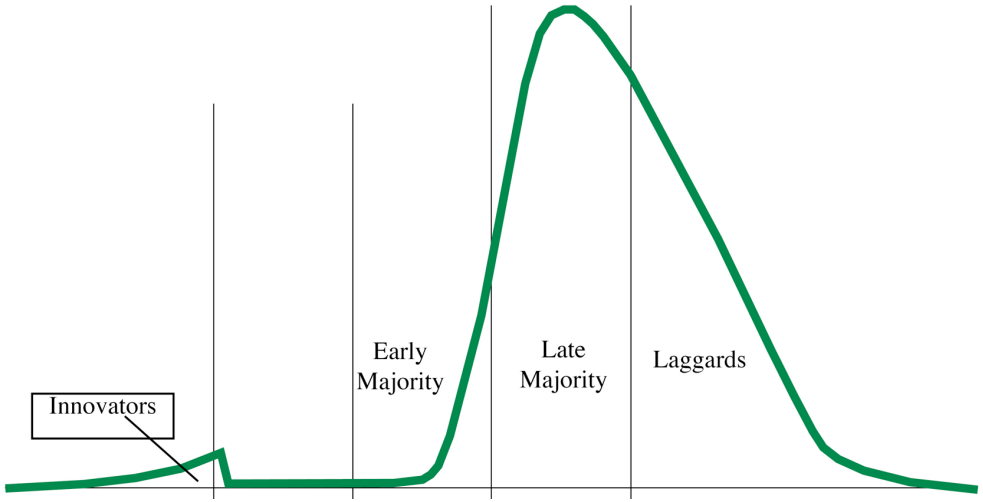

ICT Innovators in East St. Louis:

- **Exist (e.g., getting the newest iPhone the day its out)**
- **Do not see the broader community using the latest technologies**
- **Doubt community can/will use latest technologies until it has become mainstream for sometime.**

Comparing Diffusion of Innovation

For ***ICT diffusion***, Champaign/Urbana as a general rule more closely reflects the normal (red) distribution curve; East St. Louis the green

We now wonder whether the most important role of Prairienet, the community network begun in 1993 by Ann Bishop and others at the University of Illinois, was to support the early adopters

Sustainably bridging the digital divide

The digital divide is ultimately a breakdown in diffusion of ongoing ICT innovation within a community

The Infrastructure to support ICT diffusion must come ***from within*** a community; introducing ICT ***to*** a community is not enough

Many ***non-technical*** factors skew the diffusion curve:

- Lack of education
- Lack of discretionary income and time → need for certainty
- Fatalism that comes from being marginalized

Tapping into existing diffusion infrastructure for ICT diffusion

Tap into the diffusion of innovation that is happening from within *every* community to build ICT diffusion infrastructure:

Identify and support local innovators; and

Recruit local opinion leaders that have the interest and aptitude to be early ICT adopters.

- **Build team of early adopters to provide mutual support.**
- **Raise awareness of emerging ICT for development among early adopters → regional travel, workshops, etc.**
- **Implement future ICT projects in collaboration with early adopters → look for strategies to address discretionary time**

→ Market local innovator and early adopter ICT adoption ←

Summary

- The unexpected: during the development of broadband proposals in two different communities, we found that Champaign/Urbana and East St. Louis had similar populations of technology geeks and technology unaware/ skeptics
- The hypothesis: based on a Diffusion of Innovation framework, sustainable ICT adoption occurs in Champaign/Urbana because of a solid core of opinion leaders who serve as early adopters to provide their stamp of approval to innovations
- The test: intensively recruit and support opinion leaders within marginalized communities to serve as early adopters. Over time this should lead to a more sustainable diffusion of innovation and ultimately the elimination of the digital divide