



ENGAGEMENT WEEK

OCT. 21–25, 2019

Highlighting connections that improve
Missouri's economy, health & education

Opportunities and Challenges in Broadband Access

Nearly 1.3 million Missourians do not have fixed high-speed broadband (25 Mbps download and 3 Mbps upload) at home with 1 million of them living in rural areas, exacerbating the digital divide. Enhanced broadband access would boost our state's economy by improving healthcare outcomes, educational attainment and access to emergency services.

These benefits can only be realized if both technology access and adoption co-occur.

TECHNOLOGY QUALITY Broadband access is achieved via fixed and mobile technologies. Mobile or cellular access alone is not considered adequate. Fixed technologies can be wired, such as fiber optic cable, digital subscriber line (DSL) over copper telephone lines, and cable modem over television coaxial cable. Fixed access can also be wireless, if line-of-sight is available. Satellite internet tends to have the slowest speeds while fiber optic cable can deliver the fastest speeds. Different broadband applications require different connection speeds, latency, and bandwidth specifications. For example, while a 25/3 connection rate may be appropriate for normal residential service, it may be inadequate for precision agriculture or telemedicine applications.

INFRASTRUCTURE COSTS The key revenue driver for broadband service is the number of subscribers per mile (take rate). Rural areas tend to have low population density, which decreases the return on investment (ROI). Costs are also sensitive to weather and terrain. It is possible to leverage existing infrastructure (e.g. electrical poles) and coordinate deployment activities (e.g. bury cable when constructing a new road a.k.a. "dig once" rule) to reduce the required investment. Particularly in rural environments, a combination of fixed wired and wireless assets may offer the most cost-effective solution for deploying and/or expanding broadband infrastructure.

FINANCIAL MECHANISMS Public funding can reduce the cost-per-customer differential resulting from low population density. There is a need for innovative organizational and capital structures that can better utilize public funds to lower costs and encourage broadband expansion by the private sector. In lieu of traditional public utility models, public-private partnerships can marry the flexibility and expertise of private internet service providers with public funding, tax incentives and "government as anchor customer" arrangements.

CUSTOMER ADOPTION According to 2017 data from the Federal Communications Commission, rural areas tend to have lower take rates (71% compared to 79%), largely due to perceptions that they do not need internet access. Beyond cost, there are challenges such as skill and language barriers, quality of service, billing transparency, privacy, data security and overburdened community intermediaries that contribute to lower take rates.

POLICY ENVIRONMENT Development and deployment of new broadband infrastructure technologies along with the applications that can effectively use those technologies requires a favorable legal and regulatory environment. For example, issues such as right-of-way and spectrum access can slow broadband hardware buildout in new areas. Inflexible reimbursement policies by Medicare and private insurers can discourage utilization of telemedicine technologies.

MANAGEMENT STRATEGY Strategies are needed to coordinate local, state and federal programs to ensure that broadband initiatives are implemented efficiently. Government and Non-Governmental Organizations have mobilized resources for broadband expansion, but would benefit from analytical tools to improve strategic allocation to the areas most in need. For example, funding for infrastructure build-out may need to be supplemented with digital literacy campaigns and/or demonstration projects for precision agriculture or remote learning programs.





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Important broadband issues to consider:

Being “Smart” - What does it mean to be a smart region? How does this differ in urban vs. suburban vs. rural areas? When should communities invest in infrastructure rather than wait for technological advancement (e.g. 5G)?

Identifying Factors - What technical and social factors influence the development and utilization of broadband infrastructure? For example, would the availability of useful applications increase adoption rates?

Prioritizing Resources - How is importance assigned to end uses (e.g. education, healthcare, business, entertainment) and how should these be prioritized for infrastructure build-out and public funding? How much public funding should go to broadband versus other types of infrastructure (e.g. transportation, water)? Should public broadband development resources (i.e., state and federal funds) for underserved communities be prioritized over unserved communities?

Developing Synergies - How can communities develop synergies between broadband infrastructure build-out and community development initiatives in other areas such as workforce, healthcare, agriculture, energy and education?

Taking Action - What actions need to be taken to create an infrastructure capable of supporting “broadband for all”? For example, what regulatory and policy initiatives (e.g. tax incentives, differential tariffs) are necessary to promote broadband for all?

Further Reading

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