Digital Infrastructure and Regulatory Framework as Determinants of 5G Success

AGENDA

Notable aspects of U.S. digital infrastructure and history

Barriers to 5G deployment in the United States

Broadband Deployment Advisory Committee recommendations

Implementing recommendations and exemplary strategies in South Africa

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Notable Aspects of U.S. Digital Infrastructure and Network Deployment History

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Early Telecommunication Networks

- Late 19th and early 20th century: Development of the first U.S. telecommunication networks

- The expansion of the landline telephone network connected homes, businesses and communities

- Development of long-distance lines and interconnection agreements contributed to a more comprehensive national network

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Precursors of the Internet

- Late 1960s: ARPANET is developed by the U.S. Department of Defense's Advanced Research Projects Agency (ARPA)

- 1980s: The National Science Foundation (NSF) funded the creation of the NSFNET, a high-speed network linking research and academic institutions

Birth of the Internet Age

- The 1990s saw rapid growth in internet usage as it became commercialized and accessible to the public

- Internet Service Providers (ISPs) emerged, providing dial-up and broadband internet connections to homes and businesses

Broadband Infrastructure

- Demand for faster and more reliable connections led to investments in cable, DSL and fiber-optic networks to expand broadband access across the country

- Initiatives like the Broadband Infrastructure Program provided deployment and use of broadband technologies in rural areas

Mobile Communication Revolution

- Smartphones and mobile data services led to a significant transformation in mobile communication

- Carriers competed to deploy advanced 3G and 4G networks, expanding coverage and data speeds

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Broadband/Fiber-Optic Network Expansion

- Substantial investments in fiber-optic networks have been made to support high-speed internet and 5G technologies.

- Examples of Federal funding includes:
  - American Recovery and Reinvestment Act (ARRA) of 2009
  - FCC's Connect America Fund (CAF)

5G Deployment

- The U.S. has been a forerunner of 5G technology deployment, with major carriers rolling out 5G networks in select cities and gradually expanding coverage nationwide.

- The development of small cell infrastructure, spectrum auctions, and investments in cutting-edge equipment facilitate the 5G rollout.

Aspects of Regulatory Framework that Should Position the U.S. for 5G Success

Governmental Roles in U.S. Broadband Network Deployment

Federal Government

Federal agencies (FCC, FAA, EPA, NTIA)

State Government

State PUCs/PSCs
State-wide laws addressing local zoning and land use regulations

Local Government

Land use and zoning regulations

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The Telecommunications Act of 1996

Promotes competition and reduce regulatory barriers to entry in the telecommunications market

- Preserves the authority of state and local governments regarding construction, modification, and placement of telecommunications facilities such as towers

- Establishes notable limitations on state and local decisions regarding such facilities

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The Spectrum Act of 2012

Addresses the growing demand for wireless spectrum and promotes the deployment of advanced wireless technologies, including 4G and 5G

- Authorizes the FCC to conduct voluntary incentive auctions to repurpose broadcast spectrum for commercial wireless use

- Creates a broadband communications network for first responders (known as FirstNet)

- Addresses state and local governments' ability to deny requests to modify wireless telecommunications facilities

Barriers to 5G Deployment in the United States

Barriers to Broadband Deployment

Spectrum Availability: Limited spectrum resources, spectrum allocation challenges, spectrum licensing and auctions, spectrum hoarding and inefficiency, and, clearing and repurposing spectrum

Regulatory Barriers: Lengthy and costly permitting process, bureaucratic red tape, inconsistent permitting regulations across regional and local governments, and concern about environmental health effects

Workforce and supply chain: Lack of qualified workers to handle deployment and supply chain limitations

Lack of broadband adoption by many constituents

BDAC Recommendations on Deployment of High-Speed Internet

Model codes

- Model codes created for municipalities and states should help accelerate deployment of broadband internet

Streamline broadband deployment on federal property

- Mandate requirement of federal agencies to provide regular status updates to applicants
- Establish timelines within which applications must be approved or denied
- Harmonize environmental reviews across all federal agencies

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Reduce state and local barriers

More comprehensive collaboration between broadband infrastructure providers, MNOs and local officials

States develop a process for local governments to certify they are "Broadband Ready"

Establish a "Broadband Readiness" checklist

Provide guidance on excessive and/or duplicative fees

Reduce state and local barriers

Leverage expert stakeholders to consult with state and local governments

Facilitate an information-sharing hub for communities to connect

Explore funding and certification programs

Create voluntary pool of experts to assist in processing applications

Increase Investment in Low-Income Communities

Create new programs and expand existing programs and tax incentives to increase broadband deployment in unserved and underserved areas

Minimize regulatory barriers at the state, local and tribal levels to incentivize broadband deployment

Expand access to spectrum in rural areas using FCC's special temporary authority to license spectrum

Create and utilize enhanced digital literacy and inclusion programs

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Invest in job skills and training opportunities

- Working in the broadband industry is a significant opportunity for students and those already in the workforce to participate in the "new economy"

- Create coalitions among workforce agencies, the broadband industry and educational institutions to develop standardized training and programs

- Foster partnerships for apprenticeships, internships and scholarships, and create and adopt credentialing to demonstrate competencies

Implementing recommendations and exemplary strategies

- Address spectrum availability

- Assist with developing workforce

- Streamline local and provincial permitting

- Reduce costs of deployment

- Encourage earlier and more comprehensive collaboration among broadband infrastructure providers and government officials

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Questions?

Please contact Doug or Sam with any questions you may have on this presentation.

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Thank You!