

# Broadband Demand and Wireless

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Topic: Broadband Deployment

## I. INTRODUCTION

Broadband demand is a current and important topic of national policy. The actual status of adoption of broadband, the rate of adoption, the effects of adoption, and choices of policies and initiatives that might effect adoption are all being actively discussed by industry, academia, and government.

The state of wireless technology, applications, and businesses both affect and are affected by the general state of broadband demand. In this paper, we review the general status, drivers, and policies relating to broadband demand, and then consider in particular interactions with wireless technology, applications, and policy.

## II. BROADBAND DEMAND

A majority of Americans use the internet; however a smaller fraction are using broadband, on the order of 15% of households. Although the rate of growth of broadband subscription has slowed, observers are divided in being concerned about too slow an adoption rate or considering the rate to be normal and as expected. Observers do generally agree, though, that the basic characteristics of broadband and specific applications that are enabled represent an important economic opportunity and are an issue in international economic competitiveness.

We explore both the actual status of broadband and the current policy debate around broadband to set a framework for a discussion of issues in broadband demand specific to wireless.

## III. WIRELESS AND BROADBAND

Wireless technology, applications, and business are a critical component of the overall broadband demand status and policy discussion. Specific topics of interest include:

*Spectrum Policy.* Liberalization of spectrum policy is being touted by the U S government administration as a key component in its general support for broadband deployment. Key assumptions

include the viability of wireless businesses in a more liberal spectrum space (partially testable based on current Wireless Internet Service Provider initiatives) and the potential for innovation.

*Inter-Modal Competition Policy.* The more prominent current policy on competition for broadband is to focus on fostering competition between technology platforms (e.g., between DSL and cable modem based service providers) rather than within platforms. Wireless could play a role in sustaining this policy if it can create a viable and widespread third platform.

*The "Digital Divide" and Universal Access.* Although broadband is widely available, it is least available in rural and economically disadvantaged areas. Wireless can play a role in economically extending access to broadband to these communities.

*Decentralization and Diffusion of Power.* Wireless, particularly in the form of 802.11 networks, has shown the potential for novel, diffuse, and politically decentralized versions of network access that are hard to duplicate in wired configurations.

*Mobility and Network Externalities.* Many broadband applications exhibit network externalities; they become more valuable the more users there are. To the extent wireless can incorporate mobile users into an application's user community, all users benefit.

*Economic Drivers of the Wireless Industry.* The wireless industry originated primarily as a telephony application; widespread use of wireless for broadband would lead to a transformation of the underlying economic drivers of the industry with consequences for all stakeholders.

*Public Safety.* Broadband network access is becoming an expected part of public safety, so the effective marriage of broadband and wireless for this purpose is an important national policy goal.