

Modern Communications Technologies Empower California Businesses

California remains the nation's technology leader in job creation and innovation. Home to more than 1.1 million employees in the technology sector alone, the state continues to enjoy private sector investment and economic growth year after year.

With Californians continuing to embrace cutting-edge technologies, including the internet of things (IoT), wearables, sharing-economy platforms, and mobile apps, it's clear that the state's economic growth and technology adoption go hand in hand. As the internet has become a part of everyday life for Californians and state industries, promoting broadband everywhere has been an essential component to maintaining the state's role as a global leader in innovation.

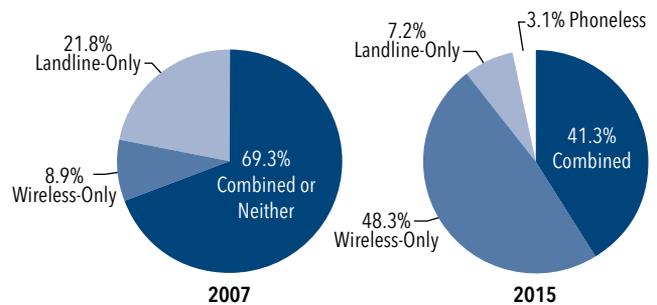
Technology Growth/Adoption

Consumers are increasingly using broadband thanks to significant investment and the large-scale build-out of high-speed internet infrastructure. U.S. consumers are streaming movies and downloading content more than ever, fundamentally changing the communications, entertainment and technology landscape. In recent years, the internet has become more closely linked to Americans' lives as the IoT—think smart appliances and connected cars—have quickly come online. According to McKinsey & Company, there are projected to be 20 billion to 30 billion "things" connecting wirelessly with the internet around the world by 2020.

Some 92% of Californians use a cellphone or smartphone, and more than 18 million Californians use their mobile devices to access the internet. Already, more data is carried over Wi-Fi than any other platform. In fact, 86% of in-home broadband usage is carried by cable broadband Wi-Fi. The cable industry has more than 500,000 public Wi-Fi hot spots dotting the country and is adding more every year. More important, cable customers have free access to these Wi-Fi hot spots. In addition, the advance of the Wi-Fi technology has proven to be an unparalleled hotbed of innovation, producing not only Wi-Fi but Bluetooth and many other technologies. Wi-Fi plays a crucial role in achieving fast, innovative, widely accessible broadband access.

It's clear that wireless devices are an important portal to the 21st century information economy. For many communities, low-income Californians in particular, wireless devices are the preferred source of internet access. Consumers are actively choosing new and innovative products, services and devices that require faster, more robust and more advanced technology—whether wired or wireless. Every month, 450,000 U.S. consumers switch to phone services that run on wireless and internet-based networks. In fact, in California, more than half of all homes are wireless-only and, among those with landline phones, more than 4.1 million run over voice over internet protocol (VoIP) technology. Perhaps it's no surprise then that the U.S. mobile subscriber data consumption has more than doubled since 2014.

Growth of Wireless-Only Households



Source: U.S. Centers for Disease Control and Prevention

Individuals and households are not the only ones going wireless. Businesses increasingly depend on strong wireless service to carry their employees through the work day. In fact, 94% of small businesses surveyed use smartphones to conduct business, and mobile technologies are saving U.S. small businesses more than \$65 billion a year.

The transition from antiquated to modern communications technology is largely complete. Today, less than 6% of Californians rely solely on landlines for phone service, and that population continues to shrink year over year. Consumers are making this shift because of the inherent benefits of mobile and broadband technologies—just as they once shifted from typewriters to computers. With consumers increasingly going wireless, using wearables and embracing newer IoT services, Wi-Fi deployment, mobile data capacity and coverage is more important than ever.

Significant Investment/Innovation

Venture capital has played a large role in the growing technology sector in recent years—both in California and the nation more broadly. Throughout the United States from 2013–2016, investors dispersed \$140 billion throughout the United States, more than half of which came to California.

Investment and innovation have been extraordinarily strong in the mobile wireless ecosystem. In 2015 alone, capital investments made by telecom, cable and technology companies nationally totaled \$48 billion, more than any other sector. Several markets around California and the country have seen this investment manifested in 100% fiber-optic networks, delivering unprecedented internet capabilities to consumers. With 5G technology in the pipeline, mobile and fixed wireless services to homes could hit 1 gigabit per second speeds, providing a far-reaching alternative to fiber facilities for access. And in just the last few years, cable network broadband speeds have quadrupled—now up to 2 gigabits per second.

Expanding Opportunity An Agenda for All Californians

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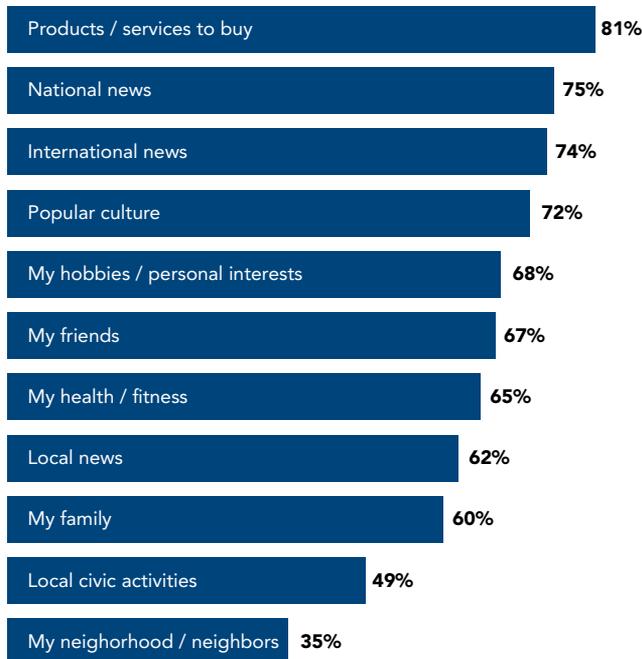


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Internet Users: Digital Tech Makes Them Better Informed than 5 Years Ago

% of internet users who say the internet and cellphones help them be better informed about:



Source: Pew Research Center (August 2014 Panel Survey)

Investing to expand broadband access to all Californians also brings economic growth and new jobs. According to the Progressive Policy Institute, four of the top 25 markets for technology sector jobs can be found in California, including each of the top three. Furthermore, all four California markets in the top 25 saw significant growth in nontechnology jobs in addition to the rapid growth rates in the technology sector.

The explosion in innovative broadband services and applications (apps) is driven by consumers, but realized by the enormous infrastructure investments by wired and wireless providers.

These providers must increase the value of their networks to recover those investments. Accordingly, the value of the networks depends on how many end users subscribe to them and how much data those users consume. Thus, providers have an incentive to continue to ensure that customers can access the applications, services, and content of their choosing, regardless of who is providing service.

Advanced Technology Benefits Consumers

Providing Information

The internet has enabled Americans to become better informed about products and services available for sale, national and international news, and popular culture. Overall, internet

users believe that both the average American and the average student today are better informed, thanks to the internet.

- 76% of online adults say access to the internet has made average Americans better informed.
- 77% of online adults say access to the internet has made today's students better informed.

Advancing Health Care

According to the Federal Communications Commission, mobile health (mHealth) reduces the number of face-to-face consultations necessary and can reduce medical costs by 25% for seniors.

In the near future, mHealth is expected to save patients \$21.1 billion per year. Telehealth (telecommunications technologies used by health professions for remote consultations) reduces days spent hospitalized by 25% and reduces the number of hospitalizations by 19%.

Between 2005 and 2030, broadband-based health resources will save approximately \$927 billion in health care costs for seniors and people with disabilities. The growth of IP-powered telehealth and telemedicine makes life easier for patients requiring specialty care. Consumers seem to sense the value of mHealth devices, with 33% of broadband households in a recent survey reporting to use digital health and wellness devices in 2015, a jump from 26% in 2014.

Patients now have access to telemedicine solutions that can help manage chronic illness like diabetes and heart disease from their smartphone, provide tools for medication adherence, deliver remote care monitoring and keep them healthy with wellness and fitness apps. And studies have shown that 24/7 remote monitoring of patients with implantable cardiac devices via mobile phone networks reduced the mortality rate for cardiac patients by 50% and improved their clinical status by nearly 10%.

According to the American Telemedicine Association, patients with congestive heart failure who used telemedicine reduced their hospital admissions by 60%, reduced emergency visits by 66% and reduced utilization of pharmacies by 59%. In contrast, patients who did not use telemedicine experienced increases in these three areas. Patients with congestive heart failure who used telemonitoring saw a 44% reduction in readmission rate.

To make it possible for everyone to benefit from these technological advances in the health care industry, public policies should reflect the choices that consumers are making today and encourage the investment and innovation needed to meet consumer demand.

Increasing Education Access, Quality

Investment in high-speed broadband internet and next generation IP-based networks helps bring communities across the nation the faster, more reliable service they demand. The benefits of IP-enabled products, offerings and services are far reaching and can positively affect every area of our lives.

High-speed broadband internet and next-generation

IP networks help educators meet students' specific needs and customize their education. Products and devices like smartphones, netbooks and tablets help students and teachers access applications anywhere and anytime, allowing them to learn and explore beyond their classrooms and the local library.

Video conferencing via wireless and broadband-enabled technology offers face-to-face communication. With a few clicks, teachers can quickly access lectures and colleagues from near and far. IP technology also allows students and teachers to access a multitude of services, applications, and capabilities that exist in "the cloud."

Mobile learning platforms, digital content, and adaptive software allow students to utilize the technologies and devices with which they are already familiar to help them learn and access educational information in a timely manner. This can especially benefit African American and Hispanic American students, who are leading adopters of smartphones and mobile technology.

Online classes made more widely available through IP networks can help address the shortage of advanced and expanded course offerings in rural schools, only 69% of which are able to provide Advanced Placement classes, compared to 93% of city schools.

At the higher education level, more students than ever are taking advantage of online educational opportunities. According to the U.S. Department of Education, nearly 27% of all undergraduate students enrolled in at least one online course in the 2013–14 school-years, with more than 11% enrolled exclusively in online education. At the post-baccalaureate level, the numbers jump even higher as 31% participated in some form of remote education and 23% enrolled exclusively online, underscoring the value of high-quality bandwidth access for all levels of education throughout the country.

Investing in, expanding access to and encouraging the nation's transition to IP-based networks will increase the quality and accessibility of education for the benefit of parents, students, educators and employers.

Helping Communities Bridge the Digital Divide

The industry has provided nonsubsidized, low-cost broadband services for low-income families and offers high-speed internet for under \$10.

More must be done to enhance California's advanced communications infrastructure, especially in rural communities. The Federal Communications Commission's (FCC's) Connect America Fund (CAF II) program is dedicated to doing just that, and in August 2015, carriers accepted more than \$100 million per year in CAF II support for each of the next six years to help expand IP services to 231,000 locations in rural and hard-to-reach areas of California.

Improving Public Safety Communications, Preparedness

Modern technologies are improving public safety with the networks and services needed to improve response times, help accurately locate victims, and deliver vital information to first responders. Next Generation 911 services will transmit information

via text, pictures and videos, all of which provide alternative and in some situations better ways to communicate in an emergency. Furthermore, advanced networks can handle a larger number of calls, better react to spikes in call volumes, and relay potentially lifesaving information through mass notifications.

The federal government also has made strides to dramatically improve the availability and interoperability of modern communications by way of FirstNet—the First Responder Network Authority, which later this year will allocate wireless spectrum and up to \$7 billion in funding to construct a nationwide network supporting emergency communications.

Modernizing Regulations, Promoting Competitive Marketplace

More and more everyday activities are migrating online. Recent studies show that more than half of Americans apply for jobs online. We get our entertainment online, with over half of U.S. households subscribing to streaming video services, such as Netflix, Hulu, Amazon Prime, and DirecTV Now. And we certainly shop online, with Amazon selling \$85 billion in merchandise, digital content and cloud services in the past year.

The United States, with 4% of the world's population, has 10% of its internet users, 25% of its broadband investment and 32% of its consumer internet traffic. Clearly, the U.S. policy of internet freedom has worked.

Most agree in principle that state and local regulations should not impose rules that stifle innovation and growth. As California policymakers look toward the future, modernizing the state's policies will set up a sensible path forward that expands broadband opportunity and supports consumers.

Policy Initiatives Benefitting Consumers

AB 57

In 2015, the California Legislature passed and Governor Edmund G. Brown Jr. signed into law AB 57 (Quirk; D-Hayward, Chapter 685). The bill provides a remedy for companies when a municipality does not follow FCC timeframes for the the process of installing the infrastructure needed to improve wireless service for all Californians.

Despite the growing demand for improved wireless coverage across California, the prevailing local jurisdiction approval process often was unworkable. The result was a permitting process that could stop needed infrastructure investment in its tracks. AB 57 works within rules enacted by the FCC to keep the local permitting process moving without limiting or restricting the authority of local governments in the process, but enforcing FCC timeframes.

AB 57 provides for important guidelines and the appropriate balance for parties to work together to keep the permitting process moving and promote needed wireless service improvements for consumers, business, government and public safety.

SB 1161

In 2012, with support from California's business community,

the California Legislature passed and Governor Brown signed into law SB 1161 (Padilla; D-Pacoima; Chapter 733). SB 1161 protects against the Public Utilities Commission and any other department agency or commission regulating VoIP- and IP-enabled service without specific legislative authority.

SB 1161 establishes regulatory certainty for California Internet companies so they can invest, innovate and grow their Internet businesses without unnecessary rules and protracted state regulatory proceedings that create delay and expense, and impact their ability to meet the growing demand of consumers.

Digital Infrastructure and Video Competition Act of 2006

Consumers and the California economy won another significant victory when California passed AB 2987 (Núñez; D-Los Angeles; Chapter 700), the Digital Infrastructure and Video Competition Act of 2006 (DIVCA), which reduced regulations on television services, shifted video franchising from a local to a statewide process, and opened up the state's sizable market to competition. DIVCA also carefully balanced local and state authority, and continued to guarantee local franchising fees. DIVCA increased industry investment in broadband infrastructure and improved the California economy by creating jobs and benefitting consumers (particularly low-income consumers).

The View Ahead

California has long been a leader in advanced infrastructure and technological innovation. California's success as a leader in the tech economy is due in large part to the substantial investment California businesses have made in the infrastructure and technological innovation that has propelled California's economy forward.

This investment is not only providing all Californians with the high-quality broadband access they deserve, but also laying the groundwork for future waves of innovation and growth driven by IP technologies, including the internet of things, gigabit 5G wireless networks, broadband Wi-Fi distribution antenna systems (DAS), and live streaming video content. Mirroring trends in new consumer-driven technologies, 2017 will see the introduction of the Communications and Conveyance Committee in the California State Assembly.

With California's enhanced digital infrastructure leading the way, these technologies are expected to be as revolutionary for the everyday life of Californians tomorrow as mobile technologies are today.

CalChamber Position

A combination of rapid technological innovation, consumer choice and disruptive changes in the communications market has altered forever the traditional competitive landscape. These

profound structural and technological changes point to the need for economic policy that leaves free from government regulation those market processes that continue to propel further innovation and competition for new services. Consumers are increasingly choosing advanced technologies such as mobile and Wi-Fi-enabled devices because they see the inherent benefits, and policymakers need to keep up. As IoT technologies and other innovations become a part of everyday life for Californians, policies that support broadband deployment, access and adoption will become vitally important.

In light of the technological dynamism and multiplatform competition that exists in the broadband marketplace—with cable, telephone, fiber, satellite and various wireless companies all offering consumers alternative choices for internet service—California businesses should be free to invest in the advanced infrastructure and technological innovation that have enhanced the California economy and empowered California consumers without being hindered by outdated and unnecessary regulations.

In order for California to remain a leader in broadband deployment, speed and quality, California lawmakers should continue to support innovation and growth by encouraging greater investment in modern infrastructure and supporting policies that modernize regulations and promote competition going forward. Preserving this commitment to the streamlined regulations that have encouraged businesses to enhance the California economy and empower California consumers is necessary to ensure that the internet remains a vibrant driver of jobs, growth and innovation.



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