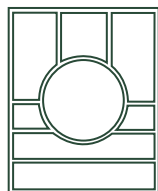


TRENDS AND IMPACT OF BROADBAND IN THE LATINO COMMUNITY

AUTHORS

Elsa E. Macias, Ph.D.

Einat Temkin, M.A.



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Founded in 1985, the Tomás Rivera Policy Institute advances critical, insightful thinking on key issues affecting Latino communities through objective, policy-relevant research, and its implications, for the betterment of the nation.

The Tomás Rivera Policy Institute
University of Southern California
School of Policy, Planning, and Development
650 Childs Way, Lewis Hall, Suite 102
Los Angeles, California 90089-0626

Tel: 213/821-5615 • Fax: 213/821-1976

with offices at:

Columbia University, New York, New York

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October 2005

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EXECUTIVE SUMMARY

Broadband has become the new telecommunications standard, and the Hispanic population as a whole has been eager to adopt it. Its impact has been the greatest among those users who are English-speaking, better educated, live in urban centers and have higher incomes. Many Hispanics fit into these categories, but some Hispanics do not.

It is incumbent upon all of us to ensure that no one is left behind as Americans struggle to retain our technological dominance. As technology is a driver of the American economy, so is it a driver for economic empowerment. Facilitating broadband deployment and adoption in the burgeoning Hispanic community should be a policymaking priority.

Several factors must be addressed in order to further deploy broadband services within the Hispanic community: lower prices, applications geared toward Hispanic youth and businesses, greater accessibility, more online content that is culturally relevant and language appropriate, and training and e-literacy programs to increase the value of computers and the Internet for those Hispanics who are not yet online.

Regardless of preferred language, Internet usage requires a certain degree of competence. It is wholly unlike radio and television—being audio and visual media—and more like newspapers and books. However, with training and experience it can open doors to opportunity and empowerment.

As next generation technologies continue to enter the marketplace, government leaders must ensure that policies encourage widespread access to these technologies, for Hispanics and all Americans, including those who happen to be low income, who live in rural locations, those who are disabled, and those who do not speak English.

INTRODUCTION

The Web has become the "new normal" in the American way of life; those who don't go online constitute an ever-shrinking minority.¹

— Pew Internet and American Life Project

Every sector of our society—from commerce, education, health, government and entertainment—increasingly benefits from a high-speed Internet platform and technological convergence to remain productive, innovative and relevant. New applications are developed and new content created with the expectation of high bandwidth availability, making the point that broadband is less a luxury than a necessity. Our country's competitive advantage in the global arena is enhanced by broadband; as are the quality of individuals' lives and efficiency in nearly every sector of our society. This position is emphasized by the goal set by President Bush to achieve "universal, affordable access to broadband technology by the year 2007."²

According to the Federal Communications Commission (FCC), 2004 saw a 34% increase in new broadband connections, and a 36% increase in broadband connections serving residences and small businesses.³ Dial-up Internet access is steadily being replaced by broadband as the industry standard. Broadband transfers data at higher speeds and with greater bandwidth capacity than dial-up, allowing access to media-rich online content, without tying up telephone lines or a long wait either to connect or for content to download.⁴ In fact, recent findings show that broadband connections are growing exponentially without signs of slowing, and may represent all Internet connections in the U.S. within a few years.⁵ Many of the most popular web portals such as MSN and AOL now include features which can only be used with broadband connections that have the capability for streaming video and audio, and most portals no longer gear their content toward the dial-up user.

Today there are over 40 million Hispanics⁶ living in the United States, and this number will continue to grow. By 2030, more than 63 million Hispanics are expected to live and work in the United States, and by 2050 one in four people will be of Hispanic origin.⁷ Hispanics are a diverse subpopulation with various information and communications needs, and varying degrees of socio-economic means with which to fulfill them. While many households, especially those of recent immigrants, have lower household incomes, there is a large and growing middle class with substantially higher household incomes. Hispanics in general are wielding a hefty \$700 billion in purchasing power.⁸ As high-speed Internet technologies continue to evolve, it becomes vital to examine how Hispanics access and use them.

This issue brief assesses the impact of broadband technologies on Hispanics; how the development of broadband and the promise of technological convergence have benefited Hispanics; how ongoing challenges for Hispanic individuals and communities in accessing and using information and communication technologies (ICTs) are being addressed; and what efforts telecommunications companies are making to meet the needs of Hispanics for broadband applications.

¹ "The Future of the Internet," Pew Internet & American Life Project. January 9, 2005.

² "Presidential Address," [American Association of Community Colleges Annual Convention](#). Minneapolis, Minnesota. March 26, 2004.

³ "High-Speed Services for Internet Access: Status as of December 31, 2004," Industry Analysis & Technology Division, Wireline Competition Bureau, FCC. July 2005.

⁴ "Availability of Advanced Telecommunications Capability in the United States." [Fourth Report to Congress](#). FCC. September 9, 2004.

⁵ "Broadband Competition Intensifies as Penetration Advances; Price and Speed Define Main Battle Lines," Bernstein Research Call. June 15, 2005.

⁶ The terms Hispanic and Latino are used interchangeably in this report, and refer to persons of Mexican, Puerto Rican, Cuban, Central or South American descent, or other Spanish culture or origin, and are considered ethnic categories rather than a racial group. U.S. Census Bureau, 2000.

⁷ "Census Bureau Projects Tripling of Hispanic and Asian Populations in 50 Years; Non-Hispanic Whites May Drop to Half of Total Population," U.S. Census Bureau press release. March 18, 2004.

⁸ "The U.S. Hispanic economy in transition : facts, figures, and trends." Santa Barbara, CA, HispanTelligence. 2005.

BROADBAND CONNECTIVITY

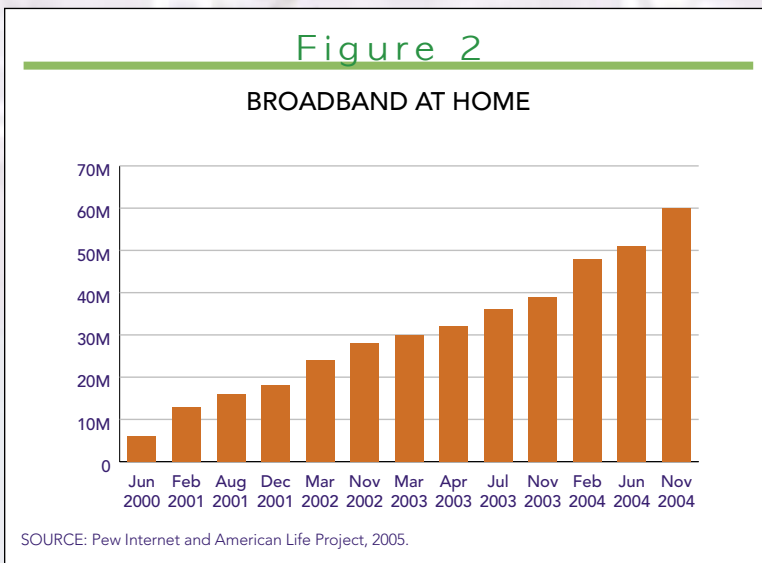
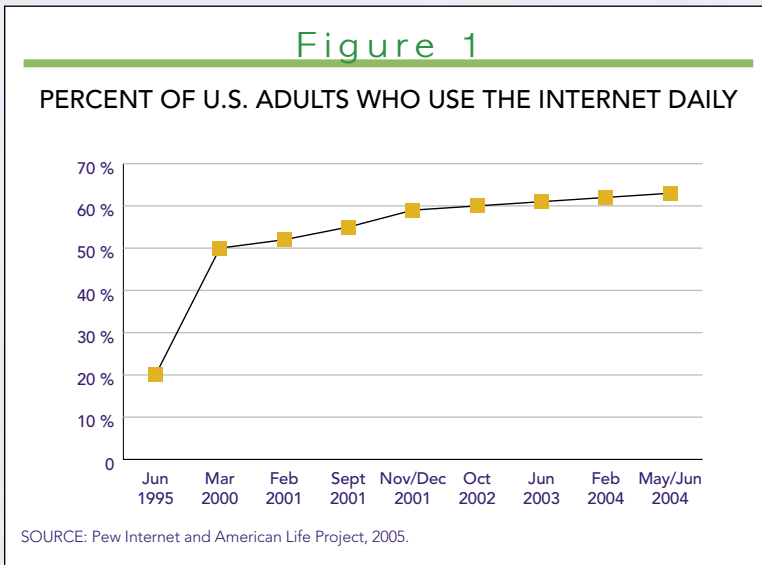


Table 1

HIGH-SPEED SERVICES IN U.S. ZIP CODES AS OF DECEMBER 2004

Percent of Zip Codes Served by Multiple Broadband Providers

None	One	Two	Three	Four	Five or More
4.60%	95.40%	82.90%	66.60%	51.50%	39.30%

SOURCE: FCC, 2005.

The FCC reports that connectivity rates to high-speed Internet services increased dramatically in 2004, from 28.2 million lines to 37.9 million lines.⁹ This growth has been driven by various factors, including lower prices for personal computers (PCs) and broadband connectivity, greater geographic availability of broadband services, and a surge of applications that are dependent on greater bandwidth availability. According to the Pew Internet & American Life Project, Internet penetration in the U.S. has increased significantly, with 63% of adults using the Internet on a daily basis (Figure 1),¹⁰ and sixty million homes having a broadband connection to the Internet, up from just six million in 2000 (Figure 2).¹¹ The growth of advanced services connections with transmission speeds in excess of 200 kilobits per second (Kbps) in each direction among households and small businesses combined has demonstrated similar robustness (Figure 3).¹²

Competition in the marketplace has had a role in spurring broadband penetration. In most U.S. communities there is a choice of broadband services. As Table 1 illustrates, there are two broadband providers in 8 out of 10 zip codes, and three providers in 2 out of 3 zip codes.¹³ Approximately half of all zip codes have 4 providers from which to choose. Choice for the consumer is important since it spurs

⁹ Source: "High-Speed Services for Internet Access: Status as of December 31, 2004," Industry Analysis & Technology Division, Wireline Competition Bureau, FCC. July 2005.

¹⁰ "A decade of adoption: How the Internet has woven itself into American life," Pew Internet and American Life Project. January 25, 2005.

¹¹ Ibid.

¹² "Availability of Advanced Telecommunications Capability in the United States." *Fourth Report to Congress*, FCC. September 9, 2004.

¹³ "High-Speed Services for Internet Access: Status as of December 31, 2004," Industry Analysis & Technology Division, Wireline Competition Bureau, FCC. July 2005.

¹⁴ "Global broadband trends: Implications for the U.S.," Deutsche Bank. July 20, 2005.

competition and innovation among Broadband Service Providers (BSPs) to introduce higher speeds and other features, in addition to pushing prices lower. Competition also drives rival BSPs to advertise more aggressively, which leads to higher rates of subscription.

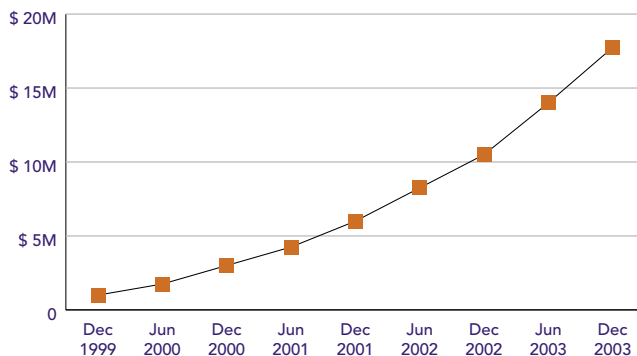
Due to the emergence of direct competition among BSPs in various markets across the country, prices for broadband services have been declining over the past 4 years, as demonstrated by the average revenue per user (ARPU) for broadband services (Figure 4):¹⁴

The current combination of higher speed and lower price is far superior to what was available in the early years of broadband availability. As Table 2 shows, most providers offer download speeds between 1.5 megabits per second (Mbps) and 4 Mbps, with some going as high as 15 Mbps.¹⁵ Despite the tripling of speed from early broadband offerings which typically ran about 600 Kbps, prices have continued to decline. Lower prices, higher speeds, cheaper PCs, a critical mass of graphical and high-impact content, and better applications have led to substantial broadband Internet participation by U.S. households.

Since this table was published, prices have dropped further. For example, existing broadband providers in Philadelphia are charging \$14.95 (Verizon's DSL) and \$20 per month (Closed Networks, a city-wide WiFi provider), while the City of Philadelphia's proposed WiFi service is expected to cost between \$10-\$20 per month.¹⁶

Figure 3

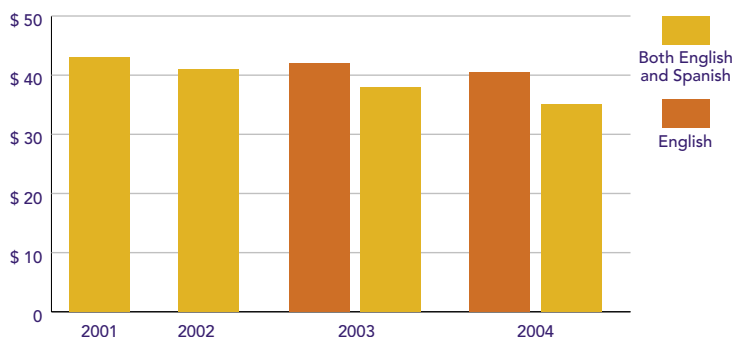
RESIDENTIAL AND SMALL BUSINESS ADVANCED SERVICES LINES



SOURCE: FCC, 2004.

Figure 4

BROADBAND ARPU/MONTH



SOURCE: Deutsche Bank, 2005.

Table 2

MAX MBPS AND MONTHLY PRICE BY PROVIDER

Broadband Service Provider	Max Mbps	Monthly Price (July)
Verizon FiOS Internet	15.0	\$49.95
Cablevision Optimum Online	10.0	44.95
Comcast High Speed	4.0	42.95
Cox Preferred	4.0	39.35
BellSouth DSL Ultra	1.5	32.95
Verizon DSL for Home	3.0	29.95
SBC Yahoo Pro	3.0	24.99
SBC Yahoo Express	1.5	14.95

SOURCE: Deutsche Bank, 2005.

¹⁵ Ibid.

¹⁶ "Philadelphia officials concerned over cost of wireless project," Associated Press, September 15, 2005.

There are various technologies used to deliver high-speed data services, including cable, copper (DSL), fiber (FTTH), wireless technologies (WiFi and WiMax), broadband over power lines (BPL) and satellite. While some technologies show tremendous promise, most broadband service delivery is via cable and DSL, which currently also tend to be faster and/or cheaper than other broadband technologies.

WIRELINE BROADBAND

The most popular broadband technologies in the market today are cable modem and digital subscriber line (DSL). Each relies on a wireline connection to the main server, meaning data is transmitted using a fixed, physical connection, such as copper wire, coaxial cable or fiber optic cable. Cable modems use part of the television cable network capacity owned by cable television companies to provide high-speed Internet connectivity. Likewise, DSL relies on the excess capacity of telephone copper lines owned by local telephone providers. Less common technologies are satellite Internet services, such as WildBlue and DirecWay, which are focusing on rural, hard-to-reach areas that have limited broadband availability.¹⁷ Satellite is less feasible in urban areas where high-rise buildings often interfere with the signal, as well as being more expensive than the commonly used high speed services. On the other hand, rural businesses and residents would likely welcome the faster speed and better coverage of satellite Internet service over the dial-up alternative.

WIRELESS BROADBAND

There are two kinds of wireless broadband; licensed broadband wireless (e.g. EV-DO), usually from a cellular telephone provider, and unlicensed broadband wireless (e.g. WiFi), typically from a community enthusiast, a company (e.g. a coffee shop or hotel), or a government or university campus. Wireless broadband connectivity is increasingly popular as it allows greater mobility and convenience for those with wireless devices such as laptops and personal digital assistants (PDAs).

EV-DO is a recently licensed broadband wireless technology which allows users to connect to the Internet wirelessly using mobile telephony technology. It allows mobile connections, and is approximately 10 times faster than a dial-up connection (typically 400 Kbps to 600 Kbps, with peak speeds near 2 Mbps). By the end of 2005, Verizon Wireless EV-DO is expected to be available to 150 million Americans, in almost 100 cities. Sprint is rapidly building its EV-DO network and in July 2005 announced 61 cities where its EV-DO product will be available.¹⁸ Cingular is planning wide coverage with a rival wireless broadband platform called Universal Mobile Telecommunications System (UMTS). As mobile wireless broadband operators begin competing, prices are expected to drop as they did when DSL and cable modem began competing in the same market areas.¹⁹

WiFi (wireless fidelity), technically known as wireless Ethernet, is the most commonly used unlicensed broadband wireless system and applies to any of the wireless technology in the IEEE 802.11 specification.²⁰ Since this technology has a limited range of about 300 feet, it is most effective in smaller areas called "hotspots," such as hotels, airport lounges, and coffee houses. As signal strength has improved, many universities and colleges have adopted this technology, allowing their students and staff to connect to the Internet from virtually anywhere on campus. Corporations have followed suit, as well as critical city government buildings. The WiFi system is also being used in private homes to create home-based wireless Local Area Networks, or wireless LANs. These home-based systems allow for a single connection to the Internet that is shared by many household devices, reducing the need for additional hardware and cables to each device.

¹⁷ Gromak, T. "Small Michigan utility company brings satellite Internet to the unserved masses." *The Detroit News*. June 22, 2005.

¹⁸ As of early July 2005.

¹⁹ The price of Verizon's EV-DO service dropped in September 2005 from \$79.95 per month to \$59.95, based on a 2-year commitment.

²⁰ "What is Wi-Fi." Retrieved August 9, 2005, from <http://www.WiFi.org>.

WiMax (Worldwide Interoperability for Microwave Access) is another wireless system using the IEEE 802.16 standard. While less developed than WiFi, WiMax is capable of transmitting signals up to 30 miles, and providing data access rates up to 75 Mbps.

Unlicensed wireless broadband is another viable option for reaching underserved areas or populations, as it allows Internet connections to be established from one public locale, such as from an Internet café, library, or community technology center. When WiFi is offered, it is usually connected by a wireline (DSL, Cable Modem, or a T1 line) to the ISP that then completes the connection to the Internet backbone. In rare cases, WiFi is connected by wireless point-to-point microwave signals back to the Internet backbone. The recommended WiFi access point user load is 15 to 25 simultaneous users. That would deliver 400 Kbps to 650 Kbps to each user, with a peak near 10 Mbps if used by a single customer.²¹

Wireless and wireline broadband together are a viable and affordable option for creating collaboration between local groups. Organizations that traditionally provide public access to the Internet—such as libraries and community organizations— can provide low cost, reliable service to their constituencies using a wireless LAN (i.e. local WiFi) connection to share wireline bandwidth across laptop personal computer (PC) and desktop PCs in a nearby area. WiFi is sometimes offered to the public free of charge (e.g. cafés and fast food restaurants), and may be priced at levels similar to entry-level wireline service.

²¹ "Cisco Systems, one of the industries larger suppliers [of WiFi network solutions], recommends 15-to-25 simultaneous users per Access Point. This number will vary depending on usage profiles and user density." Halpin, B. "Scaling Hotel Wi-Fi Deployment for Large Events." [Hospitality Forum](#). Retrieved August 9, 2005.

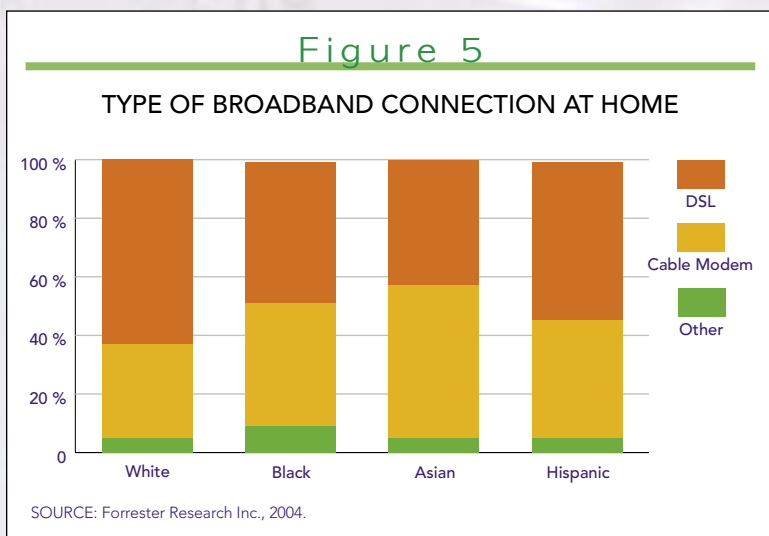
BROADBAND IN THE LATINO COMMUNITY

TELECOMMUNICATIONS AND HISPANICS

The U.S. Latino community is growing so much and at such a rapid pace that Hispanics are no longer just the fastest growing minority—they are the fastest growing sector in the entire U.S. population.²²

—Insight Research Corporation, 2004

According to recent studies, Hispanics are going online and adopting broadband in high numbers. While the adoption rates among Hispanics may be somewhat slower than that of non-minorities, they are adopting new technologies at increasingly faster rates.²³ One study reports that 59% of Hispanics are using the Internet, compared to 67% of non-Hispanic whites.²⁴ According to another report, *English-speaking* Hispanics are as likely to have *high-speed* Internet connectivity as non-Hispanic whites.²⁵ In fact, the same report notes English-speaking Hispanics are more likely to use DSL than non-Hispanic whites (Figure 5).²⁶



Hispanics are also demonstrating a preference for high-speed connections to the Internet over dial-up, as evidenced by an AOL/Roper study reporting that within the Latino community greater than 50% of all Internet connections are broadband connections.²⁷ These studies suggest that Hispanics who are online tend to be savvy users with high bandwidth needs.²⁸

Hispanics are more likely to download entertainment content and communicate via chat and IM

²² "U.S. Hispanic Use of Telecom Service," Insight Research Corporation. April 2004.

²³ U.S. Department of Commerce. *A Nation Online: Entering the Broadband Age*, NTIA, 2004.

²⁴ "Trends 2005: A look at changes in American life." Pew Internet & American Life Project. January 25, 2005.

²⁵ Golvin, C. "Selling Telecom to Ethnic Minorities," Forrester Research Inc. April 16, 2004.

²⁶ Ibid.

²⁷ "AOL/Roper Hispanic Cyberstudy 2005." Retrieved August 9, 2005, from http://www.ahorre.com/blog/archives/2005/07/aolroper_hispan.html.

²⁸ These findings must be tempered by the methodologies of the surveys, which tend to select individuals who are more upwardly-mobile, have lived in one place for a length of time, feel comfortable with telephone surveys, and speak English well enough to answer the survey questions unless the survey is bilingual. This means that some segments of the Hispanic population are more likely to be excluded from such survey efforts, which include lower income families, new immigrants, and people who do not have their own telephone line.

than Internet users in general (see Table 3).²⁹ Conversely, Hispanics are much less likely to use the Internet as a news or media source. This may be due in part to a lack of Hispanic-oriented content. According to TRPI studies, Hispanics would spend more time online if there was more content geared to their needs, meaning online content that was culturally-specific, community-relevant and language appropriate.³⁰ Literacy issues, which are discussed below, may also contribute to the amount of time Hispanics spend online.

Despite the high adoption rates and usage figures cited above, adoption

of computer and Internet services by some Hispanic subgroups have lagged behind that of other groups. *Non-English speaking* Hispanics, who are also more likely to be less affluent, recent immigrants, and/or living in rural areas—all factors predicting lower Internet usage rates³¹—represent an untapped market for broadband services. In 2004, Hispanics spent \$24 billion on telecommunications services, including Internet, long-distance calling and mobile phones.³² Yet that same year, only 20% of Spanish dominant households were online, compared to 55% of English dominant households.³³

By 2009 Hispanics are expected to spend \$41 billion on all telecommunications services combined.³⁴ At around \$55 per month, Hispanics spend more on mobile phone expenses than any other ethnic minority in the U.S.³⁵ Moreover, Hispanics are more likely to give up their landline service entirely and rely solely on mobile phones than any other ethnic group in the U.S. That number is expected to nearly triple as Hispanics will increasingly forgo long distance service and rely on cheaper calling cards which can be used from cell phones to place international calls to friends and family in their native countries.

Hispanic-owned businesses represent an additional growth market as broadband services can help businesses cut costs and boost profits. According to the U.S. Census Bureau, Latino-owned small businesses are the fastest-growing small-business sector: in 2002 there were 1.6 million Hispanic-owned businesses with \$226.5 billion in receipts.³⁶ The average annual revenue per Hispanic-owned business was nearly \$144,000. The Hispanic sector may be quicker to adopt new information and communication technologies if they recognize how these technologies present solutions to their particular information and communications needs, include content geared towards their language and culture, and consider associated costs. Not surprisingly, the telecommunications industry is reaching out to Hispanics as they increase their use of ICTs and as technological convergence accelerates.

Table 3

HISPANIC INTERNET USAGE, JANUARY TO FEBRUARY, 2005

Internet Activities	Hispanic Internet Population	Total Internet Population
Listen to Music	55%	41%
Download Music Files	37%	25%
Watch Video Clips	38%	33%
Instant Message	59%	48%
Visit Chat Rooms	70%	60%
Look Up Local Entertainment	64%	54%
Look Up Health Information	61%	55%
Look Up Financial Information	54%	56%
Product Research	63%	52%

SOURCE: AOL/Roper.

²⁹ "AOL/Roper Hispanic Cyberstudy 2005." Retrieved August 9, 2005 from http://www.ahorre.com/blog/archives/2005/07/aolroper_hispan.html.

³⁰ "Latinos and Information Technology: The Promise and the Challenge," The Tomás Rivera Policy Institute. 2002.

³¹ U.S. Department of Commerce. *A Nation Online: Entering the Broadband Age*, NTIA, 2004.

³² Includes residential wireline, wireless and ISP telecommunications expenditures. "U.S. Hispanic Use of Telecom Service: 2004-2009," Insight Research Corporation. April 2004.

³³ "The 2004 U.S. Hispanic Market Report." Synovate, 2004.

³⁴ Ibid.

³⁵ Golvin, C. "Selling Telecom to Ethnic Minorities," Forrester Research Inc. April 16, 2004.

³⁶ "Preliminary Estimates of Business Ownership by Gender, Hispanic or Latino Origin, and Race: 2002," from the 2002 Survey of Business Owners. U.S. Census Bureau, 2005.

It is no longer enough to advertise in the Spanish language media or provide support in Spanish. Competitive packages, fair prices and an understanding of the community's priorities are crucial for ICT deployment in this sector. Telecommunications companies, including Verizon, Cingular, Sprint and T-Mobile, are promoting mobile telephone services by creating campaigns which exhibit an understanding of the diversity of Hispanic cultures in the U.S., using language and images that connect to potential consumers on a personal level. Internet providers such as AOL, Yahoo! and Univision are creating unique Spanish-language and bilingual high-bandwidth content that further spur demand for broadband connectivity.

TECHNOLOGICAL CONVERGENCE AND CONSUMER DEVICE INTEROPERABILITY

Nearly ten years ago, author Nicholas Negroponte predicted a not-too-far-off future in which users would no longer require several different devices to receive all the information and entertainment they need – but rather rely on a single device which would serve as cell phone, PDA, television set, PC, stereo, etc. Since all information can be translated to data and bandwidth is theoretically "unlimited" (Negroponte, 1996), the author surmised it was only a matter of time before we achieved this vision.

Negroponte's theoretically "unlimited" bandwidth is constrained by the pragmatic question of investment and maintenance costs for network or spectrum technologies. Cable modem service and DSL each require a capital investment of several hundred dollars per household passed, regardless of the percent of households that subscribe. Fiber optic networks require the investment of a thousand dollars or more for each household passed, again regardless of the number that subscribe. Investments such as these are risky and investors must be "patient"—recovering the investment and recurring maintenance costs over decades.

BROADBAND INFRASTRUCTURE AND AVAILABILITY

For some consumers, the road to technological convergence has been partially blocked by the issue of access to broadband infrastructure. Today's media landscape involves various service providers who are competing utilizing a variety of broadband infrastructures and applications. The FCC's analysis indicates that 95% of zip codes have at least one high-speed Internet service subscriber and that 99% of the country's population lives in these zip codes, yet consumers in about one fifth of communities have no broadband access or depend, as described earlier, on a single provider to obtain high-speed Internet access.³⁷

For those zip codes with only one provider (12.5%, see Table 1), a concern is that monopolistic behaviors by a sole provider *might* occur, such as charging prices higher than competitive levels or constraining output (e.g. providing less-than-optimal service or lower speed).³⁸ The situation bears probing if a sole provider's broadband pricing differs from that same provider's pricing in otherwise similar areas where it faces direct competition. However, there are multiple broadband providers in the vast majority of zip codes. This competition itself is a safeguard to ensure competitive pricing and service. Other recent work on the nature of advanced broadband rivalries have concluded that the huge investment needed to build and operate broadband is an affordability deterrent to providers; and that fears of over-pricing and output restraint are not warranted in broadband duopolies *unless the two providers collude*.

³⁷ "High-Speed Services for Internet Access: Status as of December 31, 2004." Industry Analysis & Technology Division, Wireline Competition Bureau, FCC. July 2005.

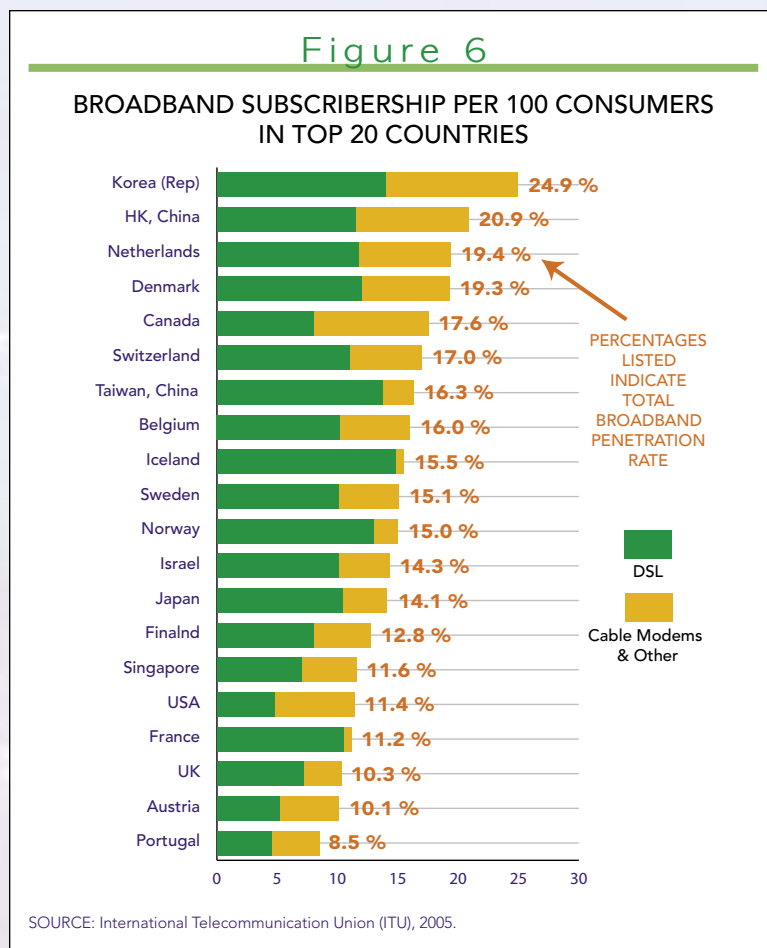
³⁸ Concerns that the broadband industry is not very competitive, thereby increasing the possibility of monopoly prices in markets where broadband is supplied by a single seller, have been buoyed by allegations that cable companies have been tying television to Internet services with the purpose of discouraging competition from satellite television in order to preserve cable market dominance. National Journal, 2005.

In fact, government policy should be adjusted to attract new broadband facility builders, especially as the U.S. currently ranks behind other countries in terms of broadband subscribership, with approximately 11.4 connections per 100 inhabitants and generally slower capacity at higher prices (Figure 6).³⁹ There appears to be strong competition between telephone companies and cable operators; nevertheless, the competition between existing broadband providers, the various forms of wireless broadband, and emerging platforms such as broadband over power line (BPL) should be encouraged in order to ensure that broadband data services will be deployed more universally and more quickly, and with accompanying lower prices and higher speeds that are major drivers for broadband adoption.

While we are close to a future where a user may select one-device, nationwide coverage, the costs for the devices, applications and bandwidth are still major stumbling blocks for many. The price of telecommunications is a major factor in how all Americans, including how Hispanic consumers access and use the Internet and its applications.

The affordability question regarding telecommunication services and devices is complex. Latino households have a lower incidence of PC ownership (53.6%) than non-Hispanic whites and African Americans, yet Latino households have a higher incidence of cellular telephone use (76.3%) than do non-Hispanic white households.⁴⁰ PC ownership is a precursor or co-incident factor for broadband subscribership, yet Latino families have taken that preparatory step less than have others.

On the other hand, the higher-than-average incidence of cellular phone ownership by Latinos suggests they have the funds to spend on services that make the most sense for them.⁴¹ Cellular telephones have become a predominant form of communication in the Hispanic community, as they allow families separated by distance to remain in constant contact with each other, at reasonable rates. Cellular telephones may also have been more



³⁹ "[I]n order to have vibrant inter-modal, facilities-based competition in all communications markets, policymakers must focus their attention on the consequences of their actions on the entry and expansion decisions of firms into related markets. [I]f you want there to be more entry... make entry more profitable, without...harming consumers. [I]mplement policies that increase gross profits (e.g., allow firms to sell as many services as possible) [and] reduce entry costs (e.g., remove franchising requirements and 'regulatory symmetry' requirements)... Assuming policymakers can increase post-entry profits...facilities-based firms will invest and/or upgrade their networks to take advantage of true technological convergence and compete vigorously on both price and product differentiation—a result that is clearly beneficial to U.S. consumers." In "Competition After Unbundling: Entry, Industry Structure and Convergence," The Phoenix Center for Advanced Legal & Economic Public Policy Studies. July 19, 2005.

⁴⁰ "Technologically Advanced Family Survey," Yankee Group. Oct 2004.

⁴¹ "Hispanics Are Leaders in Adoption of DVD, PDAs, Home Theaters, other Key Media Technologies." [Knowledge Networks press release](#). Retrieved August 9, 2005.

quickly adopted because of their similarity to the use of household phones, a familiar and easy-to-use device. The Internet is a much more complicated and more expensive technology to own and operate, which may seem unnecessary or redundant in households with fewer discretionary funds. If broadband service were seen as a way to communicate with friends and family within the community, it might promote quicker adoption of the technology.

Schement suggests that this seeming inconsistency can be partially explained by Hispanics' relatively quick adoption of technology *devices* such as radios, televisions and VCRs, and the slower adoption of *services* such as the telephone and the Internet where poorer households may struggle with monthly fees.⁴² Price is certainly a factor, but there are other factors—language, online content, ease in using the technology, and level of education—driving Internet participation decisions which must be considered.

Affordability must be seen in the context of the full cost that the end-user and/or the project sponsor incur: software, hardware, the security features inherent in the BSP functions, and factors that alter customer satisfaction, such as the noticeable speed degradation when shared broadband (WiFi and cable modem) has more users than intended. Recently, new desktop PCs have become available for as little as \$300, equipped with adequate Internet browser and email software. At that price, service providers and community based organizations can more easily introduce community members to the Internet in a public space such as a school or community center, to ease the transition to home use for novice computer and Internet users.⁴³

Another affordability issue is monthly recurring fees. The current trend of "bundling" is considered a beneficial solution for both providers and consumers when it integrates several services with more variety and convenience, for less cost. When purchasing a "bundled" package, one provider gives the user access to several media (i.e. telephone service, broadband connection, video programming, etc). While several devices are still required for these different uses, it is a step towards allowing users more access, for lower costs. Nevertheless, bundling works best at promoting subscribership among low-income households when it is an option that does not require purchasing unneeded services that can increase monthly fees for households with limited discretionary funds.

For Hispanics, bundling will be a key factor, as it will simplify outreach, implementation and maintenance within the community. Hispanics, along with African Americans, are overall more likely to purchase a bundled package of telecommunications services than non-Hispanic whites.⁴⁴ A report by the Yankee Group calls for new and interesting bundling methods, which will "inevitably have to create a more flexible framework for both pricing models and content delivery to ensure long term customer satisfaction."⁴⁵ As bundling grows as an industry model, making access more affordable, it will be crucial to create simple and culturally specific packages for new and less computer-literate Hispanic users.

EMERGENT AND NEXT GENERATION BROADBAND APPLICATIONS IN THE HISPANIC MARKET

A recent report stated that the future of the Internet will bring a further intensification of network relationships, a significant effect on print and broadcast media due to web-publishing and blogging, and that file-sharing and peer-to-peer networks will continue to flourish.⁴⁶ The next generation of multimedia entertainment, data services and productivity applications, such as games, video and photo messaging, and Voice over Internet Protocol (VoIP) combined with mobile communications devices and wireless laptops will spur even greater demand for bandwidth capacity and higher speeds of transmission.⁴⁷

⁴² Schement, Jorge R., "Latinos, the Public Interest, and Telecommunications: *En la Madrugada de la Edad de Información*." March 10, 2003.

⁴³ "Conectados: Connecting L.A.'s Underserved Communities," The Tomás Rivera Policy Institute. 2003.

⁴⁴ Golvin, C. "Selling Telecom to Ethnic Minorities," Forrester Research Inc. April 16, 2004.

⁴⁵ "Technologically Advanced Family Survey," Yankee Group. Oct 2004.

⁴⁶ "The Future of the Internet," Pew Internet & American Life Project. January 9, 2005.

⁴⁷ "Availability of Advanced Telecommunications Capability in the United States." *Fourth Report to Congress*, FCC. September 9, 2004.

Some of the newer online trends are being adopted rapidly by users who tend to be younger and more technologically savvy overall. In fact, there is a negative correlation between the age of users and their tendency to use emerging broadband applications—the younger the user, the more likely that user is to be an early adopter of new technologies. A recent survey finds that teens are the technological leaders in the U.S., and that their usage patterns will determine the shape of the Internet in the future.⁴⁸ The report further notes that more teenaged youth are using the Internet now than in 2000; 87% of 12-17 year-old American teens indicated that they went online in late 2004, a figure up 24% from 2000. Additionally, increasing numbers of teens are accessing the Internet from areas outside of the home (libraries, schools, etc.), a figure that is up 78% from 64% in 2000.

Another study by the Pew Internet and American Life found that younger consumers are more likely to perform multiple tasks using broadband, such as listening to music, taking and emailing photographs, and communicating with friends, while older users are less likely to make use of convergent technology. Likewise, younger consumers are more likely to use the Internet to play games and instant message than adults (Figure 7).⁴⁹

While the U.S. median age continues to rise, the median age of Hispanics remains the lowest of all groups, at 25.9 years compared to 35.3 for the entire U.S. population.⁵⁰ The Hispanic youth market is growing fast. In the Hispanic community, teenagers and second generation Internet users are also more likely to be technological leaders in switching to broadband and purchasing bundled services.

Figure 7

TEENS VS. ADULTS, INTERNET ACTIVITIES

TEENS ARE MORE LIKELY TO ENGAGE IN SOME ONLINE ACTIVITIES THAN ADULTS AS THE PERCENTAGES INDICATE:

	Online Teens	Online Adults
Play Online Games	81%	32%
Send or Receive Instant Messages	75%	42%
Get Info About a School You Might Attend	57%	45%

THOUGH SOME ACTIVITIES SHOW A NEGLIGIBLE DIFFERENCE BETWEEN TEENS AND ADULTS:

Send or Read e-mail	89%	90%
Get News or Info About Current Events	76%	73%
Look for News or Info About Politics and the Presidential Campaign	55%	58%
Look for Religious or Spiritual Info	26%	30%

AND THERE ARE SOME ACTIVITIES FAVORED BY ADULTS:

Buy Things Such as Books, Clothing or Music	43%	67%
Look for Health, Dieting or Fitness info	31%	66%
Look for Info About a Job	30%	44%

SOURCE: Pew Internet and American Life Project.

Figure 8

PERCENTAGE OF TEENS WHO GO ONLINE BY ETHNIC GROUP

White	87%
Black	77%
Hispanic	89%

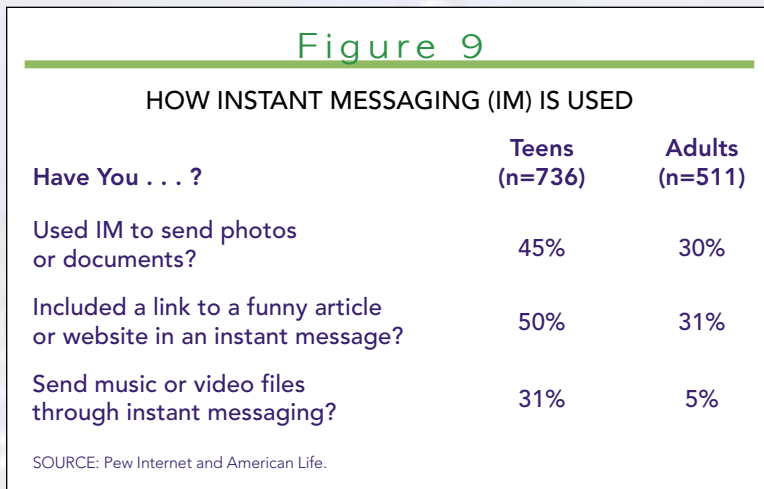
SOURCE: Pew Internet and American Life Project, 2005.

⁴⁸ "A decade of adoption: How the Internet has woven itself into American life," Pew Internet and American Life Project. January 25, 2005.

⁴⁹ "Teens and Technology: Youth are Leading the Transition to a Fully Wired and Mobile Nation," Pew Internet & American Life Project. July 27, 2005.

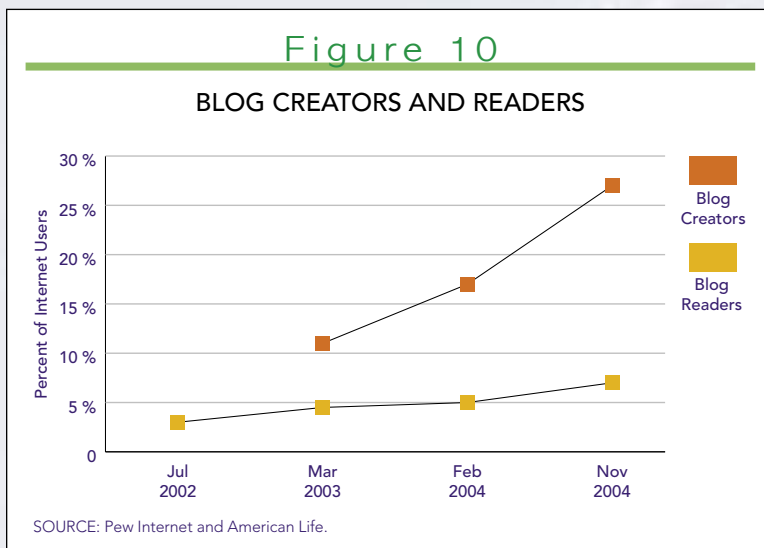
⁵⁰ U.S. Census Bureau, accessed on August 17, 2005. http://www.census.gov/Press-Release/www/releases/archives/facts_for_features_special_editions/000777.html

Younger Hispanic Internet users are more likely than those of any other ethnic group to go online (Figure 8), suggesting that Hispanic homes with teenaged youth will be far more likely to adopt broadband technologies, in particular if those technologies cater to the specific needs of the younger generation. Homes in which teen-aged youth live are far more likely to have Internet connectivity than homes with no teenagers, and of those families with teens who are connected to the Internet, 47% use broadband.⁵¹ Looking at an ethnic breakdown of teen Internet use, non-Hispanic white (87%) and English-speaking Hispanic (89%) youth are more likely than African Americans (77%) to go on-line. Furthermore, 42% of English-speaking Hispanics with Internet access have high-speed connections, compared to 50% of non-Hispanic white teens and 39% African Americans.⁵²



INSTANT MESSAGING (IM), in fact, is quickly emerging as a preferred method of communication by youth nationwide.⁵³ Most teens who are online use IM, and nearly 50% of teen-aged youth report using IM daily. This mode of communication is convenient, mobile and can be conducted using a computer or cell phone. Teens are also much more likely to send media through IM to their acquaintances, including music, pictures, etc (Figure 9).⁵⁴

BLOGS, or Web-logs, have become more popular as a form of expression and communication among friends and acquaintances online (Figure 10).⁵⁵ More people are creating blogs, and more people are reading them. In fact, a recent report finds that "Blog readership shot up 58% in 2004...[and] the interactive features of many blogs are also catching on: 12% of Internet users have posted comments or other material on blogs."⁵⁶ A recent poll demonstrates that experts on the Internet predict that "in the emerging era of the blog...the Internet will bring yet more dramatic change to the news and publishing worlds."



poll demonstrates that experts on the Internet predict that "in the emerging era of the blog...the Internet will bring yet more dramatic change to the news and publishing worlds."

FILE SHARING and music downloads will continue to expand as new, more sophisticated peer-to-peer networks, such as Bit Torrent and EMule, are developed to counter the crackdown on illegal file sharing. A recent poll showed that "50% of [experts] believe that anonymous and free music file-

⁵¹ "Teens and Technology: Youth are Leading the Transition to a Fully Wired and Mobile Nation," Pew Internet & American Life Project. July 27, 2005.

⁵² Ibid.

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ Ibid.

⁵⁶ "The Future of the Internet," Pew Internet & American Life Project. January 9, 2005.

sharing on peer-to-peer networks will still be easy to perform a decade from now."⁵⁷ While the movie and music industries struggle to create more advanced anti-piracy devices and policies, savvy users who dedicate time and effort to the distribution of copyrighted materials will likely stay one step ahead of the industry. However, iTunes has proved recently that users both young and old, are willing to pay a reasonable price to download media legally.

What these new technologies promise is immediate access to any content through any device. Hispanics are a young population—fully one third of Hispanics are under the age of 18, and the number of Hispanic children in the 10-14 age range is predicted to grow by nearly 30% between 2001 and 2010.⁵⁸ The 2005 AOL/Roper survey found that young Hispanics are the heaviest users of cutting-edge Internet technologies.⁵⁹ With the wide use of mobile telephones among Hispanics, wireless broadband has the potential to be extensively adopted by them as well. Given population growth predictions, and the propensity of Hispanic youth to use these emerging technologies, providers will be challenged to develop packages that will be attractive to them.

UNIQUE CHALLENGES TO

⁵⁷ Ibid.

⁵⁸ U.S. Census Bureau, Current Population Survey, March 2002.

⁵⁹ "AOL/Roper Hispanic Cyberstudy 2005." Retrieved August 9, 2005, from http://www.ahorre.com/blog/archives/2005/07/aolroper_hispan.html.

ICT DEPLOYMENT IN THE HISPANIC SECTOR

INFRASTRUCTURE AND PROMOTION OF DIGITAL OPPORTUNITY

While dial-up or narrowband access to the Internet has often been championed as a democratic equalizer in that it allows anyone with a computer, modem and phone line to surf the web, dial-up Internet is a far inferior option to broadband connectivity, leaving regions without broadband services showing great disparity with regard to numbers of users, usage rates, as well as the *quality* of the Internet that they use. This is not a new phenomenon; there has often been a gap between adoption of new ICTs by higher and lower income populations.⁶⁰

Broadband access is inherently superior to dial-up access, because it relies on a more complex and advanced infrastructure, and nascent, cutting-edge technology for connectivity. Whether connecting through DSL, cable modem or wireless, the user is dependent on available broadband resources in the area. While urban, affluent areas are increasingly switching to broadband services, rural, lower-income, and high-density immigrant neighborhoods often have fewer options. In order to make broadband more widely available, barriers to expansion, regardless of technology, should be eliminated. Policies should encourage greater investment in evolving technologies and more rapid deployment in underserved markets.

The majority of Hispanics are concentrated in large urban areas of California, Texas, New York, Florida, Illinois, New Jersey and Arizona. However, many Hispanics live in suburban and rural locales within these states and other states, and there is also an emerging Hispanic presence in the rural American South. Of the top ten counties experiencing the greatest Latino population growth, nine are in North Carolina, Georgia, and Arkansas. These new Latino communities tend to be made up of Hispanics with less socio-economic wherewithal than there are in more-established communities; these new communities are also more likely to consist of poorly educated immigrants with little English-speaking abilities and substantially less access to advanced telecommunications services. Additionally, deployment of high-speed Internet services into rural locales is not as extensive as in urban and suburban cities and towns. A lack of broadband infrastructure continues to be a major hurdle in ICT deployment in these sectors. Successfully reaching these communities, at a competitive price, will have a significant effect on Hispanic access to broadband.

LANGUAGE, LITERACY AND CONTENT

The Internet, despite its early promise of becoming a global community, is still heavily English-based and has generally lacked a true mix of cultural viewpoints. At over 40 million strong, Hispanics are now the largest minority in the United States, and they have growing financial clout. This heterogeneous population includes immigrants from all Latin American countries, as well as second and third generation U.S.-born Hispanics. Among Spanish mono-lingual and limited English-speaking Hispanic populations, literacy stands out as a determining factor of the degree to which Latinos can access the wealth of information and resources on the web. This potentially long-term issue could lessen for some members of the Latino community as they become increasingly English proficient. However, given the large and steady number of first generation Latinos, the issue of Spanish and bilingual language content will continue to be important.

⁶⁰ U.S. Department of Commerce. [A Nation Online: Entering the Broadband Age](#), NTIA, 2004.

Language is an important concept in Hispanic identity; even very Americanized second-generation Hispanics tend to speak some Spanish, particularly at home. Many Hispanic homes are bilingual, and many Hispanics use both languages interchangeably, in various forms of "Spanglish." This is in line with recent findings that Hispanics tend to acculturate rather than assimilate, meaning that they may assume certain traits and norms of their adoptive nation, yet retain many characteristics and linguistic practices of their original culture.

These diverse Hispanic subgroups have strong preferences of diverse colloquial and dialectal terms and phrases, in addition to English and combinations of both languages. For example, using Mexican terms and images—as the most populous Hispanic subgroup—in an advertising campaign can effectively alienate non-Mexican Hispanics.

The challenge to ISPs and content providers is that any content created specifically for Hispanics must be culturally and linguistically appropriate. Latino-oriented portals must do more than translate content from English to Spanish; they must provide content that has cultural interest to address the particular communities they hope to serve. Generic websites hold less interest.

There are several possible solutions to this problem. One, create targeted content geared towards specific Hispanic subgroups. This can be expensive to implement. Another possible solution is to use standard Spanish which does not reveal a national dialect. However, this option may result in a higher reading level than many Spanish-dominant Hispanics can understand well because they are more likely to have lower education and literacy levels. This is especially problematic for financial, legal, health and technical content. A third option is to avoid professional vocabularies whenever possible, using instead the simplest terms possible, including using colloquial, slang and Spanglish terms in quotation marks as appropriate.

An understanding of this unique hybrid culture is necessary as new content and services are developed. As commercial and business interests further develop the Latino broadband market, Latinos will increasingly become content developers, and a growing number of non-profit and community-oriented sites will appear. These developments represent real opportunities for providers in the Hispanic market as more Spanish-dominant consumers go online.

GENERATIONAL INFLUENCES

Language and cultural barriers are more likely to be inhibiting factors among older and foreign-born Hispanics and recent immigrants than among youth and native-born Hispanics who are more likely to be either bilingual or monolingual English speakers. Moreover, older Hispanics are also more likely to suffer from "technophobia," and will take longer to become comfortable accessing the Internet and to find reasons and content that are worth overcoming these barriers to move online. Community technology centers in low-income Hispanic communities are important venues to provide technology skills training and access to computers and the Internet.

CONCLUSION

The Internet has delivered some of its promise to the Hispanic community. Its impact has been the greatest among those users who are English-speaking, better educated, live in urban centers and have higher incomes. Many Hispanics fit into these categories, but some Hispanics do not.

A variety of factors will need to be addressed in order to further deploy broadband services within the Hispanic community: lower prices, applications geared toward Hispanic youth and Hispanic businesses, greater accessibility to broadband service, more Spanish, bilingual and culturally-relevant online content, and continuing to drive home the value of computers and the Internet to Hispanics who are not yet online along with training and e-literacy programs.

Technology can be intimidating and impersonal for the novice user, even one who is English proficient. This "technophobia" can be overwhelming when combined with limited English proficiency. Regardless of preferred language, Internet usage requires a certain degree of competence. It is unlike radio and television—being audio and visual media—and more like newspapers and books. However, training and experience with it can open doors to opportunity and empowerment.

Programs that use advanced technologies to offer skills training, tutoring in applying for jobs, night-time English as a Second Language classes, and other classes needed to enter the work force demonstrate their wide range of uses to develop engaged and active Internet users. Outreach efforts should include Spanish language media. Effective strategies to accomplish this goal should also include programs that encourage families to learn to explore information technologies together. The dual benefit of such programs is that parents can take an active role in overseeing their children's Internet experience, while underscoring the importance of these technologies to their education experience, career, finances, shopping and other activities for their children and themselves.

Broadband accessibility continues to be a hotly debated topic in various public spheres, as it poses difficult questions regarding convergence of media and the channels through which we receive those media. For Hispanics, adoption of broadband has been uneven across its population, but increasing rapidly. The value of high-speed data services and their impact and relevance to Hispanics' social, educational and economic well-being are critical issues. Information and communications technologies offer diverse opportunities, but they must also fill cultural needs. Facilitating broadband deployment and adoption in the burgeoning Hispanic community should be a policymaking priority.

Technology has the potential to improve lives, and the rapid pace of development in telecommunications technologies challenge all of us to find quicker and better ways to use these technologies to improve our own lives. In minority communities, this is even more critical as they attempt to live the American dream and participate in the economic mainstream.

Broadband has become the new telecommunications standard—it is incumbent upon all of us to ensure that no one is left behind as Americans work to retain technological dominance in a knowledge-based world. As technology is a key economic driver of the American economy, so is it a driver for economic empowerment. The Hispanic community must ensure that it is part of that story.

As next generation technologies continue to enter the marketplace, government leaders must ensure that policies encourage widespread access to these technologies, not just for Hispanics, but for all Americans, including those who happen to be low income, who live in rural locations, those who are disabled, and those who do not speak English. This challenge is one that can not be ignored and addressing these populations may be the greatest single determining factor over the ability of our country to continue to prosper and compete in the global economy.

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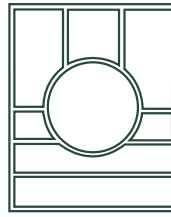
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