

The New Network Compact: Consumers Are in Charge¹

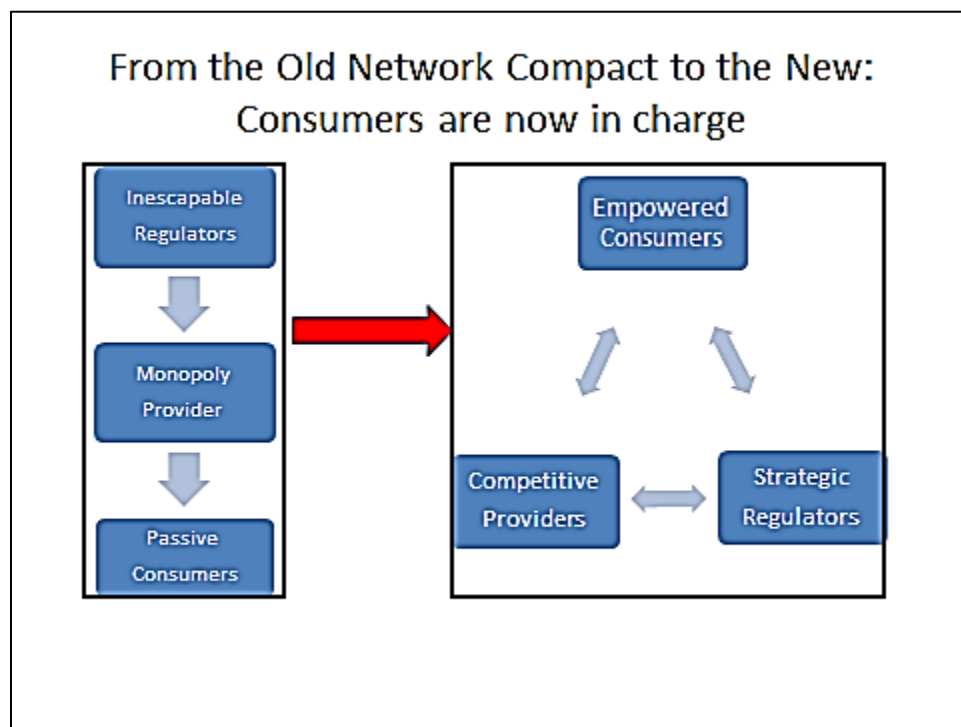
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Executive summary:

There is a consensus among many regulators, consumer advocates, and network providers that there is a set of core values that should apply to the communications ecosystem in America: public safety, universal access, consumer protection, and competition.

Competition is a relative newcomer to the U.S. communications arena, but it has quickly empowered consumers to make their own communications choices based on their own priorities, which do not necessarily match those of their regulators. When consumers select platforms, services, or applications that are not consistent with traditional public safety, universal access, or consumer protection, what are regulators to do? Attempting to stifle consumer choice is neither appealing nor realistic, but abdicating responsibility for the core values is not viable, either. The time has come for a new network compact that recognizes that consumers are in charge.



¹This study was commissioned by the Internet Innovation Alliance. The views and opinions expressed in this study are solely those of the author.

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For most of the Twentieth Century, even as recently as the passage of the *Telecommunications Act of 1996*, regulators could set rates and standards for communications providers, which were monopolies, and be certain that consumers would purchase the services the regulators had, thus, effectively designed.

Regulators and carriers treated consumers as a homogeneous body, for the most part creating one-size-fits-all services. Consumers, having no choices available through which they could express their diversity, acted as a homogeneous body.

In less than two decades, technological evolution and innovation and the competition they have fostered have provided consumers with the abundance of communications choices they enjoy today. The existence of those choices has changed the relationship of regulators, network providers, and consumers in fundamental ways. Consumers are now in charge.

For each communication, today's consumers have at their disposal myriad permutations of platforms, services, applications, and devices from which they can select the combination that best fits their message, audience, location, and circumstances. They can satisfy their own priorities and fully express their individuality. They can also make choices that evade the core values. They are powerful decision-makers, neither directly captive to their providers nor indirectly captive to regulators who control the providers. Accomplishing the core values today requires a new network compact based on consumers' power.

While regulators still exercise varying degrees of control over different network platforms, consumers today have so many options--both between platforms and between the services and applications that ride those platforms--that they can easily evade their regulators' choices if they do not match their own.

Put another way, the old network compact—although created to benefit consumers--was primarily between regulators and service providers. Network providers supplied what regulators decreed given their vision of consumer welfare. Consumers had no choice but to buy those services or do without. Today, thanks to the ample choices they enjoy, consumers have taken control. They are no longer passive beneficiaries of decisions made by others—they are making their own decisions for their own benefit.

Those who value competition celebrate the empowerment of consumers. At the same time, consumers' new power creates a dilemma for regulators. When consumers make choices that are not consistent with the core values, should regulators intervene--recognizing that they are limiting consumers' choices by doing so? If they do intervene, how can they make their intervention effective given consumers' power to evade regulatory choices that do not mesh with their own priorities?

The fundamental challenge for regulators is to craft a new network compact based on respect for consumers and their choices. It must not limit those choices except when it is absolutely necessary to do so. Regulators must ensure that core values are met, but they must do so strategically.

To be effective, the new network compact must target regulatory intervention to those few areas where consumers will recognize it as necessary: areas where some consumers are vulnerable and the market has failed to meet their needs.

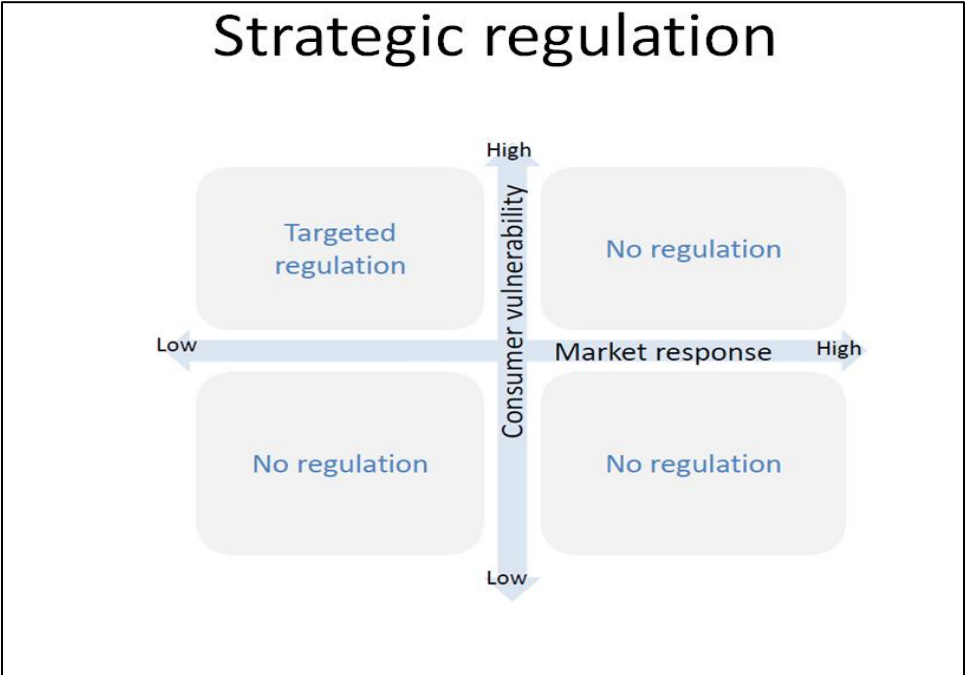


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The New Network Compact: Consumers Are in Charge

Consumers are shaping a new network compact

In addressing the policy implications of technology transitions, Federal Communications Commission (FCC) Chairman Thomas Wheeler stated, “At this critical juncture, let me be clear about a few things. One, we favor technological innovation. And, two, we affirm the enduring values of the Network Compact: universal service, public safety, competition and consumer protection.”³

There is, indeed, bipartisan agreement that these core values need to be preserved. But the task is a difficult one, because the network compact has not been a static relationship between immutable parties frozen in time. While the parties to the compact which originated in the early Twentieth Century remain consumers, network providers, and regulators, their roles and relative power have changed radically, especially in the last two decades.

Thanks to technological innovation and the choices it has made available to them, consumers have gained tremendous power relative to both regulators and network providers. Consumers are no longer passive beneficiaries of uniform and universal services designed by regulators and produced by carriers, as they were for most of the Twentieth Century.

Consumers today are active decision-makers, whose purchases reflect their own individuality rather than their regulators’ priorities. Consumers have taken control of their own consumption, their purchase and use of communications based on their own sets of complex priorities. Those priorities not only vary between demographic groups, but between individuals. For that matter, a single individual may make different communication choices based on his message, audience, location, and other circumstances at various times over the course of a single day.

The old network compact treated consumers as a homogeneous and passive body, captive to providers who were, in turn, ruled by their regulators. The new network compact can succeed only if it recognizes the heterogeneity of consumers and their power over their communications providers. Going forward, the challenge for regulators is to create a relationship with consumers that respects the control consumers exercise rather than attempting to limit it, while still advancing the underlying goals of the core values.

The old network compact was based in lack of choice

The concept of a network compact had its origins in the 1913 Kingsbury Commitment, an agreement between AT&T and the Justice Department that solidified the Bell System’s right to operate as a monopoly for most of the Twentieth Century. As enshrined by the *Communications Act of 1934* and

³ Federal Communications Commission, Chairman Thomas E. Wheeler, *Statement Re: Technology Transitions GN Docket No. 13-5; AT&T Petition to Launch a Proceeding Concerning the TDM-to-IP Transition, GN Docket No. 12-353; Connect America Fund, WC Docket No. 10-90; Structure and Practices of the Video Relay Service Program, CG Docket No. 10-51; Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, CG Docket No. 03-123; Numbering Policies for Modern Communications, WC Docket No. 13-97*, January 30, 2014, p. 1. Federal Communications Commission is hereafter referred to as FCC.

interpreted by various federal and state laws, regulations, and judicial decisions, the old network compact was designed to enable regulators to protect consumers from a monopoly provider of telecommunications.⁴

The old network compact gave regulators legal power over the network providers--the phone companies (telcos)--which were monopolies within designated geographic territories. Regulators could determine prices, specify service-quality requirements, and decide what costs were or were not acceptable. In effect, regulators designed and priced the telcos' services. In exchange, they gave the telcos rates-of-return that were guaranteed within tight ranges. Those guaranteed returns made it possible for the telcos to attract investors, ensuring the capital needed to build their networks and serve their consumers.⁵

The old network compact was effective in ensuring three of the enduring values Chairman Wheeler affirms: universal service, public safety, and consumer protection. It was, however, premised on the very absence of the fourth—competition. The old network compact was not only needed to protect consumers whose only communications choice was “take it or leave it.” It was enforceable and effective precisely because “take it or leave it” was consumers' only option.

The old network compact resulted in service providers that looked to their regulators rather than their customers for signals the market would normally offer. The telcos' role was not to innovate, but to optimize network quality and cost to meet regulatory specs whose goal was service that was both uniform and universal. With no competition and no choices to offer, telcos did not need to perform the most important marketing function—understanding their customers' needs and desires. The telcos' financials were determined by their regulators, under either rate-of-return regulation or variants such as “average schedule” or “price-caps.”

Regulators, rather than consumers, told the telcos what network investments and operating costs were acceptable, as well as what service standards they had to meet. Thus, regulators essentially designed the telcos' services. Regulators could also predict the telcos' revenues, because they knew both price and quantity. They set the prices and they knew how many consumers would take the service. All

⁴ While the former Bell System was the largest provider of local communications, there were many independent phone companies providing service in areas not covered by the Bell Operating Companies. The number of Independents has varied over time. Today, there are about 1300, according to the website of the National Exchange Carriers' Association (NECA).

⁵ For a more detailed discussion of rate regulation of telecommunications providers, see John W. Mayo, “The Evolution of Regulation: 20th Century Lessons and 21st Century Opportunities,” Georgetown Center for Business and Public Policy, June 2011, pp. 8-9 and 31-45.

consumers who wanted instant communication would buy the service.⁶ They had to—there was no other choice.⁷

However diverse Twentieth-Century consumers and their desires might have been, they were offered homogeneous services and treated like a homogenous body. While the old network compact was effective, it was a closed system. It could ensure the enforcement of universal service, public safety, and consumer protection, and it could attract the investment necessary to enable the networks to provide those values. But the system could only succeed as long as it did not allow consumers to have choices.

Innovation and competition have created choices

The world has changed radically in the last two decades. Thanks to technological innovation as well as to the opening of the telcos' markets by the *Telecommunications Act of 1996* and the actions of the Justice Department, the newest of the four core values—competition—has provided consumers with myriad choices for instant communication. Today's consumers determine their audience and select among various modes of communication for any particular message. They then choose among several network platforms, many services and applications that ride over those platforms, and many devices to complete that exchange.

This plethora of options has enriched consumers' lives enormously. It allows them to communicate in ways that suit their particular goals, desires, and circumstances at any given moment. It enables them to make their own purchase decisions and express their individuality.

Consumer control is, of course, the very purpose of competition. At the same time, it makes it more difficult for regulators to ensure the implementation of the core values. Consumers are free to make choices that are not consistent with the core values, at least as traditionally defined, and they do so routinely. Consumers select services, such as nomadic VOIP, that do not automatically give them access to public safety. They choose to communicate via applications, such as various social media, that do not contribute to the support of universal service. The wireless platform they overwhelmingly favor allows them access almost anywhere they walk or ride, but may vary in quality from one second to the next.

The fundamental challenge for communications regulators is to attain the goals of the core values in this competitive environment without attempting to stifle consumer choice. That attempt would not only be antithetical to the goals of competition, it would be futile.

The new network is shaped by consumer control

Those who seek to reform U.S. communications law and regulation need to focus on a couple of key questions. How can a compact that was originally premised on monopoly best function under the

⁶ The evolution of competition in the second half of the Twentieth Century was both gradual and limited. The D.C. Circuit's *Hush-A-Phone* decision in 1956 and the FCC's *Carterfone* decision in 1968 opened the equipment market to competition, but little innovation ensued and most consumers continued to lease their phones from the telcos. Although MCI Communications was founded in 1963, long distance competition was still minimal at the time of the Bell System breakup in 1984.

⁷ For most of the Twentieth Century, consumers could only write a letter, send a telegram, or make a phone call.

radically different conditions created by competition? Specifically, how can regulators redefine their relationship to consumers, so that they respect the choices consumers make for themselves yet still provide for some necessary protections?

The new network compact will only work if regulators and providers recognize that consumers are now in charge of their own communications purchase- and use-decisions. Consumers can evade providers who are not meeting their needs and desires, as the consumers themselves perceive those needs and desires. Even if they could—and it is doubtful that they could—the last thing regulators who value competition would want to do is to disempower consumers by restricting their choices.

Regulation will be effective only if it is strategic—based in an acceptance of the heterogeneity of consumers, an understanding of the diversity of their needs and desires, and an acceptance of their power. Regulatory intervention has to be targeted very specifically to minimize the extent to which it can stifle consumers’ choices. It should be limited to those areas where consumers will see the need for it—areas where some consumers are vulnerable and the market is not providing for their needs.

Core values must be preserved

The FCC has reached bipartisan agreement that a set of core values should apply to the communications ecosystem in America even as technology advances. The transition from Plain-Old-Telephone-System (POTS) to Internet Protocol (IP) over broadband is now seen as inevitable. The discussion on the Hill, at the FCC, and throughout the policy community is increasingly focused on protecting the core values while promoting the benefits that have arisen from innovation and investment in the broadband ecosystem.

Commissioner Clyburn explained: “While technological advancements hold tremendous promise for all consumers, including persons with disabilities and low-income Americans, the Commission should explore all relevant issues to ensure that consumers are not harmed, that our networks are resilient and reliable, and that we continue to promote universal service and competition.”⁸ Commissioner Rosenworcel has articulated this consensus and named the core values in several speeches and statements: “Let’s also approach the IP Transition with our eyes firmly on the future, but informed by the essential values of our past. As I have long suggested, there are four basic values in communications law—public safety, universal access, competition, and consumer protection.”⁹

Democrats are not alone in this view. Commissioner Pai, a Republican, in a recent speech stated that “the FCC must assure that vital consumer protections remain in place.”¹⁰ Within those protections, he included access to public safety regardless of the technology employed by the consumer. He also

⁸ FCC, Commissioner Mignon L. Clyburn, *Statement Re: Technology Transitions Policy Task Force Trials*, May 10, 2013, p. 1.

⁹ FCC, Commissioner Jessica Rosenworcel, *Statement Re: Technology Transitions Policy Task Force Presentation*, December 12, 2013, p. 1.

¹⁰ FCC, Commissioner Ajit Pai, “Two Paths to the Internet Protocol Transition,” Remarks at the Hudson Institute, March 7, 2013, p. 6.

discussed protecting consumers from discrete market failures and anti-competitive harms, for example by ensuring that VOIP providers will be able to access numbers directly to facilitate number portability.

Chairman Wheeler has reaffirmed the values expressed by his colleagues and linked them to the overarching concept of a Network Compact: “At this critical juncture, let me be clear about a few things. One, we favor technological innovation. And, two, we affirm the enduring values of the Network Compact: universal service, public safety, competition and consumer protection.”¹¹

While each of these parties is likely to have different views of what the IP-Transition will entail and what the core values actually mean, there is a clear consensus that the core values must be preserved despite technological changes. **What has received little attention, however, is the radically changed relationship among the key parties in the network compact.**

For most of the Twentieth Century, regulators were able to assure that the core values—all except competition, of course—were enforced. For lack of choice, consumers had to buy services that incorporated those values at prices that supported them. Today, thanks to technological change and innovation and the competition they have bred, consumers have an enormous range of choices, including the choice to abandon platforms, services, apps and devices that embody or support core values.

While regulators still exercise considerable control over some carriers, they have effectively lost control over consumers. The upside is that consumers are enjoying fully the fruits of competition. The downside is that it is much more difficult for regulators to ensure the enforcement of core values by traditional means.

There is a critical difference between consumer behavior under monopoly and consumer behavior in today’s competitive communications market. For lack of choice, consumer communications-behavior for most of the Twentieth Century was static, homogeneous, and controllable. In the Twenty-first Century, consumer communications behavior is dynamic, diverse, and persuadable.

While the core values are enduring, they can only be preserved if their implementation is persuasive to consumers. Not only must rules be flexible enough to keep up with innovation, they must be marketed—rather than dictated—to consumers.

The first step toward an effective implementation of the core values in the Twenty-first Century is an understanding of consumer behavior, now that consumers have choices. Consumers today vary not only by demographic group, but individually. Their choices not only cut across regulatory silos, as is often observed, but they are also extremely complex and ever-changing as innovation creates new

¹¹ FCC, Chairman Thomas E. Wheeler, *Statement Re: Technology Transitions GN Docket No. 13-5; AT&T Petition to Launch a Proceeding Concerning the TDM-to-IP Transition, GN Docket No. 12-353; Connect America Fund, WC Docket No. 10-90; Structure and Practices of the Video Relay Service Program, CG Docket No. 10-51; Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, CG Docket No. 03-123; Numbering Policies for Modern Communications, WC Docket No. 13-97*, January 30, 2014, p. 1.

options. They make periodic purchase decisions about services, applications, and devices. And they make constant, instantaneous decisions about use. Not only consumers as a group, but individuals on any given day vary the platforms, services, applications, and devices used depending on the message to be conveyed, on location, on the audience addressed, and other factors.

Consumer behavior:

Consumer choices were very limited as recently as 1996

At the time the *Telecommunications Act of 1996* passed, consumers had few choices. Voice communication was almost entirely POTS. Video competition was primarily between over-the-air and cable, but satellite was beginning to make an impact. Residential broadband had not yet been deployed, and only 20% of American adults used the Internet.¹²

According to the FCC, in 1996, 94% of households subscribed to POTS voice service and 6% did without landline telephony altogether.¹³ At the end of that year, there were 44 million wireless subscribers, but at a cost of 44 cents per minute, wireless was used primarily in cars, either for business or for emergencies.¹⁴ The Centers for Disease Control (CDC) did not begin to report wireless substitution till 2003, but even in the first half of 2003, only 3% of households had cut the cord.¹⁵ Perhaps even more significant is that the only service provided over wireless was voice. Voice-over-IP (VOIP) was not a factor at all. Cable-telephony is first reported by the National Cable & Telecommunications Association (NCTA) in 1998, when there were about 100,000 subscribers, and those were still circuit-switched.¹⁶

In 1996, video options consisted primarily of free over-the-air TV and subscription-based cable. There were 97 million TV households in the U.S., of which 72.4 million subscribed to a multichannel video-programming distribution service (MVPD).¹⁷ Of those, 63.5 million subscribed to cable, and 6.5 million subscribed to satellite. In other words, over-the-air share was 26% of total TV households, cable's share was 65% and satellite's was 9%.

Internet use was limited in 1996 and consisted primarily of email and search. Residential broadband had not been deployed. In 1996, according to Pew, 20% of American adults were online from some location, using slow dial-up connections. The first cable modems were deployed in 1997.¹⁸ Even at the

¹² Kathryn Zickuhr, *Who's not online and why*, Pew Research Center, September 25, 2013, graphic on p. 4.

¹³ FCC, *Telephone Subscribership in the United States (Data through July 2011)*, 2011, table 1, p. 6.

¹⁴ Cellular Telecommunications Industry Association (CTIA) *Semi-Annual Wireless Survey as of year-end 2012* for 1996 subscribers and CTIA *Wireless History Timeline* for 1997 revenues and number of minutes. Price per minute in 1997 was \$0.44 and 1996 would have been same or higher.

¹⁵ S.J. Blumberg and J.V. Luke, *Wireless Substitution: Early release of estimates based on data from the National Health Interview Survey, July-December 2006*, Table 1, p. 4 (*Wireless Substitution* reports are hereafter referred to as CDC). The U.S. Census for 1998 and later years assigns cell-phones to households, as does CDC for 2003 and later years. However, they do not distinguish between consumer and business use by members of the household.

¹⁶ NCTA website.

¹⁷ FCC, *Annual Assessment of the Status of Competition in Markets for the Delivery of Video Programming, Fourth Annual Report*, adopted December 31, 1997, Appendix E, Table E-1.

¹⁸ NCTA website.

end of 2000, when according to Pew 49% of American adults went online at least sometimes,¹⁹ there were only 3.3 million cable modems and 1.6 million ADSL connections.²⁰

The voice, video, and broadband services available to consumers did not compete with or substitute for one another to any meaningful extent.²¹ Nor did communications incorporate a variety of media. The regulatory silos of wireline, wireless, cable, and broadcast were intact and relevant because consumer purchases did not cut across them.

Consumers now have a plethora of choices

As we will see in this section, consumers' choices have changed and multiplied radically since 1996. Not only have the voice, video and Internet-access markets become more competitive, the preferred modes of communication have changed radically. Interpersonal communication has evolved from a voice-call or letter to communications that include various permutations of voice, text, and video. The communications may be wired or wireless. They may originate from landlines, cell phones, smartphones, desktops, laptops, tablets, or other platforms.²² Not only do these permutations vary to some extent by demographic group, but specific individuals are likely to engage in different variations depending on what devices and platforms are available to them at a given moment and what audience they are addressing.

Voice: Wireless, POTS, VOIP?

By the end of 2013, 89% of households subscribed to wireless voice, either by itself or in combination with some type of wired voice service.²³ Roughly 25% subscribed to a combination of wireless and POTS voice and 22% subscribed to a combination of wireless and VOIP,²⁴ while 41% had cut the cord altogether.²⁵ Since 1996, the number of households that do not subscribe to any interconnected voice service has declined from 6% to 2.5%.

What is particularly striking is that by far the greatest number of consumers choose a wireless connection if they are going to rely on only one voice connection. As Figures 1 and 2 below show, roughly 41% of households in mid-2013 subscribed to wireless alone, 5% subscribed to POTS alone, and

¹⁹ Amanda Lenhart, Lee Rainie, Susannah Fox, John Horrigan, Tom Spooner, *Who's not online*, Pew Internet & American Life Project, September 21, 2000, p. 15.

²⁰ FCC, *High-Speed Services for Internet Access: Subscribership as of December 31, 2000*, August, 2001, Table 3. This includes both residential and small business customers.

²¹ Email might conceivably have begun to substitute for consumer voice calls, but was more likely a substitute for or addition to other written communications.

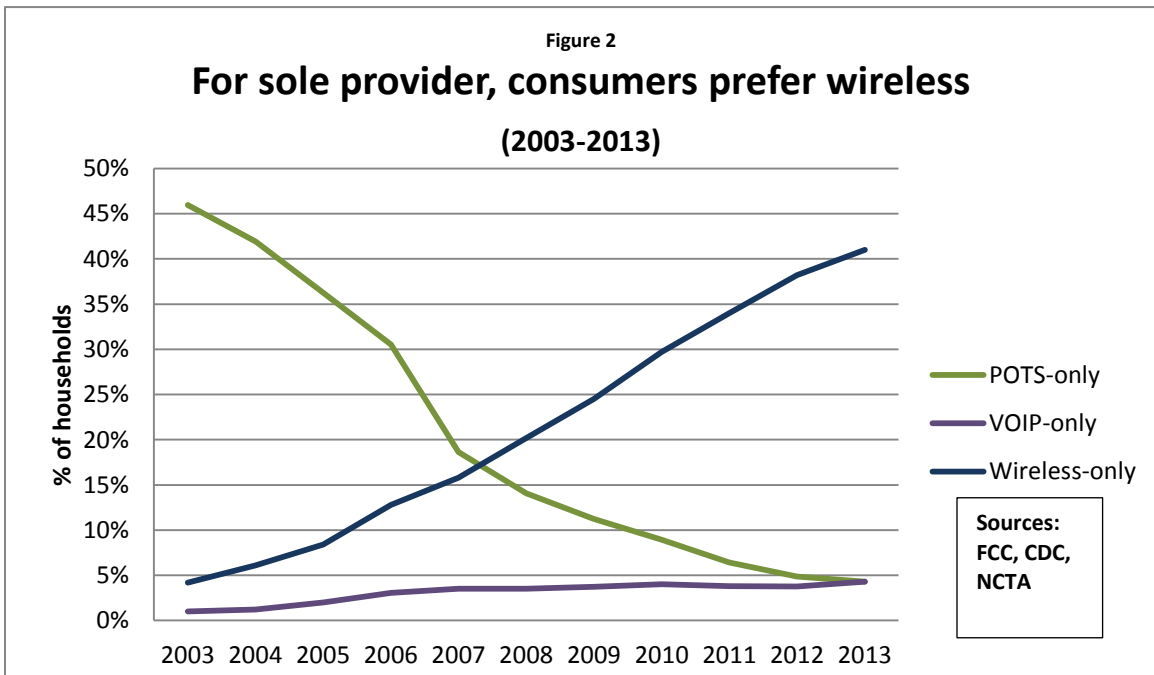
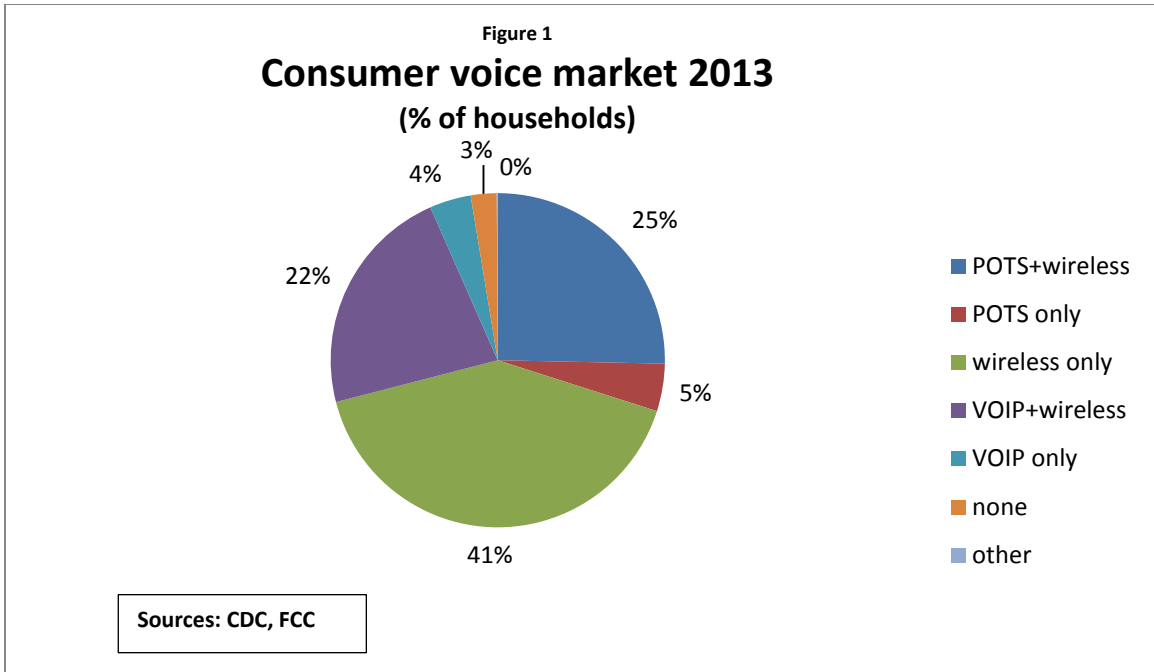
²² For example, one could argue that for some individuals, online games constitute not only a form of entertainment but of contact with others, i.e., communication.

²³ CDC, *Wireless Substitution*, released 07/2014, Table 1, p. 5.

²⁴ CDC discusses wireless and landline. To differentiate between POTS and VOIP, we use the most recent FCC data from FCC, *Local Telephone Competition: Status as of June 30, 2013*, Figure 2, p. 3, which provides the proportion of residential switched access lines to interconnected VOIP.

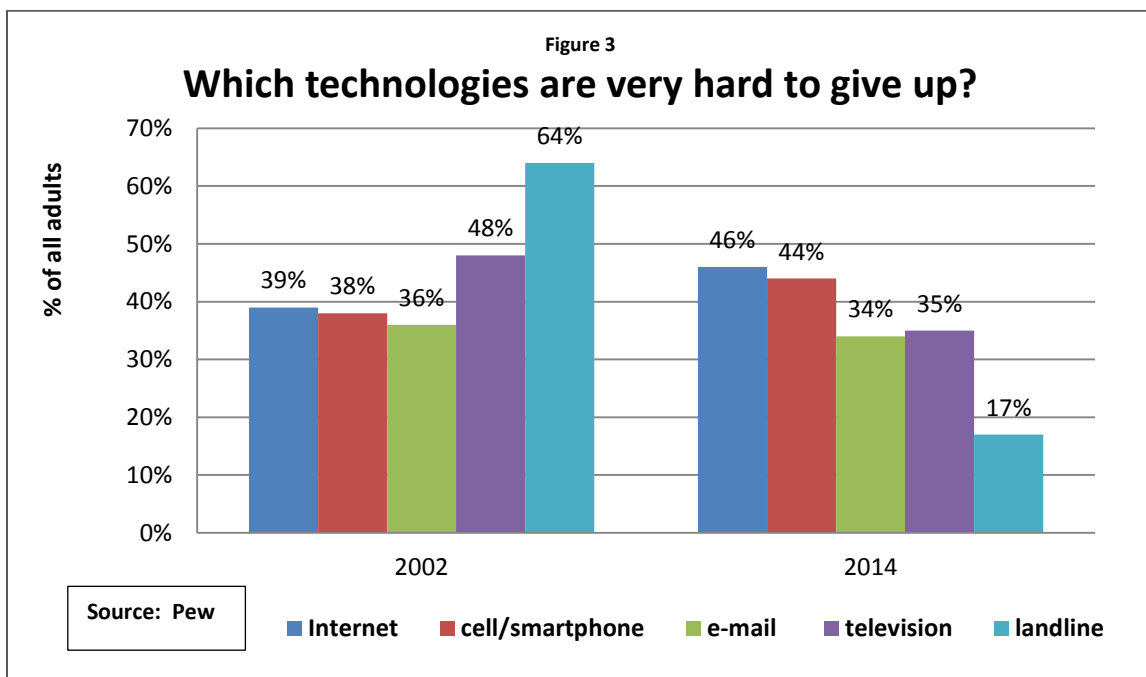
²⁵ CDC, *Wireless Substitution*, 07/2014, Table 1, p. 5.

4% subscribed to VOIP alone. Nearly eight times as many households relied on wireless alone as relied on POTS alone.²⁶



²⁶ FCC, *Local Competition as of June 30, 2013*, and CDC *Wireless Substitution*, 07/2014.

Year-end 2013 company reports indicate that consumers continue to abandon POTS, VOIP continues to gain market share, and wireless is gaining even more. J.P. Morgan’s fourth-quarter 2013 Scorecard reports that in 2013, the phone companies lost 4.8 million voice subscribers while the cable companies gained 0.8 million VOIP subscribers.²⁷ But the largest gains were wireless. Oppenheimer’s Industry Update report, summarizing 2013 and looking ahead to 2014, shows that the wireless industry added 8.8 million subscribers in 2013 and is expected to add 9.7 million in 2014.²⁸



As Figure 3 shows, consumers’ views about the relative importance of wired v. wireless telephony have changed radically over the past decade.²⁹ Pew reports on surveys conducted in 2002 and 2014 that asked American adults which technologies they would find very hard to give up. In 2002, 64% of adults indicated that they would find it very hard to give up landlines (which in 2002 were almost invariably POTS). By 2014, only 17% indicated that they would find it hard to give up landlines (which by 2014 were nearly half VOIP). On the other hand, the number who would find it very hard to give up cellphones had increased, though far less radically.

Video: Over-the-air, cable, satellite, telco, over-the-top?

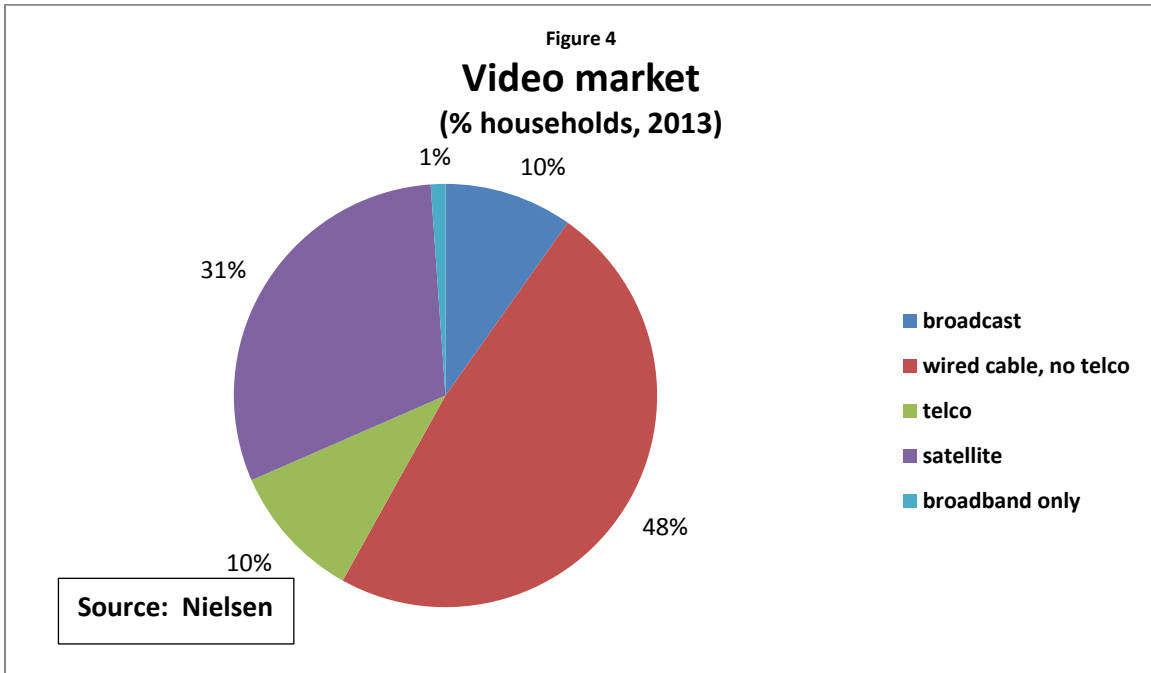
Ironically, the number of adults who told Pew’s survey that they would be willing to give up television has also increased substantially since 2002, but most households still have a TV. Census data shows that

²⁷ Philip Cusick, *4Q13 Video, Broadband Scorecard*, J.P. Morgan North American Equity Research, March 7, 2014, Table 6, p. 4.

²⁸ Timothy Horan and Jonathan Michaels, *Large Cap Model Updates & Quarterly Outlook*, Oppenheimer Equity Research, April 9, 2014, exhibit 17, p. 19.

²⁹ John B. Horrigan, *Consumption of Information Goods and Services in the United States*, Pew Research Center, November 23, 2003, Susannah Fox and Lee Rainie, *The Web at 25 in the U.S.*, Pew Research Center, February 27, 2014, Figure on p. 6.

as recently as 2011, 98.3% of households had a television, compared to 98.8% in 2003.³⁰ However, the video-distribution market has also become increasingly competitive. As of mid-2012, the most recent FCC data, there were 119 million U.S. households. Of those, 115 million were TV households. 11 million took broadcast only, and 104 million were MVPD (multi-channel video programming distribution) video subscribers³¹ of which about 57% subscribed to cable, 34% subscribed to satellite, and about 9% subscribed to telco-video.



Nielsen updates that data for 2013. As Figure 4 shows, according to Nielsen’s most recent *Cross-Platform* report, there were 115.4 million TV households in the U.S. at the end of 2013. Of these, 102.8 million were MVPD households, 11.3 million took broadcast-only, and 1.3 million took only over-the-top video via broadband (i.e., streamed over the Internet). There were three significant changes from 2011 to 2013 in Nielsen’s figures. Like the FCC, Nielsen shows that satellite is the most significant competitor to cable. However, telco TV homes also increased from 8.4 million at the end of 2011 to 12 million at the end of 2013. Cable TV homes decreased from 60.5 million to 55.7 million. And the new category of broadband-only TV (i.e., over-the-top) was introduced, albeit with a share of only about 1%.³²

³⁰ Julie Siebens, *Extended Measures of Well-Being: Living Conditions in the United States: 2011*, U.S. Census Bureau, September 2013, Table 3, p. 10.

³¹ FCC, *Video Competition as of June 2012*, Adopted July 19, 2013, Table 7, pp. 61 and 62, and Table 17, p. 94.

³² Nielsen, *Free to Move Between Screens: The Cross Platform*, March 2013, Table 6, p. 16 (for 2011 data) and *An Era of Growth: The Cross-Platform Report*, March 2014, Table 7, p. 17 (for 2013 data).

Broadband: Cable, wireline, fixed-wireless, mobile, satellite?

By far the greatest change since 1996 is the emergence of the broadband market. This market, which did not exist in 1996, boasted 215 million consumer connections by 2012.³³ Of those, 61% were wireless, 22% were cable-based, 16% were over wireline platforms of which 6.5% were fiber-based (FIOS, U-verse, and others), and 1% was satellite and fixed-wireless.³⁴

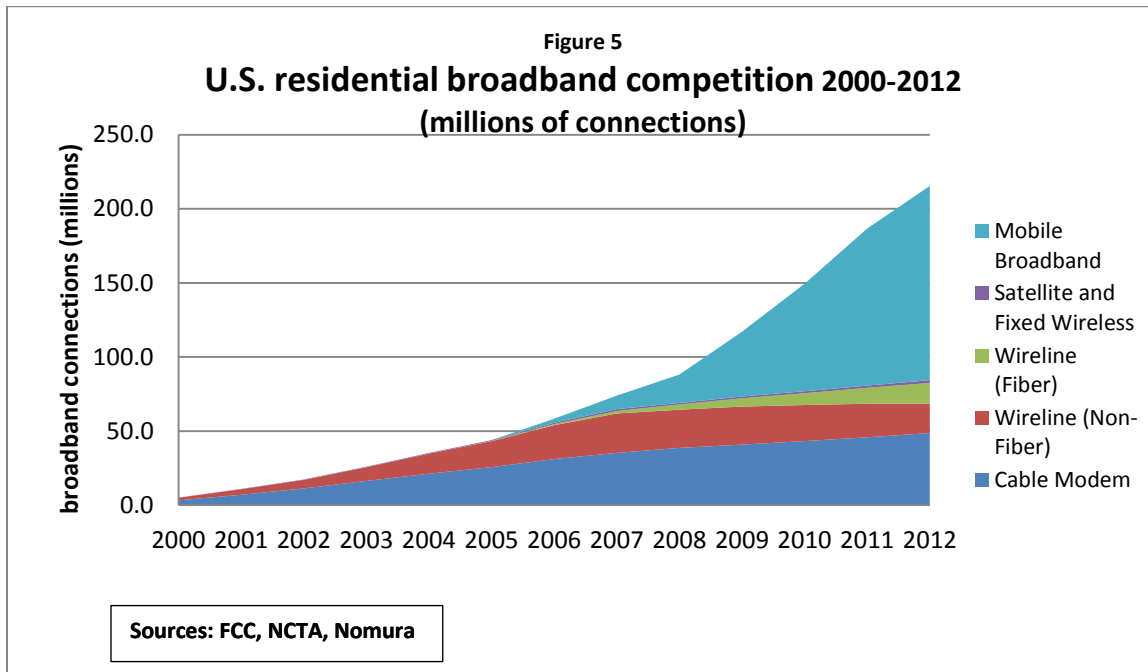


Figure 6 below shows the share of consumer broadband connections by technology in mid-2013.³⁵ The figure shows them as percent of subscribers, rather than as households. However, it is obvious that there is overlap within households. There were 228 million connections (not counting dial-up) and about 118 million households. According to the U.S. Census, as of 2011, 40% of individuals have connections at home or elsewhere from multiple devices.³⁶ The same Census study shows that as of 2011, 67% of individuals were home-Internet users, 48% were smartphone users, and 76% used either. Those figures are updated by Pew, which shows that as of 2013, 70% of adults had fixed-broadband access from home, a number that rises to 80% when access via smartphone is included.³⁷

³³ FCC, *Internet Access as of December 2012*, Table 6, p. 24. U-verse numbers, which we include in wireline-fiber are from Mike McCormack, Adam Ilkowitz, and Tudor Mustata, *Monitoring Broadband Trends*, Nomura Equity Research, May 15, 2013, Figure 1, p. 2.

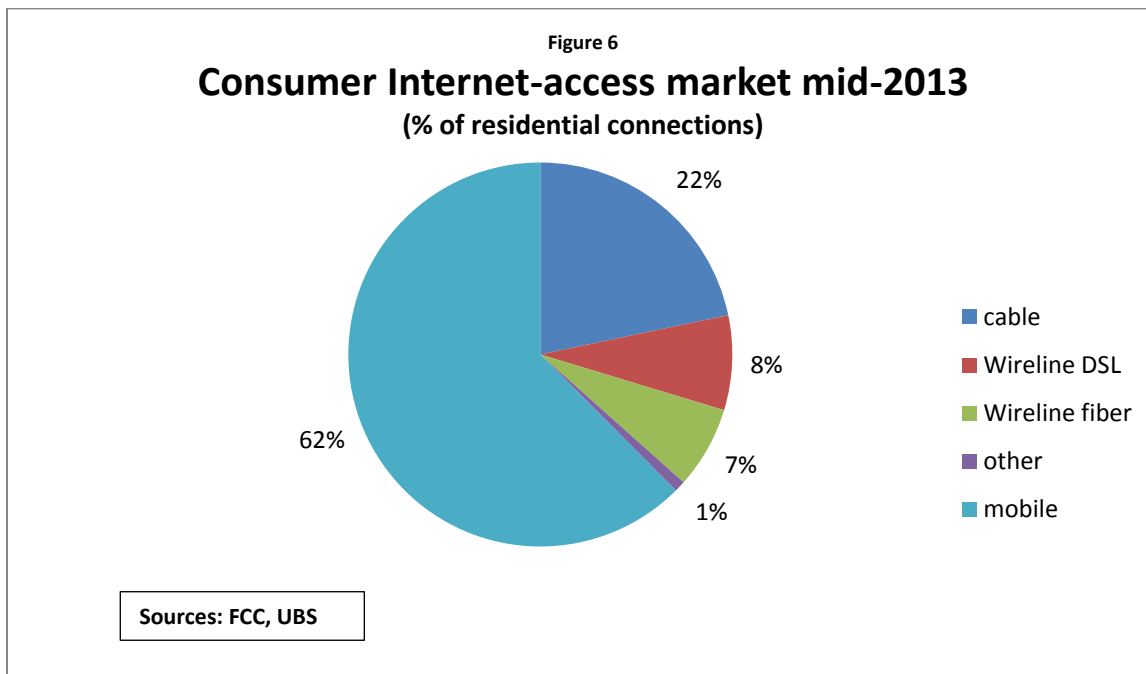
³⁴ Adds to 101% due to rounding.

³⁵ FCC, *Internet Access as of June 2013*, Table 6, p. 24 and John C. Hodulik, Batya Levi, Lisa L Friedman, and Christopher Schoell, *Telecom and Pay TV Play Book*, UBS Global Research, July 10, 2014, Figure 14, p. 23. UBS provides the number of U-verse subscribers, which figure 6 includes in wireline fiber.

³⁶ Thom File, *Computer and Internet Use in the United States*, U. S. Census, May 2013, Table 3, p. 7 shows connectivity for selected individual characteristics. This table indicates that 40% of individuals have connections at home or elsewhere from multiple devices.

³⁷ Kathryn Zickuhr and Aaron Smith, *Home Broadband 2013*, Pew Internet Project, August 26, 2013, p. 5.

Clearly, there is very significant duplication, i.e. many households had multiple broadband connections. Many households combined some form of fixed broadband (including some forms of fixed wireless) with mobile wireless broadband, while others may have had multiple mobile wireless broadband connections. Any of the wireless connections may have been used at home or away from home.



These broadband trends continued in 2013. According to Nomura, cable added 2.1 million subs, telcos added 3.3 million subs where they offered fiber-based broadband but lost 2.8 million DSL subs.³⁸ Mobile broadband continued to thrive, as smartphone penetration grew to 67% of cellphone subscribers by year-end 2013 from 59% at the end of 2012.³⁹

Consumers are making increasingly complex purchasing decisions

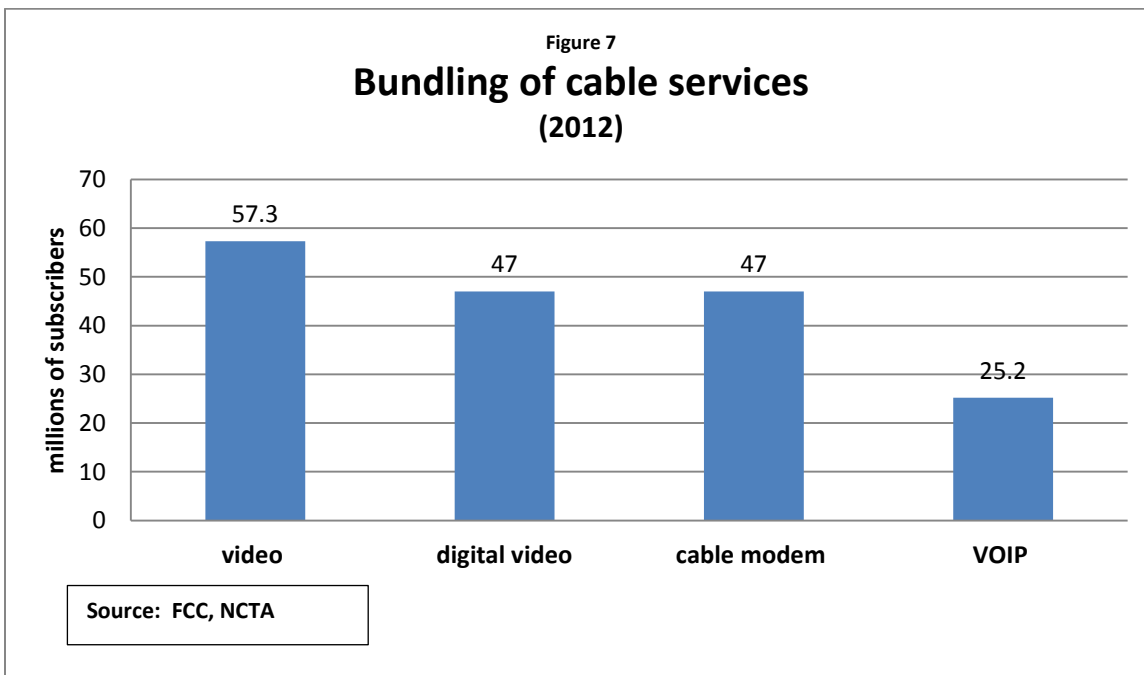
Consumers choose between bundles and individual services

While it is significant that consumers can now choose to buy services individually from competing platform providers, it is also important to recognize that in many cases they are buying bundles of services that combine video, voice, and/or broadband access. For example, Nielsen's year-end 2013 report showed that 80 million households had both video and broadband from either a cable company or a telco. Nielsen does not provide statistics that show how many of those 80 million households bought the two services from the same provider (nor does it show how many took a voice service), but given the pricing incentives to buy bundles it is reasonable to expect that the majority bought the services together as a package.

³⁸ Adam Ilkowitz, *Financials Strong but Pay TV at A Crossroads*, Nomura Global Markets Research, April 11, 2014, Figure 2, p. 2.

³⁹ Nielsen, *Cross-Platform Report*, March 2014, Exhibit 2, p. 19.

To take a different cut at the same issue, the FCC’s mid-2012 MVPD and Internet Access reports indicate that cable had 57.3 million video subscribers⁴⁰ of which 47 million were digital cable subscribers according to NCTA. According to the FCC (and NCTA), there were 47 million cable modem subscribers. While the FCC does not provide figures on the overlap between the two, it is likely that the vast majority, perhaps as much as 82% of cable-video subscribers and nearly 100% of cable digital-video subscribers also took cable’s broadband access service.



The FCC provides more explicit information on the overlap between broadband Internet access and VOIP. There were 34.1 million interconnected VOIP lines that were part of a broadband bundle. Incumbent local exchange carriers (ILECs) provided a total of 5.8 million of those, 3.1 million over DSL and 2.7 million over fiber to the premise (FTTP). Non-ILECs provided 28.3 million interconnected VOIP lines that were part of a bundle, 2.7 million over digital subscriber line (DSL) and 25.2 million over cable.⁴¹

While we have not found FCC statistics that show how many households buy all three services—video, voice, and VOIP—from cable providers, it is obvious from the statistics the FCC does provide that cable subscribers tend to take bundled services, with the vast majority subscribing to both video and broadband-access and roughly half also subscribing to VOIP.

⁴⁰ NCTA’s website’s industry statistics section shows that 47 million of the video subs in 2012 were digital video subs, which would imply that all the digital video subs were also broadband-access subs.

⁴¹ FCC, *Video Competition as of June 2012*, Table 7, p. 71; FCC, *Internet Access as of December 2012*, Table 6, p. 24; FCC, *Local Competition as of June 2012*, Figures 5 and 6, pp. 7 and 8.

The FCC does not provide a comparable table for combinations of switched-access voice, broadband-access and video, nor wireless voice or broadband.⁴² But it does report that 99% of ILEC (incumbent local exchange carrier) customers who subscribed to VOIP, did so as part of a bundle of voice and broadband access.⁴³

Verizon and AT&T provide some additional insight about their own customers' behavior.⁴⁴ Verizon's Investor Relations Bulletin reported at year-end 2013 that the company had 6.1 million FIOS Internet subscribers, 5.3 million FIOS video subscribers, and 4.3 million FIOS voice residence connections. Clearly some of the broadband subscribers did not take other services. While it is not certain that the video and voice overlaps with broadband were complete—i.e., some video or voice customers may have simply taken one service—it is likely that many FIOS customers bundled at least two services, and most appear to have bundled all three. AT&T, in a recent SEC filing, stated that 97% of its pay-TV customers bundle that service with other AT&T services. Consumers obviously find bundles appealing.

Bundles involve complex trade-offs for consumers

For regulators, the bundling of services has interesting implications. From a legal perspective, different parts of the bundle fall into distinct regulatory silos within the Act. There is also the more practical question of how a regulator can influence consumer behavior related to one service when the consumer's decision-process for that service is linked to desire for other services.

The fact that consumers are buying services in a bundle means that their purchase decision can be based on a number of factors. The pricing decision itself is complex. It may be based on the total price of one bundle v. the price of a competitive bundle of similar services. On the other hand, the decision to take one or another of the bundled services may be based on the perceived incremental price of that individual service. For example, a consumer who wants a cable video package may also take cable-VOIP because the incremental cost of the VOIP within the bundle is much lower than standalone voice options.

Alternately, the decision to buy one service may be based in part or entirely on the features of another service. For example, the decision to take voice service from a cable provider rather than a telco (or vice versa) may be based on the speed of the associated broadband access, or on some specific programs in the associated video programming package. Conversely, the decision to take a voice service from a telco may be based on the availability of a bundled wireless package, or even the specific devices offered by that associated wireless provider.

Depending on their own very different sets of priorities, consumers can now make choices that include not only complex pricing comparisons, but a huge range of other factors. One obvious implication is that the ability of regulators to influence—much less control—those choices has diminished enormously

⁴² While table 7 in the *Local Competition* report shows 5.8 million switched FTTP lines, for example, it does not indicate whether any are bundled with broadband.

⁴³ FCC, *Local Competition as of June 2012* and *Local Competition as of June 2013*, figure 5, p. 7 in each report.

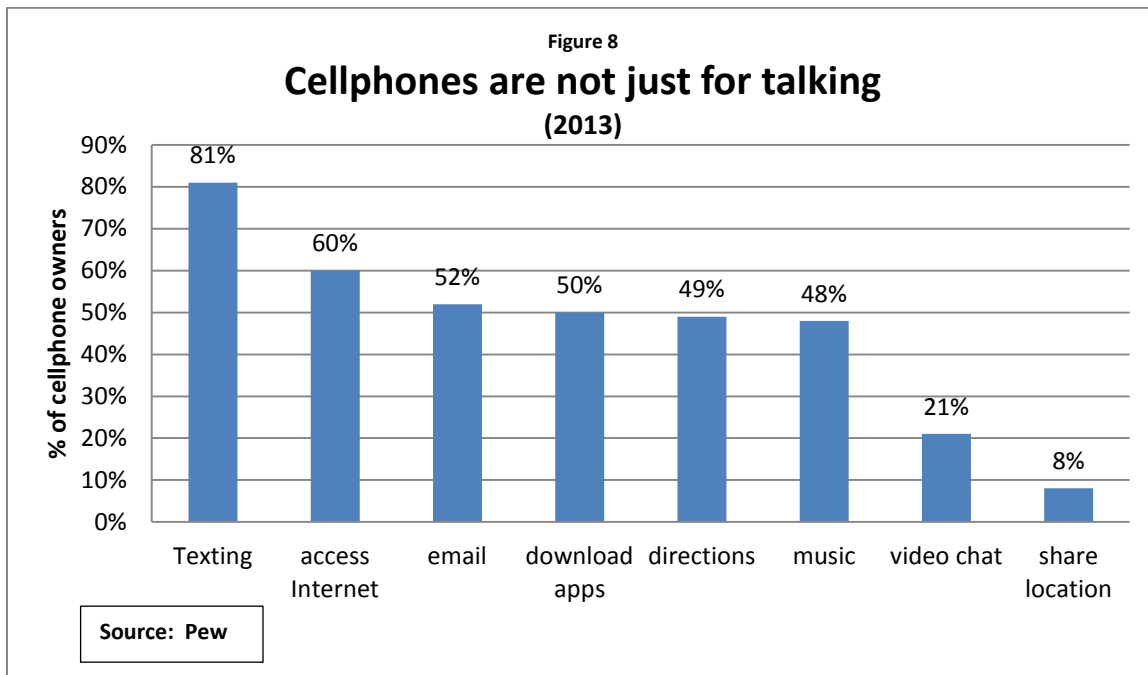
⁴⁴ Verizon Investor Relations Bulletin as of Q4 2013, p. 14 and AT&T- DIRECTV form 425 filed by AT&T on June 30, 2014, item 8.01 #3.

since 1996, when consumer decisions were one-dimensional and more neatly contained within the Act's silos.

Communication choices are increasingly intermodal as well as interplatform

Bundling represents only one aspect of the complexity of consumers' behavior today. Although our analysis so far has treated the voice, video, and broadband markets as separate (albeit sold in bundles as well as individually), from the perspective of many consumers they are becoming increasingly interchangeable.

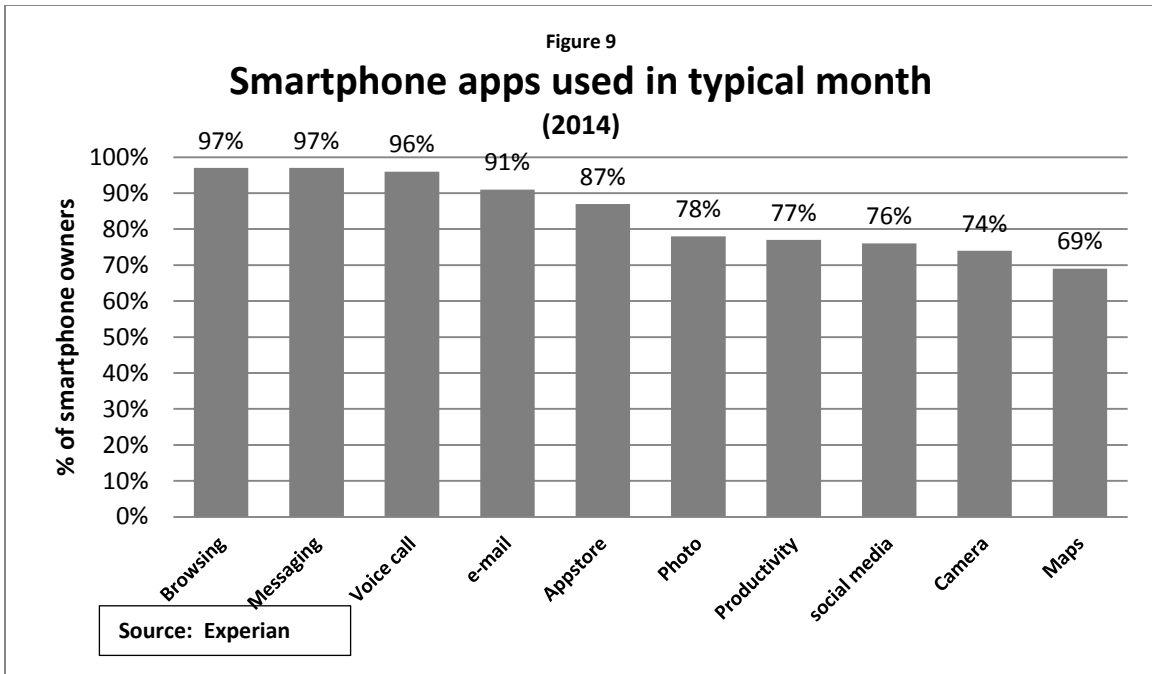
As Figures 8 and 9 show, consumers use both cellphones in general and smartphones in particular to communicate in a variety of ways, as well as for other applications. According to Pew, on cellphones, texting is done by 81% of cellphone owners, emailing is done by 52%, and Internet access is done by 60%.⁴⁵ Similarly, according to Experian, smartphones are used for voice calls by 96% of users, messaging by 97%, email by 91%, and social media by 76%.⁴⁶



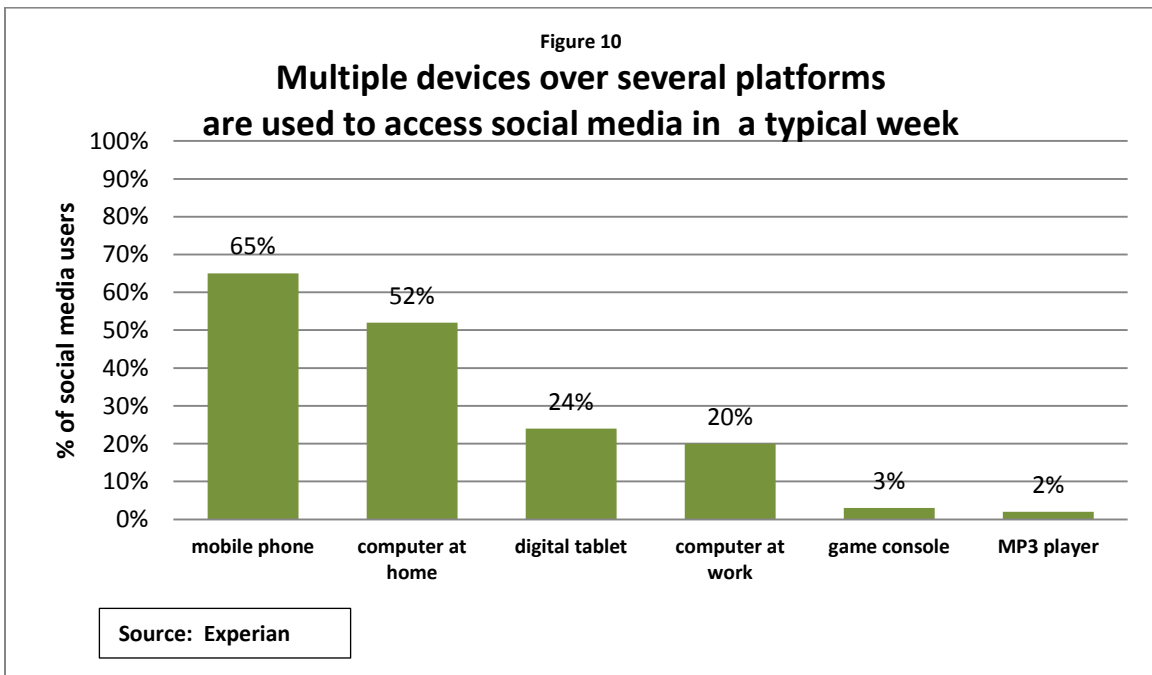
Each time a consumer decides to communicate, he or she not only decides to do so over a particular platform—wireless in this case—but the consumer also decides whether to do so one-to-one or one-to-many. Consumers are also choosing different modes within each platform and even over the same device. A text or an e-mail or a video-chat can now be a substitute for a voice call. A tweet can be a substitute for numerous texts or even voice calls.

⁴⁵ Maeve Duggan, *Cell Phone Activities 2013*, Pew Research Center, September 16, 2013, p. 2. The Pew survey did not ask how many cellphone owners make voice calls.

⁴⁶ Experian, *The 2014 Digital Marketer*, p. 75.



Conversely, consumers may choose a different device or platform for a particular mode. For example, consumers access social media over a variety of network platforms and devices, as Figure 10 shows.⁴⁷ Not only is the consumer selecting a particular device and platform over which to access social media at a given moment, but that social-media communication may well include voice, data, and video, and the video itself may then encapsulate sound and picture.



⁴⁷ Experian, *The 2014 Digital Marketer*, p. 86.

This plethora of choices is wonderful for consumers. They can do what they want, when they want it, as they want it. However, it creates all sorts of complexities for regulators. To the consumer, wired, wireless, and WiFi derived from either of the other platforms are interchangeable depending on the consumers' location, circumstances, and budget. The same laptop might be connected to a landline-based corporate network at one point in the day and to a cable-modem, WiFi, and/or mobile-wireless connection at other points in the day. Same consumer, same device, same use—but different regulation depending on the network that is employed.

Regulating one of those platforms or one of those modes of communication and not the others is likely to skew the choices available to consumers, because innovators will try to avoid including a regulated service in their offerings.⁴⁸ At the same time, the fact that consumers have choices of their own means that they also will be able to find ways to evade the regulators' choices, if they do not match their own. Different choices by consumers will, in turn, skew what the market provides over time. In other words, **the regulation will change the course of innovation, but will not assure the implementation of the core values.**

Consumers can now express their individuality

Yet another layer of complexity today is created by the heterogeneity of consumers and their ability to express unique preferences because they have choices. No doubt, Americans differed from one another during the Twentieth Century. However, lacking communications choices in the market, they acted as a homogeneous body and could be treated by regulators as if they were homogeneous. Regulations were essentially one-size-fits all, with regard to both price and quality.

Indeed, uniformity was a regulatory goal, whether out of a sense of “fairness” or out of a desire for universal service. For example, despite substantial cost differences, thanks to a variety of cross-subsidies prices were kept relatively uniform between urban and rural areas. Service-quality standards within a jurisdiction were uniform.

That is no longer the case. That POTS call can now be replaced by voice calls over wireless or cable platforms, by voice calls that are considered broadband applications rather than core services over the same or different platforms, and by non-voice communications over various platforms. As the statistics earlier showed, consumers have opted overwhelmingly against POTS, the most-heavily regulated and standardized option.⁴⁹

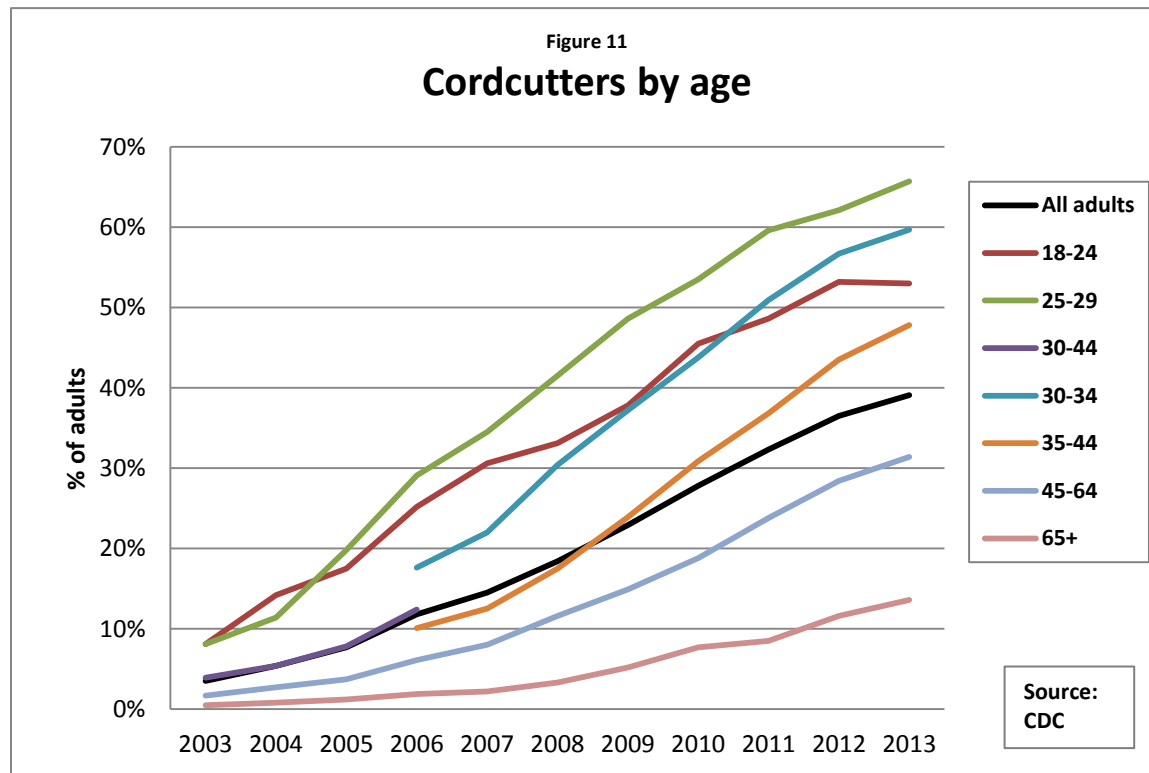
What makes regulation even more complex today is that the choices consumers make also vary among demographic groups. Those variations are not necessarily easy to predict before they manifest themselves in the marketplace, nor do they necessarily carry over from one set of choices to another.

⁴⁸ As we discuss later, Google explained that it does not offer interconnected voice in Kansas City because that would invite regulation.

⁴⁹ While regulators can and do to some extent mandate support of the Universal Service Fund over various platforms, that does not fully replace the internal cross subsidies that were built into POTS rates.

The CDC provides data on cord-cutting, i.e. use of wireless-only within a household, by various demographic criteria. As Figures 11-14 show, there are variations by age, race/ethnicity, income, and household structure.⁵⁰ The greatest range within a demographic category is by age. There is a 52% spread between the 25-29 year-olds and the 65+ year-olds. While 66% of the 25-29 group has cut the cord, only 14% of the 65+ group has done so, and the range is even greater when the 65+ group is subdivided further.

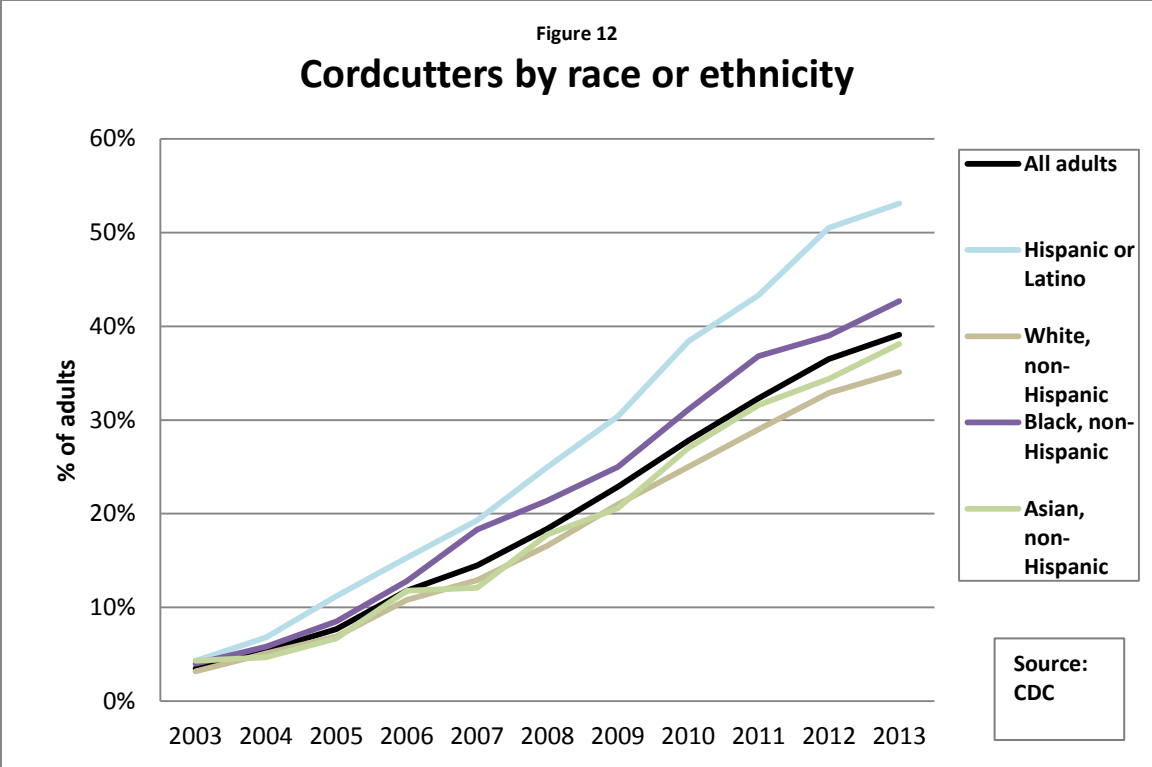
It is worth highlighting that while seniors are more likely to retain a landline, that group is just as likely to have switched to VOIP as the rest of the population. AARP ran a survey in Pennsylvania among seniors, which in AARP's case was defined as those over the age of 50. More than 40% of the AARP respondents were using VOIP, just as 43% of all Americans who retain a landline use VOIP.⁵¹



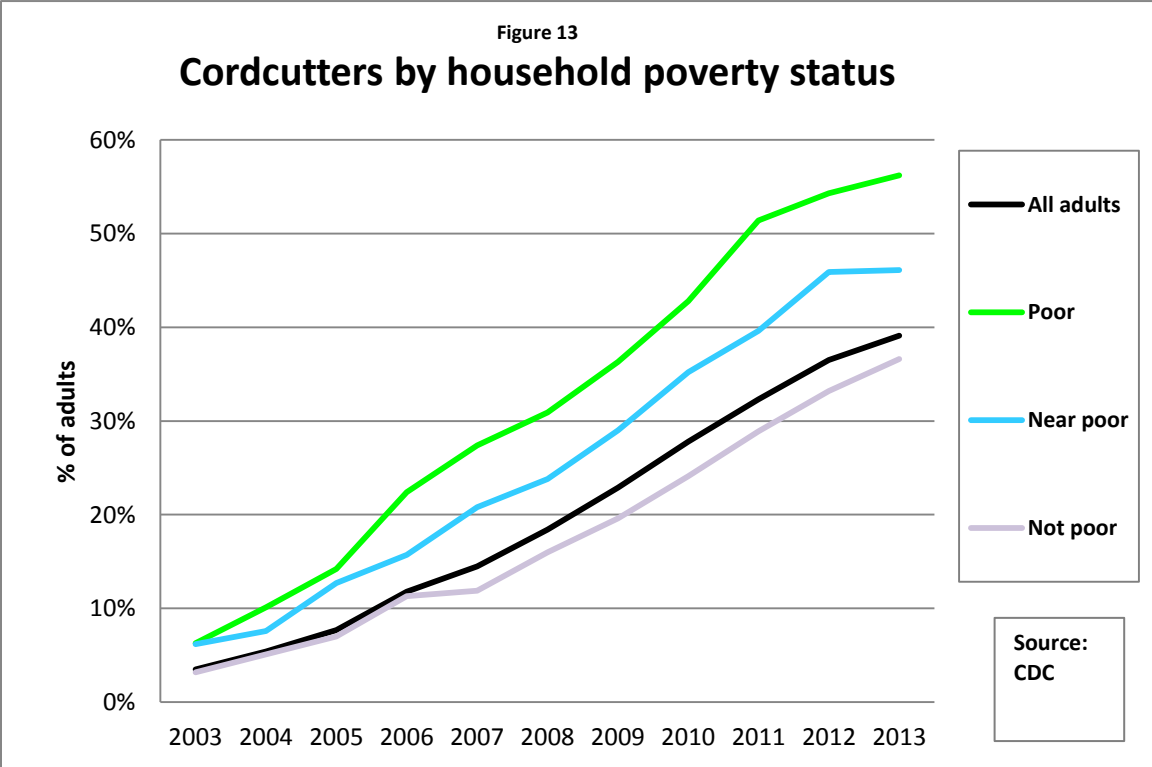
The range by race/ethnicity and by poverty status is also significant but much smaller. The spread for race/ethnicity is 18%, with non-Hispanic White adults least likely to cut the cord, and Hispanic or Latino adults most likely to do so.

⁵⁰ Data for figures 11-14 is from CDC, *Wireless Substitution, reports released 5/14/2007, 05/12/2010, 06/2013, and 07/14, tables 1 and 2 in each case.* There are lesser variations by gender and location (urban, suburban, rural).

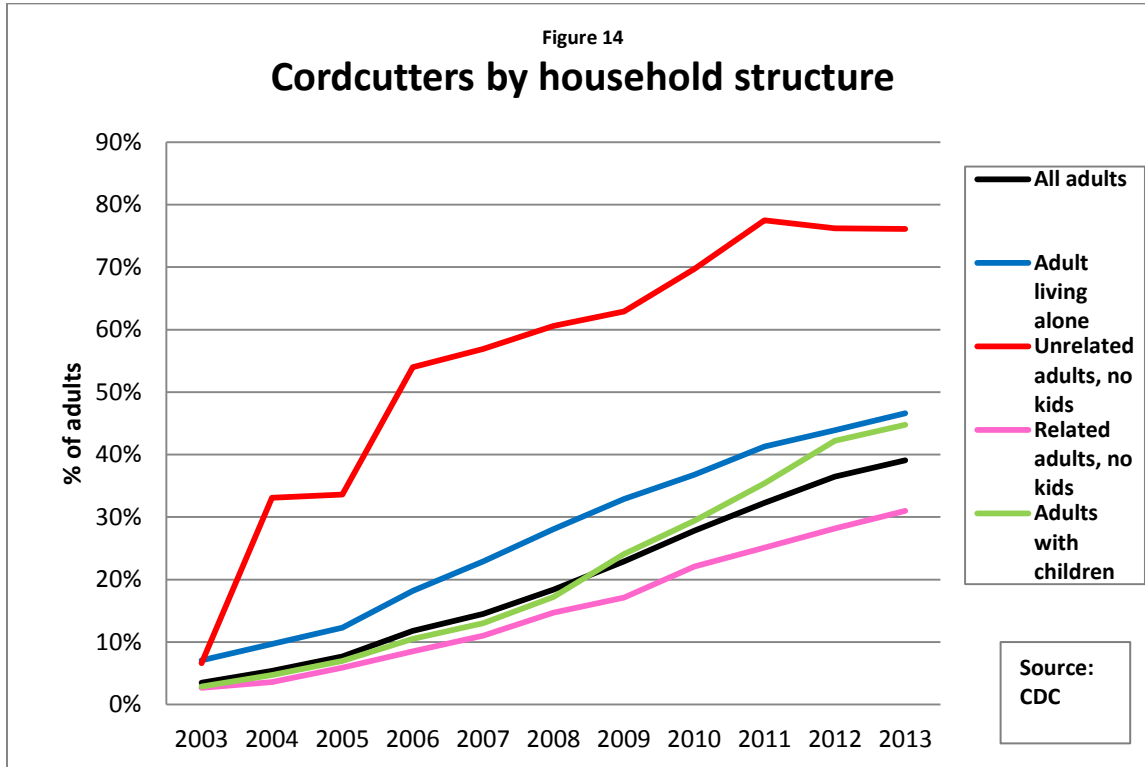
⁵¹ 2013 AARP Survey of Pennsylvania Residents Age 50+ on Telecommunications, pp. 8-9.



Poverty status is also a significant factor, with a 20% spread. Those who self-identify as not poor are least likely to cut the cord, while those who self-identify as poor are most likely to do so.



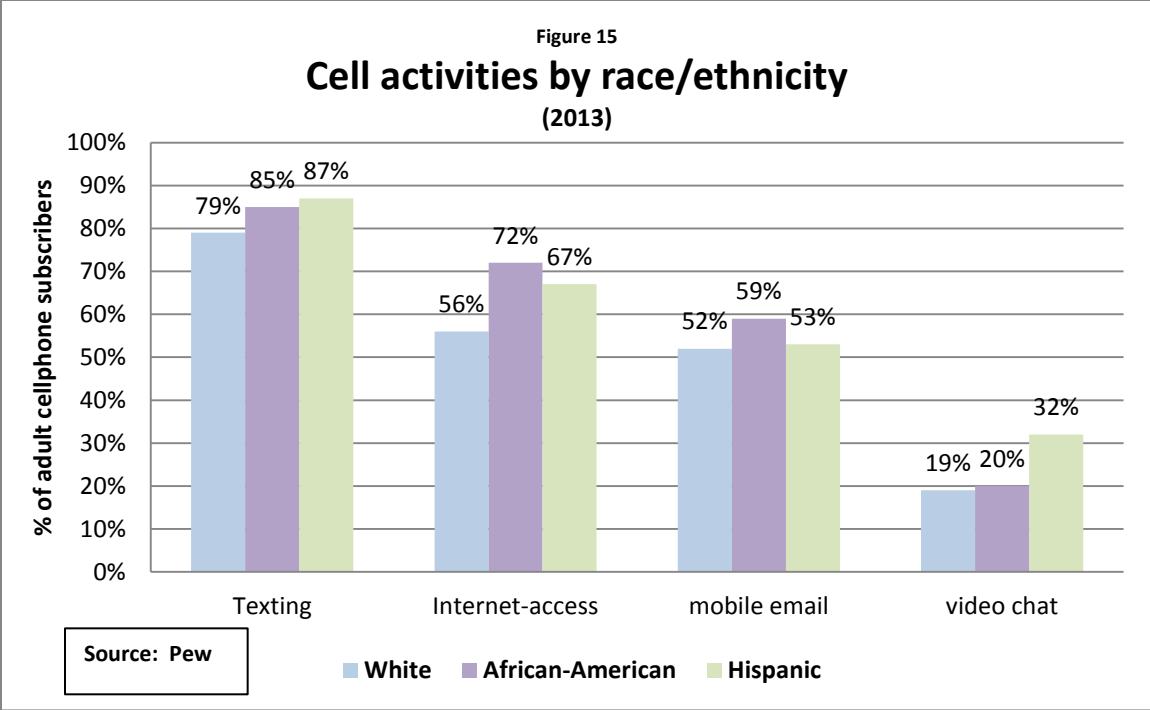
The range by household structure is almost as great as the range by age, with a 45% spread. Those least likely to cut the cord are related adults without children sharing a household—only 31% of this group has cut the cord. Those most likely are unrelated adults without children sharing a household—76% of this group has cut the cord.



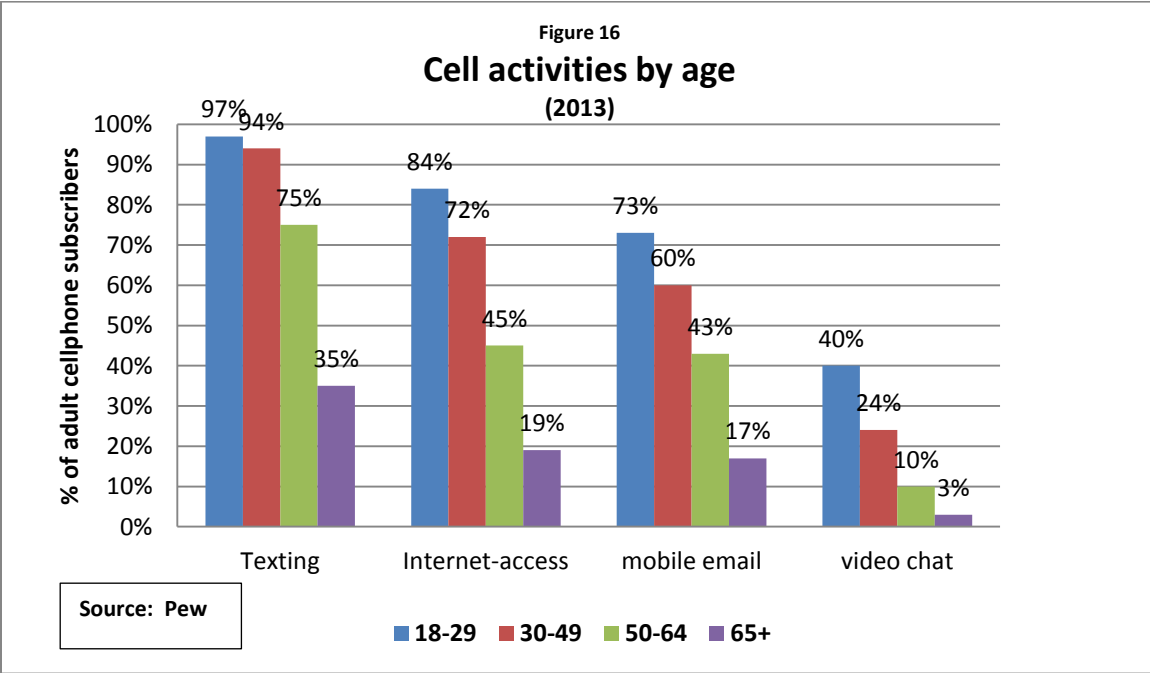
Almost every aspect of communications varies by demographics. For example, as Figure 15 below shows, Pew surveys indicate that cellphone activities vary by race/ethnicity.

One obvious take-away is that wireless plays an important role to the minority community.⁵² While Whites, African-Americans, and Hispanics are equally likely to have a cellphone (the ownership percentage among adults is 90%, 90% and 92%, respectively), African-Americans (59%) and Hispanics (61%) are more likely than Whites (53%) to own a smartphone. As we saw above, members of the minority community are more likely to have cut the cord. They are also more likely to use cellphones for Internet access. Minority-members are more likely than Whites to use all of these technologies, but there are some further variations. African-Americans are most likely to engage in mobile Internet access and email, while Hispanics are most likely to video-chat.

⁵² Data for Figures 15-16 is from Pew, *Cell Phone Activities 2013* and for Figures 17-18 from *Older Adults and Technology Use*, April 3, 2014.

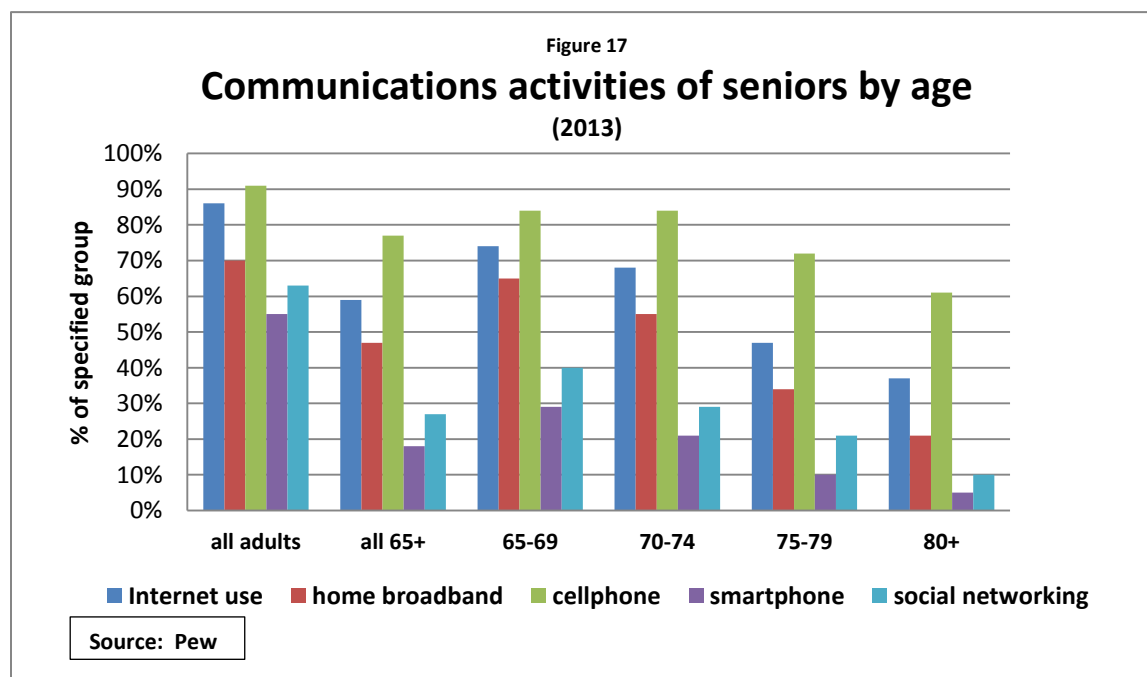


As noted in the discussion of cord-cutting above, age is another factor that has a very significant impact on the use of various technologies. As a group, those over 65 are somewhat less likely to own a cellphone and much less likely to own a smartphone than younger demographics. While roughly 98% of those aged 18-29 own cellphones, 74% of the 65+ group do so. The gap in smartphone ownership is much larger. Among those aged 18-29, 83% own a smartphone, while only 19% of those 65+ do so.



The activities in which people engage over their cellphones also vary with age. As Figure 16 shows, the propensity to engage in texting, Internet-access, mobile email, and video chat declines in stair-step fashion with age. The spread between youngest and oldest is about 60% for texting, Internet access, and email, and 37% for video chat (which has gained almost no traction among seniors).

Pew took a more detailed look at the factors that impact the relationship of those over 65 to various technologies in *Older Adults and Technology Use*. Not surprisingly, this group is also far from homogeneous, although the stair-step phenomenon still holds. As Figure 17 shows, those in the 65-74 range are about as likely to own a cellphone as the average adult. However, they are much less likely to have a smartphone.⁵³ Those 65-69 are nearly as likely to have home broadband as the average adult, but much less likely to engage in social networking.

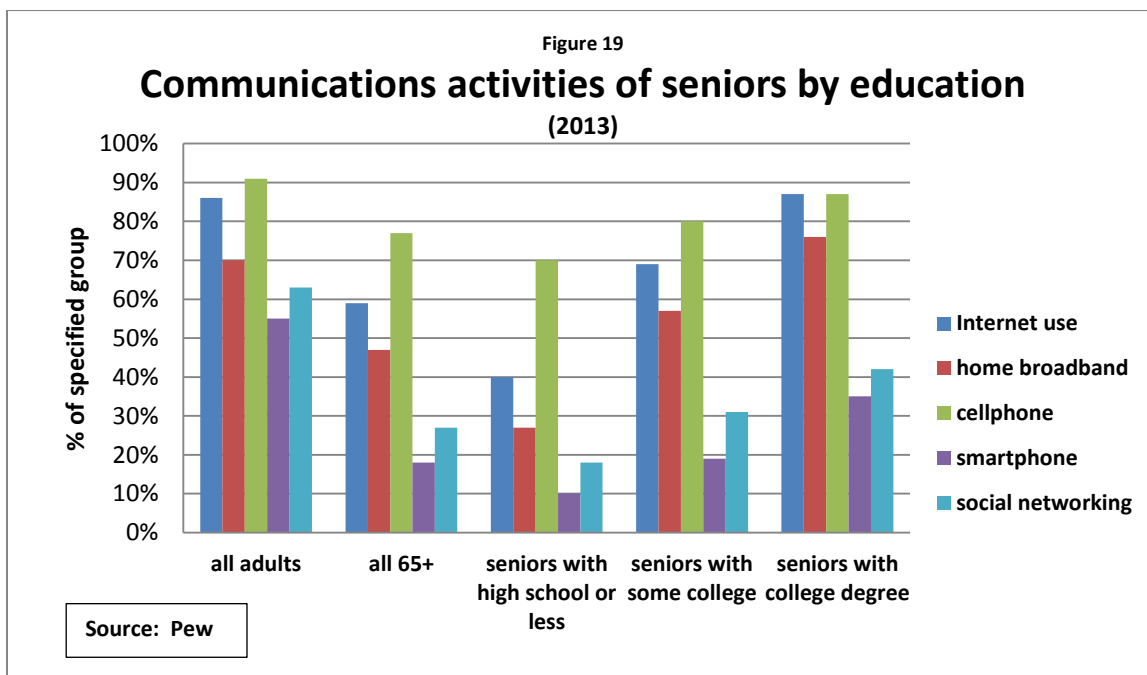
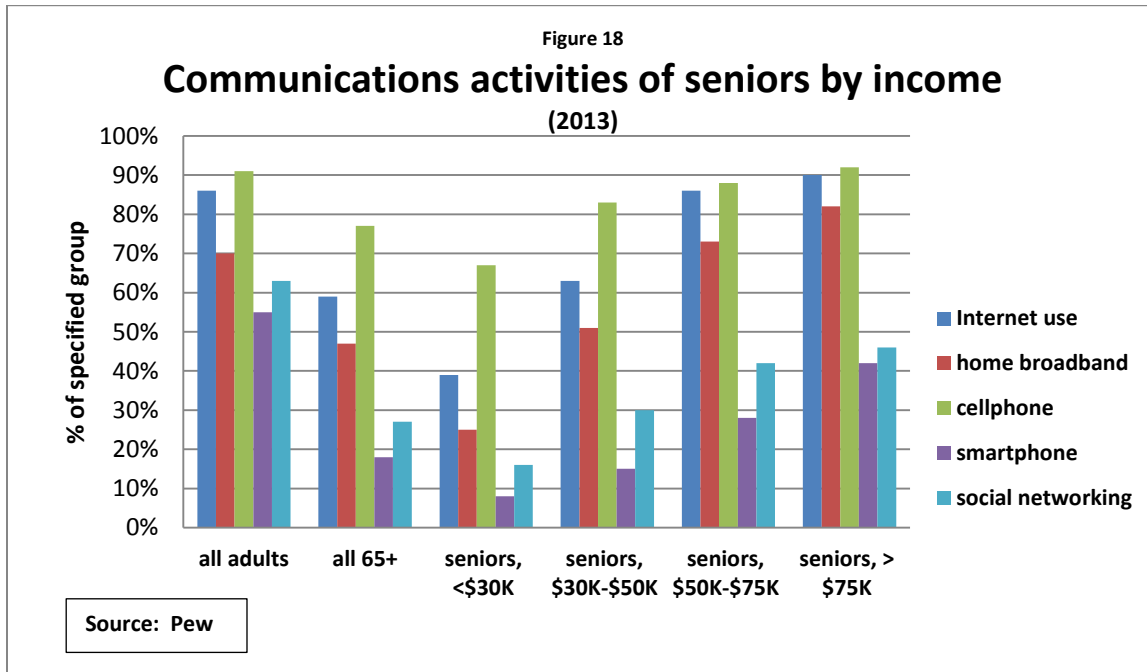


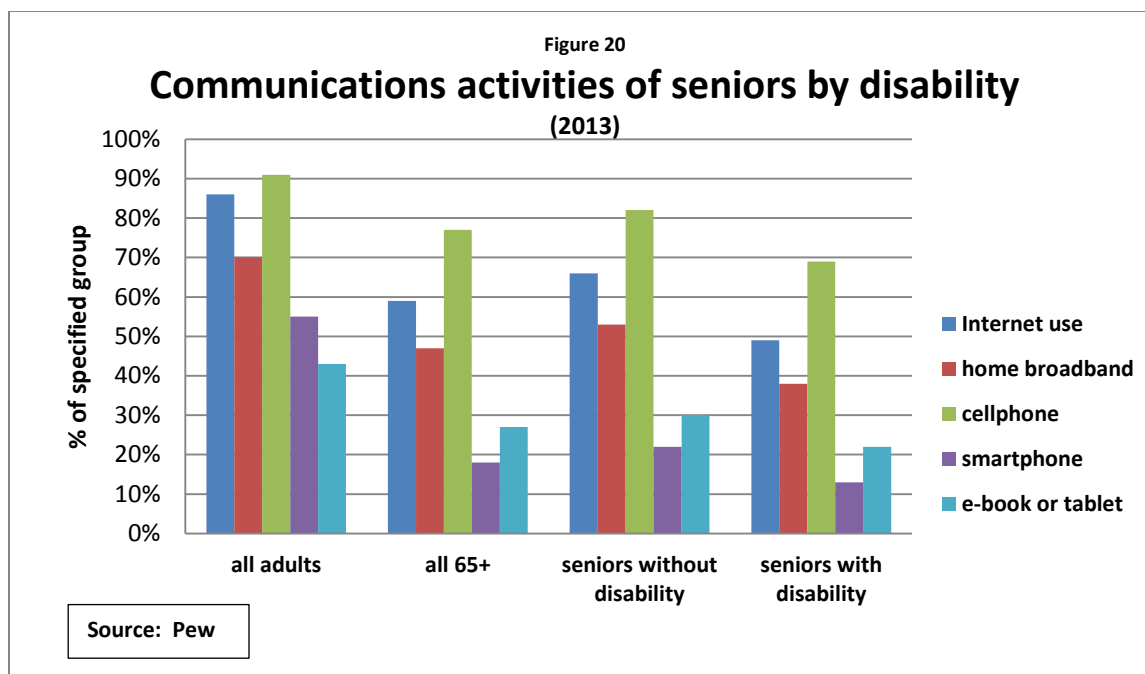
The analysis becomes even more interesting when Pew examines underlying factors such as income, education, and disability. As Figures 18 and 19 show, income and educational attainment appear to have very similar impacts. In general, not surprisingly, higher levels of income and education correlate with higher levels of ownership/use of all of these technologies. Indeed, Internet use and home broadband are higher for seniors with incomes over \$50,000 than for the average of all adults, and cellphone ownership is roughly the same. That also holds for those with college degrees. However, seniors at all income and education levels are less likely to own smartphones or engage in social networking than the all-adults group.

Yet another cut, looking at the impact of disability, may help explain the low adoption rates of smartphones by seniors. Seniors are more likely to own an e-book or tablet than they are to own a

⁵³ Figures 17 to 20 are based on Aaron Smith, *Older Adults and Technology Use*, Pew Research Center, April 3, 2014.

smartphone, while the average adult is more likely to own a smartphone than e-book/tablet. One possible explanation that deserves further research is that visual acuity may be the determining factor in the choice of devices—given that it is much easier to read or even to see images on the larger devices.





Pew’s detailed analysis into the technology-use patterns of seniors reveals that the patterns are much more subtle than the usual discussions would indicate. For one thing, it is dangerous to assume that those in the 65-75 range have the same patterns as those who are over 75. For another, behavior may be related to income and/or educational attainment rather than age. And at least some behavior is likely to be related to specific disabilities rather than to age more generally.⁵⁴

Consumers cannot be treated as a homogeneous group

Clearly, consumers are not a homogeneous body and will not allow themselves to be treated as such. Indeed, while some generalizations can be made about them by looking at demographic groups, even those conclusions have to be made very carefully. Today, consumers mix and match voice, data, and video services and applications across wireline, wireless, cable, and satellite platforms. Their communication choices vary not only by their demographics, but by their audience, location, purpose, and message at any given moment.

Consumers today also define their priorities differently from one another. While consistency (no dropped calls, high-quality) may be the top priority for one, mobility within an area as limited as a single building or neighborhood may be the highest priority for another, and extensive coverage may be the priority for someone else. To a 75-year-old, reliability may still mean 99.999% uptime. To a commuter, reliability may mean coverage over most of an hour-long commute, with the occasional dropped call an expected and acceptable (if annoying) trade-off for the ability to make productive use of that long ride. To a teen, those concepts may be meaningless, or couched in terms of data and video exchanges.

⁵⁴ And, of course, disability and income may also be correlated.

Consumers are powerful decision-makers

Consumers vote with their dollars. Not only are consumers shifting their patronage and revenues away from POTS carriers to wireless providers, they switch wireless carriers at a remarkable clip as well. Churn rates among wireless carriers range from 13% to 26% per year.⁵⁵ Consumers are rapidly moving from cellphones to smartphones to tablets, with concomitant increases in the use of wireless broadband. Among those using wireless broadband, WiFi use is rising, as tablets gain popularity.

The applications consumers employ on those platforms and devices are also evolving rapidly. According to Sandvine, between 2011 and 2014 Flash Video and RTMP replaced Amazon Video and Hulu in the top 10 downstream applications on fixed access networks in North America, while Google Market, Pandora Radio, Netflix, iTunes and Instagram replaced Windows Update, Android Market, Flash Video, RTSP, and Shockwave Flash in the top 10 downstream applications on mobile networks in North America.⁵⁶

Regulatory implications of consumer choice:

One-size-fits-all solutions don't fit heterogeneous consumers

A communications regulator—whether the FCC or a state public utility commission—only has legal jurisdiction over the network provider, not over consumers and investors, its other two key sets of stakeholders. However, for most of the Twentieth Century, their legal control over the monopolist network-provider allowed regulators to determine what services were available to consumers for purchase. Thus, regulators controlled both providers and consumers. They controlled providers directly and consumers indirectly—but equally effectively—by controlling the providers whom the consumer could not evade and still get voice service.

The combination of traditional network technology and a legal/regulatory mindset that equated “just” with “uniform” resulted in a “one-size-fits-all” set of products and services. A key assumption was that consumers are a homogeneous group who are best served via uniform services, prices, and levels of quality. Because they had no other choice, consumers accepted that role and acted like a homogeneous group for most of the Twentieth Century. The process deprived consumers of the opportunity to signal to their providers what they—as individuals—would actually like to buy.

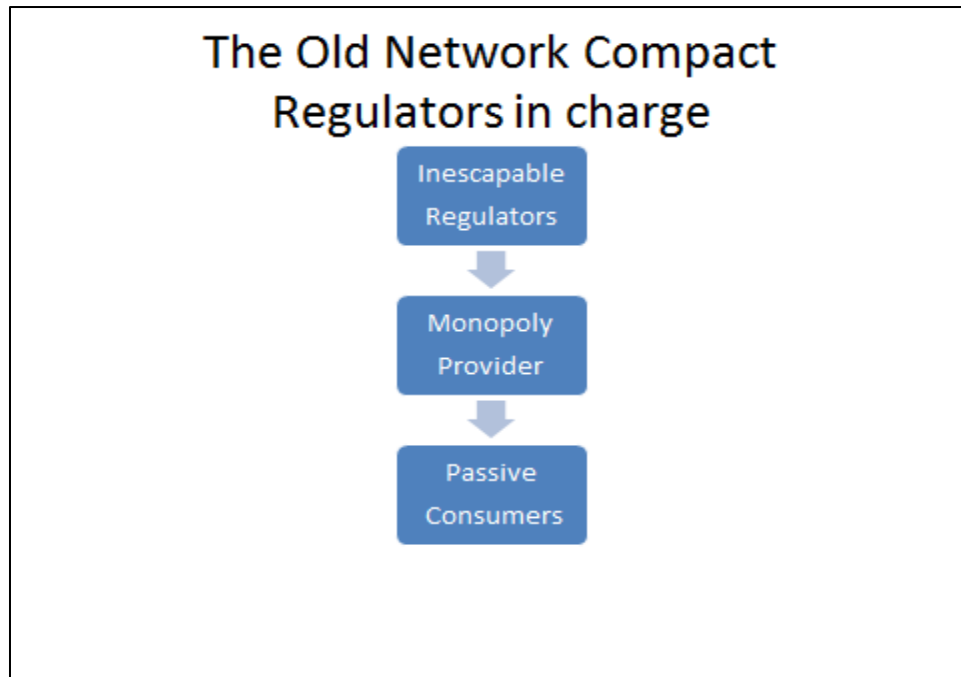
It was the regulators’ control over the consumer⁵⁷ as well as provider that made it possible to ensure that the core values were enforced. Consumers had to accept the core values, because they could not evade the services through which the core values were provided. The result was universal access, a high level of network reliability, access to and for public safety, and uniform offerings and prices. Under the

⁵⁵ John C. Hodulik, *US Wireless 411: Version 52*, UBS Global Research, May 20, 2014, Figure 10, p.7. Q1'14 rates annualized.

⁵⁶ Sandvine, *Global Internet Phenomena Report*, Fall 2011, tables 1 and 2, pp. 8 and 12, and 1H 2014, tables 2 and 4, pp. 6 and 9.

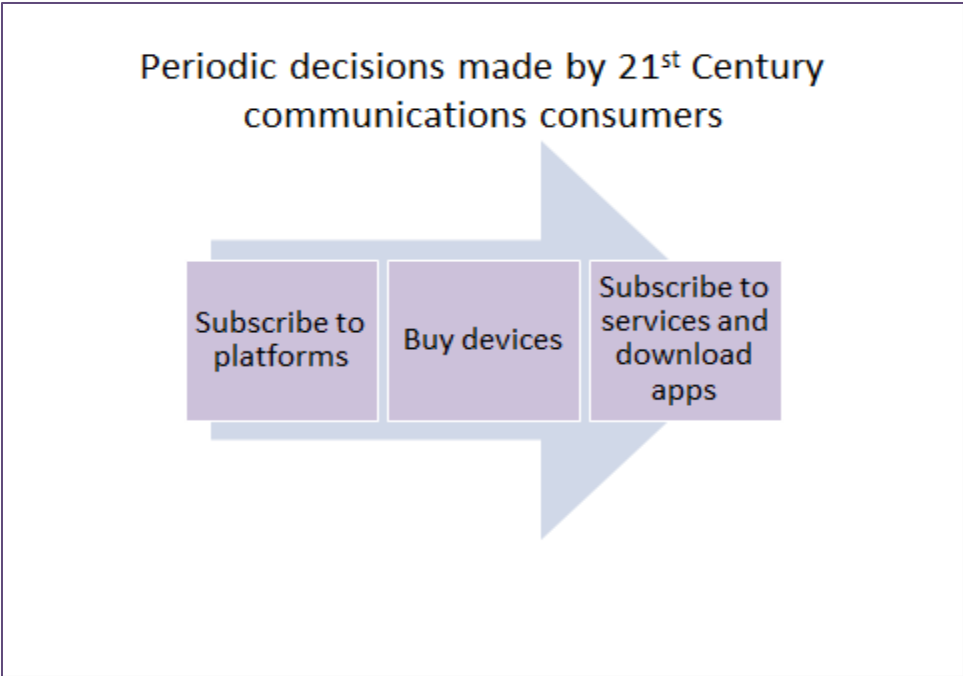
⁵⁷ While we focus on consumers in this paper, that control also applied to businesses as customers. Much of the cross-subsidy system that funded universal service came from transfers from business services to consumer services.

circumstances of monopoly that was a good result, but its success was entirely dependent on consumers' lack of choice and inability to evade the offerings of the regulated provider.

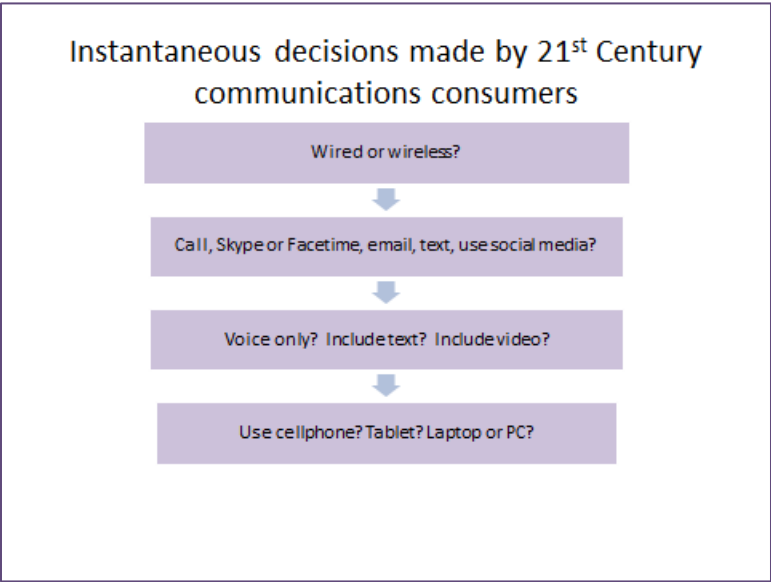


Today, consumers are exercising their own power. They are leaving the highly-regulated POTS service whose specifications no longer meet their needs. Even that ever-shrinking core of consumers who still use POTS almost invariably combines it with other, less-regulated services.

Consumers are making periodic choices between platforms, services and applications, and devices. Subscribe to this or that network? Download these or those applications? Purchase this or that device. They are also making constant and instantaneous decisions about use, based on message, audience, location and circumstances. Should the communication consist of voice, text, graphics, video, or some combination of those? Should it be transmitted over a wired or wireless network? Should the service-provider be the network-provider or an independent application that rides over that network? Should the application provide one-to-one communication or should it enable a multicast? Should the device used be a phone, smartphone, tablet, laptop, desktop, or other device?



A teen may post a college acceptance on Facebook and may also tweet the good news, but will probably call Grandma on his cellphone, and text his best friend, as well as Mom and Dad. If a family member is traveling, Skype or Facetime are options. Grandma, in turn, may share the good news with some of her friends over their cellphones or landlines, email others, and also update her own Facebook page.



Today’s consumers have a far broader range of choices than those of the past, and they act like the individuals they are. As we have seen, the choices they make are, to some extent, determined by their demographics—age, income, race or ethnic group, education, household participation, disability—but even within demographic groups consumers are disparate rather than homogeneous. Their lives are greatly enriched by the availability of options that recognize their diversity and allow them to express

their individuality. At the same time, the very existence of those choices has changed the relationship of regulators and consumers in fundamental ways. Consumers are now in charge and they make purchase decisions based on their own best interests, as they themselves define those interests.

Consumers can elude core values

The challenge for regulators is to create a relationship with consumers that respects the control consumers exercise rather than attempting to limit it, while still accomplishing the goals of the core values. That is not an easy assignment. Consumers' choices are not amenable to traditional one-size-fits-all regulatory solutions. Nor do consumers allow regulations to limit their choices. Consumers can and do evade regulatory prescriptions by evading the providers whose platforms, services, or applications embody those prescriptions.

Consumers can arbitrage networks as well as providers operating at different levels over network platforms, choosing between POTS, interconnected VOIP, nomadic VOIP, and wireless, as well as various non-voice means of communication. Some may select an option because it implements a core value, such as access to 911. Others may not consider core values in their purchase decisions. They may buy a voice service for the nifty device that is part of a package or for the video programming that is bundled with it.

According Bernstein Research, Google Fiber is capturing 75% of mid- to high-income homes passed and nearly 30% of low-income homes passed in Kansas City. Google offers only broadband and video, with no interconnected voice service of any sort.⁵⁸ It does not offer access to 911. It is not deployed universally within its "service territory."⁵⁹ It is not clear what consumer protections—if any—would apply to it. Presumably, many of its subscribers have a cellphone⁶⁰ or other voice connection, but they are not required—by Google or anyone else—to do so.

Google has also deployed in Utah and is about to expand the service to potentially as many as 34 other cities who are eagerly courting it. Does this service provide adequate access to public safety? If not, what—if anything—should or could regulators do about a service consumers, and their cities, are choosing? What should they do about any bundle of broadband-access and/or video a consumer chooses to buy without interconnected voice (even when voice is offered, as it is by telcos and cable)? Can regulators require consumers to purchase additional services from other providers to ensure they have adequate access to public safety? If they do, they are restricting consumers' choices. If they don't, those consumers may lack access to public safety.

Universal service raises challenges because the payers and the beneficiaries are different parties. Universal access in the sense of some service being available to all Americans--regardless of location, financial circumstances, and ability or disability—depends on both the explicit subsidies of the Universal

⁵⁸ Carlos Kirjner, *Google Fiber: How Well Is It Doing in Kansas City?* Bernstein Research, May 6, 2014, p. 2. Bernstein does not indicate what Google's customers are using for voice service.

⁵⁹ We place the term in quotes because Google Fiber does not have a service territory in the sense that a traditional telco, i.e., an eligible telecommunications provider (ETC), has one.

⁶⁰ Given the CDC's data showing that 89% of households have a wireless phone, that's a reasonable assumption.

Service Fund and the remaining implicit cross-subsidies between services that are underpriced relative to their cost and those that are overpriced relative to their cost. In 1996, it was possible for regulators to force consumers (and businesses) to swallow both explicit and implicit cross-subsidies. Today, consumers (and businesses) can evade services that cross-subsidize other customers.⁶¹ They can choose other services that are cheaper, or that are attractive to them for other reasons.

Consumer protection is also more complex now, because not all consumers want or need the same protections. A requirement that one consumer may welcome may lead another consumer to switch providers. For example, 99.999% reliability may be theoretically feasible with enough expenditure on any network, but increased network expenditure may lead some providers to exit the market and others to increase their prices. Some consumers may be willing and able to pay higher prices, but others are not. Applied as a uniform requirement, it might arguably be beneficial to those consumers who want such high uptime, but it will be harmful to those consumers who are driven off the network altogether, because of their provider's exit or their own inability to pay.

The regulators' dilemma is that the same core value—competition—that has provided consumers with choices has ultimately changed the nature of the network compact. Although regulators still exercise power over network-providers, particularly traditional POTS providers, consumers have now assumed the primary decision-making role in the purchasing process. They mix and match those offerings, at those prices, at those particular times and places that best satisfy their needs. Their purchase decisions signal to providers what consumers actually want, and consumers enforce those signals with their spending. Ignoring consumers' signals leads to disaster—as POTS providers who have seen a steady exodus of customers and their revenues—know to their regret.

As a result, while regulators still have varying degrees of control over various network-providers, and a great deal of control over POTS providers, they have effectively lost control over consumers. Consumers can and do leave providers. Because consumers can easily abandon the services required by regulators and shift their spending to other providers, the regulated carrier's revenues are no longer assured and neither is the floor below its earnings. That makes it more difficult for it to attract investors' capital.

Consumers' ability to leave providers also limits regulators' ability to ensure that consumers get what regulators think they need. If consumers choose to move to a platform that is less secure or offers less consistent quality in exchange for either a lower price or other desired features (e.g. Skype instead of POTS), regulators can't force them to buy security or consistency. Nor can they force consumers to cross-subsidize other consumers. Thanks to competition, consumers have a choice of price-points as well as features.

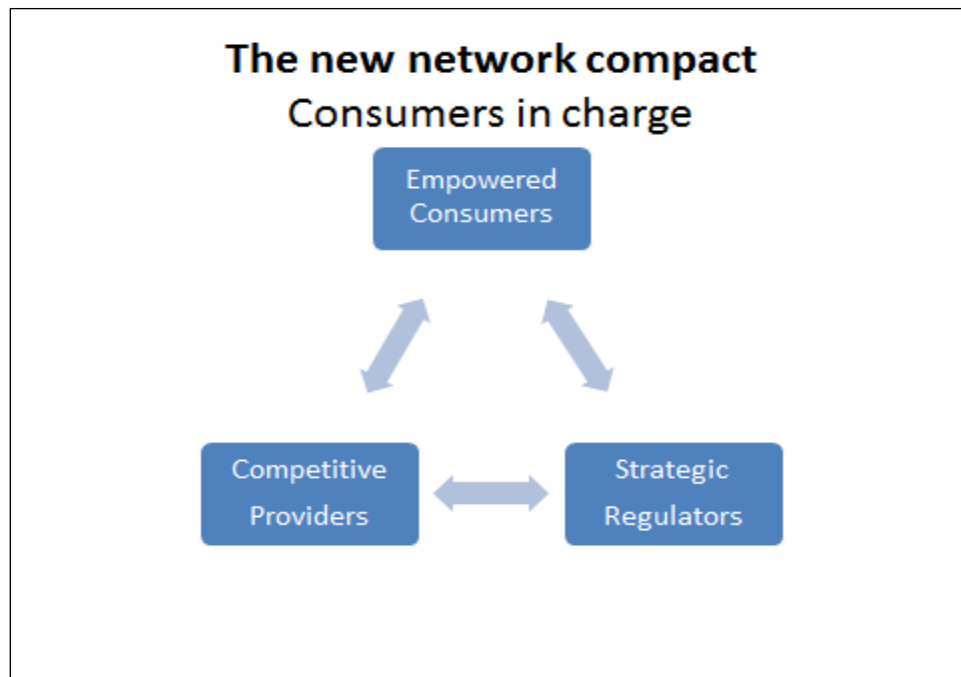
Thus, in a world of consumer choice, enforcing core values is far more complex than it is in a monopoly. The issue is not so much whether it is fair to require some providers to spend on quality or universal

⁶¹ Google Fiber raises an interesting universal service question of its own—given that it serves only those fiberhoods where there is a level of presubscription it considers adequate, there are interspersed neighborhoods that have to rely on other carriers. Given Google's take rate in its fiberhoods, the others may not be financially viable in the area. Will Google take over service in those areas where it drives out other carriers?

access—although that’s a reasonable question. The real issue is that once the networks have spent to provide, consumers don’t have to buy. One only has to look at the rate at which consumers are abandoning POTS –the platform that most thoroughly embodies the core values--to grasp that point. In 1996, 94% of households bought POTS. By the end of 2013, only 30% of households bought POTS, and only 5% did so without a companion wireless service. And the POTS numbers are still shrinking.

Preservation of core values requires a new network compact

Regulators can only get consumers to support the core values the regulators consider essential if those values are desired by the consumers, as individuals acting for their own benefit. Thus, regulators have to create a new network compact which recognizes that it is consumers who are in control and that providers who want to survive have to design their services and products around the wishes of consumers, rather than regulators. Given that one core value—competition--has destroyed the old network compact by which the other core values were enforced, regulators must now forge a new compact directly with consumers to ensure the survival of those other values.



The new network compact must be based on respect for consumers and their ability to make their own choices. It must recognize consumers’ own diversity and complexity as well as the variety of choices available to them. It must recognize that regulatory arbitrage is a very real option for consumers. Mandates that impact only one of the many platforms available to consumers simply lead to consumer exodus. But mandates that demand uniformity within or across platforms would deny consumers the very choices they have come to enjoy and expect. Innovation and competition have ensured that regulation that attempts to limit consumers’ choices is destined to fail.

At the same time, core values still matter and regulators have to figure out how to make sure that they are provided in ways that are acceptable to consumers, and in ways that consumers will not simply evade.

Strategic regulation balances consumer choice and core values

Thus, the new network compact must begin by asking what those core values mean to individual consumers today. Regulators must appreciate that the answer will be very complex, because different consumers want different things. For that matter, each consumer may want different things at different times, locations, circumstances. That means that the answer to the ultimate question, “How do regulators get consumers to want what regulators value?” will also be complex and will have far more to do with marketing strategy than legal strategy.

At the outset, regulators need to understand:

- How are the core values defined by various consumers today?
- By whom are they are they valued? If they are not valued by some, why not?
- To whom they are available and to whom are they not?
- How can they be made appealing to those who do not consider them necessary?

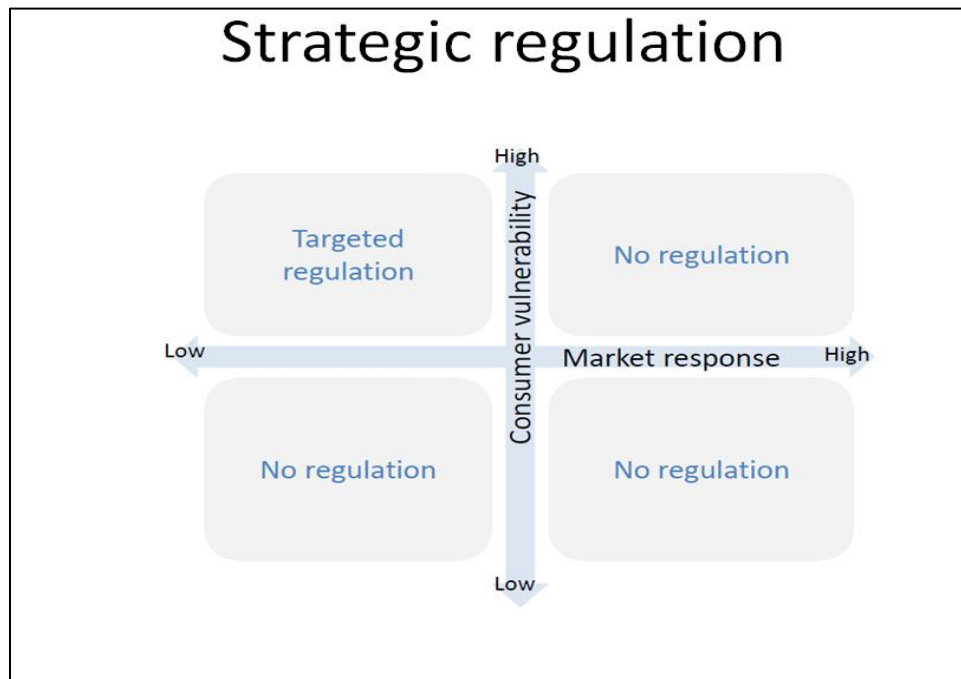
A few examples may help clarify these issues.

- Reliability seems like a simple concept, but does it mean the same thing to consumers today as it did in 1996? For that matter, does it mean the same thing to all consumers today? Does a teen who has grown up with wireless and uses mostly data and video applications define reliability the same way as a retiree who grew up with POTS?
- Does universal access still mean uniform treatment of consumers? That has been the bedrock of communications regulation, but consumers have made it very clear that they are not uniform and they will not buy services that don’t satisfy their individual preferences. Universal service meant one thing when it was designed to ensure that consumers would get service at all. Does it mean the same thing when there is a range of choices, and enforcement of uniformity may deprive some, if not all, consumers of their choices?
- Access to public safety is critical, but as the FCC’s text-to-911 proceeding indicates, consumers today want to access public safety in different ways and their preferences will continue to evolve. Furthermore, while access to public safety is literally a life-or-death matter, it is not necessarily the determining factor in consumers’ purchase decisions when they buy communications services, applications, and devices.

Bottom line, defining core values as consumers do is both complex and essential. Regulators’ old “one-size-fits-all” solutions no longer match consumers’ varied priorities, and consumers can now get the very different things they each want from unregulated or less regulated vendors. They are now, for the most part, not taking the most-regulated choice.

Thus, while at least some providers still have to obey their regulators, if they want to survive they must make their primary relationship the one with their consumers. Regulators also must forge a new and direct relationship with consumers, based on recognition of consumers' diversity as well as celebration of their new-found power.

The new regulatory compact must be based on respect for consumers and their choices. It must not limit those choices except when it is absolutely necessary. To be effective, that new network compact must target regulatory intervention to those few areas where consumers will recognize it as necessary: areas where some consumers are vulnerable and the market has not met their needs.



In other words, regulators must learn to think like the best marketers and understand the needs of consumers, in all their diversity. They must target solutions to specific needs and only to those needs. And they must be able to persuade the consumers whose acceptance can no longer be taken for granted to support those solutions.

Consumers today enjoy the fruits of competition and innovation. They are in charge. Neither they, nor the regulators who have fought hard to help them enjoy those fruits, nor the communications industry itself would welcome a return to consumer passivity. The time has come for a network compact based on partnership.