Consumption of Information Goods and Services in the United States

There is a trendsetting technology elite in the U.S. who chart the course for the use of information goods and services.

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Americans' love affair with technology is one of the defining characteristics of their culture.

For many Americans, having the latest electronic gadget or experimenting with the newest tech fad is a habit they develop at an early age and never break. Although these ardent technophiles are a minority of the population, their trendsetting ways often ripple widely in society. Many people, in time, wind up following the technological trail cleared by these pioneers. In fact, Americans have become steady adopters of devices and services that enable them to gather and distribute information, and these have given us flexibility in how we communicate, altered the patterns of how we stay in touch with others, and even influenced the content of our messages.

In this report, we take an inventory of the communications gadgets and services that American use and examine the variations within the population of technology users.

There is clearly a technology elite in the United States – the 31% of the population (Internet and non-Internet users alike) who are high-end technology adopters.

This elite comprises three distinct sub-groups of Americans who are the most voracious consumers of information goods and services in the United States.

- The Young Tech Elites make up one-fifth of the technology elite. The average age for this group is 22 years.

- Older Wired Baby Boomers make up the remaining one-fifth of the technology elite. The average age for these baby boomers is 52.

- Wired Generation Xers (GenXers) make up most of the technology elite (about 60%). The average age for this group is 36 years.

Technology elites in the United States have more than just a lot of technology, although they have plenty of that. For this group, the Internet, cell phone, digital videodisc player, and personal digital assistant are commonplace; many of them access the Internet wirelessly and are starting to pay for online content. What is distinctive about them is that new electronic communications technologies come first. They would rather do without their wireline telephone than their computer. For the Young Tech Elites, the cell phone is

more important than the wireline phone, and email is as important as telephonic communication. For the Young Tech Elites, the Internet is a regular source for daily news and an indispensable element of their entertainment experience.

The tech elites are also very hands-on when it comes to their Internet experience. The tech elites choose what homepage comes up when they click on their browsers; they don't let their Internet service providers (ISPs) do the choosing for them. They have switched ISPs before and, because they think ISPs differ in quality, they might switch again.

Most people – 69% of the population – are not part of the technological elite.

A lack of time, interest, and money seems to drive the relative tech apathy of this fairly diverse crowd. Some are young and seem to have neither the time nor the disposable income to dabble in cutting-edge technologies. Others appear to be devoting their energies to jobs and families, and therefore don't immerse themselves in technology. The rest of those who are not ardently engaged with technology are older, mostly women who have lower incomes and are comfortable using older technology and media to get and exchange information.

As information technology users, Americans sort into eight distinct groups.

The typology of technology users developed for this report takes into account Americans' use of information goods and services, attitudes about technology, online behavior, and demographic characteristics. To be specific, our October 2002 survey asked about the following goods and services: Internet, cable television, cell phones, computers, satellite dishes, premium television channels, pagers, digital videodisc players (DVDs), personal digital assistants (PDAs), and digital video recorders (DVRs). Here are the groups, listed from the most tech-intensive users to the least, starting with the three groups that comprise the technology elite in the United States:

The Trendsetting Tech Elite

■ **Young Tech Elites:** Making up 6% of the U.S. population, these are the heaviest technology users. The average age in this group is 22 years and members are more likely to be male than female. All have Internet access, most have cell phones and DVD players (80% or more), and most are most engaged with the interactive aspects of the Internet, such as downloading music, creating online content, participating in

online groups, or streaming audio and video clips. Their monthly spending on information goods and services averages $161.[1]

■ **Older Wired Baby Boomers:** This group is 6% of the population, is mostly male, and has an average age of 52 years. These people spend the most money per month of any group (an average of $175), 100% have Internet access, and most (82%) have cell phones. They are very active information gatherers online, especially when it comes to news and work-related research, and they rate high when it comes to online transactions.

■ **Wired Generation Xers:** This group comprises 18% of the U.S. population and a member of this cohort is as likely to be female as male. Relative to the other two groups in the tech elite, Wired GenXers have less online experience, but they have quickly embraced a wide range of information goods and services. All use the Internet and 82% have cell phones. They perform a range of online activities and are the second most active group (behind the Young Tech Elites) in pursuing the Net's interactive features. They spend an average of $169 per month on information goods and services. The average age in this group is 36.

■ **Wired Senior Men:** This is a very highly educated small cluster (1% of the sample) of mostly older men (average age is 70) who have a wealth of online experience, having been online for about 10 years. They limit their online activities to information gathering and some online transactions for ecommerce or finance.

Lower-tech groups

■ **Young Marrieds:** This group is 15% of the population, with an average age of 24 years and evenly split between men and women. Two-thirds (66%) use the Internet and more than half (56%) have cell phones. Relative to the Young Tech Elites, this group is more likely to be married and have children and less likely to have a college degree. Their average monthly spending on information goods is $124.

■ **Low-Tech Older Baby Boomers:** This other group of aging baby boomers has an average age of 54 years, is tilted toward women, makes up 21% of the population, and has a cell phone penetration rate that exceeds Internet penetration (60% to 51%). This group has lower-than-average educational and income levels and only a few years of Internet experience. Their average monthly spending on information goods is $124.

■ **Unwired Young Baby Boomers:** This group makes up 16% of the population. Members of this group are slightly more likely to be women than men and the average age is 39 years. Internet penetration is modest (45%), but 69% have cell phones, which exceeds the national average. Their online habits are broad, but not as deep as others. Many in this group are married, have children, and are employed. They have a positive disposition toward information technologies, but not a lot of

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[1] Monthly spending is the sum of respondents' estimates of monthly outlays for: telephone service (including long distance), cell phone service, Internet service, cable service (including premium channels), and payments for online content.

free time to devote to them. Their average monthly spending on information goods is $125.

■ **Low-Tech Elderly:** Making up 16% of the population, more than half (58%) of this group is women and the average age is 73 years. Only 12% use the Internet, 39% have a cell phone, and much of their technology use is oriented to "old" media. Fully 68% subscribe to cable, 57% read the newspaper daily, and 78% watch TV news on the average day. The average monthly spending on information goods is $82.

The Internet and computer are the media of choice for many Americans.

Computers and the Internet are encroaching on the TV and the wireline telephone as important information and communication tools for a growing number of tech-loving Americans. Here is how the numbers look:

■ Nearly three-quarters (74%) of the Young Tech Elites say it would be very hard for them to give up the computer, two-thirds (68%) say it would be very hard to give up the Internet, and 58% say it would be very hard to do without their cell phones. By contrast, 56% of the Young Tech Elites say it would be very hard to give up their telephones.

■ Old media trail significantly for the Young Tech Elites. Not quite half (48%) say it would be very difficult to be without the TV, 37% say that about cable TV, and just 12% and 10%, respectively, say this about their newspapers and magazines.

■ For older wired baby boomers, 64% say it would be very hard to give up the computer, with the telephone trailing modestly (57% say it would be very hard to give up their wireline telephones). About half of this group says it would be very hard to be without the TV, email, their cell phones, or the Internet (the numbers are 50%, 49%, 50%, and 55%, respectively, for these categories).

■ The story is mixed for the wired GenXers. Two-thirds (67%) say it would be very hard to give up their wireline telephones, substantially more than say this about the cell phone (45%), the Internet (51%), computer (54%), and TV (46%).

■ For remaining technology users in the United States – that is, people who do not fall into either of the elite categories but who use information technologies – the numbers are very different. The telephone and TV are the communication technologies these people feel would be difficult to do without; 63% say it would be very hard to give up the telephone and 48% say this about the TV. For newer technologies, less than one-third says it would be very hard to give up their cell phones (31%), the Internet (22%), or email (23%).

Technology elites, especially the young, have a very hands-on approach to managing their technology experiences.

They are choosy about their Internet service providers, have switched ISPs (some multiple times), and they choose the homepage that is displayed when they click on their

browsers rather than accept the one the ISP provides. Technology elites also have clear ideas about the type of ISP they want.

- Five out of eight of the Young Tech Elites (62%) believe that one ISP is likely to be better than another. They are more than twice as likely to believe this than non-tech elites.

- Half (51%) of the Young Tech Elites have switched ISPs at least once since they first went online, and 41% of all Internet users have done this.

- Five in eight (64%) of the Young Tech Elites have switched from the homepage provided by their ISP to one of their choice. Only 30% of the non-tech elites have done this.

- When asked whether they would like an ISP that is a telephone company, a cable company, or an independent, half of the Young Tech Elites (50%) say they would prefer an ISP that is a cable company, 19% said an independent, and 16% said a telephone company.

- Non-tech elites reveal no strong preferences; 43% don't know which they would choose, and the remainder is about evenly divided among preferring an independent, cable, or telephone company.

Use of emerging technologies

We asked about emerging technology behaviors such as connecting to the Internet wirelessly, paying for online content, or placing a phone call online. The Young Tech Elites dominate these activities, though wired GenXers are also likely to pay for content online.

- One in six (17%) of the Young Tech Elites has logged onto the Internet using a wireless Internet connection, compared with 6% of all Net users. Put differently, though they make up about 6% of the population, about one-quarter of all Americans who have gone online wirelessly are part of the Young Tech Elites.

- 13% of the Young Tech Elites have paid for online content such as subscriptions to Internet "zines" or music. This compares with 7% of the rest of the online population.

- 13% of wired GenXers have paid for online content.

- One in six (16%) of the Young Tech Elites has placed a telephone call online, twice the number for the rest of the online population and greater than the rate for other tech elites.

Wireline telephones

The plain old wireline telephone takes it on the chin from some of the Young Tech Elites.

- For cell phone subscribers (62% of all Americans), only a handful – just 3% – say that they have cancelled their wireline telephone in favor of using their cell phone exclusively.

- Though the impact is still modest for the Young Tech Elites, many more (9%) of these cell phone subscribers (and 80% of them have cell phones) have cancelled their wireline phones in favor of their cell phones.

- About one-fifth (21%) of all Americans with cell phones say they have "very" or "somewhat" seriously considered canceling a home telephone line since they got a cell phone. This number is the same whether respondents have one or multiple phone lines in the home.

- This trend is more pronounced for the three groups in the tech elite, especially those with one phone line. Among the tech elite with a single wireline phone in the house, 27% say they have "very" or "somewhat" seriously considered canceling a home telephone line since getting a cell phone.

- Should Americans, particularly the two-thirds with a single line in the house, follow through with their serious consideration of canceling home phone lines, one can imagine anywhere from 7% to 12% of U.S. households *not* having a wireline phone. A recent Federal Communications Commission rule requires phone companies to let people use their home number as their cell phone number; this may encourage people to cancel some or all of the wireline telephones into the home.

- The Internet's overall impact on telephone calling is somewhat negative. One in five (19%) Internet users and a quarter of the Young Tech Elites say the Internet decreases the number of phone calls they make. Nine percent of all Americans (and 16% of the Young Tech Elites) say the Internet increases the number of phone calls they make.

Consumption of Information Goods and Services in the United States: Summary of Findings at a Glance
Americans' love affair with technology is one of the defining characteristics of our culture.
The technology his elites fall into three distinct sub-groups of Americans who are the most voracious consumers of information goods and services in the United States.
Most people – 69% of the population – are not part of the technological elite, and they are a fairly diverse crowd.
As information technology users, Americans sort into eight distinct groups of information technology users.
The Internet and computer are the media of choice for many Americans.
Technology elites, especially the young, have a very hands-on approach to managing their technology experiences.
Source: Horrigan, John B. *Consumption of Information Goods and Services in the United States.* Washington, DC: Pew Internet & American Life Project, November 23, 2003.

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Part 1.

Introduction

A defining characteristic of the changing U.S. household has been the growth in consumption of information goods and services.

As the average size of the household has declined in the past century, Americans have increasingly filled their homes with tools to send and receive information, including computers, telephones, and digital videodisc (DVD) players. In the 1990s, the average yearly expenditure by Americans for media and information services rose from $365.42 to $640.86 per person, a growth in real terms of 32%. We Americans also spend more time processing information, with a 6% increase between 1990 and 2000 in the time spent on various communications media.[2] At home, work, school, and on the road, today's Americans are far more likely than earlier generations to use information and have close at hand tools to manipulate and distribute it.

The upshot has been a growing need for personal information processing – a need for individuals to have the wherewithal to gather and share information that shapes the decisions they make as consumers, citizens, family members, friends, and neighbors. Today, electronic gadgets and information services are a crucial, and in some cases primary, means by which people conduct personal information processing. The Pew Internet & American Life Project has focused on the online portion of this phenomenon, showing in a number of reports the Internet's beneficial role in health care decisions, social connectedness, civic and political engagement, and in important life decisions such as choosing a college or buying a house.

In this report, we cast our net more widely by asking Americans more comprehensively the ways in which they engage in personal information processing. The October 2002 survey of 1,677 Americans that is the basis for this report focused on the following personal technologies: Internet, cable television, cell phones, computers, satellite dishes, premium television channels, the pager, digital videodisc players (DVDs), personal digital assistants (PDAs), and digital video recorders (DVRs). We asked people whether they own or subscribe to these information services and how much per month they pay for subscription services. For the Internet, we asked how much they pay for service and how much per month they pay for online content available over the Internet. As is our normal practice, we asked online users about a number of Internet activities available online, as well as questions about how they manage their interface with the Web (e.g.,

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[2] Information on spending and time use comes from *The Statistical Abstract of the United States*, 1998 and 2002 editions and extends from 1990 to 2000. The items included in spending and time use categories are: television, radio, recorded music, daily newspaper, consumer books, consumer magazines, home video, movies in theaters, and Internet access.

what Internet service providers they subscribe to, whether they have switched ISPs, and whether they manipulate the homepage that first appears when they click on their browser).

The perils and promise of personal information processing manifest themselves in everyday ways and also generate considerable buzz among analysts of trendsetting. The cell phone call of the person next to you on the train may annoy, the person tapping something on a personal digital assistant may look odd. Is he typing an email or catching up on the news? You may be that person reading the news on a PDA or connecting to the Internet wirelessly at the coffee shop – and enjoying the easy access to information.

Analysts give different labels to the people and processes involved with personal information processing. Some see a group of "influentials" in society – about 10% of the population – who are information conduits in identifying new trends. These people use a variety of means to connect others to new ideas and information, and they are more likely to have Internet access and use it as a main source for information and communications.[3] Others see an emerging "creative class", an economic grouping of people such as engineers, architects, writers, or musicians, as an underpinning to economic vitality and, at 30% of the workforce, a growing segment of the population. These "creatives" access and exchange information more often than others.[4]

In a less sanguine take on information's role in modern society, some worry about the detrimental effects of the "daily me." When people automatically route information of their choosing to their "daily me" news file, they thereby eliminate the chance of encountering different views and, some feel, jeopardize the health of our civil society.[5] Others look at the bright side. The torrent of information we have at our disposal – especially as more becomes available by mobile means – may enable people to interact more effectively. "Smart mobs" are one such example of this phenomenon, whereby people use text messaging to organize heretofore unconnected people. These smart mobs could help foster cooperation in society and enable people to easily determine the reputations of anonymous people and groups. The overall result would be a more trustworthy and better functioning society – one with more social capital.[6] More puckishly, we have seen the recent wave of "flash mobs" by which a loose network of people, connected by the Net or cell phones, converge on a site in a city simply for the sake of assembling.

Using information is more important than ever for all Americans.

Whichever way the population is divided, using information is more important than ever. This report charts in detail the information goods and services that Americans consume and how much they pay for them on a monthly basis. Specifically, the report develops a

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[3] Ed Keller and Jon Berry, *The Influentials*. New York: The Free Press, 2003.
[4] Richard Florida, *The Rise of the Creative Class*. New York: Basic Books, 2002.
[5] Cass Sunstein, *Republic.com*. Princeton, N.J.: Princeton University Press, 2001.
[6] Howard Rheingold, *Smart Mobs: The Next Social Revolution*. Cambridge, MA: Perseus Publishing, 2002.

typology of technology users as a way to examine the variation in the intensity with which different segments of the population use technology. In addition to benchmarking what people purchase and how much they pay, the report also looks at people's perspectives and behaviors regarding the information technology marketplace.

Part 2.

Information Products and Services: An Overview

For most Americans, multiple information services and gadgets are usually nearby.

Penetration of devices and services nears or surpasses 60% or more in four of the ten technologies categories we queried. As the table shows, Americans approach or top the 60% mark for the Internet, computer use, cable subscription, and cell phones – a first in 2002. Since then, Internet penetration has risen to 63% of all Americans, according to the Pew Internet Project's July 2003 survey.

For many of these technologies and services, growth has been rapid since 1996. The Internet tends to get most of the cultural buzz, but growth has been equally rapid for cell phones and, very recently, for DVD players. There are also technologies that are in the early adoption phase (e.g., DVRs), and some that are maturing, such as cable TV, home computers, and the Internet. The PDA may be experiencing a plateau or even decline in adoption, even though its penetration rate is not high.[7]

> Some technologies are maturing, such as the cable, computers, and Internet.

There are eight distinct categories of Americans based on their use of information technology.

There is wide variation in the nature and intensity of people's technology use. We used a statistical technique called cluster analysis to place respondents into distinct categories based on their technology use and socioeconomic characteristics. This yields eight separate categories of users of information technology goods and services. This section describes the categories, proceeding from the most tech-intensive people to the least.[8]

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[7] See T*he Economist* "PDA, RIP: The next big thing that wasn't, or was it?" October 16, 2003.
[8] The appendix to this report provides detailed information on technology use by the eight categories described, as well as by other demographic characteristics.

Penetration Rates of Personal Information Technologies			
Percent of American households using each technology			
	1996	**1998**	**2000**	**2002**
Internet	21%	36%	50%	59%
Home Computer	58	61	68	69
Cable	69	67	67	62
Cell Phone	24	37	53	62
Satellite Dish	n/a	n/a	n/a	21
Premium TV	n/a	n/a	n/a	35
Pager	n/a	n/a	24	13
DVD player	n/a	n/a	16	47
Personal digital assistant	n/a	n/a	5	11
Digital video recorder	n/a	n/a	n/a	7
Source: Pew Internet & American Life Project survey October 2002 of 1,677 Americans, margin of error is ±2%. The Statistical Abstract of the United States, 1998 and 2002.				

A large part of the analysis in this report focuses on the three most tech-intensive groups, what we call the Young Tech Elites, the Wired GenXers, and the Older Wired Baby Boomers.[9] These high-end users are worthy of scrutiny by virtue of the intensity with which they crave information technology and exchange information with others. These are the true leaders when it comes to technology adoption. Independent from their levels of income and education (which are above average), these groups of Americans are bigger spenders on technology goods and services and more ardent information consumers. As the table below shows, these three segments make up about one-third of the population. The remaining two-thirds of the population are less intense in their use of technology for a variety of reasons (e.g., lack of time, lack of experience, relatively low levels of interest in information goods and services).

> The Young Tech Elites, Wired GenXers, and Older Wired Baby Boomers crave information technology and are the true leaders when it comes to technology adoption.

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[9] "GenXer" refers to people who were born between 1965 and 1980 and who are commonly known as members of Generation X. The analysis excludes Older Wired Men because, as noted, the number of respondents in this category makes meaningful statistical discussion difficult.

Leaders in Technology Adoption					
Group name	Description	% of Sample	Mean Age	% Internet users	Monthly spending on information services*
Young Tech Elites	Broad and deep users of technology, largely male	6%	22	100%	$161
Older Wired Baby Boomers	Heavy tech users, mostly male	6	52	100	175
Wired GenXers	Evenly split between men and women, broadly engaged with technology	18	36	100	169
Wired Senior Men	Small cluster of older ardent tech users	1	70	100	124
Young Marrieds	Opposites of Young Tech Elites – modest tech use, mostly women, lower income	15	24	66	124
Low-Tech Older Baby Boomers	Opposites of techie boomers, little tech use, mostly women	21	54	51	124
Unwired Young Baby Boomers	Disposed toward technology, little free time to use intensely	17	39	45	125
Low-Tech Elderly	Mostly women, use "old media"	16	73	12	83
Average	Entire sample	100	45	59	122

Source: Pew Internet & American Life Project survey October 2002 of 1,677 Americans, margin of error is ±2%.

* Monthly spending is the sum of respondents' estimates of monthly outlays for: telephone service (including long distance), cell phone service, Internet service, cable service (including premium channels), and payments for online content.

1. Young Tech Elites — artistic, urban, wired, and mobile

This group makes up just 6% of the entire sample, but it is the most technologically sophisticated of any group. Fully 100% of this group has Internet access, and they far exceed the national average in other ways, with 80% having cell phones and 82% having DVD players at home. They are more than twice as likely than the average American to have PDAs (26% do), and are even more likely to have a declining technology service, the pager, than average (18% to 13%). As for TV, 69% have cable TV, slightly more than the norm, 25% have a satellite dish (compared with the 21% average), and 51% subscribe to some premium TV channel, which exceeds the national average of 35%.

Demographically, this group is young – the average age is 22 – and predominantly male (57%). As a group, they are well-educated or on their way to being so; 32% have college

degrees (versus 25% of the general population) and 48% are students (versus 14% of the all Americans age 18 and over). Even though they are just embarking on their careers, this group does fairly well financially, having household incomes that are a bit above the national average.[10] Finally, this youthful group has a creative bent and prefers to live in cities. About one-third (34%) say they practice an artistic activity of some sort, about double the national average of 17%. Nearly half (43%) live in urban areas compared with 27% of all Americans.

A closer look at how this group uses technology shows the breadth of its engagement with information technology. Of the 10 information goods and services about which we queried, this group has or subscribes to an average of 5.9 of them, which is above the national average of about 4.3. Of the 13 online activities we asked about in our October 2002 survey, members of this group had tried 7.0 of them, above the average of 5.1 for all Internet users.[11] A large share goes online using high-speed connections at home (39% versus 21% of all users on October 2002), making it easy for many in this group to go online several times a day (41%, compared with 23% for all Internet users). And they have a wealth of online experience; on average they have been online for about 7.0 years, well above the 5.2 years of Internet experience of the average user.

Members of this group are the most active Internet surfers in a number of categories. Most notable is this group's predilection to download information from the Internet and post it online, which suggests a depth of technology engagement. Two-thirds of this group (69%) has downloaded music from the Internet, more than twice the average (32%) for all users. For streaming audio or video clips, 82% have done this compared with 53% for all users. About one-third (35%) have gone to an online group, which is twice the average for Internet users, and 44% have created content for the Internet compared with 19% for all Internet users. This group also goes online for news. On the average day, 39% of these users get news online (versus 26% for all users), which approaches the frequency with which they read the newspaper on the typical day; 45% of this group reads the paper on the average day which is about the national average of 41%.

Some of these users also exhibit cutting-edge online behaviors, suggesting a willingness to continue to fold technology into their lives. One in six (17%) have gone online using a wireless connection (only 6% of all Internet users have done this) and 16% have placed a phone call online (compared with 8% of all users). And some of these users are starting to pay for content on the Internet; 13% have done this versus the 8% average.

Not surprisingly, this group spends more on a monthly basis for communications goods and services than average. Taking together respondents' estimates for their monthly spending on telephone service (including long distance), cell phone service, Internet

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[10] The anomaly of this group of young people having incomes greater than average is due possibly to some members of this group still living with their parents and others living in group-housing situations. In both instances, the total household income may reflect more than respondents' individual incomes.

[11] The Internet activities for this analysis are: email, news, music downloading, online purchases content creation, online banking, streaming an audio or video clip, getting political news online, work-related research, making an Internet phone call, going to an adult Web site, and paying for online content.

access (including, where applicable, broadband), cable TV (including, where applicable, premium channels), and online content, the Young Tech Elites spent $161 on average. This is about 30% more than the average for all Americans, which is $122.

2. Older Wired Baby Boomers – well-to-do empty nesters

This group makes up 6% of Americans. They are essentially yesterday's technological elites who have maintained their sophistication over time. Thirty years ago, they might have been the first in their neighborhood to have cable TV, or they might have been barking "breaker, breaker" into the CB radios in their cars. They are a generation older than the first group (the average age is 52) and, like that group, dominated by males (60%). In a number of ways, their technology use mirrors that of the young sophisticates. All of them (100%) use the Internet, 82% have cell phones, 68% subscribe to cable, 67% have DVD players (fewer than the young group but well above the national average), and 42% pay for at least one premium TV channel. Like the first group, 28% have PDAs and 25% are still hanging on to their pagers.

Demographically, this is a well-off suburban or urban crowd. Three in five live in households with annual incomes exceeding $75,000, three times the national average of households in that category. More than half (57%) live in suburban areas (compared with 50% nationally) and 28% in cities (versus 27% nationally). Most are married (69%) and employed (81%), which contrasts with the national averages of 54% and 61% respectively. One-quarter (30%) have children under age 18 living at home, which is below the national average of 36% and lower than several similar groups to be discussed later. Finally, this is a highly educated group; 56% have at least a college degree in contrast to 25% of all Americans.

The demographic portrait suggests that these are people who are financially secure, technologically literate, and, with kids out of the house or soon to be, able to enjoy a variety of information goods and services. Like the Young Tech Elites, people in this group on average have 5.9 of the 10 information goods and services we asked about. They have tried, on average, 5.9 different Internet activities out of the 13 we queried, and they have been online for an average of 8.8 years. Many have switched to broadband at home (26%), and three in eight (38%) log on several times a day.

Looking specifically at this group's online activities, there is an emphasis on information gathering and evidence of less wide-ranging experimentation online in comparison with the Young Tech Elites. Fully 88% have gone online to get news and 49% do so on a typical day, well above the average of 26% of Internet users who get news online on a normal day. Three in five (57%) read the newspaper on the average day, half again above the national average. Three-quarters of this group (76%) check email on the average day, in contrast to 50% for all users. This group is also the most likely to have bought something online (79% have versus 61% of all online users) and to have done work-related research online (72% have versus the 51% average). However, they do not download music in large numbers (26% versus 32% for all users), and they are at about

the average for all Internet users when it comes to creating content, streaming audio or video, placing a call on the Internet, paying for online content, or going online wirelessly.

With ample disposable income to purchase information goods and services, it is no surprise that this group has the highest monthly outlays for these things. On average, this group pays $175 per month for various information services, which is 43% greater than the average for all Americans.

3. Wired GenXers — busy lives, gadgets, and information help

This group makes up the largest share of the tech elite, with about 18% of the total U.S. population and three-fifths of the tech elite. This is a group of people in their mid 30's – the average age is 36 – and, like others this age, they have a lot going on in their lives. Two-thirds (66%) are parents, 71% are married, and 82% are employed – all figures that exceed the national averages. A distinctive demographic trait in this group is gender. Whereas other tech-intensive groups are dominated by males, this one is essentially split 50-50 between men and women; 51% of this group are male. This group is also predominantly white (85% are) and, like Older Wired Baby Boomers, likely to live in the suburbs.

With their busy lives comes a reliance on technology. All GenXers use the Internet, and many of them (27%) have high-speed connections at home, above the 21% average when this survey was conducted. Four out of five (82%) have cell phones, two-thirds (66%) subscribe to cable and are well plugged into the DVD trend (64%), and one-quarter (25%) use PDAs. This is also the most contented group of all; 56% are satisfied with the direction the country is heading, versus the 40% average at the time of the survey.

Perhaps because of their busy lives, Wired GenXers are a little less engaged with technology than the other two tech elite groups. Out of the ten communication goods and service about which we asked, this group has 5.6 of them, compared with 5.9 for the other tech elite groups. Out of 13 Internet activities, members of this group on average have tried 5.9 of them, versus 7 for the Young Tech Elites.

The Internet usage patterns for Wired GenXers suggest that the online world offers them a way to get things done. Fully 77% have bought something online, 67% have done work-related research on the Internet, and 42% have done banking online, all figures substantially above the average. Wired GenXers are also willing to pay for content online; 13% have done this, which mirrors the Young Tech Elites. Relative to the other two tech elite groups, however, the Wired GenXers are less intense in Internet use. Fully 42% of the Young Tech Elites and Older Wired Baby Boomers log on to the Internet several times a day versus 29% for Wired GenXers. And although most (79%) Wired GenXers have gone online for news, only one-third do so on the typical day, which is above average for all Internet users (26%), but below the average for Older Wired Baby Boomers (49%) and the Young Tech Elites (39%). Still, Wired GenXers are spenders

when it comes to technology; their average monthly expenditure for information goods and services is $169.

4. Wired Senior Men – the ardent, aging news hounds

Internet adoption is low among senior citizens (those over age 65), with only 16% of older Americans online, and adoption of many modern information goods and services is low in this age group. However, there is a very small cluster of senior citizens – two-thirds of them are men – who have embraced these technologies. This cluster makes up just 1% of the sample, which makes broad statistical statements difficult. But nearly all of these wired seniors have Internet access at home (mostly using dial-up connections) and a large majority has cell phones, cable TV, and premium channels. Demographically, this group tends to be white, more likely to live in rural areas, retired, well educated, and financially comfortable.

With respect to their Internet use, this group has a wealth of online experience – these users have been online for about 10 years – and online activities tend toward simply getting information online. They are frequent news gatherers online and surfers for political news. They also will do transactions online, whether that means buying products over the Internet or doing banking online. They rate low when it comes to some of the more au courant Internet activities, such as music downloading, content creation, and purchasing online content. And their monthly spending on communications goods and services is only on par with the national average of $124. All in all, this small group of older Americans belies the notion that senior citizens are a monolithic group who are indifferent to new information goods and services.

5. Young Marrieds – less disposable income for technology

This group is the non-tech counterpart to the very highly wired Young Tech Elites. The group, at 15% of the population, is about twice as large as the Young Tech Elites group and roughly the same age; the average age for this group is 24. However, about 66% use the Internet, about average in the sample, but below the average of 76% for the 18 to 24 age cohort. Similarly for cell phones: 56% of this group has cell phones, somewhat below the average and 8 percentage points less than the 18 to 24 age group. The story is much the same for cable TV and satellite TV, with this group all lagging the national average with penetration rates of 54% and 20%, respectively. This group is slightly more likely to subscribe to premium TV channels; 40% do.

Two socioeconomic factors are likely at play in the lower use of information goods and services within this group: lower levels of educational attainment, and lower-than-average incomes. Only 12% of this group has college degrees and just 40% classify themselves as students; the figures for the Young Tech Elites are much higher at 30% and 61%, respectively. It is thus not too surprising that income levels are low for this group, with 28% having household incomes below $20,000 per year, greater than the national average of 19%.

Additionally, several other demographic facts stand out for this group. First, it is racially diverse. One in five (22%) are Latino (versus 10% among Young Tech Elites) and 16% are African American, compared with 13% for Young Tech Elites. Second, two in five (34%) are married, significantly higher than the rate for the Young Tech Elites (20%) and 38% are parents, far greater than the 13% of Young Tech Elites with children. Finally, it is equally divided between men and women. Although this reflects the general population, the tech elite groups tend to include more men than women.

All these factors translate into low-intensity use of information goods and services among members of this group. The scope of use is not great; this group has 4.2 of the 10 information goods inquired about, roughly the national average of 4.3 and below that of the Young Tech Elites, who have nearly 6 on average. They have tried only 4.1 out of the 13 Internet activities, much lower than the 7.0 attempted by Young Tech Elites. Looking at specific activities, this group lags in most categories, from information gathering to transactions. Only half (51%) have gone online for news (versus the 68% average) and 30% for work-related research (versus the 51% average). About three in eight (38%) have bought something online and 21% have done banking online, both well below average. Only in entertainment activities does this group measure up or exceed the norm; 44% have downloaded music (32% of all Internet users have) and 54% have streamed an audio or video clip (53% of all Internet users have done this).

Much of this modest Internet usage is attributable to their relative online inexperience. On average these users have been online for 3.2 years; the average for all Internet users is 5.2 years and the average for the Young Tech Elites is 6.7 years. Overall, this group does not spend much more monthly than the national average on information services; the group's spending comes to $127 per month while the average is $122.

6. Low-Tech Older Baby Boomers – cell phones and cable TV, but lower Internet penetration

Just as the Young Marrieds represent a natural contrast to the Young Tech Elites, this group readily contrasts with the Older Wired Baby Boomers, the 50-ish group of mostly males who consume a wide range of information goods and services. The average age for the "unwired" middle-aged boomers is 54, but they are mostly women (56%) and they make up about 21% of the general population. Half (51%) are Internet users, which lags the average by about 9 percentage points. About 60% of Low-Tech Older Baby Boomers have cell phones, 61% subscribe to cable, one-quarter has satellite dishes, and 25% purchase a premium TV channel. Only 5% have PDAs, and this group trails in home DVD players (37%) but are right there with the early adopters of digital video recorders (8% in this group have one versus the national average of 7%).

Relative to their mostly male, 50-ish counterparts among the Older Wired Baby Boomers, 59% of whom graduated from college, this group has a low level of educational attainment. Only 22% have college degrees. This group is less likely to be married than their male counterparts (63% versus 71%) and is more likely to have

children under 18 at home (33% do versus 24% in the heavily male group). There is a sharp difference in income levels, with only 23% of this group having household incomes over $75,000 annually compared with 60% of the Older Wired Baby Boomers. That said, this group of 50-ish women have household incomes just slightly below the national average. Finally, this group is heavily rural relative to the Older Wired Baby Boomers; 26% of this group lives in rural areas compared with 15% of males in the late boomer cluster.

As for intensity of technology use, this group is not unlike the Young Unwired Baby Boomers (see below). They have tried 4.1 out of the 10 information goods and services we queried and have tried an average of 3.9 of the 13 Internet activities as opposed to 4.0 for the prior group. The slightly smaller scope of Internet activities (relative to the prior group) is due to this group's indifference toward entertainment activities such as music and audio and video streaming. This cluster has only 3.7 years of Internet experience, below the national average of 5.2 years. Their monthly spending on communications goods and services is right at the national average of $124.

7. Unwired Young Baby Boomers — communications and entertain devices, but not Internet

This group forms the less tech-intensive counterpart to the Wired GenXers, although the typical member of this group, whose average age is 39, is at the very youngest end of the baby boom generation. With 17% of the U.S. population, it is a group that is more racially diverse than Wired GenXers (14% of this group is black and 13% is Hispanic compared with 7% and 10% respectively for Wired GenXers). But this group has lower educational levels (15% have college degrees or more) and lower incomes than Wired GenXers and the national average. Unwired Young Baby Boomers are also a bit more likely to be women (53% are).

As for technology use, this group lags when it comes to the Internet, but matches or exceeds the average for several communications and entertainment devices. Only 45% of this group has Internet access, but Unwired Young Baby Boomers come in at the average for cable subscription rates (62%) and DVD players at home (47%) and above average for premium TV channels (26%) and cell phone use (69%). Overall, they are close to the average of information goods and services purchased out of the 10 we asked about; this group has 4.1 on average versus 4.3 for all Americans. Their average monthly spending on information goods and services is $124.

This group's Internet usage patterns are tepid. Only a quarter (27%) check email on the average day, which is about half the national average, and just 9% check news online on the average day, which is one-third the national rate. For other Internet activities – such as purchasing products online, work-related research, or getting political news – members of this group significantly lag the average for all Internet users. Lack of online experience is one reason; the average person in this group has been online for 2.9 years, which is about

half the tenure for Wired GenXers. And nearly all of Unwired Young Baby Boomers connect to the Internet by dial-up modem, which inhibits extensive online use.

8. Low-Tech Elderly – old media

This final group – about 16% of the population – is a group of older and mostly female Americans who rely on old media for communications and information. The mean age for this cluster is 73 and most (58%) are women. But only one in eight (12%) has Internet access and just 39% have cell phones. Yet this group rates fairly well when looking at traditional communications media. Fully 68% subscribe to cable TV (above average), although only 14% buy premium channels (well below average) and few have embraced DVD players (only 17% have them). They are at the norm on the diffusion curve for home digital video recorders, with 8%. Nearly four out of five (78%) watch TV news on the average day, and 57% read the newspaper, figures which exceed the national average.

With the fairly traditional media use profile, it is not too surprising that the small share of Internet users in this group gravitates toward basic information gathering online. Members of this group are about as likely as the average Internet user to check email or go to an online news site on the typical day. They seem particularly interested in politics and public affairs, with 54% having gone online for information about this, which is above the average (45%) for all Internet users. In activities that require greater technical competence, such as downloading music files, creating content, and even doing online transactions, this group lags substantially behind the average for all Internet users.

Overall, this group does not demonstrate a high level of interest in purchasing and using information goods and services. The average monthly bill for communications goods and services comes to only $82 for this group, which goes hand-in-hand with the group's low income level. Fully 40% live in households with annual incomes under $20,000, more than twice the national average. And of the 10 communications goods and services we ask about, the average member of this group has 2.7 – below the average of 4.3. When it comes to Internet activities, the small percentage that have access have not ventured too far on the Internet; the average number of Internet activities is 3.2, well below the national average of 5.1 for the 13 activities we queried. Relative lack of online experience is the likely reason; the average member of this group has been online for 3.0 years, well below the average.

Wired women like tools to communicate, not gadgets to show off.

In the groups discussed above, the groups that are mostly male tend to be the ardent technophiles, while those that are mostly female use technology less intensively. This elides the fact that substantial numbers of women in the United States are active and enthusiastic consumers of information goods and services. In fact, 46% of the tech elite are women – whether among the Young Tech Elites, Wired GenXers, or Older Wired Baby Boomers. Comparing tech elite women to their male counterparts reveals some interesting contrasts within this most tech-oriented segment of the population. In very

broad terms, tech elite women seem more enthused about the information technologies that enable communication and perhaps less enthralled with the latest hardware.

Techie women are more likely than techie men to say that it would be very hard to give up email, by a 52% to 44% margin. By contrast, when asked whether it would be very hard to do without the Internet, 49% of techie women say this, while 60% of their male counterparts do. For phone calling, cell or wireline, there are some cross currents. Fully 70% of tech women said it would be very hard to do without a telephone compared with 56% of tech men. For cell phones, half of tech men say it would be very hard to do without one while 46% of tech women said this. Techie men and techie women are about as likely to have cells phones (82% and 81%, respectively). Techie women are less likely to have the hardware gadgets that one might clip to the belt (excepting cell phones), than techie men. One-quarter of techie men have pagers, versus 16% of techie women, and about one-third (31%) of techie men have PDAs compared to 15% of their female counterparts.

As for intensity of technology use, tech elite women, by several measures, also appear to be less intensive users of information technologies than their male counterparts. Tech women have tried 5.8 out of the 13 Internet activities in our survey, while tech men have attempted 6.6. Tech men purchase on average 5.9 of the 10 information goods and services we asked about, while tech women come in at 5.6. These differences show up in monthly spending on communications goods and services; tech elite men spend $177 per month on average while tech elite women spend $158. There are also differences in Internet connection speed; techie men are more likely than techie women to have broadband Internet connections at home, by a 34% to 23% margin.

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With the proliferation of communications devices and services, it is worth examining the relative strength of preferences among Americans for their gadgets and services. Although the technologies by which people receive and process information may be converging, there is no reason to think that people's attitudes about them are monolithic across technologies or the groups of technology consumers we have identified.

Americans are reluctant to part with some old media and some new, but traditional print media don't fare well.

We asked respondents how difficult it would be to give up the following communication and media items: telephone, cell phone, TV, cable TV, computer, Internet, email, personal digital assistant, newspaper, and magazine. In looking collectively at the responses, the old media fare rather well. The wireline telephone at home tops the list – nearly two-thirds (64%) of all Americans say it would be very hard to give up their telephones. Television comes in second with about half (48%) of Americans saying it would be very difficult to do without TV.

Next, in order of preference, comes a group of new media gadgets or services. Anywhere from 36% to 40% of users would find it very hard to give up the computer, the Internet, cell phone, and cable TV. The PDA, however, is something of an outlier: only a minority of those who have it say would be hard to part with; only 24% of PDA users say it would be very difficult to give it up.

Americans find several traditional media least important to them. Only 19% of Americans say they would find it hard to give up the newspaper and only 13% say it would be difficult to give up their favorite magazine.

Media preferences vary among the eight categories of technology users.

Young Tech Elites: attached to new media

For the Young Tech Elites, the pattern of media preference is essentially the mirror image of the national average. Young Tech Elites would find it harder to give up their wireline phones than their cell phones. By a large margin, they would find it more difficult to give up their computers or the Internet than their TVs or their cable subscriptions. Nearly three-quarters (74%) of the Young Tech Elites say it would be very hard to give up their computers, and 68% say the same about the Internet. By contrast, 48% say it would be very hard to do without TV and 40% say that for cable TV. Suggestive of how Young

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Tech Elites communicate with others, about as many say it would be very hard to give up email as say that about the telephone (57% for email, 56% for telephone). And as many say it would very hard to give up the cell phone (58%) as say that about email or the telephone. Finally, the Young Tech Elites do not value old media highly – only 12% say it would be difficult to give up the newspaper and 11% say the same about magazines.

Americans' Media Preferences					
% who say it would be "very hard" to give up	Young Tech Elites	Older Wired Baby Boomers	Wired Gen-Xers	The Rest	All
Computer*	74%	64%	54%	25%	40%
Internet*	68	55	51	22	39
Cell phone*	58	50	45	31	38
Email*	57	49	44	23	36
Telephone	56	57	67	63	64
Television	48	50	46	48	48
Cable TV*	40	25	34	40	37
PDA*	23	32	26	15	24
Newspaper	12	21	14	17	19
Magazine	11	16	11	11	13
% respondents	6%	6%	18	70%	100%

Source: Pew Internet & American Life Project October 2002 survey of 1,677 Americans, margin of error is ±2%.

*Asked only of those who use this particular technology.

Wired Older Baby Boomers: wed to computers

While new media is usually associated with youth, it is surprising to find new media looming very large for some older Americans. For Wired Older Baby Boomers, the computer is the technology that would be hardest to give up, with 64% saying it would be very difficult to be without a computer. Bunched behind the computer are both the telephone and the Internet, with 57% and 55%, respectively. A bit farther back comes the cell phone, the Internet, and TV, with about half of Older Wired Baby Boomers saying in each case that it would be very difficult hard to give these up. The PDA even occupies an important space for aging boomers; 32% say it would be very hard to give theirs up, well above the rate for the Young Tech Elites (23%) and the national average (24%). For aging boomers, the PDA is more important to them than cable TV, as 25% say they would have a very hard time doing without cable.

Wired GenXers: attached to wireline telephones

For Wired GenXers, the old media–new media distinction is not quite as clear. By a large margin, the telephone is the item that Wired GenXers would find hardest to do without; 67% say this, with the computer coming in next, with 54% saying it would be very hard

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to do without that. Perhaps because they are at a more stationary time of life, with kids and (relative to the Young Tech Elites) more stable job situations, the Wired GenXers highly value the wireline telephone. Still, Wired GenXers value the Internet more than TV, although they seem less attached to email than the other two tech elite groups.

Older and younger tech elites differ in the way they gather news and seek content online.

The primacy of new media for the Young Tech Elites shows up further when looking at newsgathering and who pays for online content. Not many Internet users pay for online content – only 8% – but the Young Tech Elites and Wired GenXers are more likely to do this than any other group (13% of each group). Older Wired Baby Boomers, by contrast, come in at about average with 9%. The greater tendency among the Young Tech Elites and Wired GenXers to pay for content is consistent with their preference for new media newsgathering. The Young Tech Elites are nearly as likely on the average day to get news online as from a newspaper; 39% get news online on the average day while 45% read a newspaper.

The Older Wired Baby Boomers, by contrast, are more likely to read the paper on the average day than to go online for news, by a 57% to 49% margin. They are more likely to both get news online and from a newspaper on the typical day (29% do) than the Young Tech Elites (21%) or Wired GenXers (19%) do. Older people tend to be more habitual news hounds than young people, and these findings indicate that the Older Wired Baby Boomers supplement newspaper reading with online sources. The Young Tech Elites and Wired GenXers, by contrast, seem more likely to turn first to the online world for news and, to a modest degree, to pay for it.

For the remaining groups – about 70% of the population – technology and media preferences line up as one would expect. The telephone and TV rank as items people in these groups say would be hardest for them to give up. In general, the older groups value the telephone the most (76% say it would be very difficult to give up the telephone) followed by the TV (55% say it would be very hard to give up their TVs).

People's information technology use often reflects their life stage and their relative mobility.

Some of the differences in relative preferences across the groups of tech elite are likely due to people's stage of life. Young people, especially students, are more mobile and have less entrenched consumption habits than older people. The cell phone fits right into this lifestyle. In thinking about the cell phone versus the wireline phone, the choice for many of these people may be easy, especially for students with access to the Internet and other media subsidized by their colleges. The Older Wired Baby Boomers are overlaying new media onto established habits of information consumption. Thus, it is no surprise that the telephone continues to occupy a prominent place for this group, though it remains

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notable that the computer and Internet have risen to a high level importance for Older Wired Baby Boomers.

A good deal of the contemporary discussion about media focuses on convergence – speculation that TV will be piped to the computer via the Worldwide Web, that TV will provide Web access, and that each might be available on the cell phone, PDA, or wireless laptop. While the devices and services may already (or will soon) provide the same information in similar formats, the findings above, particularly for the Young Tech Elites, suggest that the means of delivery are important.

The technology elite take a hands-on approach to their online experience.

With the emergence of an elite group of technology users, it is understandable that these people actively manage their technology experience. When it comes to the Internet, the technologically sophisticated – especially the Young Tech Elites – exhibit discriminating tastes in choice of Internet service provider and the choice of homepage that is first displayed when they click on their Web browsers. This has obvious competitive implications for ISPs, as the behavior of the Young Tech Elites indicates that ISPs will have to work diligently to retain these high-end customers. There are also implications for policymakers and business models with respect to rules that govern the degree of control ISPs may have over online content, such as users' homepages.

Provider Preferences of the Technology Elite				
	Young Tech Elites	Wired GenX-ers	Older Wired Boomers	The Rest
One ISP is better than another (% yes)	62%	58%	54%	24%
One cable company is better than another (% yes)	28	20	19	15
One telephone company is better than another (% yes)	22	23	21	22
Source: Pew Internet & American Life Project survey October 2002 of 1,677 Americans, margin of error is ±2%.				

Looking specifically at whether Internet users think one ISP is likely to be better than another, there are noticeable contrasts between the three tech elite groups and other Internet users who are not experienced and heavy users. Fully 62% of the Young Tech

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Elites says they think one ISP may be better than another and all three tech elite groups are more than twice as likely than other groups to think that one ISP is better than another. Differences between the tech elite and non-elite in perception about the variation in quality across telephone or cable companies are not that great, although the Young Tech Elites are more likely than everyone else to perceive differences in cable companies.

Type of ISPs Preferred by Different Groups				
	Young Tech Elites	Wired GenX-ers	Older Wired Boomers	The Rest
Independent	19%	28	31%	19%
Telephone	16	16	18	18
Cable	50	27	21	18
Don't know	15	29	31	45
Source: Pew Internet & American Life Project survey October 2002 of 1,677 Americans, margin of error is ±2%.				

We asked all Internet users whether they would prefer an independent ISP, one run by a phone company, or one run by a cable company. Fully 50% of the Young Tech Elites said they would prefer to have their Internet service come from a cable company, more than twice the rate for the non-tech elite. This is mainly because Young Tech Elites are more likely than average to have home broadband connections and about two-thirds of home broadband users connect by cable modems.

Tinkering with the interface and switching ISPs

The evidence indicates that most Internet users (by modest margins) have not changed ISPs and continue to have the homepage provided by their ISPs come up on their screens when they log on. But there are sharp differences between the tech elite and the non-tech elite.

Let's first look at the process people undergo in switching (or not) the homepage provided by their ISP. Among all Internet users, most – 57% – say that the homepage that displays on their browser is the one provided by the ISP. About 4 in 10 (42%) of Internet users (and 30% of the non-tech elite) have made the choice to switch the homepage they see when they log on. Among those who have not switched the homepage, many do not know how to switch the ISP-provided homepage – 40% of all Internet users can do this or 38% of the non-tech elite. Looking at the numbers differently, about one-third (34%) of all Internet users actively choose to have ISP-chosen homepage display on their browsers; the rest have either switched by choice or don't know how to switch.

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Tinkering with the Interface				
Percent of home Internet users who . . .	**Young Tech Elites**	**Wired GenX-ers**	**Older Wired Boomers**	**The Rest**
Homepage is same as what ISP provided	44%	54%	51%	62%
Has switched from ISP-provided homepage	64	51	55	30
Knows how to switch homepage on browser	59	45	48	34
Source: Pew Internet & American Life Project survey October 2002 of 1,677 Americans, margin of error is ±2%.				

For the three groups that comprise the tech elite, however, the numbers line up very differently. Fully 64% of the Young Tech Elites switch the homepage provided by their ISP, well above the 42% average for all users and more than twice the rate of 30% for the non-tech elite. Fully 59% of non-switchers know how to change the page, approaching twice the rate of non-tech elite (34%). For the Young Tech Elites, just 18% actively choose to display the homepage that their ISP provides them. The "sign on" Web page, which ISP may consider an important piece of real estate to branding their presence with customers, is not that important for the Young Tech Elites —about half as important as to the average Internet user.

Switching ISPs				
	Young Tech Elites	**Wired GenX-ers**	**Older Wired Boomers**	**The Rest**
% who have switched ISPs	51%	51%	52%	29%
% who have switched ISP more than once*	60	61	63	52
Source: Pew Internet & American Life Project survey October 2002 of 1,677 Americans, margin of error is ±2%.				
* of those who have ever switched ISPs				

Looking at whether people change ISPs, 29% of non-tech elite Internet users have switched ISPs at one point, and among switchers, 52% have switched multiple times. For all Internet users, 41% have changed ISPs at some point, and 59% have done so more than once.

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The story is reversed for the three groups in the tech elite. Half (51%) has switched ISPs at one point, 61% of switchers having done so more than once. Although the tech elite's switching behavior is mostly attributable to their length of time online, some of it is attributable to the kind of people these users are.

As the most ardent personal information processors, Young Tech Elites are disposed toward tinkering with their online experience, whether in the choice of ISP or homepage. The ability to choose one's own homepage matters to most of the Young Tech Elites. However, for Internet users at large, whether by choice or lack of knowledge, most stay with the homepage ISPs provide, suggesting that this is fairly valuable piece of real estate on the Web.

The number of wireline telephones has decreased for the first time in history.

A concern among traditional providers of wireline telephone service is that new technology services will undercut their business. In fact, there is evidence that this is true: the number of wireline telephones in service in the United States is, for the first time in history, declining. Telephone penetration in the United States seems at a saturation point, with 95% of Americans having a phone in the home. About one-third of all American households have more than one telephone line, whether that line is for a fax machine, Internet access, a home office, or a teenager. This figure has remained roughly the same since early 2001. The era of adding phone lines – whether it's for the teenager or the Internet connection – seems to have passed with the advent of cell phones and high-speed connections. The result, according to the FCC, has been a decrease in the number of wireline telephones in the United States by 5 million, or a 3% drop.

Our findings are not inconsistent with the notion that the proliferation of communications means and devices may result in a decrease in the number of telephone lines coming into the home. Overall, 3% of the respondents who have a cell phone said that they have actually cancelled a home telephone line with the intent of using a cell phone as their means of telephonic contact with others. (Because only cell phone users were asked this question, this means 2% of all respondents have cancelled a home telephone line.) Of cell phone users who have not cancelled their wireline telephone, 7% have very seriously considered giving up their home telephone line, with another 14% having somewhat seriously considered this.

Among the Young Tech Elites, there is evidence that this high-tech cohort is ready for a "one provider" solution that may, for some at least, result in the elimination of traditional telephone service. About 9% of the Young Tech Elites with cell phones (or 7% of all Young Tech Elites) have cancelled a wireline phone in favor of their cell phones; although still small, it is higher than the national average of 3%.

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In light of this FCC's ruling about the portability of telephone numbers, one can easily imagine an accelerating trend to do away with the home telephone line. This is especially true for the three groups that make up the tech elite. Tech elites are more likely to have broadband than others, use a cable company for high-speed service, and, especially for Young Tech Elites, prefer a cable company for such service. Among tech elite households who report that they have one telephone line currently, 27% say they have "very" or "somewhat" seriously considered canceling it because of a cell phone. For non-tech elite households, that number is 19% among single line households. Looking at the data differently, one could imagine anywhere from 7% to 12% of U.S. households *not* having a wireline telephone if people follow through on their "serious" consideration of canceling a line.[12] The FCC's new rule makes it much easier to do this.

The Internet's Impact on Phone Calling				
	Young Tech Elites	Wired GenXers	Older Wired Boomers	All
% who say the Internet increases number of calls	16%	11%	10%	9%
% who say the Internet decreases number of calls	24	20	31	19
% who say the Internet has no impact on number of calls	60	68	58	69
Source: Pew Internet & American Life Project survey October 2002 of 1,677 Americans, margin of error is ±2%.				

Other indicators portray a shift away from wireline phone service as a way to connect with people. Although most of the Young Tech Elites (59%) say the Internet has not affected the number of phone calls they make from home, 25% says that the Internet has decreased the amount of phone calls they make, with 15% saying the Internet has increased the amount of phone calls they make. A few seem to be making calls on the Internet instead of the telephone; one in six (16%) of the Young Tech Elites have made a phone call via the Internet (twice the 8% average).

Finally, the Young Tech Elites seem disposed to a "one provider" solution no matter what the Net's impact on their phone calling. Fully 41% currently pay for their Internet access in conjunction with another service, such as cable or telephone, well above the 29% figure for all home Internet users.

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[12] If all those with one home phone line who have considered (somewhat or seriously) canceling a line due to a cell phone were to do so, that comes to 7% of all U.S. households. The upper bound estimate of 12% includes people who currently have multiple phone lines, say they have considered canceling lines, and it assumes they cancel all wireline phones.

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If the Young Tech Elites are a harbinger of future phone calling patterns, this suggests that there are some risks for telephone companies in the offing. One can easily imagine a significant share of Young Tech Elites doing without a home telephone in the traditional sense, but rather using a cable company for the high-speed Internet connection and cable TV service, using the cell phone for telephone conversations (and perhaps text messaging), and occasionally placing a phone call online. The wireline phone doesn't fit into this portrait of how communications needs are met for the Young Tech Elites. And, as noted, this group shows a preference for paying their communications bill to one company and most prefer the cable company for an ISP.

The technology elite have high-speed connections.

One of the many distinctive characteristics of the technology elite is that they have high-speed Internet access at home. As of October 2002, nearly one-third (29%) of the technology elite – that is, the Young Tech Elites, Wired GenXers, and Wired Older Baby Boomers – have broadband access at home, compared with 17% of non-tech elite Internet users. As noted earlier, the Young Tech Elites are disproportionately heavy broadband users, as 39% of them have high-speed home connections.

We asked all home broadband users several questions about their transition from dial-up to broadband and what they value about their high-speed connection. Specifically, we asked whether users switched ISPs when they moved to broadband, whether they cancelled a telephone line upon getting broadband at home, and whether speed or the "always on" connection matters more to them.

Among all broadband users, 16% cancelled a phone line once their home broadband connection was installed, a figure that is about the same for the tech elite and non-tech elite alike. Most (61%) broadband users also switched ISPs after getting broadband at home. And most (76%) say they value the connection speed more than the "always on" character of the connection; 17% say they like "always on" the most while 4% like them both equally. The technology elite make up about one-third of the general population but make up two-thirds of broadband users. Among this group, the only notable difference came in switching ISPs. Fully 70% of those in one of the three tech elite groups switched ISPs upon getting broadband at home, while 44% of non-tech elite broadband users did this.

AOL remained the market leader among ISPs.

In addition to probing people's attitudes about choice and behavior vis-à-vis ISPs, we gathered basic market data about the ISPs to which Internet users subscribe. As of October 2002, 28% of all U.S. Internet users subscribed to America Online (AOL). AOL is clearly the market leader, with all competitors registering in the single digits. MSN comes in second with 8% of Internet users, followed by AT&T Worldnet with 4% and

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Earthlink/Mindspring with 3%. The scattering of independent ISPs make up the preponderance of the balance, with 25% of Internet users falling into the "Other" category for ISP subscribership.

Market Shares for Internet Service Providers							
	All	Young Tech Elites	Older Wired Baby Boomers	Wired GenXers	Young Marrieds	Low-Tech Older Baby Boomers	Unwired Young Baby Boomers
AOL	28%	24%	31%	25%	35%	28%	25%
MSN	8	5	6	7	8	8	11
AT&T Worldnet	4	5	98	6	1	4	2
Earthlink/ Mindspring	3	1	6	4	4	3	2
Other	25	25	25	26	21	24	27

Source: Pew Internet & American Life Project survey October 2002 of 1,677 Americans, 1,027 Internet users. Margin of error is ±2% for entire sample and ±3% for results based on Internet users.

As for why users chose a particular ISP, there is a similar scatter of reasons given. About one in six (17%) say they chose their ISP because of a promotional offering, one in seven (14%) said they chose their current ISP because they thought the service would be better than that provided by their previous ISP. One in nine (11%) said that the price was attractive to them, and only 4% said it was the only ISP available to them; 15% cited other reasons.

Looking across the groupings of technology users reveals a few interesting variations. The Young Tech Elites seem a bit less inclined to subscribe to AOL than other users (24% versus 28%). This group strikes a clear contrast with their less-wired counterparts in the same age group, the Young Marrieds who have a modest amount of personal information technology. More than one–third (35%) of this latter group use AOL. In an interesting cross current, the other segment that has a heavy orientation toward tech gadgets – Wired Aging Baby Boomers – is somewhat more disposed to AOL than others; 31% of this group uses AOL to connect to the Internet.

Overall, Americans have a positive attitude toward technology but a few feel overwhelmed by information.

Americans are typically very optimistic when thinking about technology, with 5 in 8 (62%) of all Americans saying they generally like computers and technology, and two-thirds (67%) saying they like the abundance of information available today. Those who have the most tech goods and services are the ones who feel least burdened by information and have the most positive attitudes about technology. For the Young Tech Elites, the Older Wired Baby Boomers, and Wired GenXers, optimism about technology

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is very high, with 80% saying they like computers and technology. At the other end of the spectrum, the older less-wired groups – the Unwired Young Baby Boomers and the Low-Tech Elderly – have somewhat pessimistic views of technology and the wealth of information available today. A slight minority of them (48%) expresses a positive attitude about computers and technology.

On the other side of the coin, only one in five Americans (21%) say they feel overloaded by too much information. Very few (10%) of the Young Tech Elites feel this way, while 35% of those in the groups of older women who modestly use information goods and services say this. As for how they see technology affecting their lives, 56% of people in the three groups of elite tech users say that technology gives them more control over their lives. Those who have less technology – the two groups of predominantly older women – are less likely to say technology gives them more control of their lives (33% say this). This cuts two ways. It is likely that technology is giving people the wherewithal to better control their lives; it is also likely that people who have a greater amount of control over their lives are the ones who, for whatever reason, are heavy technology users.

Methodology

This report is based on the findings of a daily tracking survey on Americans' use of the Internet. The results in this report are based on data from telephone interviews conducted by Princeton Survey Research Associates between October 7 and October 27, 2002, among a sample of 1,677 adults, age 18 and older. For results based on the total sample, one can say with 95% confidence that the error attributable to sampling and other random effects is plus or minus 2 percentage points. For results based Internet users (n=1,027), the margin of sampling error is plus or minus 3 percentage points. In addition to sampling error, question wording and practical difficulties in conducting telephone surveys may introduce some error or bias into the findings of opinion polls.

The sample for this survey is a random digit sample of telephone numbers selected from telephone exchanges in the continental United States. The random digit aspect of the sample is used to avoid "listing" bias and provides representation of both listed and unlisted numbers (including not-yet-listed numbers). The design of the sample achieves this representation by random generation of the last two digits of telephone numbers selected on the basis of their area code, telephone exchange, and bank number.

New sample was released daily and was kept in the field for at least five days. This ensures that complete call procedures were followed for the entire sample. Additionally, the sample was released in replicates to make sure that the telephone numbers called are distributed appropriately across regions of the country. At least 10 attempts were made to complete an interview at every household in the sample. The calls were staggered over times of day and days of the week to maximize the chances of making contact with a potential respondent. Interview refusals were recontacted at least once in order to try again to complete an interview. All interviews completed on any given day were considered to be the final sample for that day.

Non-response in telephone interviews produces some known biases in survey-derived estimates because participation tends to vary for different subgroups of the population, and these subgroups are likely to vary also on questions of substantive interest. In order to compensate for these known biases, the sample data are weighted in analysis. The demographic weighting parameters are derived from a special analysis of the most recently available Census Bureau's Current Population Survey (March 2001). This analysis produces population parameters for the demographic characteristics of adults age 18 or older, living in households that contain a telephone. These parameters are then compared with the sample characteristics to construct sample weights. The weights are derived using an iterative technique that simultaneously balances the distribution of all weighting parameters.

PSRA calculates a response rate as the product of three individual rates: the contact rate, the cooperation rate, and the completion rate. Of the residential numbers in the sample,

70.7 percent were contacted by an interviewer and 46.4 percent agreed to participate in the survey. Eighty-eight percent were found eligible for the interview. Furthermore, 91.2 percent of eligible respondents completed the interview. Therefore, the final response rate is 29.9 percent.

Appendix

This appendix provides detail on monthly spending and overall penetration rates of information goods and services surveyed by the Pew Internet & American Life Project in October 2002. This includes monthly spending data for selected demographic groups, and also data on penetration rates for the six of the seven groups of users identified in the report and by selected demographic groups.[13]

The table below shows how different demographic groups break down when it comes to average monthly spending on information goods and services, both in total and for specific items. In reading the table, it is important to recognize that the column labeled "Total Spent on Information Goods and Services" is a weighted average. That is, it reflects the total of the six columns to the right, adjusting for the fact that not all people pay for cable, cell phones, Internet, or some of the other items. For individual services listed, the dollar figure represents monthly spending estimates for those people who have the particular service. Thus, the sum of the six columns of specific items significantly exceeds the weighted average.

$ per month for Each Group	Total Spent on Information Goods and Services (weighted average)	Tele-Phone	Cell Phone	Cable/ Satellite	Premium Channels	Internet Service	Online content
All	$122	$57	$57	$51	$23	$24	$21
Men	127	55	64	51	24	25	n/a**
Women	118	59	51	50	22	22	n/a
Whites	121	55	56	49	22	23	n/a
Blacks	131	70	58	59	27	29	n/a
Latino	131	63	67	54	35	21	n/a
College Graduates	143	60	56	53	21	25	n/a
Students	130	67	57	54	24	23	n/a
Employed	138	59	61	51	22	24	n/a
Urban	121	55	59	53	27	25	n/a
Suburban	125	58	55	52	21	24	n/a
Rural	116	58	62	45	21	22	n/a

Picking Apart the Data on Monthly Technology Spending

Source: Pew Internet & American Life Project survey October 2002 of 1,677 Americans, margin of error is ±2%.

* For cells labeled "n/a" there was not enough respondents to report statistically meaningful numbers.

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[13] As noted in the body of the report, the "wired senior men" group is only 1% of the sample and therefore too small to draw statistical inferences with much certainty; it is therefore excluded in the table below.

Several surprises emerge upon looking at the data. First, it may come as a surprise that blacks and Latinos pay, on average, more per month in the selected categories than whites. For blacks, the extra spending is devoted to the telephone, cable TV (including premium channels), and Internet access. It is hard to pinpoint the reasons for this, although looking at "old media" habits, it seems that blacks are more dependent than other segments of the population on electronic means. They are a bit more likely than others to get news from TV on a typical day than others and less likely to read a newspaper. It is also notable that students pay more per month on selected information goods and services; since many may live away from home, long distance telephone calls may be the source of the difference.

As noted in the body of the report, there are considerable spending variations among the groups of technology users identified. The Young Tech Elites spend on average $161 per month on the selected items, while the Older Wired Baby Boomers spend $175 per month. On the other end of the spectrum, the Young Marrieds, with a modest amount of technology, spend $127 per month and the aging baby boomers with relatively little technology spend $124 per month. The table below presents spending for the groups identified in this report, with the monthly total and for each technology. The table is like the one above in that the "total" column is a weighted average, and the figures for specific technologies are only for those users who had the particular item. Not all totals are reported because of the small number of responses in some instances, and online

Spending Patterns for the Groups of Technology Users					
$ per month for Each Group	Total Spent on Information Goods and Services (weighted average)	Tele-Phone	Cell Phone	Cable/ Satellite	Internet Service
Young Tech Elites	$161	$63	$61	$57	$28
Older Wired Baby Boomers	175	69	66	53	24
Wired GenXers	169	60	59	56	26
Young Marrieds	127	70	63	53	22
Low-Tech Older Baby Boomers	124	55	59	51	22
Unwired Young Baby Boomers	125	54	55	47	18
Low-Tech Elderly	82	44	37	43	n/a
Source: Pew Internet & American Life Project survey October 2002 of 1,677 Americans, margin of error is ±2%.					
* For cells labeled "n/a" there was not enough respondents to report statistically meaningful numbers.					

content and cost of premium TV channels totals by group are not reported for that reason.

We also sought to get at the source of the variations in spending across the groups and used regression analysis to do this. This analysis was performed to see how demographic factors independently influence spending on the sum of the six information goods and services chosen. If, as we know, the Young Tech Elites spend more on average than other people, is it due to something inherent in their classification as a "Young Tech Elites," or is it because of other factors, such as age, education, or race? In other words, do the Young Tech Elites spend more because of something about them that is independent of their levels of income or education, or other demographic factors?

The results suggest that the most technologically sophisticated in the population – the Young Tech Elites, Wired GenXers, and the Older Wired Baby Boomers – have a preference for spending in the six categories of information services that is independent of other socioeconomic factors. In other words, something about these two groups of technological sophisticates drives them to spend more on information services. We do not know what the "something" is, but we know that this extra spending occurs irrespective of income, education, age, or race. Additionally, several variables have the expected impacts on spending; income has a positive and significant impact on spending, as does being a parent. Age (being over age 55) and being white were associated lower levels of spending; by contrast, being black was associated with higher spending in the six categories. Other classifications of users (e.g., Unwired Young Baby Boomers or Young Marrieds) did not independently impact monthly spending.

Technology Use Among Tech Elites and Non-Tech Elites										
Group	Internet	Computer	Cable	Cell Phone	Satellite Dish	Premium TV Channels	Pager	DVD	Personal Organizer	Digital Video Recorder
Young Tech Elites	100%	100%	69%	80%	25%	51%	17%	82%	26%	9%
Older Wired Baby Boomers	100	98	68	82	27	43	18	67	28	8
Wired GenXers	100	98	66	82	22	45	18	64	25	5
Young Marrieds	66	78	54	56	20	40	13	63	8	8
Low-Tech Older Baby Boomers	51	68	61	60	25	37	12	37	5	8
Unwired Young Baby Boomers	45	41	69	62	16	21	13	47	3	6
Low-Tech Elderly	12	21	68	39	14	18	5	17	3	9
Source: Pew Internet & American Life Project survey October 2002 of 1,677 Americans, margin of error is ±2%.										

% of Each Group	Internet	Computer	Cable	Cell Phone	Satellite Dish	Premium TV Channels	Pager	DVD	Personal Organizer	Digital Video Recorder
All	59%	69%	62%	62%	21%	35%	13%	47%	11%	7%
Men	62	72	64	63	23	37	16	53	13	8
Women	56	66	60	61	20	34	10	42	8	7
Whites	60	69	62	63	21	36	11	46	10	7
Blacks	50	65	62	55	25	34	25	47	11	11
Latino	59	73	56	66	22	30	19	63	11	10
College Graduates	83	92	65	77	20	37	16	57	23	8
Students	80	92	59	67	21	32	18	63	14	12
Employed	71	82	62	71	22	35	17	56	14	7
Urban	65	72	64	61	13	31	18	50	12	8
Suburban	60	70	65	66	21	36	12	49	12	7
Rural	49	62	52	54	33	36	8	40	6	6

Technology Use Among Various Demographic Groups

Source: Pew Internet & American Life Project survey October 2002 of 1,677 Americans, margin of error is ±2%.