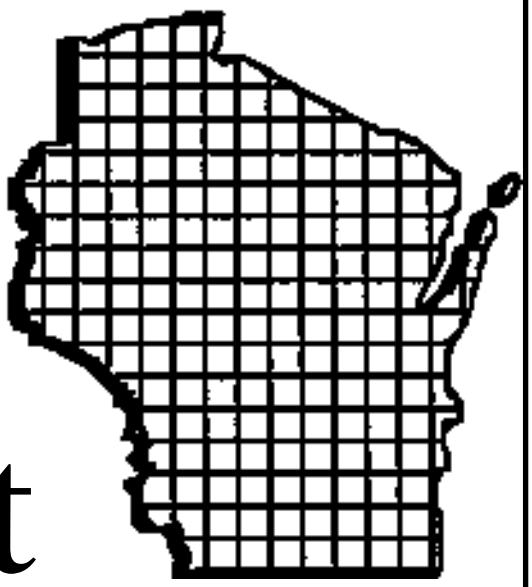
Wisconsin
Policy
Research
Institute
Report



September 2005 Volume 18, Number 5

A Wisconsin Telecommunications Policy Primer

Twenty Comprehensive Answers to Twenty Basic Questions

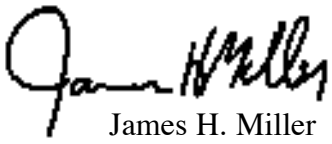
REPORT FROM THE PRESIDENT:

As Wisconsin faces an ongoing wave of very complex issues for the twenty-first century, we thought it would be important to begin to develop public policy primers on some of these issues. For our first primer we chose telecommunications.

As our traditional way of communicating by telephone is being radically changed overnight by technology with advances in cell phones and digital services, we thought it would be an opportune time to have an expert outline a number of these issues. We contracted with Diane Katz, Director of Science, Environment, and Technology Policy at the Mackinac Center for Public Policy, and a former reporter and editorial writer specializing in technology for *The Detroit News*, to develop a primer that would explain the basic issues of telecommunication policy.

She has developed a set of twenty questions with answers to many of these issues. One does not need advanced degrees to understand that changes are occurring in the way we communicate. Most Wisconsinites have cell phones, and even cell phones may be obsolete within the next several years. What is important is whether the public service commission's aging regulatory model will artificially constrain the technology made available to the citizens of Wisconsin.

In the past regulators have tried to micromanage Wisconsin businesses, whether it be communications or utilities. That must change in the twenty-first century. It is time to encourage free market innovations that could produce better service at lower cost. The status quo only benefits bureaucrats. Deregulation will benefit consumers. We side with taxpayers.



James H. Miller

WISCONSIN POLICY RESEARCH INSTITUTE, INC.
P.O. Box 487 • Thiensville, WI 53092
(262) 242-6409 • Fax: (262) 242-6459
E-mail: wpri@wpri.org • Internet: www.wpri.org

A WISCONSIN TELECOMMUNICATIONS POLICY PRIMER

Twenty Comprehensive Answers to Twenty Basic Questions

DIANE KATZ

THE POWER AND PROMISE OF TELECOMMUNICATIONS

1. Why is telecommunications policy important?

Telecommunications technology has undergone tremendous leaps of progress throughout the past century. Samuel Morse first telegraphed a four-word message over a copper wire in 1844. Today, billions of people worldwide converse daily on wireless phones that double as cameras, and they access a library's worth of data in seconds from home or office via broadband connections.

The social and economic value of this continuous information flow cannot be overestimated. Knowledge is indeed power when applied by commercial firms to precisely gauge real-time market conditions across the globe, or by citizens downloading news and information from diverse sources to improve their lives. Indeed, annual U.S. telecommunications revenues have exceeded $300 billion in recent years, a testament to the demand for voice, data, and video transmissions.[1]

This reliance on telecommunications necessitates public policies that promote innovation and ensure network reliability and security. But for all the mind-boggling technicalities of "frequency division multiplexing" and "asynchronous transference," telecommunications policy need not be complex if guided by time-tested economic principles.

These principles form the basis of the policy recommendations included in this primer. We begin with a plain-language description of common technologies and a condensed history of the industry. These sections are followed by a status report on the telecommunications market and summaries of controlling statutes and regulations. A glossary is also provided, along with links to relevant Web sites.

A greater understanding of telecommunications among lawmakers, the media, and the public is sorely needed. Despite the direct impact on the nation, telecommunications policies have largely been crafted by unseen hands in ineffective ways. Consequently, America now trails a number of Asian and European nations in deployment of the most advanced wireless and broadband technologies.[2]

Absent reform, existing telecom policies that inhibit investment and innovation will continue to undermine job creation and economic growth, while inducing businesses to locate abroad.

2. What are the opportunities for reform?

The regulatory process always trails the pace of technological change. In the case of telecommunications, the regulatory regime of price controls, service mandates, and marketing restrictions imposed decades ago has been overtaken by the abundant, affordable telecom options available today. No longer are consumers at the mercy of the government-sanctioned "Ma Bell" monopoly. Competition among various technologies and providers has rendered rate regulation and service boundaries wholly obsolete.

There is, therefore, considerable opportunity to improve telecommunications policies at both the state and federal levels.

At the federal level, the regulations governing competition in local calling over the traditional wireline network were overturned in March 2004 as arbitrary and overreaching by the U.S. Circuit Court of Appeals in Washington, D.C. This marked the third time in eight years that these federal rules were judged improper. Subsequently, both the Federal Communications Commission (FCC) and the Bush administration decided — wisely — against an appeal.

A fourth set of rules governing competition in local calling was announced by the commission on December 15, 2004, although the order was not released for another two months. Apparently determined to craft provisions that would finally "pass judicial muster," the commission significantly scaled back both federal and state regulatory authority over the local calling market.

Indeed, in further recognition of the robust competition in telecommunications, the Federal Communications Commission declined earlier this year to regulate the telephone services provided by cable TV firms and Internet service providers.

Many industry experts expect that Congress will soon attempt to update the the federal Telecommunications Act of 1996. Taking the lead in the reform effort, U.S. Senator John Ensign (R-NV) on July 27, 2005 introduced the

"Broadband Investment and Consumer Choice Act. The bill, if enacted, would end the government price controls and franchise schemes that have hindered telecom investment, and prohibit municipalities from offering telecom services in competition with the private sector. All of which would be a considerable improvement over current law.

At the state level, Wisconsin now has an opportunity to become a national leader in fostering telecommunications investment and innovation. A petition to eliminate price controls on basic residential telephone service in Milwaukee, Madison, and fifteen other cities is pending before the state's Public Service Commission. A decision is expected this fall.

Given the range of service options, there's simply no justification for Wisconsin — or any other state — to continue micromanaging local telephone rates. Rate regulation is a relic of the days when "Ma Bell" reigned as a government-sanctioned monopoly. Today, however, SBC Wisconsin, one of the so-called "Baby Bells," is only one of twenty-five different service providers available to residents in the cities for which rate deregulation is sought.

The competition is fierce. SBC rivals have captured 35% of the residential wirelines in the areas targeted for rate deregulation, whereas SBC Wisconsin has lost 30% of the residential lines.

Market competition would impose rate discipline far more effectively than the government bureaucracy, which has inhibited firms from responding quickly to consumer preferences. Freed from price controls, service providers would be able to offer a range of flexibly priced service packages as demand dictates. Consequently, innovation and investment would follow.

Transforming telecom policies will demand aggressive oversight of regulators by lawmakers, the media, and the general public. Resistance to reform will run strong among those with a vested interest in the status quo. But enhancing consumer benefits and technological innovation matters far more than preserving regulators' powers or special-interest advantages.

Recent events have illuminated the path to progress. Shortly after the FCC's rules on competition in local calling were overturned, executives of the "Baby Bells" called upon their rivals to negotiate commercial agreements for network access without government interference. Within days, agreements were struck with wholesale customers both large and small.

The message is unmistakable: "This is proof positive that free markets can work in telecommunications as they do throughout the U.S. economy," said Walter B. McCormick Jr., president and CEO of the United States Telecom Association. "This is real-world evidence that we do not need to spend months and years in court defending the past and putting future telecom investment and job creation on hold. All it takes to move forward constructively for the country is reasonable people sitting down in good faith at the negotiating table."[3]

Transmission Basics

3. How does this stuff work?

Plain Old Telephone Service

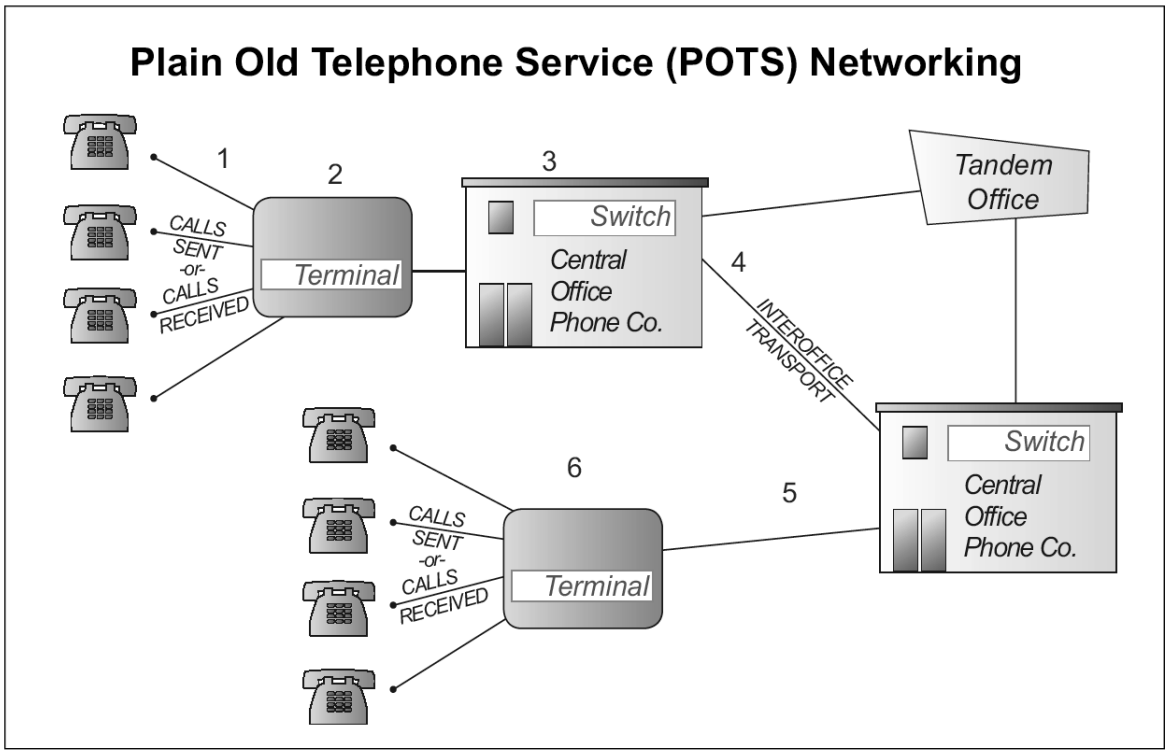
Plain Old Telephone Service (POTS) refers to the basic voice service traditionally transmitted over the copper wire network. The sound waves of a caller's voice are converted by the telephone handset into electrical signals that travel over the network. The copper network is prone to interference, and the signal may weaken over distance, thus requiring amplification along the way.

The copper network originally carried only "analog" signals, which travel in a continuous stream and require a dedicated circuit. But the network has been upgraded also to carry "digital" signals, which do not require a continuously open and dedicated circuit, thereby increasing network transmission capacity.

Telephone Numbers

Telephone numbers in the United States are organized according to the North American Numbering Plan. The numbering plan is administered by a private firm selected by the Federal Communications Commission through competitive bidding. The numbering plan is subject to directives from regulatory authorities in member countries.

The 10-digit numbers used in the United States consist of three separate codes that designate the route and billing of every call. Each number, when dialed or pressed, emits a tone deciphered by network computers. The first three



1. The telephone handset converts the sound waves of a caller's voice into electrical signals. The signals then travel from the telephone to a "drop cable" that connects the residence or business to an outside terminal.
2. The terminal consolidates calling signals from the immediate neighborhood for transmission through an aerial cable to a central office.
3. Computerized switches inside the central office decipher the electronic signals to determine where to route the calls.
4. Depending upon the destination of a call, the signal may be routed to a regional hub, called a tandem office, where it is forwarded to a distant central office for further transmission. Alternatively, the signal may be routed through a cable that feeds directly to a central office near the destination of the call.
5. The central office's switches again read the incoming signal and route the call to the appropriate terminal. From the terminal, the call is transmitted to the local lines that connect the network to a home or business.
6. The telephone handset then reconverts the electrical signal into sound waves, and the call is completed.

digits, known as the area code (or Numbering Plan Area), identify a metropolitan area. The next three digits, known as the exchange (or Prefix), specify the central office from which the call is routed to a local destination. The last four digits (Station) represent the individual customer line.

Under federal law, a customer must be allowed to keep a telephone number when changing service providers within a local area. This "number portability" requires a master database to determine whether the customer line is maintained by the original service provider or assigned to a competitor.

Circuit-based Technology

Circuit-based technology, commonly referred to as "analog," relies on a dedicated, continuous transmission path through the network. A dedicated circuit is among the most reliable technologies, although it is not the most efficient in terms of network capacity.

Packet-based Technology

Packet-based technology, commonly referred to as "digital," does not require a dedicated path through the network, but instead arranges data in fragmented "packets" to speed transmission. Each packet is routed using the best network connection available at a given time, and the packets are reassembled in their original order at the destination of the call.

DSL

Digital Subscriber Line (DSL) technology enables data to be transmitted at high speeds through the copper-wire telephone network. A "transceiver" linked to a personal computer connects to the network of an Internet Service

Provider through the local telephone network. Data are compressed into digital packets and routed by the Internet Service Provider to the World Wide Web.

ISDN

The Integrated Services Digital Network technology (ISDN) allows a single copper-wire telephone line to transmit both voice and data signals. Users must dial in to establish a network connection, and fees are typically assessed based on the duration of transmission. ISDN is only available within 3.4 miles of a service provider's central office.

T1 (or DS1)

A T1 line is a high-speed digital circuit that provides the equivalent of 24 voice-grade lines (or channels) of transmission capacity. The line is leased as a direct connection to a computer system, an Internet Service Provider, or a destination specified by the customer. A T1 line is capable of transmitting large text files, as well as graphics and audio.

T3 (or DS3)

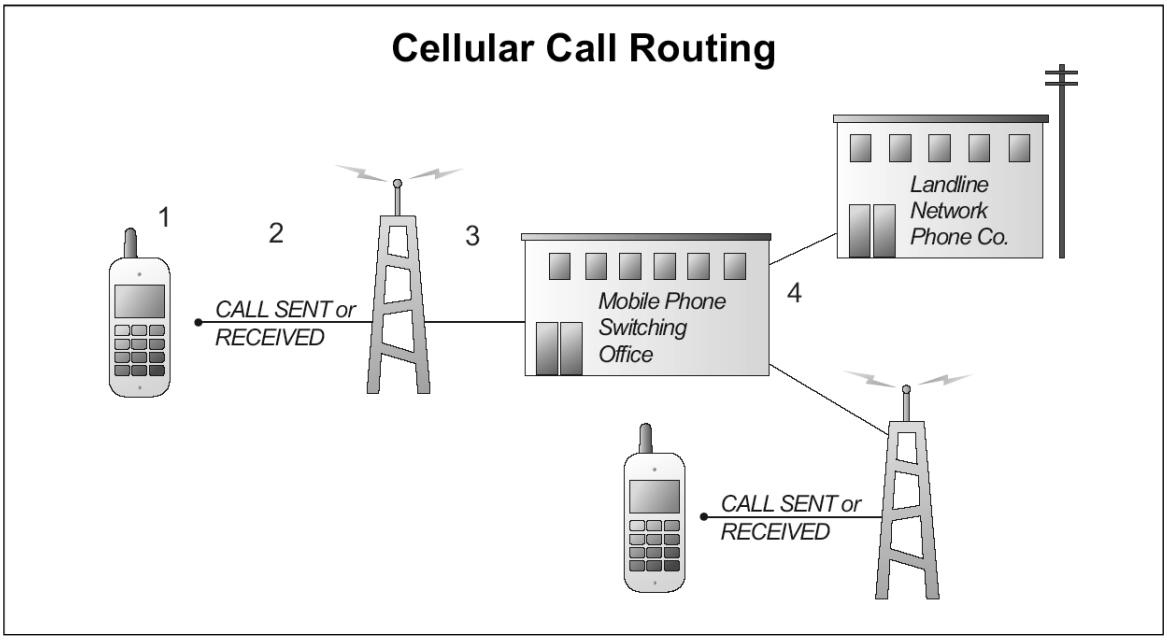
A T3 line is a higher-speed digital circuit that provides the equivalent of 672 voice-grade lines (or channels) of transmission capacity. The T3 line serves as the principal artery for heavy volumes of Internet traffic, including transmissions generated by corporations, universities, and Internet Service Providers. The T3 is capable of full-screen, full-motion video transmissions.

Fiber to the Home

Fiber to the Home (FTTH), also known as Fiber to the Premises (FTTP), entails replacing copper telephone lines with optical fiber cable at the user's residence to increase transmission capacity. The hair-thin strands of glass fiber carry pulses of light that deliver volumes more data at higher speeds. Transmitters are needed to convert electrical impulses from a computer into light streams.

OCn

OCn, or Optical Carrier Networks, transmit large amounts of data as light signals. The networks vary in capacity. An OC1, for example, can carry the equivalent of a T3 line. Telephone companies use OC12 systems between central offices to carry some 8,000 simultaneous conversations on a single strand of fiber.



1. The wireless telephone converts the sound waves of the caller's voice to electrical signals — either analog or digital.
2. The signals are transmitted to a cellular tower through the radio-wave channel assigned to the service provider.
3. The tower relays the call signals to a mobile phone switching office.
4. Computer switches operated by the service provider determine whether to route the call to the wireless network or to the landline network.

Coaxial Cable

The coaxial cable through which television programming is delivered can also accommodate voice and high-speed data transmissions. Coaxial cable requires use of a modem to properly relay signals to the Internet and other network connections. Modem signals are first received by a neighborhood "node" that directs hundreds of such transmissions to network connections at the cable vendor's facility. Amplifiers boost signal strength along the transmission route.

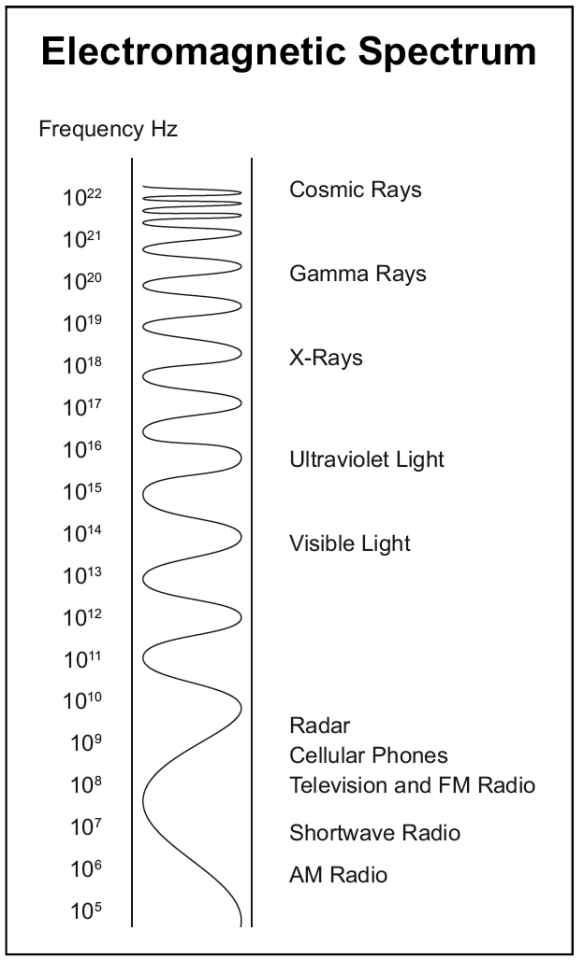
VOIP

Voice Over Internet Protocol (VOIP) sometimes refers to private networks that use packet-based technology to transmit calls. The sound waves of a caller's voice are digitally encoded and transmitted as packets of data. The message is decoded to voice at the destination of the call. Private networks allow users to prioritize call routing to ensure transmission speed and quality.

VOIP also refers to calls transmitted over the public Internet in order to bypass the local calling network. Unlike private networks, calls routed over the public Internet may be impacted by network congestion associated with multiple users transmitting large amounts of data simultaneously. However, these technical challenges are expected to be overcome as the technology continues to advance.

Cellular Service

Cellular telephones essentially operate as two-way radios that are also capable of transmitting video and text data. Calls are transmitted as electrical signals within the radio-wave channels allocated to service providers. The signals are relayed between cellular towers that connect with switches to other networks, including the wireline network. Calls may be transmitted as analog or digital signals.



The electromagnetic spectrum represents the full range of electric, magnetic and visible radiation in the universe. Waves in the spectrum vary in size, frequency and energy, and they are classified by their wavelength. Waves of similar lengths are categorized into bands. The Federal Communications Commission allocates licenses for use of specific radio-wave frequencies.

Wireless Local Loop

Wireless Local Loops use rooftop antennas rather than copper wire or optical fiber to transmit telephone calls. Unlike cellular calling, wireless local loops only provide service between fixed points. The antennas relay the signals to "hub" receivers, which interconnect with the wire line network.

Spectrum

"Electromagnetic spectrum" is the scientific term for the full range of electric, magnetic and visible radiation in the universe. Waves within the spectrum vary in size, frequency and energy, and they are classified by their wavelength. The waves can extend from one-billionth of a meter, as in gamma rays, to centimeters and meters, as in radio waves. Waves of similar length are categorized into bands. Within bands, waves travel at various frequencies. The Federal Communications Commission allocates licenses for use of specific radio-wave frequencies.

Spectrum capacity continues to expand as technology improves at delineating new frequencies and reducing interference.

WiFi

Wireless Fidelity, commonly referred to as "WiFi," is a local computer or audio network that uses high-frequency radio signals to transmit and receive data over short distances.

Satellite

Satellites operate as celestial antennas, relaying signals to and from computers to various Internet Service Providers. The transmissions are weather-sensitive and more prone to landscape interference than other technologies.

Broadband Over Power line (BPL)

A number of utilities are experimenting with using power lines to transmit voice and data signals. The existing wiring of homes and businesses presents opportunities for a variety of applications. Computer adapters are necessary to filter the various signals.

HISTORY

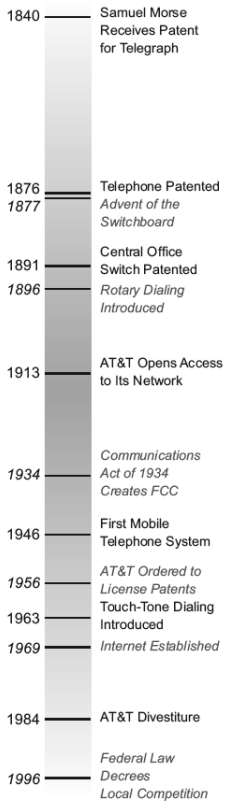
4. How did the Bell system secure a monopoly?

Alexander Graham Bell patented the telephone on March 7, 1876, just hours ahead of rival inventor Elisha Gray. Bell's initial experiments were an attempt to enable a telegraph wire to carry simultaneous messages. His backers were intent on developing new technology to challenge the Western Union telegraph monopoly.

Bell succeeded beyond his expectations. On March 10, 1876, he placed what now ranks among the most important telephone calls in history. To his young assistant in an adjacent room he said, "Mr. Watson, come here. I want to see you."

Telephone technology took another leap in 1891, when Almon Strowger, a Kansas City undertaker who was fed up with nosy operators, patented a "switch" that could automatically relay calls to their destination without operator assistance.

Daily telephone use in the United States grew from four calls per 1,000 people to 37 calls per 1,000 people between 1876 and 1894.[4] But once the Bell patents expired, thousands of competitors began wiring the nation, increasing the daily calling average per 1,000 people from 37 in 1895 to 391 in 1910. By 1907, Bell rivals controlled 51% of local telephone service.[5]



5. When did telecommunications regulation take root?

The surge of competition in the early 1900s prompted a takeover spree of rivals by American Telephone and Telegraph (AT&T). But AT&T's acquisitions troubled federal authorities, who began mulling antitrust action. This prompted AT&T officials to propose what subsequently became known as the "Kingsbury Commitment." On December 19, 1913, AT&T agreed to sell $30 million of its Western Union stock and to allow competitors to interconnect with its network. The company also pledged that for every new local system it acquired, it would sell an equal share of lines.

The Kingsbury Commitment was wholly in keeping with the brilliant strategy of AT&T's President Theodore Newton Vail. The regulatory emphasis on interconnection cemented AT&T's control of the telephone network. And, the constraints on line acquisition did not keep the company from concentrating its hold in major markets. Thus, Vail was well-positioned to promote telephone service as a "natural monopoly." Public officials, eager to regulate the nascent industry, embraced Vail's motto of "One Policy, One System, Universal Service."

As the nation's dominant service provider, AT&T had the most to gain from government-erected barriers to market entry. The more difficult it was to launch competitive service, the more secure was AT&T's market share.

Then, as now, the absence of government interference would likely have spurred technological innovations that would have prevented any one company from achieving market dominance.

Congress first vested federal regulatory authority over telephone services in the Interstate Commerce Commission, under the Mann-Elkins Act of 1910. This legislation adopted the practice of local franchising already begun by states and municipalities to control rates and service quality.

6. Is telecommunications a "natural monopoly"?

The theory of "natural monopoly," now widely questioned, presumed that redundant telephone infrastructure was economically inefficient. For example, a 1921 report by the Michigan Public Service Commission concluded that "competition resulted in duplication of investment," and that states were justified in denying requests by rivals to deploy new lines.[6] A report that same year from the U.S. House of Representatives likewise concluded that "there is nothing to be gained by local competition in the telephone business."[7]

The same view was also misapplied to electric power supply and water treatment, triggering creation of a massive regulatory structure to temper government-sanctioned monopoly power. In hindsight, competition could have restrained utility monopolies by generating new technologies and applications that instead took decades to achieve.

The drawbacks of the regulated-monopoly approach are now more widely recognized. Firms that enjoy government protection from competition, and for whom rates of return are guaranteed through regulation, face less financial pressure to innovate or operate efficiently. Moreover, regulators often become so committed to the regulatory structure that they regard competition as a threat, rather than as a potential solution to the very structural conditions that led to the adoption of regulation.

By 1925, telecom rate regulation was in effect across most of the nation, and competition was either discouraged or explicitly prohibited. The regulatory structure was finalized when Congress created the Federal Communications Commission in 1934.

In enacting the Communications Act of 1934, Congress authorized the new agency to impose service requirements priced at regulated rates. Any deviations in product or service required government approval, a laborious process then as now. Many such regulatory strictures persist despite fierce market competition.

As noted by a 1988 Department of Commerce report: "The chief focus of the Communications Act of 1934 was on the regulation of telecommunications, not necessarily its maximum development and promotion. (T)he drafters of the legislation saw the talents and resources of the industry presenting more of a challenge to the public interest than an opportunity for national progress."[8]

Thus, with the cooperation of state and federal officials, AT&T secured its dominance over telephone service for decades to come, controlling more than 80% of all telephone lines and assuming family status as "Ma Bell."[9]

7. What prompted the breakup of AT&T?

Intent on remaining a government-sanctioned monopoly, AT&T had little interest in selling network access to alternative service providers. (In recent years, ironically, AT&T has been the principal advocate of forcing local telephone companies to provide network access to rivals, itself included, at below-cost rates.)

Challenges to AT&T's protected standing intensified in the 1970s, prompting the FCC to allow limited competition in long-distance services. Local service, however, remained off-limits to competition. This regulatory disconnect between local and long-distance calling continues today, despite technological advances that have rendered obsolete any meaningful distinction between the two.

In 1974, the U.S. Justice Department filed an antitrust lawsuit against AT&T based on complaints by MCI and other long-distance service providers. The lawsuit went unresolved for eight years. But in 1982, the company settled with the government under conditions ordained by Judge Harold H. Greene of the Federal District Court for the District of Columbia.

The landmark settlement required AT&T to divest its local operating companies and limit its services to the long-distance market.

AT&T was allowed to continue manufacturing telephone equipment. (These operations were later spun off as Lucent Technologies.) Judge Greene retained jurisdiction over the case for more than a decade, effectively elevating himself to the role of national telecom czar. Virtually every major business decision required approval by both the judge and the FCC.

Thus, the creature of government was dismembered by government, demonstrating yet again that "a government that's big enough to give you everything you want is big enough to take away everything you've got."[10]

A subsequent series of mergers and acquisitions reduced the number of regional operating companies from seven to four: SBC, Verizon, BellSouth, and Qwest — now commonly referred to as "incumbents."

Competition in long-distance service has yielded dramatic consumer benefits in the form of lower prices and improved service quality. Average revenues per minute for interstate and international calls originating in the United States dropped from 62 cents per minute in 1983 to 10 cents per minute in 2001.[11] In many instances, calling across state lines and even international borders costs less than local toll calls within a single state.

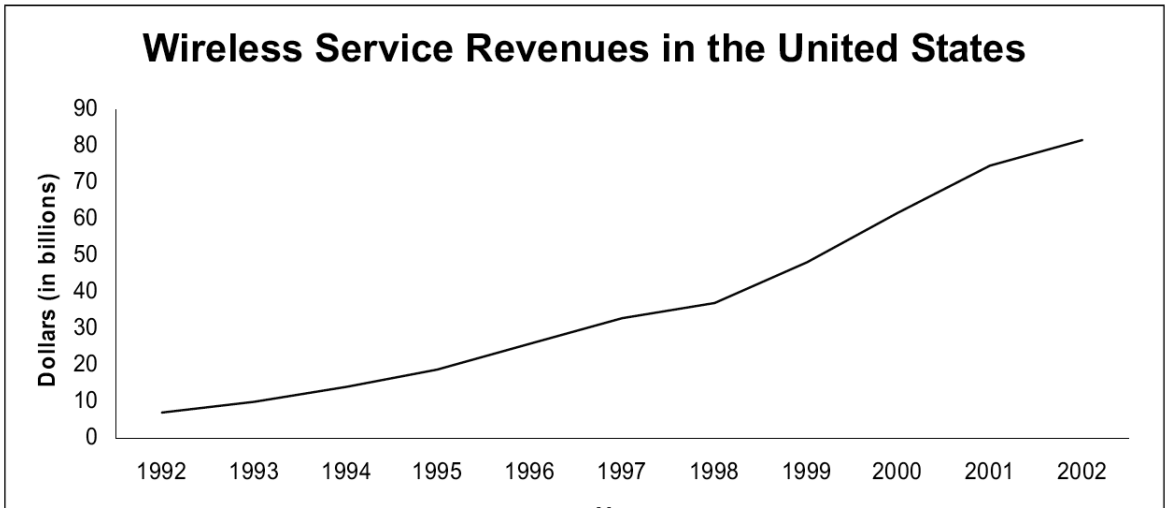
THE STATE OF THE INDUSTRY

8. What is the nature of telecommunications competition today?

The telecommunications industry, in every respect, has grown vastly over the past two decades. Advances in fiber optics, wireless, and other signal-processing technologies have created new markets and made new network infrastructure far more affordable, increasing competition.

Consider, for example, the remarkable increase in the number of telecom patents, which rose from 2,309 in 1990 to 10,391 in 2003.

In recent years, wireless telephony has presented the greatest competitive challenge to wireline service. Cellular subscriptions have increased from just 92,000 nationwide in 1984 to more than 181 million in 2004.[12] The number of local wire lines, meanwhile, decreased by more than 11.6 million between 1999 and 2004.[13]



Competition yields lower rates and promotes higher usage. For example, the number of wireless call minutes has increased from an average of 140 per month in 1993 to 507 in 2004.[14] The biggest market growth is now among lower-income customers, reflecting the increased affordability of service.

A major factor driving the extraordinary growth in wireless services has been the loosening of government's grip on the broadcast spectrum. In the early 1990s, the FCC had restricted the number of wireless carriers to two per market area. The 1993 Budget Reconciliation Act, however, forced the FCC to auction spectrum for up to six carriers per market. Consequently, by 2003 more than 95% of the nation was served by at least three wireless services.

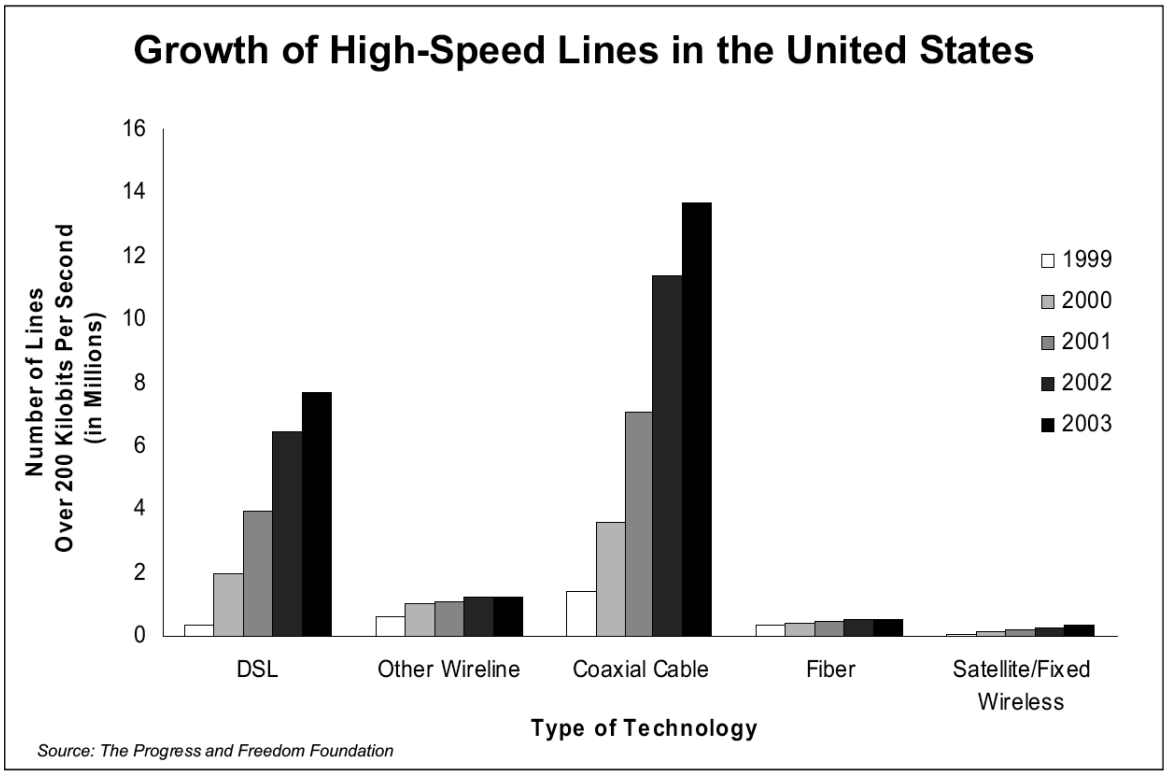
This growth results from wireless carriers competing in the open market to build their own networks, with none of the regulatory management or subsidization that has characterized wireline competition.

Cable television companies and Internet Service Providers (ISPs) increasingly are adding telephony to their offerings. Cable telephony now serves 3.7 million residential subscribers, up from 308,000 in 1999.[15]

Voice Over Internet Protocol, or VOIP, will have experienced a compound annual growth rate of 96.7% between 2000 and 2007, according to calculations by the consulting firm of Frost & Sullivan. The firm also forecasts that by 2007, over 60% of long-distance traffic will travel over VOIP networks.

High-speed telecommunications services, in particular, have experienced tremendous growth, as illustrated by the chart below. An estimated 83% of U.S. homes now have access to cable or DSL broadband,[16] while some 59% of Americans access the Internet from home or work — a number projected to increase to 73% by 2007.[17]

Advances in technology have allowed voice, video, and data services to be combined in new applications. This "convergence" is increasingly available across all types of telecommunications media.



FEDERAL STATUTES AND REGULATIONS

9. What federal rules govern telecommunications?

Telecom Act of 1996

The breakup of AT&T in 1984 unleashed products and services unforeseen by regulators or the courts. But the rapid pace of innovation also produced regulatory inconsistencies between various products and service providers, which Congress sought to remedy with passage of the Telecommunications Act of 1996.

Mindful of the benefits realized through long-distance competition, lawmakers declared an end to the monopoly franchise system governing local wireline calling.

The 1996 act set the conditions by which carriers would be allowed to provide local and long-distance services. Among the most significant provisions was the requirement that the "Baby Bells" and other "incumbent" local carriers provide network access to rivals at regulated rates. These rivals — referred to in the industry as "competitors" — included long-distance, cable, and wireless firms. In return for providing access, the Bells were allowed to enter the long-distance market, offer cable services, and manufacture equipment once regulators were satisfied that local competition had taken hold.

Another key element of the act was the phase-out of price controls on cable TV, which had inhibited competition and network investment. Also mandated were telecommunications subsidies to government-run schools, health care facilities, and libraries.

Unbundled Network Elements

Congress conceived of forced access to local networks as necessary to jumpstart competition in local calling services. Lawmakers assumed that new entrants would need below-cost access to the network to gain a foothold in the market. They further expected that once new entrants gained market share, they would use their new revenues to build facilities to compete against the incumbent service providers.

Lawmakers established a baseline eligibility standard for this subsidized access. Subsidized access to the incumbents' networks was not intended to be an ongoing entitlement. Eligibility was supposed to be based on whether a competitor would be "impaired" from competing if they were denied network access.

Section 251 of the 1996 act directs the FCC to "consider, at a minimum, whether . . . the failure to provide access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer."

Congress delegated to the FCC the authority to determine which switches, lines, and other facilities should be shared, and how various parts of the network (called "Unbundled Network Elements," or UNE) would be priced. The agency issued the first set of access rules in 1999. Subsequently, regulators required incumbents to provide to rivals at deeply discounted rates all elements of the network "platform" (UNE-P) as a single package. This would allow competitors simply to resell the incumbents' services without making any investment in facilities.

The outcome in Wisconsin was predictable. Most competitors have preferred to use the incumbents' existing network at below-cost rates rather than invest in facilities of their own. Competitors used their own facilities to service 17.9% of their customer lines in 2000. By 2004, the share of lines served by competitors' own facilities fell to 6.2%.

Underlying this forced-access policy is the supposition that the landline network is public property by virtue of its former monopoly status. In fact, as noted by Heritage Foundation scholars James Gattuso and Norbert Michel, today's networks are overwhelmingly the product of investment made long after legal monopolies and guaranteed rates of return were abolished.[18] According to data from Standard & Poor's, investors have replaced the entire capital structure of U.S. telecom companies almost twice over since passage of the Telecommunications Act of 1996.[19]

TELRIC

The FCC established a pricing formula for various network elements, such as switches and loops, called "Total Element Long-Run Incremental Cost" (TELRIC). This formula, which effectively constitutes a form of price control, is based on the estimated cost of building and operating a hypothetical maximum-efficiency network. The actual rates are set by states in accordance with the formula.

The rates calculated by most states have varied wildly and have been shown to be economically unsustainable by a variety of economists. The rate formula as applied by regulators is very subjective and rarely factors in the contributions made by network shareholders to earnings, depreciation and amortization, taxes, or debt service.

10. How have federal regulations affected the telecommunications market?

Unfortunately, forced-access regulation has skewed investment incentives and undermined innovation. Most competitors have shunned investment in facilities of their own, preferring instead simply to resell the incumbents' network services they obtain at a discount, compliments of regulatory fiat.

In Wisconsin most of the telephone service billed by local competitors is actually provided by SBC Wisconsin or other incumbents. Some 85% of the lines that non-incumbents billed to their customers in 2004 actually were serviced in whole or in part by an incumbent network, up from 31% in 1999.[20]

There also has been a corresponding decline in the proportion of lines served by competitors' own facilities. In Wisconsin, local non-incumbents used their own facilities to service just 6.2% of their customer lines in 2004, down from 18% in 2000.[21]

This same dynamic is evident across the nation — an outcome that is precisely the opposite of what Congress intended.

11. What is the current status of federal telecommunications regulation?

Triennial Review Order

From a plain reading of the 1996 act, there can be no doubt that Congress intended to restrict competitors' reliance on subsidized access to the incumbents' networks. Yet the FCC crafted eligibility standards that effectively granted access subsidies to any and all competitors for the asking.

This disregard for congressional intent was recognized by the U.S. Supreme Court, which in 1999 struck down the first set of FCC regulations and ordered the agency to rewrite the access rules.

A second set of standards, issued in 1999, was likewise judged to be overly broad in 2002 by the U.S. Court of Appeals for the District of Columbia. The FCC was again ordered to redraft the regulations.

The FCC issued a third set of rules, titled the "Triennial Review Order," on August 21, 2003, on a vote of 3-to-2. Commission Chairman Michael Powell, who joined Commissioner Kathleen Abernathy in dissent, publicly excoriated the majority for "taking a politically expedient course instead of the right course."

For the first time, the rules shifted to states the responsibility for determining what market conditions would warrant subsidized access, rather than setting a federal impairment standard as Congress intended. If allowed to stand, the order would have required 50 state utility commissions to issue 50 sets of standards for determining whether competitors were eligible for subsidized network access.

To its credit, the FCC declined to require incumbents to provide subsidized access to broadband facilities, recognizing that to do so would jeopardize investment in deployment. But this recognition, while welcome, only underscored the irrationality of continuing to require forced access to the local landline network.

Once again the rules were challenged. On March 2, 2004, the U.S. Circuit Court of Appeals in Washington, D.C., ruled that the FCC had overstepped its authority. The court rejected the commission's delegation of regulatory authority to the states, ruling that "the Commission's position is based on a fundamental misreading of the relevant case law." Moreover, the court ruled that the commission "made no visible effort" to determine whether forced access is, in fact, justified nationwide. On this issue, the court characterized the FCC's findings as "vague almost to the point of being empty."

The D.C. Circuit gave the FCC sixty days to rewrite the regulations, after which the forced-access rules would be vacated. A petition to extend the deadline was filed by state regulators, along with competing local service providers. The petition was rejected on June 14, 2004 by U.S. Supreme Court Chief Justice William Rehnquist.

On June 16, 2004, the FCC rules became legally void, creating a major opportunity for reform.

Calling for an end to "legalistic bickering and squabbling," Michigan Representative John Dingell said: "All companies in the telecommunications industry should now compete vigorously, offer the new services and products that consumers want, and build the broadband infrastructure that can reinvigorate job creation."

The FCC subsequently released an outline of new network access rules on December 15, 2004. Of particular note, the commission adopted provisions to curb some forced access requirements as instructed by the appellate court. However, the commission's decision to perpetuate these requirements for incumbents' high-capacity business lines will likely provoke yet another legal challenge.

12. What are access charges?

Access charges refer to payments made by long-distance carriers to local service providers for originating and terminating calls on local telephone networks. The regulation of access charge rates is therefore a form of price control.

Prior to the breakup of AT&T, regulators established artificially high long-distance rates to subsidize artificially low local service rates. To maintain local calling subsidies after the divestiture of the Bell monopoly, the FCC crafted access charges.

In most instances, a long-distance call originates on the local network, is routed to the long-distance carrier's network and then terminates on another local network. Long-distance companies pay "access charges" to the local phone companies for carrying their calls on the local networks. The regulated access charges that long-distance companies pay range from less than one cent per minute with the former Bell companies to about 10 cents per minute with smaller, independent telephone companies.

("Reciprocal compensation," another type of interconnection pricing, is paid by one local phone carrier to another local carrier to terminate a local call on the latter's network.)

Interstate access charges are regulated at the federal level, while intrastate charges are regulated by the states. This jurisdictional division is increasingly difficult to maintain as new technologies cross federal/state boundaries. For example, it remains unresolved whether Internet-based calls should incur access charges if terminated on the local network. It was precisely the high cost of access charges that helped prompt the deployment of competitive networks like Voice Over Internet Protocol (VOIP).

Because the distinction between local and long-distance calls is increasingly irrelevant, the FCC has proposed establishing one set of rules for both types of calls, a system known as "bill-and-keep." Under bill-and-keep, carriers charge their own customers instead of other carriers for originating or terminating calls.

13. What is universal service?

"Universal service" policies are intended to make telephone service available to all households at uniformly low rates. Thus, higher rates are applied across the board to cover the added costs of providing telephone service to rural areas, as well as to provide discounted services to low-income households. While the goal of universal service is well-intentioned, the system of fees and subsidies is threatening to collapse.

The FCC first formalized a universal service policy in the 1950s. This became the "Ozark Plan," under which prices for long-distance telephone service were inflated to subsidize artificially low prices for local phone service. States had their own systems of "rate averaging," some of which predated the federal system.

Today, there exist two methods of financing universal service. There are implicit charges — that is, hidden charges — built into regulated rates. This cost-shifting is a legacy of the Ozark Plan and primarily persists at the state level.

At the federal level, the Telecommunications Act of 1996 restructured universal service subsidies as explicit charges levied on telecom companies' interstate telephone revenues. This funding stream is administered by the Federal Communications Commission, with the advice of the states.

The states determine which areas carriers must serve and their eligibility for payments from the Universal Service Fund. Nationwide, in 2002 the subsidies for carriers serving high-cost (often rural) areas reached $3 billion. Additional subsidy pools exist for advanced services to schools and libraries ($1.6 billion to $2.2 billion per year); rural health facilities ($16.5 million); and programs targeted to low-income telephone subscribers ($673 million).[22]

The 1996 act allows states to administer "explicit" universal service funds for intrastate service, as long as the state programs do not conflict with the federal system. Most states have programs for low-income residents; roughly half impose explicit charges on ratepayers to subsidize high-cost or small local phone companies.

The move to an explicit system for universal service was largely prompted by increased competition in long-distance and business phone services. The advent of competition made it much harder for service providers to artificially inflate rates. Consequently, there was less revenue collected to subsidize universal service programs.

Congress standardized the payments in the 1996 act by effectively imposing a universal service tax on ratepayers.

Universal service as a regulatory imperative has largely been rendered obsolete by the range of affordable services spawned by competition. For example, satellites and other wireless technologies can provide service to rural areas at much less cost than the traditional wireline network.

As it is, new technologies are penetrating the nation at an accelerating rate. Whereas it took 35 years for traditional telephone service to reach one-quarter of the population, and 26 years for television, it took only 16 years for personal computers and 13 years for cell phones.[23]

Continuing to subsidize higher-cost services will only undermine technological innovation by reducing demand for alternatives. And continuing to expand the eligibility for subsidies will needlessly burden families' budgets. Ironically, then, a policy intended to ensure affordable service is costing consumers dearly.

14. How does the government manage the broadcast spectrum?

Spectrum Allocation

Wireless communications are increasing in all market sectors in spite of the government's clumsy management of the broadcast spectrum. But maximizing wireless growth and innovation requires the establishment of a spectrum market.

Since the 1920s, the federal government has managed the broadcast spectrum as a scarce public resource. Spectrum licenses were awarded only sparingly by the Federal Communications Commission, which overlooked the economic benefits of more liberal allocation.

The decade-long delay in licensing spectrum for cellular telephony, for example, is estimated to have cost at least $86 billion in lost consumer welfare.[24] In 1994, the commission forecast 54 million mobile telephone subscribers by 2000, but the number actually reached 110 million by 2000.[25]

Policymakers have made only halting progress toward a spectrum market. In 1993, Congress authorized the FCC to award wireless licenses by auction. The principal benefit of spectrum auctions is not to raise yet more money for the federal government, but to more quickly put available spectrum to commercial use.

Unfortunately, the government's seemingly insatiable appetite for funds has slowed progress in spectrum allocation. Not until last year did the FCC finally issue rules on spectrum leasing to allow a secondary market to emerge. Leasing increases efficient use of the spectrum by providing lower-cost access to unused capacity.

Government agencies enjoy preferential use of some spectrum. Much of this bounty is not used efficiently. The FAA, for example, still uses wasteful analog technology, which requires more spectrum than digital transmission. But some reform is underway. In July 2002, the Department of Commerce released a plan in concert with the FCC and the Department of Defense to make more spectrum available for wireless services. In February 2003, the Department of Commerce agreed to release some of its spectrum allocation for wireless data communications. Finally, the FCC and the Department of Commerce approved the use of ultra-wideband (UWB) technology that enables broadband connections and assists in the performance of critical safety services.

Another casualty of the government's poor spectrum management is the inability of various public safety agencies to communicate directly with each other. Spectrum is allocated in widely dispersed "chunks" to different agencies. And because no single radio can access all the various public safety channels, agencies are unable to communicate collectively via radio.

WISCONSIN LAW AND REGULATIONS

15. How does Wisconsin regulate telecommunications?

The Wisconsin Telecommunications Act

Wisconsin's telecommunications law was last substantively revised in 1993. In many respects, state law mirrors the federal emphasis on "managing" competition in telecommunications. Consequently, the act prescribes access requirements, price controls, and service mandates that actually contradict the law's stated purpose of encouraging competition.

Prior to 1994, state telecom law was structured to control monopoly service providers. Rates for local service were calculated according to what regulators deemed to be a "reasonable rate of return" on service providers' investments. But burgeoning competition rendered such regulation obsolete.

The Wisconsin Telecommunications Act of 1993 introduced a new method of regulation that formulated rates based on inflation, incentives, and penalties for infrastructure investment and service quality performance. Recognizing the growth in competition for business service, the legislature suspended the regulation of rates for services to businesses with four or more lines.

Subsequently, the Wisconsin Public Service Commission also eliminated price controls on service to small businesses, as well as on in-state toll calls. Despite vigorous competition in residential services, however, the rates for basic local calling remain capped.

Conventional wisdom holds that price controls protect consumers from escalating rates. But over the long term, price controls harm consumers more than they protect them by inhibiting improvements in products and services. Most regulated rates bear little relation to the actual costs of providing services, or to basic economic principles of supply and demand. Service providers thus are forced to offset below-cost rates by increasing the prices of unregulated services.

While seemingly more flexible than rate-of-return regulation, Wisconsin's current price controls include more onerous mandates than are imposed in many other states. Service providers have been required to upgrade network connectivity and broadband infrastructure, as well as to provide service discounts to schools, libraries, and medical facilities.

To further subsidize telephone service, the Wisconsin legislature in 1993 established a state Universal Service Fund. Revenues for the fund are generated through assessments on local, long distance, and wireless firms. Payments are disbursed to telecom companies for providing services to high-cost areas and to low-income households. Grants also are available to non-profit groups and medical facilities to improve access to advanced telecommunications.

The Universal Service Fund has grown dramatically since its inception despite a decline in the state's poverty rate and the increased availability of more affordable service options. Disbursements rose from $2.6 million in FY 1998-1999 to $4.6 million in FY 2000-2001. At least three times in recent years, Universal Service Funds have been used to supplement General Fund expenditures.

16. What are the pros and cons of the Wisconsin Telecommunications Act?

The Wisconsin Telecommunications Act empowers state regulators to micromanage many aspects of telecom service. But the public interest would be better served by allowing competitive forces to keep rates low, service quality high, and the choice of products varied. Indeed, millions of Wisconsin consumers already enjoy significant choices in telecom services as a result of technological innovations that have largely escaped — so far — government control.

Price controls actually impede competition by limiting the opportunities for new market entrants. By setting rates below cost, regulators leave little room for rivals to compete on price. Competitive opportunities are further restricted by mandated subsidies for schools, libraries, and medical institutions.

Wisconsin lawmakers have followed their federal counterparts in requiring that incumbent providers subsidize their rivals by providing below-cost access to their networks at heavily discounted rates.

The state formula that has been used to calculate the rates for use of the network (called Long Run Incremental Cost) assumes that local networks consist of the least costly, most efficient technology currently available. But this hypothetical cost model, based on a similar federal model, does not reflect the actual network configuration or operating costs. Consequently, the incumbent service providers who own the network have earned less revenue with which to invest in upgrades.

17. What is the status of competition in Wisconsin?

Wisconsin regulators devote considerable time and taxpayer dollars tallying the precise numbers of wirelines and telephone service providers across the state. This method of measuring competition in local calling drives major regulatory decisions that affect investment, job creation, and service quality. Yet this type of computation is largely meaningless.

Defining competition solely in terms of wireline market shares is loosely derived from the federal Telecommunications Act of 1996. Seeking to eliminate local service monopolies, Congress directed the Federal Communications Commission to regulate the incumbent "Baby Bells" based on the degree to which rivals capture market share. Consequently, the FCC and state regulators adopted the most simplistic — and erroneous — method of measuring competition, one that excludes wireless, cable, and Internet telephony.

The consequences of this skewed approach are significant. By repeatedly underrating the degree of market competition, the FCC and its Wisconsin counterparts have secured their power to impose costly regulations that hinder telecom investment and innovation, and induce businesses to locate abroad.

Whether government should even track telecom competition is certainly questionable. The widespread availability of affordable telecom options undercuts the rationale for continued regulation. But to the extent that such tracking persists, a more accurate method should be employed.

The better alternative is to gauge the "contestability" of the market. Rather than a mere tally of wirelines, a contestability analysis would determine the actual opportunities for market entry. Simply put, a contestable market is a *de facto* open market — that is, technology exists to provide services; the investment costs are recoverable; and prices aren't likely to change in the time it takes to launch a business.

Unlike existing government criteria for measuring competition, contestability would not hinge on how many firms operate in the market at any given point in time. Nor could a contestability standard be met by the mere existence of firms created by regulatory fiat and sustained by subsidies, as is currently the case.

There is ample evidence that the Wisconsin telecom market is indeed contestable. Remarkable advances in fiber optics, wireless, and other signal-processing technologies have made new network infrastructure more affordable, and new services more price-competitive.

Cellular telephone subscriptions in Wisconsin, for example, have increased from 127,634 in 1999 to more than 2.8 million in 2004. Cable telephone subscriptions are likewise rapidly expanding. Time Warner reportedly is equipped to provide cable-based telephony to 85% of the Milwaukee market, while Charter FiberLink reportedly is preparing to reach 800,000 homes by year's end. The high-speed connections necessary for Voice Over Internet Protocol likewise are increasing. Broadband lines in Wisconsin exceeded 565,000 in 2004, up from 18,599 in 1999.

Overall, non-incumbent telecom firms now serve 35% of the residential voice-services market in the state's most populous regions. Consequently, SBC Wisconsin, the state's largest incumbent, has lost 30% of its residential lines to competitors in these areas.

As Deutsche Bank analysts observed: "The [incumbents] are facing steep declines in total access lines, caused by a sharp contraction in both primary and secondary lines, as wireless, DSL and satellite platforms continue to cannibalize fixed line connections."[26]

Recommendations for Reform

18. How can telecommunications policy be improved?

Rate deregulation. Price controls distort competition and inhibit investment. Competitive pricing would actually impose tougher price discipline on firms than rate regulation. The Wisconsin legislature should eliminate all rate regulation, and allow service providers to set prices based on the cost of service and prevailing market rates.

End regulatory disparities. All providers in a competitive marketplace should be subject to the same rules and regulations. Such regulatory "parity" should be based upon reducing regulation across-the-board, rather than imposing stricter rules industry-wide. To the extent regulation is deemed essential, lawmakers and regulators should focus only on services, not service providers.

Reform Universal Service. The Wisconsin Universal Service Fund should be eliminated. To the extent that lawmakers deem service subsidies as appropriate, a means test should be instituted and funding should be allocated from the state budget.

Hands off VOIP. The Legislature should ensure that Voice Over Internet Protocol and other broadband telephony applications remain free of all state regulation, including access charges and taxes. Local franchising of select service providers should be eliminated to encourage competition.

Reduce taxes on wireless services. Over the past five years, the cost of the average wireless plan has fallen more than 30%. However, state and federal taxes, fees, and mandates are keeping consumers' wireless phone bills artificially high. Nationwide, average consumers pay 14.29% of their cellular phone bills in taxes. Local fees and special taxes on wireless service should be eliminated.

Privatize government telecommunications services. Consistent with sound budgeting, government agencies that use the broadcast spectrum should contract with the private sector to provide communications services, enabling the agencies to take advantage of integrated digital communications without making costly infrastructure investments of their own. Municipalities and government-run institutions should be prohibited from owning and operating a telecommunications service.

GLOSSARY

19. What is a "CLEC"?

Analog	The method of transmitting voice or data as electrical signals.
Bandwidth	The transmission capacity of the analog or digital line.
Baud Rate	The speed of an analog signal.
Bits	The digits used by computers to represent data for transmission.
Broadband	Higher-speed data transmissions, typically greater than 128 kilobits per second, in which multiple signals are simultaneously sent.
Bundling	The packaging of various telecommunications services by a single provider, which may include local and long-distance calling, Internet connectivity, and wireless.
CLEC	Competitive Local Exchange Carrier. A firm offering local telephone service in competition with a former Bell company or other incumbent firm.
Coaxial Cable	Wide bandwidth copper cable deployed by cable TV companies.
Compression	Maximizing the density of data transmissions to increase transmission efficiency.
Cramming	Adding telecom services to a consumer's bill without authorization.
Dialing Parity	The ability to place calls through a competing service provider using similar dialing patterns and without dialing extra digits or an access code.
Digital Ethernet	Light-wave transmissions arranged in binary units.
LANs	Local Area Networks. A connected set of computers and related hardware within a business or campus environment.
LATA	Local Access and Transport Areas. The geographic delineation of local calling boundaries crafted by the U.S. Justice Department as a result of the AT&T divestiture in 1984.
MANs	Metropolitan Area Networks. A connected set of local computer networks.
Modulation	The conversion of analog signals to digital signals.
Multiplexing	The division of digital signals into various frequencies to allow a single line to carry multiple transmissions of voice, video, and data.
Protocols	The operating rules governing communications transmitted between computers.
Slamming	Changing a service provider without customer authorization.
TELRIC	Total Element Long-Run Incremental Cost. The formula devised by the Federal Communications Commission to calculate the fees allowed for wholesale access to the local incumbent network.
Twisted Pair	The copper wire used in the standard local telephone network.
VOIP	Voice Over Internet Protocol. Transmission of voice calls through Internet connections.

LINKS

20. Where can I find more information?

Federal Communications Commission	www.fcc.gov
Wisconsin Public Service Commission	www.psc.wi.gov
Wisconsin State Telecommunications Assoc.	www.wsta.info/
United States Telecom Association	www.usta.org

NOTES

1. United States Telecom Association, Washington, D.C., http://usta.org.

2. Federal Communications Commission, "Broadband Internet Access in OECD Countries: A Comparative Analysis," Washington, D.C., October 2003.

3. United States Telecom Association, "Statement on Early Success of Commercial Negotiations in the Telecom Sector," Washington, D.C., April 5, 2004.

4. Thierer, A., "Unnatural Monopoly: Critical Moments in the Development of the Bell System Monopoly," Washington, D.C., *The Cato Journal*, Fall 1994.

5. Ibid.

6. Ibid, quoting Michigan Public Service Commission, Citizens Telephone Co. of Grand Rapids, PUR 1921 E: 308, 315.

7. Thierer, A., "Unnatural Monopoly: Critical Moments in the Development of the Bell System Monopoly," Washington, D.C., *The Cato Journal*, Fall 1994.

8. Ibid.

9. Crandall, Robert W., "A Somewhat Better Connection," *Regulation*, Summer 2002, p. 24.

10. Reed, Lawrence, "Seven Principles of Sound Public Policy," The Mackinac Center for Public Policy, Midland, MI, Oct. 2001.

11. Federal Communications Commission, "Statistics of the Long Distance Telecommunications Industry," May 2003.

12. Federal Communications Commission, "Local Telephone Competition: Status as of December 31, 2004," July 2005.

13. Ibid.

14. Federal Communications Commission, "Trends in Telephone Service," June 2005.

15. Ibid.

16. Adkinson Jr., William F., Heinecke, Erik T., Lenard, Thomas M., "The Digital Economy Fact Book," The Progress and Freedom Foundation, 2003.

17. Ibid.

18. Gattuso, James and Michel, Norbert, "Are U.S. Telecom Networks Public Property?," The Heritage Foundation, Washington, D.C., April 8, 2004.

19. Ibid.

20. Federal Communications Commission, "Local Telephone Competition: Status as of Dec. 31, 2004," July 2005.

21. Ibid.

22. Federal and State Staff for the Federal-State Joint Board on Universal Service in CC Docket No. 96-45, Universal Service Monitoring Report CC Docket No. 98-202, 2003.

23. Cox, W. Michael, and Alm, R., "The Economy at Light Speed: Technology and Growth in the Information Age and Beyond," 1996, p. 10.

24. Crandall, R.W., and Sidak, J.G., "Competition and Regulatory Policies for Interactive Broadband Networks," *California Law Review*, 1995.

25. Federal Communications Commission, "Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services," Washington, D.C., 2001.

33. Deutsche Bank, 2Q03 Review, Sept. 2003.

The author wishes to thank Solveig Singleton, formerly of the Competitive Enterprise Institute (CEI), for assisting with the sections on access charges and universal service. Braden Cox, technology counsel with CEI's Project on Technology and Innovation, also provided valuable help on the issue of spectrum allocation.

About the Institute

The **Wisconsin Policy Research Institute** is a not-for-profit institute established to study public-policy issues affecting the state of Wisconsin.

Under the new federalism, government policy increasingly is made at the state and local levels. These public-policy decisions affect the life of every citizen in the state. Our goal is to provide nonpartisan research on key issues affecting Wisconsinites, so that their elected representatives can make informed decisions to improve the quality of life and future of the state.

Our major priority is to increase the accountability of Wisconsin's government. State and local governments must be responsive to the citizenry, both in terms of the programs they devise and the tax money they spend. Accountability should apply in every area to which the state devotes the public's funds.

The Institute's agenda encompasses the following issues: education, welfare and social services, criminal justice, taxes and spending, and economic development.

We believe that the views of the citizens of Wisconsin should guide the decisions of government officials. To help accomplish this, we also conduct regular public-opinion polls that are designed to inform public officials about how the citizenry views major statewide issues. These polls are disseminated through the media and are made available to the general public and the legislative and executive branches of state government. It is essential that elected officials remember that all of the programs they create and all of the money they spend comes from the citizens of Wisconsin and is made available through their taxes. Public policy should reflect the real needs and concerns of all of the citizens of the state and not those of specific special-interest groups.