
CHAPTER NINE

TECHNOLOGY AND TELECOMMUNICATIONS POLICY

1. Access to Broadband

Recommendations

1. City, state and local governments should not operate monopoly municipal broadband networks—either wired or wireless.
2. Encourage market forces to expand broadband service, wired or wireless, into rural areas.
3. Adopt a “hands-off” approach to regulating and taxing advances in the telecommunications and technology industries.

Background

The world marketplace has evolved into a digitally connected web of business and consumer communication. The technological infrastructure needed to support and advance the global e-commerce engine is complex and expensive. Private companies willing to risk capital on expanding the reach of broadband technology will only do so if it makes economic sense.

Policymakers should be aware that heavily taxing and regulating an industry that depends on rapid innovation stifles the research and development high-tech companies use to extend broadband access to more people. A heavy-handed taxation policy on e-commerce also drives away consumers—or causes them to seek services from alternate (often illegal) vendors.

While the number of broadband internet connections grew rapidly from 2010 to 2011, the United States overall ranks low in broadband penetration compared to other industrialized nations. The U.S. led the world in broadband penetration as recently as 2000, but since then we have fallen to 15th place worldwide.¹

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A broadband connection provides a computer user with convenient and dedicated high-speed service when using the internet, usually through a dedicated line. This is different from a much slower dial-up connection, which uses an existing telephone line to connect the user to the internet.

The U.S. lags in the speed of the average broadband connection. Despite this slower relative growth, 66% of Americans have broadband service at home. A large number of households skipped the dial-up modem stage and went straight to a high-speed internet connection.²

Policy Analysis

Counterproductive federal, state and local tax and regulatory policies hamper new investment in broadband and wireless infrastructure.³ In some parts of Washington, publicly-subsidized ventures, like Tacoma's Click! Network, are undercutting private service providers and driving away future investment. Click! received millions of dollars in public subsidies, and yet it has never fulfilled its original promises to the taxpayers of Tacoma.⁴

Overall, communication services in Washington face a higher level of taxation than most other consumer goods and services. By one estimate, telecommunication companies pay an average of 39% more in taxes than other industries.⁵ Washington has the eleventh-highest combined state, local and federal telecommunications tax rate in the nation.⁶

Reducing the tax burden on telecommunications customers would lower a major barrier to broadband access for rural residents and small businesses. It would also promote consumer fairness. Currently, when a customer signs up for a wireless or broadband connection a large number of state and local taxes are automatically imposed through monthly billing.

Unlike state and local sales taxes, these fees are not widely known, and therefore consumers are generally not aware of these added costs prior to purchasing the service.

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Expanding Broadband to Rural Areas

Rural Washington lags behind the rest of the state in access to broadband internet connections, largely because of the high cost of building outlying networks. Building fiber optic pipelines from urban or suburban transmission stations to rural communities is extremely expensive and time-consuming, given the number of new customers reached.

Several telecommunication companies are undertaking extensive broadband buildouts, but other companies are circumnavigating the physical limitations of laying new pipe or tapping existing telephone and power lines by using the emerging technology wireless data networks.

Wireless data networks come in many different forms. The most dominant technologies are LTE/LTE Advanced (Long Term Evolution) and WiMax (Worldwide Interoperability for Microwave Access). Both are capable of bringing wired-like data speeds to users—around 20+ megabits of information transmitted per second. Laboratory tests have boosted transmission speeds to over ten times that, but practical, widespread use of those speeds is still years away.

Policymakers should recognize there is already sufficient competition among private companies to provide ample and affordable internet access to nearly everyone. Municipal governments should resist the urge to jump into the market. History is strewn with examples of governments investing in outdated technology or blowing project budgets and taking from the taxpayers' pockets to cover cost overruns, as officials at Tacoma's Click! Network have done.

Some officials have tried to create public, city-wide Wi-Fi systems to provide free wireless broadband service for residents. Large cities such as San Francisco and Philadelphia, and smaller ones such as St. Cloud, Florida, and Spokane, Washington, have tried these systems with limited success. Many times the government's feasibility studies on subscription rates and capital costs turn out to be wrong, predicting much rosier results than the actual outcome and causing entire networks to shut down or be sold at a loss to private operators. The result is millions in taxpayer dollars being spent for nothing.

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There is no lack of adoption by the general public of these new improvements in telecommunications. It took more than 90 years for landline service to reach 100 million consumers. It took over 21 years for 100 million consumers to buy a color television. But it took less than 17 years for wireless phones to reach 100 million consumers.

As new technological improvements, such as VoIP (Voice over Internet Protocol), which allows affordable phone service over the internet, bolster the telecommunications industry, government officials should approach the technology with a light regulatory hand. The immense proliferation of wireless technology is the result of the landmark 1996 federal Telecommunications Act, which left the wireless industry largely unregulated.

The benefits of this wise policy can be seen in the fact that the U.S. has over 300 million wireless subscribers, with a 96% penetration rate, and that wireless-only households (homes that have no need for a traditional wired landline telephone) jumped from 8.4% in 2005 to almost 27% in 2010.⁷

Recommendations

1. City, state and local governments should not operate monopoly municipal broadband networks—either wired or wireless.

Government officials can play an important, indeed a vital, role in fostering an effective local telecommunications market, but owner and market competitor is not one of them. Running a sophisticated telecommunications and cable service is not a core function of government, and policymakers should allow private companies to build and operate these services.

2. Encourage market forces to expand broadband service, wired or wireless, into rural areas. Advanced technology and communications systems continue to expand the ability of rural small businesses to compete with businesses located in urban areas. Integral to the continued growth of rural businesses is the further expansion of affordable broadband access—wired or wireless. State and federal policymakers should reduce regulatory barriers to building broadband access to rural communities.

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- 3. Adopt a “hands-off” approach to regulating and taxing advances in the telecommunications and technology industries.** The state government should adopt a policy of reducing regulations that hamper new communication technologies, like VoIP, which evolve rapidly and offer numerous benefits to consumers and businesses.

2. Teleworking and Telecommuting

Recommendation

State government should increase telework options for state workers and establish a “best practices” approach to teleworking.

Background

The internet age has transformed many parts of our state’s economy. As companies improve the data speeds of networks that reach beyond a business or government, such as homes and schools, employees are increasingly able to seek out new and improved ways of doing their work from remote locations by using broadband internet networks to stay connected to their co-workers and managers.

Teleworking, also referred to as telecommuting, is not new. However, employees in both the public and private sectors have new and improved tools, like faster and less expensive laptops, wireless fidelity networks, broadband cellular systems and virtual private network hookups, that allow them to work efficiently from any location that has network capability.

While teleworking is not for everyone—there will always be certain types of jobs that require an office presence—managers in both business and government should re-evaluate their needs in regard to employee location and management practices, and consider the benefits of establishing a teleworking policy.

State government has the opportunity to set a “best practices” approach by increasing teleworking for state employees as part of the Commute Trip Reduction Program, a program that emphasizes carpools, vanpools and other methods of commuting.

Policy Analysis

There are many benefits to increasing both public and private sector teleworking, ranging from increased employee satisfaction and

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retention to higher productivity levels. In addition to employee morale and productivity benefits, there are important public policy benefits.

First, there is the potential for decreased traffic congestion. The Puget Sound region has notoriously bad traffic, and congestion relief is no longer a top priority for state transportation officials (see the discussion in Chapter 10 for more details).

As commutes get longer in both duration and distance, teleworking can provide an important alternative. A 2006 University of Maryland study found that nearly half of all commuters travel more than 20 miles a day to and from work, 22% travel more than 40 miles, and 10% travel more than 60 miles.⁸

Second, teleworking can have an important impact in protecting the environment. Removing thousands of Washington commuters from the highways would conserve fuel and reduce CO₂ emissions.

The same University of Maryland study found that 1.35 billion gallons of fuel, worth \$4.5 billion (at \$3.33 per gallon), could be saved if everyone with the potential to telework did so just 1.6 days per week (as of this writing, the AAA estimates a gallon of gas for Washington drivers is approximately \$3.77). Similarly, the Environmental Protection Agency calculates that this much saved fuel would prevent 26 billion pounds of carbon dioxide from being released.

The federal government took up the issue of increasing teleworking options for its workers a number of years ago. Several bills have been introduced to increase teleworking in federal agencies. In the wake of the attacks on September 11, 2001, the federal government recognized that teleworking has an added security benefit. It helps the government continue to function if it has to resort to its emergency contingency plans.

The state of Washington employs approximately 100,000 workers, and while it is not possible for all state workers to telecommute, state government should set up systems that allow more public employees to telework. In addition to its own merits, this policy would set an important example for private employers.

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Recommendation

State government should increase telework options for state workers and establish a “best practices” approach to teleworking. State government has an opportunity to implement programs that private sector businesses could emulate in order to increase telework options for their employees—thereby reducing traffic congestion and increasing energy savings.

3. Ending Cable Monopolies

Recommendations

1. Deregulate cable franchises to increase choice and lower prices for local customers.
2. End outdated local cable monopolies in favor of statewide franchises that allow more choice for consumers.

Background

New telecommunication technology is making it possible for consumers to buy cable programming from alternate sources, like telecom companies and internet providers, but government regulators insist on maintaining outdated local cable monopolies.

In the 1970s, building a cable network from scratch was expensive and risky. It made sense for local governments to use the “natural monopoly” model to get the new technology established. Like mail delivery or early phone companies, the government offered cable providers insulation from competition in return for offering universal service.

The local cable company strung wires and installed a TV box for any homeowner who asked for it. The customer paid a set price and local officials collected taxes and franchise fees. As a result, cable service became widely available and cable companies earned a secure return on the huge capital investment they made while building the network.

The cost of cable television and broadband internet access is heavily influenced by local franchise fees. The fees are imposed on private cable operators by local governments in exchange for allowing the cable operators to provide service to area customers. Between 1996 and 2010, nationwide franchise fees rose from \$1.4 billion to \$2.7 billion per year, leaving the average customer paying \$45 per year just to cover the franchise fee.⁹

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Cable companies are increasingly required to pay higher local taxes and franchise fees and to give valuable channel space to local governments for free. Sometimes cable companies are even made to deposit lump sum payments directly into city treasuries just to continue to stay in business. Cable companies have no choice but to pass higher tax and franchise costs on to their customers. This is one reason cable prices have risen three times faster than the rate of inflation over the past decade.

Policy Analysis

After nearly 40 years, local monopoly cable no longer makes sense. Cable companies still provide universal service, but for municipal officials the original purpose of serving the customer has been lost. They now see the cable company as just another lucrative revenue source, especially from high franchise fees. As the years pass, local government officials tend to squeeze this reliable money source harder.

In recent decades, the deregulation of airlines, trucking, railroads, banking and telecommunications has unleashed an explosion of innovation and choice for consumers that has made the U.S. economy the most dynamic in the world. The internet has succeeded spectacularly because government officials avoided smothering it with arbitrary rules and red tape. The government's hands-off approach means that ideas and investment flow where they are needed most, and because of it America is at the forefront of an unprecedented digital revolution.

The same dynamic will work for cable. New technologies make possible a range of programs, services and low prices that were unimagined in the past.

If full deregulation is too radical a change, policymakers should at least allow cable providers to compete within a statewide franchise, as several other states have done, so local customers would have a greater range of affordable service choices.

The statewide franchise model has been replicated in several states since the mid-2000s. Twenty states have enacted statewide franchise reform since 2005, which has led to over five million new broadband connections.¹⁰

Recommendations

- 1. Deregulate cable franchises to increase choice and lower prices for local customers.** Policymakers should build on the success of deregulation in other business sectors and free cable companies to set prices and compete against other communications providers in a normal, open marketplace. As a mature technology, cable has much to offer homeowners and businesses, and it is in a good position to compete in the telecommunications market.
- 2. End outdated local cable monopolies in favor of statewide franchises that allow more choice for consumers.** Short of full deregulation, policymakers should allow a statewide franchise in cable services. Several states have already taken steps to implement a statewide franchise system. Washington should take the same approach, so consumers can more easily gain access to emerging technologies.

4. Discriminatory Wireless Taxes

Recommendations

1. Avoid imposing new taxes or fees on wireless services.
2. Spend the revenue collected through wireless service fees on its originally intended purposes.

Background

Wireless connectivity is almost ubiquitous in the United States. There are over 300 million wireless users in a nation of 312 million people. Residents in over one-quarter of households use only their wireless devices and do not even own a traditional wired telephone. In 2010, Americans used over 2.2 trillion minutes and sent over 2.1 trillion text messages.¹¹

Clearly, Americans are relying on their wireless devices and services more each year. Unfortunately, policymakers are also relying on wireless services more each year too, as wireless tax rates in Washington state continue to climb.

A recent study reports that Washington state has the second-highest wireless tax rate in the nation at 23.5%, whereas the average rate throughout the U.S. is only 16.26%. Oregonians pay only 6.86%, and Idahoans only 7.25% in wireless tax rates. By contrast, Washingtonians pay a nine percent general sales tax, on average.

This means Washington wireless customers pay a tax rate that is approaching the level of “sin” taxes. The state of Washington currently levies a 50% per-carton tax on cigarettes and approximately 40% per unit of alcohol.

State officials are not the only ones to levy disproportionate taxes on wireless services. The city of Olympia imposes a nine percent telecommunications tax on top of the state-local sales tax. The city of Seattle imposes a six percent tax on telecommunications, using its utility tax taxing authority. Cities in Washington can impose up to a six percent

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tax on utilities but can impose higher levels with voter approval, as in the case of Olympia.

In addition to carrying a disproportionate tax burden, wireless customers are paying to backfill government revenue shortfalls. Imitating a practice common in states across the nation, lawmakers in Olympia raided the Emergency 911 account that is funded by a fee imposed on wired and wireless customers. The Federal Communications Commission reported in 2010 that state legislatures redirected more than \$100 million in 911 fees to other purposes.¹²

Policy Analysis

Why is the upward trend of higher telecommunications taxes important? The trend is significant because more people are relying on their mobile phones to connect to the Internet. Mobile phones are no longer used just for voice communication. They are now multi-data capable, meaning they can access and produce different types of data, such as text SMS (Short Message Service), MMS (Multimedia Messaging Service), email, streaming video and music, in addition to connecting to sites on the Internet.

Easy and reliable access to mobile data will only become more important to consumers as telecommunications companies develop the fourth generation of data networks (known as 4G), which will result in wired Internet-type speeds.

Traditional voice traffic is declining rapidly while data traffic is growing exponentially. Cisco research reported that mobile data traffic grew 2.6-fold between 2009 and 2010, and that in 2010 mobile data traffic was three times the size the global Internet was in the year 2000.

Reliance on mobile communication devices and services will only increase in the future. The same study by Cisco predicts that, by 2015, global mobile data traffic will have increased by 2,600% compared to 2011. There will also be about one mobile device per person by 2015, or approximately 7.1 billion devices.¹³

A survey by the Pew Internet and American Life Project says that for many people, especially for minority groups, a mobile smartphone is the primary way they connect to the Internet. In fact, 51% of Hispanics

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and 46% of blacks use their phones to access the Internet, as opposed to 33% of whites.¹⁴ In other words, minorities tend to have a greater reliance on their smartphones for accessing the Internet, while whites are more likely to have a variety of devices with which they access the Internet.

As a result, the high tax rates that wireless service customers pay have a disproportionate impact on minority citizens and lead to a dampening of demand for these services. Washington's average state and local sales tax rate is approximately nine percent, rising to nearly 10% in several urban areas. Even when the Emergency 911 fee is not counted, the problem of disproportionate taxation remains.

Policymakers should resist the temptation to join the discouraging national trend of raiding dedicated accounts funded by wireless taxes and diverting funds that should be spent on the critical infrastructure investments for which they were intended.

Recommendations

- 1. Avoid imposing new taxes or fees on wireless services.** Washington citizens pay the second-highest rate of taxes and fees imposed on wireless services in the nation. Policymakers should refrain from continually increasing taxes on this growing and vital economic sector.
- 2. Spend the revenue collected through wireless service fees on its originally intended purposes.** While some fees, such as Emergency 911, may be necessary to fund important public safety infrastructure, policymakers should not raid these accounts for the sake of funding unrelated government projects.

5. Deregulation of Wireline Telephone System

Recommendations

1. Give telephone service providers greater freedom to set prices.
2. Exempt competitive services from being regulated by the utility commission.
3. Reduce intrastate access charges on telephone calls.

Background

Intrastate Access Charges

For over eighty years, since the passage of the federal 1934 Communications Act, both federal and state legislators have regulated traditional wireline telephone service. A major focus of legislators and regulators has been to ensure that reliable, high-quality phone service is available to everyone in the United States.

However, providing phone service to urban customers living in dense neighborhoods is vastly different from providing similar service to rural customers who live far from telephone lines. The marginal cost of providing phone service to one additional home in an urban area is far less than expanding the same service in areas where individual homes may be miles apart. Therefore, the same phone service provided to urban and suburban areas would normally be prohibitively expensive to both carriers and customers in remote areas.

As part of the regulatory framework, telephone companies use a number of direct or indirect subsidy mechanisms to provide service to rural and remote areas. One of the indirect subsidies used at the state level is intrastate access charges that long-distance and wireless providers pay to smaller rural local phone providers who originate or terminate calls for them.

It was, and is, common for telephone companies to overcharge long-distance and business customers so they are able to offer below-

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market prices to rural and remote customers. This is similar to airlines charging first and business class passengers more than the cost of providing a flight so the airline can sell coach tickets for less than the cost of the service and still make a profit.

This cross-subsidy arrangement worked well during the age of monopoly wireline telephony, especially before 1984, but times have changed. Today, wireline faces stiff competition from wireless and Voice Over Internet Protocol (VoIP) services. Over one-quarter of U.S. households have dropped traditional wireline phones in favor of wireless or VoIP-only services.

Customers in high-cost service (rural and remote) areas are deprived of choices because new telephone providers are unable to match the artificially low cost of service provided by the established carriers. Customers in low-cost (urban) areas also lose out because competitive services can also charge an inflated price knowing that the dominant company must charge artificially high prices to maintain its internal subsidies.

Ideally, the cost of intrastate access charges should not exceed the cost of interstate access. The current system of high intrastate access charges and low interstate access charges should be replaced with parity and technology neutrality in call-termination fees. The current eighty-year-old regulatory system is outdated for modern technology and today's market competition. Regulations should be revised and updated to reduce the price distortions created by mandatory intrastate subsidies.

Greater Pricing Freedom

Since long-distance phone service was deregulated in the early 1980s, competition in wireline phone service has increased sharply and costs to consumers have dramatically decreased. Over 98% of Washington households now have a wireline telephone.¹⁵ The 1920s goal of creating reliable, universal telephone service in the U.S. has been achieved.

In addition, new technology has allowed new forms of communication, like wireless phones and VoIP, to be available throughout the country and to provide competitive alternatives to traditional telephone service.

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Pricing flexibility is needed for wireline providers to be able to compete with wireless and VoIP operators. An example of this need is shown by the deregulation of cable television by the Telecommunications Act of 1996. The FCC reported that in the decade following passage of the 1996 act, people living in areas with more than one cable provider, or with access to a wireless alternative like satellite TV, paid prices that were 20% lower than people in areas that still had only one cable provider.

Unfortunately, pricing flexibility has not come to wireline telephone consumers, who now enjoy a range of competitive services like wireless and VoIP, but are still paying artificially high prices for traditional wireline services.

State Utility Commissions

Washington's Utility and Transportation Commission (WUTC) regulates traditional wireline phone service in the state. It does not have the authority, and therefore does not regulate, cable television, the Internet, wireless services or VoIP connections.

The Commission does, however, continue to enforce the old regulatory regime, amended by the 1996 Act, on wired telephones. Its mission is “consumer protection for our state’s most essential services.”¹⁶ But should the commission even regulate traditional wireline service anymore, now that robust and reliable alternatives are common? Wired telephones are no longer an “essential service,” since many people no longer use traditional phones. Many people have substituted old-style telephones for other technologies that work just as well.

Starting in 2006, officials in Indiana deregulated retail telecommunications services over a three-year phase-out period. The Indiana legislature recognized that proven alternatives now exist and stated that “competition has become commonplace in the provision of telecommunications services in Indiana and the United States.”¹⁷

The Indiana Utility Regulatory Commission (IURC) still has jurisdiction over several aspects of wireline services and oversees interconnection agreements, carrier-to-carrier disputes and “carrier of last resort” matters. State policy still provides that, one way or another, all Indiana residents will have access to phone service. However, the IURC

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no longer regulates landline telephone service rates for businesses or most residential customers.

A big focus of deregulation efforts was reforming the cable franchise agreements—essentially making it easier for cable television companies to expand their customer base statewide. One of the main benefits is that cable TV companies can also provide cable broadband and VoIP services to compete with traditional phone companies. The result is increased competition and choice for consumers in all three types of service.

Several other states have enacted or have considered similar deregulatory measures. Whether the proposals have dealt specifically with removing price regulation from the states' utility commissions or other matters (such as franchise requirements or quality-of-service levels), state lawmakers are recognizing that consumers have more than one option when it comes to telecommunications providers and are better off when those providers are allowed to innovate and respond to changes in consumer demand.

The utility commission should also cede consumer protection responsibilities to, in Washington's case, the Consumer Protection Division of the attorney general's office. There is little reason for the WUTC to oversee consumer protection in certain areas, while the Attorney General's office enforces similar consumer rules in all other areas.

The commission's role should focus on its core mission of maintaining universal access to phone service and implementing the federal policies mandated by Congress. This change would streamline the consumer-complaint process and ensure uniform treatment of all commercial entities, rather than imposing separate standards for different industries.

Recommendations

- 1. Give telephone service providers greater freedom to set prices.** The days of regional telephone monopolies are over. Wireline telephone companies now face stiff competition from wireless and VoIP technologies. State officials should end outdated regulation and allow wireline providers to respond to changing consumer expectations.

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2. **Exempt competitive services from being regulated by the utility commission.** The legislature should revoke the WUTC's authority to impose price controls on wired services and regulate telephone companies under the same rules that govern their competitors in cable television, Internet services, wireless phone service and VoIP telephony.

3. **Reduce intrastate access charges on telephone calls.** Policymakers should adopt a policy of rate parity, so that intrastate telephone connection fees are reduced to the same level as interstate connection fees. This would provide equal treatment for all types of phone service and save consumers money.

6. Digital Precautionary Principle

Recommendations

1. Policymakers should consider both benefits and costs when regulating innovative technology—not just consider imagined costs while discounting real benefits.
2. Regulators should focus on resilience, rather than anticipation, when crafting rules.
3. Policymakers should direct enforcement efforts at bad actors who misuse technology, not place limits on the development of technology itself.

Background

It is becoming increasingly difficult to find any areas of industry that are not heavily regulated by government officials. Whether these fiats are handed down by distant federal regulators or close-to-home state and municipal officials, the sheer number of mandatory rules is proliferating at an alarming speed.

As the number of regulations grow, a more disconcerting trend is the type of rules being issued. Many proposed regulations take an *ex ante* (before the event) approach to regulating an industry, rather than the previously accepted practice of an *ex post* (after the event) framework. Regulators are increasingly imposing rules based on what they *think* might happen, rather than seeking evidence that a rule is needed to correct an existing, real-world problem in the marketplace.

We are seeing a move toward preventative regulations that do not rely on real scientific or economic data. We are seeing the emergence of regulations that reflect a “digital precautionary principle,” by which regulators are discouraging technical innovation by automatically assuming the cost of a new product or service will outweigh its benefits to humans or to the environment.

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Used largely in environmental policy, there are many definitions of the precautionary principle, but Harvard professor Cass Sunstein's may be the most accurate. He says:

Simply put, the [precautionary] principle counsels that we should avoid steps that will create a risk of harm; until safety is established through clear evidence, we should be cautious. In a catchphrase: better safe than sorry.¹⁸

Another characteristic of the principle is an ignorance of cause and effect. Generally, a regulation is written to offset a negative impact—social or economic—caused by a certain action. The precautionary principle turns this relationship on its head and demands that, until an action can be proved safe, it should be banned entirely.

An early definition of the precautionary principle appears in the United Nations' 1992 Rio Declaration:

Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

In other words, regulators need not rely on actual scientific or economic evidence when crafting new rules. In this view, suspected or imagined bad effects are sufficient to justify harsh limits on what people can do.

This puts the private market, which must operate under these ill-founded regulations, at a huge disadvantage. When information about possible harm to humans or the environment is not based on firm scientific or economic standards, it becomes subject to decisions made in the political arena. New regulations become subject to influence by competing politic interest groups, rather than following clear evidence or peer-reviewed science.

There are many criticisms of the precautionary principle approach to policy. Chief among them is it ignores fairly assessing the trade-off between costs and benefits in favor of considering only cost. Under the precautionary principle, no benefits are taken into account. If a technological improvement greatly improves the lives of millions of

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people but results in minor cost to others, the improvement would be banned, despite the fact that it actually would do far more good than harm.

Policy Analysis

The information technology industry is one of the most dynamic and creative business sectors in human history. It has seen tremendous growth both in the United States and around the world over the past several decades.

This industry's success is not just about dollars and cents. Improvements in information technology have created dramatic gains in productivity and a better quality of life for nearly everyone. According to The Information Technology & Innovation Foundation, advances in information technology are responsible for two-thirds of the total productivity growth in the U.S. between 1995 and 2002, and virtually all of the growth in labor productivity.¹⁹

However, government regulators are increasing their scrutiny of the information technology industry. They are subjecting it to ever more *ex ante* regulations that are based on what *might* happen, rather than on real scientific and economic evidence.

Federal Scope

At the federal level, the Federal Communications Commission is pushing for stifling “net neutrality” rules. These rules would limit how data flows on the Internet. Advocacy groups pushing for net neutrality are seeking an egalitarian system that treats all data the same—regardless of whether that data is requested by people playing the digital game “Starcraft,” or a doctor conducting remote surgery, or someone illegally downloading a movie. Under “net neutrality,” all data requests are treated as if they are equally important.

From a systems standpoint (much less economic or ideological) this egalitarian approach makes little sense and will actually make more users' experiences worse than before. As with congested freeways, sometimes the connections that carry Internet data flows get clogged with traffic. Internet Service Providers then take steps to alleviate congestion

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in order to maximize throughput and maintain high-quality service for users.

One way to improve data flow is to delay (in computers, delay is measured in small fractions of a second) low-priority information, such as an email, in favor of more high-intensity services, like teleconferencing or video streaming. The effect of receiving an email three nanoseconds later than normal is minimal—most people would not notice—while any delay in the flow of data that serves an online business meeting would create a distortion called jitter, making conversation difficult or impossible.

The FCC is pursuing a course of preventative rules to enforce egalitarianism (which has no economic benefit) based on officials' concept of "fairness," at a cost to consumers of fast, high-quality Internet services and future technological improvements.

State Scope

On the state level, the digital precautionary principle was invoked (probably unknowingly) when legislators in Washington sought to regulate a particular technology—rather than the bad actors who may be misusing the technology.

In 2007, legislators introduced House Bill 1031, which targeted a certain type of electronic communications device. The intent of the bill was to prevent unauthorized use of consumer information received from Radio Frequency Identification Devices (RFID). Because the bill was directed at a particular technology, however, it unwittingly covered the wireless phone industry as well.

The broad technical definitions in HB 1031 extended to wireless phones, and the bill drafters had no way of foreseeing the massive growth in wireless broadband services. Nor could policymakers have anticipated the emerging technology of Near Field Communications (NFC), which will enable consumers to use their cell phones as a mobile wallet.

HB 1031 itself would not have banned such technologies from Washington state, but it would have severely restricted services for businesses and consumers who currently benefit from advanced wireless technology.

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The bill did not pass, but it illustrates the dangers of policymakers attempting to place sweeping limits on the future use and growth of new technologies, rather than focusing their efforts on solving public problems as they arise.

City Scope

Probably the clearest example of the digital precautionary principle in practice is the San Francisco city ordinance that enacted a cell phone handset radiation disclosure law, despite the lack of any scientific evidence.

In 2003, San Francisco officially adopted a precautionary principle statement. It states, “Where threats of serious or irreversible damage to people or nature exist, lack of full scientific certainty about cause and effect shall not be viewed as sufficient reason for the City to postpone measures to prevent the degradation of the environment or protect the health of its citizens.”²⁰

Following this mentality, city officials passed a cell phone radiation disclosure law, despite the Federal Communications Commission, the World Health Organization and National Cancer Institute all disputing the city’s assertion that there was any link between cell phone use and brain cancer.

The city’s response? “There’s information that’s out there if you’re willing to look hard enough,” said one city spokesman.²¹ The city ordinance required retailers of cell phones to display:²²

1. The SAR (specific absorption rate) value of that phone and the maximum allowable SAR value for cell phones set by the FCC.
2. A statement explaining what SAR is.
3. A statement that additional educational materials regarding SAR values and cell phone use are available from the cell phone retailer.

The ordinance even dictated the font and font size of the display (“Arial or equivalent, no smaller than 8 point”).

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In May 2011, the city backed away from the regulation as passed and is considering an alternative regulation, one that would most likely move away from the SAR label requirement. One reason is that SAR measures *peak* radiation emission from a handset instead of the *average* emission levels. Therefore, a customer wishing to minimize radiation exposure could actually end up purchasing a handset that emits a higher average level of radiation when the handset with the higher peak rate actually emits lower overall radiation.

Regulators face a daunting challenge. They are often expected to regulate industries to protect or enhance human health and environmental safety based on incomplete facts or speculation. Allowing the precautionary principle to govern digital regulations, however, will not advance the public interest and will result in unquantifiable opportunity costs to people who benefit from new technologies.

Efforts to regulate risk out of existence are not only futile, but actually lead to new risks. Taken to its logical conclusion, strict adherence to the precautionary principle in the technology industry would rob our society and the economy of countless innovations because the known benefits of moving forward far outweigh the imagined risks.

Recommendations

- 1. Policymakers should consider both benefits and costs when regulating innovative technology.** Hiding behind anecdotal scare stories and hypothetical costs can rob future generations of the benefits of innovative technologies before they are allowed to develop.
- 2. Regulators should focus on resilience, rather than anticipation, when crafting rules.** A regulatory system that focuses on preventing any negative consequences to anyone at any time will smother innovation because no one truly knows how new inventions and investment in those technologies will pay off.
- 3. Policymakers should go after bad actors who misuse technology, not the technology itself.** Bad people often use technology to gain economies of scale when conducting crimes. Law enforcement should focus on the bad actors themselves, imposing sweeping limits on new technology and innovation.

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