

# **TELECOMMUNICATIONS: BALANCING REGULATION AND THE MARKETPLACE\***

By

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Southwestern Bell's decision to purchase two cable TV systems in Washington, D.C. underscores the dramatic changes in the structure of the telecommunications industry. As the new administration assembles its team, it is useful to consider how its philosophical outlook towards regulation will affect the U.S.'s pace and pattern of innovation. Within telecommunications, the limitations of regulatory micromanagement are obvious. Nevertheless, regulatory oversight will continue given the importance of telecommunications to the long-run performance of the economy. We need to establish state and national regulatory policies which induce businesses to capitalize on technological and commercial opportunities. Which is more likely to promote new services and network modernization in the years ahead, regulatory fine-tuning or the rough give-and-take of the marketplace?

Technological change disrupts firms and markets. Developments in fiber optics, CATV, cellular technology, and local telephone service have been so dramatic that regulators face a dilemma. Since errors of commission are likely to be identified by stakeholders who are harmed by new

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regulatory initiatives, policy-makers will be tempted to find ways to maintain the status quo among firms. The resulting errors of omission will not be immediately visible, but the public can be hurt when regulators miss opportunities for partial deregulation. Since the best mix of technologies and suppliers will not be obvious to investors or customers, regulatory rules will strongly influence the industry structure. Decisions in regulatory proceedings will be more important than outcomes in the marketplace. Ultimately, consumer preferences and corporate innovations will erode regulations that run counter to economic realities. However, inefficient infrastructure policies during the transition period reduce our economy's productive potential.

Fact: the optimal industry configuration for the year 2000 is unknown. The preferred strategies for incumbents and entrants involve convincing regulators that particular cost allocation schemes, entry restrictions, or service quality standards are required for "the public interest." While continued limitations on managerial flexibility may be consistent with innovative behavior by entrepreneurs, today's technological challenges are so pervasive that regulators probably should opt out of the role of managing competition in hundreds of emerging markets. Regulators could turn, instead, to actively protecting consumers of core services who have no alternative sources of supply, thereby letting the rewards and losses associated with new services and network modernization be borne by firms taking the associated risks.

Just as MCI served as a vehicle for cracking the long distance market, entrants in the local market have the potential to alter the structure of this industry. New firms can bypass the local loop in high density areas where rate averaging places the local exchange carrier (LEC) at a competitive disadvantage. In addition, entrants have provided secure capacity and been responsive to user needs. Currently, firms like Metropolitan Fiber Systems and Teleport provide fiber-based transport between customer premises and long distance (toll) carriers. New York and Illinois are just two states

promoting entry at the local level. Mobility (via cellular and personal communications services) and increased bandwidth (via fiber optics) also meet customers' needs. AT&T's recently-announced \$3.73 billion stake in McCaw Cellular communications represents a significant strategic alliance--allowing AT&T to link over two million subscribers in major markets. In November, MCI filed a plan asking the FCC to issue three nationwide licenses, enabling coalitions of firms to offer pocket-phone services on frequencies which differ from current cellular systems.

Incumbents and potential entrants are investing in new technologies. In 1980, public network carriers made nearly all of U.S. network investment. By 1986, large users and private networks were making one-third of network investment. The modernization of telecommunications facilities and the introduction of new services are most likely to benefit relatively sophisticated customers, primarily large businesses. However, the subsequent diffusion of technologies and services can occur rapidly, as production volumes enable lower costs and as consumers realize the advantages available through new technologies.

Of course, the case of telecommunications is complicated by the infrastructure investment required to provide advanced capabilities. This investment has multiple uses, as digital systems emerge in video, voice, and data delivery. Interoperability may require compatibility standards, but the transmission of zeros and ones provides a basis for ubiquitous availability of cost-effective services. However, rapid technological change implies rapid depreciation. Long depreciation schedules for regulated firms argue against modernization, since competitive wireless services could replace some applications before investors obtain their expected returns. How long before broadband replaces digital? And when will photonic switches be economic?

FCC investigations have attempted to establish procedures which enable non-integrated suppliers of information services to participate in these developing markets. Traditionally, regulators have distinguished between information content (the creation of data bases) and conduit (provision of communications channels). Similarly, broadcasting license policy has traditionally encouraged ownership dispersion, both to limit market power and to promote multiple sources of news and information. The same goals are partly responsible for attempts to separate communications channels providers from information services providers. Regulatory limitations on market power is one issue-- particularly from the standpoint of protocols or access points which favor the telephone carrier over other information providers. In addition, policy-makers seek to maintain multiple centers of initiative because they value diversity in-and-of itself.

The design of appropriate regulations is particularly difficult when evaluating the prices of new goods and services. People become familiar with new technological capabilities by observing their peers' benefits from a new service. Such diffusion patterns characterize new service penetration over time. In addition, some new services are valued on the basis of number in the network: a fax machine is much more useful if many others have compatible equipment. Thus, both the demonstration effect and the network size effect cause future demand to be based on current consumption levels. A sufficiently high price early in a service life cycle can result in a nonrenumerative new service.

The production learning curve is another phenomenon affecting the financial viability of network services. Longer production runs in earlier periods promote learning which tends to lower costs in later periods. Simplistic regulatory cost allocation schemes can doom a new service. Regulators could thereby reduce new product development and introduction if the demand and cost interdependencies noted here are ignored in favor of, say allocating start-up costs to the initial

period's revenue requirements. Mandated period-by-period cost recovery can be very detrimental to both suppliers and potential customers.

Regulators can argue that they are protecting rate-payers when requiring specific time patterns of cost recovery. Support for these arguments can come from unregulated providers of substitute services who desire high introductory prices for their regulated counterparts. Potential entrants can cry predatory pricing, or that other regulated services are cross-subsidizing the service in question. Excluding regulated telcos or CATV firms from new markets because of such fears could deny consumers lower prices and deny investors maximum opportunities to utilize shared inputs.

Regulators face extremely difficult policy choices in balancing traditional goals against the promotion of technological change. Incentives for innovation are needed to encourage the introduction of new services; yet, economies from new services will only be discovered if regulators are willing to risk not finding such economies. The provision of information services raises just this type of trade-off. Price caps represent one way to protect core customers without stifling new service introduction. This alternative approach to regulation establishes a base period price (which initially is derived from the firm's own costs). That price changes over time based on inflation (reflecting changes in the prices of inputs), partially offset by projected increases in productivity. Variations of price cap regulation depend on various factors: which input price index to use? how to forecast technological advances? how to alter the weights for various services? which services to include? However, the basic idea behind jettisoning traditional cost-of-service regulation is to break the link between allowed revenues and the firm's own costs: the firm retains cost savings beyond those allowed for by the productivity offset. Incentives to develop new services are greatly strengthened. Investors may face greater risks, but the reward structure is now symmetrical.

Eventually, the national telecommunications system of public and private networks will be based on fiber optics and digitized signals. One question is whether innovations increasing the bandwidth (capacity) of current LEC delivery capabilities will prove to be cost-effective in the near future. In addition, we do not know which pieces of the emerging network of networks will be radio spectrum-based. Furthermore, it is not premature to speculate on the extent to which whether telcos are likely to offer cable television and/or database services in the near future. Given their technological capabilities, we are likely to witness the transformation of telephone companies into broadband service companies. And entry by cable companies into the provision of switched telecommunications services also seems imminent. Nevertheless, the outlines of common carrier/content split are likely to continue. Whatever the industry's structure, every home and business becomes a potential customer for additional services. Just as we do not now regulate what can be plugged into electrical outlets, we will probably not attempt to constrain the uses of our future information system.

I support additional deregulation from a conviction that innovation patterns are best determined by responses to economic, rather than political, forces. Firms responding to commercial and technological opportunities will drive technological change. Given the social importance of developments in telecommunications, policy-makers must continue to monitor the situation so that captive or technologically unsophisticated customers are not unduly harmed by new developments. However important the equity concerns, the invisible hand of the marketplace has many advantages relative to the gesturing hands of the hearing room.

As reflected in the recent election, our national goals are diverse and sometimes conflict with one another. Developing mechanisms for identifying the strengths and limitations of alternative policies is probably the most important task facing our political and social institutions today. In

particular, the journalists and policy-makers who frame public policy questions have enormous power: perceived "problems" can be framed in such a way that a narrow set of "solutions" come to mind. With complex issues such as regulating telecommunications, we need to examine a much wider set of policy options.

Ours is a nation of numerous constituencies. Conflicting policies occur in many arenas either because we lack consensus on the most important objective or because we lack full understanding of the fundamental links between policies and objectives. Deploying new information technologies in telecommunications is a case in point. Plant modernization, the introduction of new communication services, and efficient pricing all affect economic performance. I have argued that we need to re-think traditional rate of return regulation. New technologies and competitive entry require new approaches to telecommunications. Historically, the *legal discovery process* of hearing rooms has tended to be more important than the *scientific discoveries* in research laboratories. The task facing policy-makers today is the development of specific regulatory constraints and general oversight procedures which allow us to advantageously use the innovative capabilities of market processes. Although we need to protect some customers who face residual market power, we should consider limiting regulatory discretion so that potential benefits are not dissipated through corporate gaming and political opportunism. President Clinton would do well to attend to this issue.