

STATE TELECOMMUNICATIONS POLICY:

WORKING NOTES FROM THE ASPEN INSTITUTE CONFERENCE  
OF SEPTEMBER 26-28, 1990

By David Bollier

This report summarizes the highlights of The Aspen Institute's conference, "State Telecommunications Policy," on September 26-28, 1990, at the River House Conference Center.

Part I is an interpretive summary of the points of general consensus at the conference. It describes what issues must be addressed if telecommunications is indeed going to play a larger role in rural development. Part II provides a more detailed, objective account of who said what at the conference. It could be considered the raw source material for and elaboration of Part I.

PART I: THE CHALLENGES AHEAD

If there is one conclusion with which everyone could agree, it is that telecommunications is "a necessary but not sufficient" condition to rural development. Communities without adequate telecommunications are not likely to develop economically, yet the availability of telecommunications, by itself, will not ensure development.

The core challenge faced by the conference was how to get beyond this modest premise. However plausible the various proposals, most of them offered only conjectural or incomplete solutions. That is because much of the research about telecommunications and economic development is fragmentary or anecdotal; because rural development occurs in idiosyncratic ways, making generalizations difficult; and because most proposals for change require other players to alter their behavior as well.

In short, any agenda for change must simultaneously deal with a broad array of interrelated problems. It is not enough to talk about one or two or even three primary strategies for

reform. A full package of strategies must be considered together. Despite this difficulty, there is reason for optimism if only because the separate "pieces" are there -- the technology, the useful applications, the latent consumer demand, the proven economic payoff down the road. What is missing is a larger, popularly understood vision of how telecommunications can boost rural development -- and how to implement such a vision.

### 1. The Telecommunications/Economic Development Linkage

One reason that such a vision has not materialized is that policymakers, businesses, schools and rural civic leaders don't necessarily see the linkage between the two. The "two cultures" of telecommunications and economic development remain strangers to each other, and therefore there is little interest in pursuing joint strategies (regulatory policy, civic cooperation, private initiatives, etc.) that might bring them together.

The lack of vision is most egregious among telcos, but also afflicts state economic development offices, state legislators and their staff, state executive branches (with the exception of administrative branches), small businesses, schools, community leaders, and residential customers. These parties often do not know how telecommunications could help them. So the first challenge may be to express a vision that brings together the "two cultures" of economic development and telecommunications, and educates each party about the other.

This means identifying the functional needs of communities that telecommunications could satisfy. It means finding new ways to make advanced telecommunications available -- which implies better marketing, user "trialability" of the technologies, new forums for discussing common concerns, changes in regulatory policy, and persuasive research showing how telecommunications can indeed foster development.

Two issues remain problematic in this regard. First, how compelling is the evidence that telecommunications can spur development? While Ed Parker's research on this issue in Washington State and Oregon showed many compelling correlations, conference participants had many suggestions for how the quantitative research could be improved. (See pp. 10-12 below.) As more is learned about this issue, the linkage between telecommunications and economic development appears to be more complex than previously thought.

A second concern is how telecommunications enhances "quality of life" (education, health care, other social services), and how this in turn may or may not affect economic development. Fred Williams and Sharon Strover presented suggestive anecdotal evidence that improved "quality of life" (services made possible through telecommunications) actually enhances chances for economic development, as measured by new jobs, new businesses and similar economic indices. But can this evidence be made more rigorous -- or are anecdotal accounts the best that can be done?

The interrelationship of "quality of life" issues and economic development is a concern that deserves further research. It also raises a larger policy question of why rural areas should have better telecommunications. Is it a matter of social equity, an opportunity for economic development, or some complex combination of the two? The connections between the two may need to be more clearly defined.

## 2. How Rural Telcos Must Change

Arguably the two most important players in rural telecommunications -- telcos and PUCs -- are also among the least innovative and far-sighted. Their shortcomings and potential new roles are described in Sections #2 and #3 -- a preface to a discussion in Section #4 on the need for new catalysts for change: user coalitions, regional alliances, leadership development projects, and programs to educate would-be users about telecommunications.

Based on their case studies, Williams and Strover concluded that telcos could assume a highly influential role in rural development, especially where they are monopolies with captive customers. As it is, most telcos are afflicted with a stodgy, monopoly mentality; are committed to conventional technologies; show little interest in creatively meeting their clients' needs, especially among business; and do little marketing and educating of their clients. Even though rural telcos would clearly benefit from economic development, most do not see how they could be instrumental catalysts.

There is evidence that telcos might respond to organized pressure from users, especially business groups. Also, PUCs could prod telcos somewhat with policy changes (such as the "serve it or lose it" policy for unserved areas within a telco's exclusive franchise). But the chief impetus for reforming telcos, most conference participants agreed, would come from injecting new competition into the field -- either

through policy reforms or private business initiatives. Most participants agreed that market forces are more likely to provide flexible, responsive telecommunications service than policy-driven solutions.

BETRS, VHF and other broadband systems have untapped potential that could be exploited immediately. And Northern Telecom has shown through its innovative marketing program that it could educate telcos about advanced telecommunications and improve their marketing efforts. It would be useful to itemize the full range of catalysts that might galvanize telcos into promoting new telecommunications.

But even granting that competition is salutary, a nagging problem persists: How to inject competition into underserved areas where the potential demand would not support two (or perhaps even one) telecommunications system? And if competition is to be the rule, how will the goals of universal service be served? (See below, section #3.)

### 3. PUCs: Markets vs. Regulation

PUCs and Economic Development. Conference participants expressed great skepticism that PUCs can or should use telecommunications policy as a deliberate tool to stimulate economic development. Some of the objections are quite basic. As Heather Hudson's survey showed, most PUCs do not have enough staff or expertise to understand economic development. Also, even with an explicit statutory mandate to promote economic development, PUCs could well find it difficult to make the best (i.e., market-responsive) choices. Numerous participants pointed out that regulators simply cannot second-guess the marketplace and predict which technologies, in what quantities, will be needed. Mandating a new "supply" of telecommunications by regulatory fiat would not necessarily elicit new demand, many participants agreed, and it could be very costly and wasteful.

Yet "letting the market decide" has its own negative social and economic consequences which cannot be ignored. Hence the quandary for telecommunications policy today: If competition and deregulation are to be the presumptive norms for providing cost-effective, responsive service, what regulatory rationales remain valid?

Regulation and universal service. There is little doubt that a regulatory role is needed to protect captive, disaggregated and low-income customers, and to actively ensure

universal service. Also, as telecommunications grows more sophisticated, PUCs will be needed to constantly redefine what capabilities are, or should be, part of universal service. There was consensus that universal service needs to be redefined, but there was uncertainty how that should be done. Should technology-based criteria be used (digital switching, e.g.), or should function-related criteria be used so that alternative, non-telco technologies could be used?

But the issue of how to maintain universal service in a competitive environment provokes a profound philosophical debate. As Gail Schwartz put it, How should a PUC determine what services should be provided, as a matter of policy, where sufficient demand does not currently exist? Her concern is that regulators might mandate costly new services that are not really needed or wanted on a universal basis.

As new technologies, deregulation and competition subvert the old regulatory regimes, a key question becomes: Who shall make the choices about new investment in telecommunications (or definitions of universal service) -- the market or regulators? Conference participants were strongly divided on this issue, mostly on philosophical grounds. The ambivalence was succinctly stated by Dale Hatfield: "I'm skeptical of regulators' ability to substitute their judgment for telcos', but I have trouble writing a blank check for such a huge technological investment."

Either choice implies a sacrifice of social equity on the one hand (ratepayers may be deprived of "essential" telecommunications) or efficiency on the other hand (regulators may mandate inappropriate technologies that needlessly raise everyone's costs). The two approaches clashed, but no feasible proposal was made as to who would be the supplier of last resort for the least desirable or least affluent customers. Or put more broadly, how would the historic goals of universal service be reconciled with the competitive marketplace dynamic, which favors cost-based pricing and abhors cross-subsidies as inefficient?

One answer may be for PUCs to more aggressively promote non-traditional telecommunications for underserved or captive rural areas, such as two-way radio and other broadband systems. If such systems are cheaper yet effective, competition and improved service could go hand in hand. This "solution" may have only limited applicability, however; competition may not help consumers who are too isolated or poor to be worth pursuing. The philosophical clash between market-oriented and regulatory approaches was aired, but no creative resolution

offered.

A recurrent concern of conference participants was how to discourage big telecommunications users from bypassing the public network and instead help build up its capabilities. While bypasses naturally affect telecommunications policies, there is little that PUCs can do to confront this problem directly. If the conference revealed anything, it is that the private initiatives of civic leaders, businesses, schools and residential consumers may hold more promise than anything that policymakers, especially the PUC, can accomplish.

#### 4. The Need for New Catalysts

A clear insight of the conference was that new catalysts for change must be cultivated. Telcos and PUCs can do much, but first pressure must build on them from the outside. The new catalysts exist on two levels: at the state and local levels.

State leadership. State governments generally show little leadership in promoting telecommunications, let alone integrating it with economic development. Authority and/or expertise is often dispersed among many agencies; expertise in the Governor's office or the legislature is typically limited; and the most of the knowledgeable players are industry voices, who may or may not have a vision that benefits the state as a whole. In some ways, the deficiencies of state leadership in this area may be unavoidable. Still, the state can be an important role in facilitating local initiatives.

One practical goal would be for state governments to centralize its telecommunications authority in one person, perhaps a telecommunications guru in the Governor's office or a state agency. This person would have the expertise and authority to convene interested parties, educate them about options, and try to broker policy solutions. The idea would be to designate a dynamic "champion" who would make telecommunications and economic development a highly visible issue. This person would be a statewide resource -- sponsoring seminars at conferences for state officials and others, convening the "two cultures" of telecommunications and economic development, testifying before the legislature and state agencies, encouraging the hiring of more telecommunications experts in state government, etc.

Local leadership. At the same time, any state telecommunications officials need to be aware that the most

powerful impetus for reform must come from the local level, preferably through coalitions of telecommunications users or regional alliances of towns seeking improved telecommunications. Where rural telecommunications has developed and become successful, it is usually due to the vision and drive of local leaders, and their strategic alliances with others, said Williams and Strover.

Local leadership brings together nonprofits, educators, corporations and others, reaping new synergies. Coalitions help build enduring political leadership and promote consideration of development issues in a community-wide, holistic manner, both of which are indispensable for economic development. They also help to aggregate demand that would otherwise be dispersed.

A larger variation of the local coalition is the regional alliance, in which a number of nearby towns with common telecommunications/economic development needs band together to seek state help, be it improved telecommunications or development assistance. Regional cooperation is a form of enduring political empowerment, which is necessary to get the ball rolling.

Aggregating Demand. Besides creating new political power, coalitions can help aggregate consumer demand, helping to make new telecommunications on the public network available and more affordable. For example, a coalition working with major users could help use its clout to persuade local telcos to upgrade their systems, thereby avoiding costly bypasses. Coalitions with major business users may not yield results, of course, because local branch managers usually do not make their own telecommunications choices. Still, community-wide pressure on major companies and local telcos can be persuasive.

By aggregating local demand, coalitions can also make more persuasive pleas for piggybacking state telecommunications systems, or for gaining access to interexchange fiber optic networks that may run nearby.

Forging both local and regional cooperation could be assisted through new constituency-building forums. These could be telecommunications conferences, hands-on training seminars, or planning sessions by major players in local or regional economic development.

Another form of aggregating demand worth exploring is the creation of new advocacy vehicles for ordinary ratepayers, whose perspective is often missing in policy discussions.

Whether it be a PUC-subsidized consumer representative or a Nader-inspired "citizens utility board" (CUB), the informed expression of consumer concerns and the aggregation of their economic demand is important. If regulators cannot second-guess the market yet an imperfect market means that actual consumer needs are not being met, such a "private" consumer advocacy vehicle could provide a solution.

#### 5. Educating Rural Players about Telecommunications

A fundamental problem is that a great many people in rural America -- businesses, schools, local government, ordinary consumers -- often do not know how improved telecommunications could help them. The technologies are often too technical; the regulatory maze is too arcane; the daily value and long-term economic benefits are too problematic.

If local coalitions are ever to emerge, or demand to be aggregated, the first step may be to educate receptive rural communities to how telecommunications could help them meet their development objectives. Some means of "trialability" of new technologies must be provided. This could be done through local telcos or new competitors seeking to market themselves; through seminars sponsored by the state telecommunications guru; or through private entrepreneurs like James Beatty who act as educators/intermediaries between the "two cultures" of development and telecommunications.

One of the most promising areas for telecommunications in rural America is education, i.e., distance-learning. The schools could serve as a focal point for building a local or regional telecommunications network. Besides educating the labor force and exposing them to telecommunications, a distance-learning system could help stimulate additional business uses of telecommunications in the area.

While it would be useful to educate rural Americans about what telecommunications could do for them, it is also true that they may have their own ideas of what applications of the technology would be most useful. To be effective, a two-way interchange is important so that any new technologies do in fact serve actual needs.

PART II: CONFERENCE HIGHLIGHTS

1. The State Policy Landscape: A Presentation  
by Heather Hudson

Hudson noted that rural telecommunications and economic development are becoming more interrelated for several reasons:

1. The structure of the rural economy is changing;
2. Rural telecommunications are changing (i.e., cellular, point-to-point radio, distance-learning, digital switches);
3. Electronic technologies are converging (computers/telephone/data transmission, etc.), forcing a new definition of basic service; and
4. States are assuming a new, more powerful regulatory role to affect telecommunications development.

While it is customary to think in terms of BOC regions, policy is set by a number of other factors, which can vary immensely: LATA regions; number of telcos serving a region; the telecommunications expertise of PUCs; and the locus of telecommunications expertise in the Governor's Office (the staffer for plans & policies; the staffer for science and technology; PUC appointees; and special task forces). What policy is made usually occurs through task forces and commissions; statewide studies; multistate studies; and conferences and seminars.

There is a void in telecommunications policy expertise in state agencies and state legislatures, said Hudson. When new telecommunications projects are undertaken, the chief instigators are usually telcos (56.2%), according to Hudson's survey of PUCs, followed by government agencies (37.1%) and consumers (6.7%).

The improvements that are made in basic infrastructure, usually at the instigation of PUCs, usually include upgrades of equipment and service such as the elimination of multiparty lines; digital switches; statewide 911 and enhanced 911; and equal access to interexchange carriers.

Some states have government networks that are useful to state administration and citizen access to government services. Chief among these states are Iowa, Minnesota and Alaska. One burgeoning public use of telecommunications is education, in

which schools share interactive video networks (fiber), point to multi-point networks (satellite), audio conferencing facilities, and computer conferences and instruction.

Some telcos have launched projects to stimulate economic development. These include UPASTCO, partnerships in education projects, telemarketing, operator assistance, SS7 in rural areas, and training.

The customary incentives for rural telecommunications improvements are three: the aggregating of demand (as in Iowa's sharing of infrastructure costs), subsidies for rural customers (as in Lifeline and Linkup America), and regulatory incentives (as in special pricing structures and policies for small telcos).

Hudson concluded by noting that telecommunications could be better exploited to stimulate rural development, but that telecommunications planning is generally restricted to state government needs. Also, there is limited expertise among policymakers and little formal coordination with rural development agencies.

Nonetheless, there are new regulatory incentives emerging; more telcos are waking up to the role they could play; and more innovative projects and strategies are being developed.

## 2. Telecommunications in the Pacific Northwest: A Presentation by Ed Parker

When rural telcos replace their equipment, most of them leapfrog from electro-mechanical switching to digital switching, bypassing electrical-analogue, which is found in most urban areas.

In his research Ed Parker began with the hypotheses that rural areas suffer an economic penalty vis-a-vis urban areas; that rural areas have inferior telecommunications; and that areas with superior telecommunications tend to have more vibrant economies. All of these hypotheses were essentially borne out by Parker's research.

The outstanding question was whether the rural "distance penalty" (i.e., the additional costs attributable to greater distances and fewer economies of scale) could be reduced by an improved telecommunications infrastructure.

To probe this question, Parker tried to see if a correlation exists in Oregon between high population density and per capita income. But Oregon has a handful of wealthy rural counties, a state-wide generalization could not be made. Also, because Oregon has less county-by-county variance in per capita income, a predictive correlation did not materialize. In Washington State, however, variances in per capita income could be correlated nearly 28% of the time with three factors: population density, residential one-party service, and the existence of digital switching. From this evidence, Parker concluded that telecommunications can indeed reduce the "distance penalty."

Several useful critiques of Parker's research emerged from the discussion:

1. In order to control for large corporate telecommunications users, whose usage might skew the numbers, Robert Pepper of the FCC thought it would be useful to correlate the percentage of telecommunications traffic to the number of users.
2. Charles Manto suggested looking at labor force participation rates because some rural counties have twice the lack of labor force participation, which suggests greater chronic and not merely transient unemployment.
3. To get a more suggestive correlation of how telecommunications might spur economic development, Howland suggested looking at Dun & Bradstreet statistics on planned business startups and subsequent income growth -- and then assessing what role in any telecommunications may have played.

Howland also suggested looking at employment growth in producer services, or specific sectors thereof, to see if any of them are telecommunications-sensitive, particularly in rural areas. Also, one could see if there were any correlations of specific services with the availability of digital switches.

4. Dale Hatfield wondered if drawing correlations between telecommunications and disposable income, rather than per capita income, would be more meaningful. He warned that wage statistics overlook income from sole-proprietor farms, which are typically rural.
5. Statistics that reflect rural distance, rather than population density, might yield better insight into the

rural "distance penalty," suggested Gail Schwartz. "You're really measuring the 'density penalty,'" she said. (Parker responded that in Oregon, at least, density and distance are highly correlated, to the extent of being virtually synonymous.)

In that case, Schwartz suggested that Parker study the "distance penalty" by looking at the distance from a single major employer or cluster of major employers, in rural counties. Also, to control for volatile versus stable-demand businesses, one could perhaps correlate economic development with types of employment. (Parker replied that that sort of analysis would be more revealing in other states than in Oregon and Washington.)

Maureen Kennedy asked conference participants what factors, empirically speaking, have been found to influence economic development and telecommunications expansion? The answers given included touch-tone service (Schwartz), the pure volume of network usage (Beatty), and access to T1, high-capacity pipe (Johnstone).

Several participants complained that the data did not yield compelling enough answers to stake out policy directions. Parker replied that statistical data can illuminate the policy process and give it a better factual basis, but that data alone will not yield answers. Ultimately, policymakers have to make value judgments.

### 3. Lessons Learned from Case Studies: A Presentation by Fred Williams and Sharon Strover

Fred Williams and Sharon Strover described their research into telecommunications and rural development in four communities: Kearney, Nebraska; Demopolis, Alabama; Glendive, Montana; and Eagle Pass, Texas. (This account of their presentation will not profile each town but will dwell instead on the conclusions drawn.) By deliberating choosing four very different sorts of towns, Williams and Strover hoped to identify any common factors that could help explain how telecommunications fosters rural development (if indeed it does). Five key conclusions emerged:

1. Branch plants of national companies are very important rural telecommunications. Although cost is the most important reason for bypassing local exchanges, branch

plants also bypass in order to obtain specialized telecommunications services that are otherwise unavailable.

2. Development takes place in very specific, idiosyncratic ways, making generalizations difficult.
3. Telcos can assume a pivotal role in rural development in areas where there is only one telco and thus a large number of captive business users.
4. Telecommunications users with common needs (schools, small businesses, nonprofits, etc.) must work together to plan community development and obtain telecommunications enhancements.
5. Local leadership is vital. Most instances of rural development were carried forward because of a local visionary, often from a non-rural setting. Telcos rarely provided leadership.

One process conclusion that Williams and Strovers came to is that rural development must be studied in an holistic, community-wide manner, because no single factor or set of factors is decisive. [Parker later warned that talk of a "holistic approach" has little popular appeal. He suggested instead talking about three categories: investment in human capital (education, health, community services); investment in physical infrastructure (roads, water, sewers, etc.); and institutional, social mechanisms that make it all work.]

"Distance-learning is the big story in the four towns," said Williams. Demopolis is "info-mating" work at pulp mills by introducing new information/telecommunications systems.

Another lesson from their research is that regional cooperation among towns can work. For example, Glendive, Montana, successfully lobbied for VA hospital. Rural towns feel so politically distant from state capitals, Williams noted, that they do not even imagine they could have an impact on state policy, which is where change in telecommunications must often originate. Local or regional pressures can get PUCs and legislatures to focus more on rural telecommunications needs. Strover added that regional alliances using extended area service can generate important additional synergies and cooperation in development planning.

Broadband services were under-utilized in these towns, said Williams. They had little economic impact, but served

primarily as public relations vehicles for getting word out to the community at large.

#### 4. PUCs and Economic Development

A major portion of the conference was devoted to how public utility commissions could serve as catalysts or advocates in using telecommunications to promote economic development. Great skepticism was the keynote.

Louise McCaren warned that the chief role that state PUCs can serve is to "get out of the way." By themselves, PUCs cannot serve as catalysts for economic development, she said, because they are "institutionally inept." PUCs should keep their eyes and ears open to those local visionaries who want to stimulate development, she said, and then (and only then) it can perhaps help them.

McCaren later elaborated that PUCs should create regulatory structures in which ratepayer prices bear a reasonable relationship to costs -- yet are affordable. Second, the regulatory structure should encourage access to telecommunications, both in terms of geographical reach and quality of services (enhanced equipment, installation, repair, etc.). But PUCs cannot accomplish much more, she warned. Just as PUCs cannot redistribute income effectively, so they cannot be vehicles to promote economic development.

On numerous occasions, Sam Simon questioned the laissez-faire, market-driven policies that McCaren and Schwartz endorse. Simon said, "I'm not willing to give up regulation as a valuable tool," citing the value of rate-averaging.

To which McCaren replied, "Regulators should not be market managers." When it comes to such questions as -- How much telecom is "necessary"? Who is in charge of deploying that technology? What is the mechanism for doing so? -- McCaren has little faith in the wisdom of regulators. McCaren agreed with Simon, however, that PUCs have a valid role in protecting captive customers from telco monopolies.

Hudson raised the issue of the basic competence of PUCs to stimulate economic development via telecommunications. In her survey of 50 state PUCs, 64% of the states said they have less than 10 professional staff people exclusively devoted to telecommunications. Eight states had 11-20 staff; eight states had 21-50 staff; and two states had more than 50 staff. Yet

even with their limited ability to explicitly promote development, Hudson emphasized that PUC telecommunications decisions nonetheless profoundly affect rural areas, mostly in terms of access to services and their cost and quality.

Gail Schwartz agreed with McCaren that PUCs have a limited ability to promote rural development. "PUCs have statutory responsibilities, and thus have limits with which they can explicitly consider economic development concerns. They can give volume discounts in particular zones, but that has virtually no impact on economic development. PUCs need broad permission to act, but not explicit instructions," she opined.

#### A. The Bypass Problem

A persistent problem in developing rural telecommunications is the bypassing of public networks by large corporate users. As Fred Williams pointed out, "Some of most dramatic economic development occurs outside of the regulatory framework." Some of the most significant bypasses have been made by Weyerhaeuser, John Deere, Wal-Mart among others. Hudson agreed: These companies are largely "invisible" to state telecommunications planners, in part because they bypass the public network.

Bill Hughes told story about a large company in Rochester, New York, which generated 40% of a small telco's revenues. The company wanted wholesale prices, aggregated demand or some special treatment, but the telco had no interest in providing special treatment. Frustrated, the company bypassed the public network, with catastrophic results for the telco. It had to petition the PUC for relief, and now economic development in the area is even more difficult, at least with respect to telecommunication-dependent businesses.

The real challenge, said Williams, is to find a way to get the big users to help build up the local loop. Are there ways to encourage them to think more about the developmental needs of their communities?

One problem is that local outlet managers rarely make the telecommunications decisions for their companies, Gerry Depo pointed out. Another problem is that big companies don't care about local towns or regional telecommunications capabilities -- just the needs of their own company. Third, local telcos are often unresponsive to major corporate users, and do not have the expertise or inclination to develop specialized services for them.

As for small businesses, they often cannot learn of other telecommunications options beyond those offered by the local telco. They don't have time to go to seminars, and the local telco does not market its services (or potential services) to small businesses. It would be useful, said Williams, to have a "systems integrator" to help small businesses learn of options, and how to assess them.

The basic problem, said Schwartz, is the unavoidable additional costs of developing rural telecommunications. "The truck is to the railroad as VSAT is to the public-switched network," she said. That is to say, the railroad spur and the public network are expensive for the single user, while the other technologies may be most cost-effective for dispersed rural users. But the railroad spur analogy is flawed, replied Robert Pepper, because there may be ways to avoid the "railroad spur" costs in telecommunications, by using new technologies.

Pepper said that the large users are going to get what they want, whether through bypasses or the public network. But small businesses, residential and nonprofits -- what about them? If investments in the public network are not made, advancements beyond plain-old-telephone-service may not occur.

On the other hand, said Johnstone, small users are becoming increasingly aware of sophisticated telecommunications options. Some are demanding services or seeking out bypasses.

#### B. PUCs and New Investment Choices

Another issue hotly debated at the conference was the role that PUCs should play in approving new investment. Simon said it is critical to examine how PUCs are making new investment decisions. "Now that rate-of-return regulation has been eliminated, what criteria are being used?" Simon noted that customers can -- and should, where justifiable -- petition the PUC to order new investment.

Barger proposed that telecommunications planners try to learn lessons from electric utility regulation. They should ask such questions as: Is there adequate demand for new investment? Is it an appropriate capacity relative to demand, and an appropriate technology? Barger cited a \$1.2 billion utility investment in new nuclear power capacity, a decision that received little PUC scrutiny of customer need or cost-effectiveness. In rural areas where there is inherently low demand, Barger urged public financing and incremental

improvements to avoid "rate shock."

But the problem of rural American is not over-investment in capacity, said Pepper, but dis-investment. It is correct to raise question of how investment choices are made, but the model of utility regulation is not the answer.

McCaren adamantly agreed that the utility regulation model does not and should not apply to telecommunications. "The only reason PUCs should consider the type or appropriateness of investment is for users who have no choices. "Once users have choices, regulations will get in the way and PUCs will be manipulated and abused by special interests, for marketplace gain." Regulators cannot manage technologies or the market, she warned. They should focus instead on risk-apportionment among users, and design the right internal incentives and structures.

With equal conviction, Simon argued that the legal basis of telecommunications and electric utility regulation are the same, even if regulatory practices differ. Regulation offers an opportunity not just to squelch new investment, he said, but to ask for new investment. To turn away from that legal right would prevent any user from forcing recalcitrant telcos to invest in advanced telecommunications. That is the biggest risk in following McCaren's advice of getting the PUCs "out of the way," Simon stressed. Without that right, needed telecommunications investments in rural areas may never occur.

Barger also replied to McCaren by saying that without regulatory intervention, low-income users all too often end up picking up the costs of modernizing the system, which essentially subsidizes other (business) users. She worries that "the telecommunications players, not the stakeholders, are determining what technologies are being deployed and who will pay."

Hudson agreed that PUCs are not hearing from consumers. "Does that mean we try to educate the grassroots -- or what?" she asked. In any case, there is a policy void here. Without meaningful leadership or advocacy mechanisms, ratepayers are effectively disenfranchised in policymaking, Simon noted. If residential ratepayers are to have their views expressed and heard, they need some effective advocacy vehicle.

Having made this point, Hudson added that the degree of regulatory intervention should depend on whether users have options. If there is only one option, the telco, users do need ways to affect investment choices. But the real need is for

new technology options to be injected into the regulatory model, so stodgy telcos and conservative technologies do not automatically prevail.

The quandary of this discussion was succinctly expressed by Hatfield: "I'm skeptical of regulators' ability to substitute their judgment for telcos', but I have trouble writing a blank check for such a huge technological investment."

But how far should regulators get involved in second-guessing the market? Schwartz agreed that it would be useful to educate economic development players, especially large telecommunications users, about their options. But PUCs cannot make micro-investment choices, she warned. "PUCs cannot optimize everyone's benefits. Markets do result in inequality, in shifting ways. There are limits to the amount of intervention that is reasonable or possible."

"Supply does not create demand, Minitel notwithstanding," she added. "What services should be available, as a matter of policy, where sufficient demand does not currently exist? That is a difficult question because it is extremely hard to ascertain what actual telecommunications needs the market will support.

Strover replied that "demand" is an artificial category in the sense that unforeseen new "demand" could emerge once a new technology is available and marketed, and in the sense that previous "demand" for "old" technologies could be re-allocated to new ones. The real need is for users "trailability" of new telecommunications, so people can make their own hands-on assessments of how the technologies can or cannot serve their business or community needs.

Howland agreed: "I'm not convinced that under-served rural areas would actually use digital switching and fiber optics." As an analogue, she cited the policy debacle of industrial parks, which have a huge and costly overcapacity. On the other hand, Howland believes that education represents a major, necessary investment for economic development -- and telecommunications could play a key role here.

At this point, Kennedy asked how one could try to integrate the supply side (as determined by PUCs) with the demand side? How could one ensure that the payoff from government intervention makes cost/benefit sense?

Pepper replied that the problem is not so much the

unavailability of telecommunications but learning how a new technology might be helpful. Perhaps competition is the best way to change things, he said. For starters, one could break the telcos' grip on BETRS if they fail to serve remote areas with it. The most promising answer is to break the monopoly mentality of the telcos and spur creative, competitive marketing.

From the discussion so far, Pepper also questioned the value of telecommunications in promoting rural economic development, noting that the money and energy might yield better results elsewhere, such as declining urban areas with similar problems. Parker objected that the lack of good telecommunications is like red-lining. The 15% of rural areas that do not have adequate telecommunications are effectively disenfranchised.

Competition is not a cure-all, said Simon, because the real problem in many rural areas is to get the first service-provider in. That's different from the problems faced by urban areas, he said. To which Pepper replied that there are opportunities for competition in small towns, albeit perhaps not in remote rural areas.

The potential for competition in rural areas can be seen in the emergence of third-party entrepreneurs and intermediaries to compete with lethargic telcos, said James Beatty. Usually these entrepreneurs have a stake in the community, which is one reason they are assuming leadership.

##### 5. The Problems with Telcos

There was general agreement that one of the chief stumbling blocks to using telecommunications to spur rural development is the local telco. As Williams put it, telcos have a "complacent vision" about rural economic development. They have a "monopoly mentality" and "no vision." Small independent telcos and coops are more alert to telecommunications-related development possibilities. "Telcos are inept beyond POTS," agreed Beatty. "They don't understand the needs of their own clients. This is beyond the reach of regulatory policy."

What might force, or enable, small rural telcos to be more innovative and to take risks? The reduction of costs for digital switching may help. So might education about how new telecommunications can deliver cost savings that are not

readily apparent.

It could be that only telcos of a certain size can or will take risks and innovate, said Williams -- something that policy might have to take account of. Hatfield agreed that some telcos are too big, others are too small, to be responsive to rural markets. Some studies should be done to assess what size is optimum.

Getting a telco to be more innovative seems to hinge on getting local decisionmakers to express their concerns to telcos, said Williams, although that is not always effective. In any case, it is clear that some mechanism is needed to bring the big players into the telecommunications decisionmaking process. Otherwise, the big users and other point-to-point users will simply flee beyond the regulatory arena, leaving the public network worse off.

If improving telco performance cannot be directly changed by PUCs, what "private" options might work? James Ewing of Northern Telecom explained how his company has helped overcome many rural telcos' lack of interest in marketing new telecommunications equipment and services. To help build the telcos' competence (and thus sell more of its products), Northern Telecom developed a program to help telcos market more advanced telecommunications systems. Ewing said that only 2% of telcos with centrex capacity had actually installed the systems for its business clients. But by giving telcos the equipment "free" for six-month and one-year trials, Northern Telecom helped increase centrex penetration by 60%. Would-be users had to actually touch and use the equipment before they would consider buying it. Ewing said that telcos must be the ones to provide leadership in this area.

## 6. Policy Goals for the Future

### A. State Telecommunications Policy

Ed Parker presented a list of state policy goals with respect to telecommunications:

1. Universal service
2. Single party service
3. Touch-tone service
4. Fax and data quality (also repair, installation)
5. Extended area service
6. Enhanced 911
7. Reduce toll charges

8. Information access
9. Public learning networks
10. Coordinate development policy

["Equal access" is not on this list because it is a federal concern.]

Parker's list of policy goals was greeted with a fusillade of criticisms and suggestions:

- o McCaren criticized this list as a set of "customer demand" goals that need to be verified, not policy goals.
- o Schwartz suggested that two policy goals ought to be "prices associated with costs" and "avoidance of rate shock."
- o Simon complained that the goals are too here-and-now, and do not explore what additional features ought to be part of universal service over time. Also, what process should there be for redefining universal service?
- o Hatfield said that "No. 8, Information Access," is too vague, because modem-quality lines is covered by No. 4 and local gateways by No. 7.
- o Strover noted that Parker's goals mix economic development with social equity. E.g., universal service and 911 are social goals.
- o Williams wondered where broadband technology fits into Parker's list of goals. In addition, Williams urged that certain "citizen information rights" be added to the list.
- o Hudson believes that mobile (cellular) communications should be on the list because of the great amounts of "windshield time" (travel) that people in rural America spend. Rural residents should have universal access (in terms of technological availability) to mobile service, said Hudson.

Parker later presented a list of five features that "universal service" ought to include:

1. Lifeline (a targeted subsidy)
2. Linkup America (a targeted subsidy)
3. Relay service (for the disabled)

4. Line extension charges ("serve it or lose it")
5. Competition

Barger complained that this list does not take account of pricing as it affects the working poor. Manto suggested that it would be more useful to define universal service as "all the services needed to do work out of one's home."

Schwartz urged a shift in policy whereby different telecommunications systems would be encouraged to see themselves as competitors to landline telcos, rather than as suppliers to them. In a competitive environment, telcos would then lose the obligation to serve everyone.

But, objected Simon, universal service requires that there be a carrier of last resort. Yet how can you mandate that in a competitive environment?

William Hughes urged that a basic telecommunications policy ought to require that "price stay close to cost. Period." Universal service should include affordable interstate long-distance, the ability to send voice, fax and data transmissions, extended area service, and enhanced 911. Quality service in terms of repair and installation are also important as standalone goals.

If these goals are to be sought through "incentive regulation," said Ed Parker, "there should be an assessment of how the money is actually spent. Incentives should be tied to the attainment of specific goals." As now practiced, however, incentive regulation is a "deal."

#### B. Economic Development Goals

On posters around the conference room, Maureen Kennedy suggested that some key economic development goals that telecommunications could promote. One goal is the aggregation of demand for telecommunications. This may be the only effective way to get the technology out, and one of the best ways to increase competition and thus better service. But Hatfield was nervous about making the stimulation aggregate demand a goal. "To me, that means bypass. The goal should be to distribute technology to the lowest consumer level."

Besides aggregating demand, another goal that ought to be pursued, said Kennedy, is the aggressive marketing of telecommunications to potential users. Rural residents, business and communities must understand the technologies and

how they can reduce business costs, improve quality of life, create new products and services and open new markets. For marketing to be successful, two indispensable changes must occur. New lines of communication between economic development, telcos, regulators and other players need to be opened (Plazak); and telcos must acquire new management interest and know-how if it is to market the available technology (Beatty).

Kennedy proposed another list of economic development goals for the participants to consider:

1. Develop telecommunications components into state business assistance programs.
2. Develop training programs/curricula for economic development professionals.
3. Identify the community college system as a node for information, training and training assistance.
4. Authorize the state office of telecommunications to act as an advocate, run interference, support deal-making and reach out to rural constituencies. (Where should this office be located?)
5. Identify a single office or other groups to sponsor fora to aggregate demand.
6. Use planning grants strategically, as carrots to help aggregate demand.
7. Develop and expand job training programs in information technologies.
8. Encourage states to promote economic development at the local level, since that is where the most critical work (especially leadership) occurs.

Sally Johnstone, like other participants, believes it would be useful for Governors to identify an office within state government that could act affirmatively to aggregate telecommunications demand. Yet others warned that any "telecommunications guru" must be fully authorized by the Governor to be a power broker, and have the expertise and stature to bring the players together. Otherwise, there is a great risk that a telecommunications guru or office will be ineffectual.

To educate state officials about telecommunications, Fred Williams notes that executive training seminars are often held at national conferences of state legislators and state officials. For their part, state legislatures would do well to hire more telecommunications experts and consider ways in which PUCs could integrate economic development concerns into their telecommunications policies, perhaps through extended area service rules, for example.

Although state government can exercise more leadership, many participants stressed that the real impetus for economic development comes from the local level. Thus a greater emphasis should be placed on "bottoms-up" constituency-building and leadership development. Local coalitions can serve not only to prod telcos, PUCs and state agencies to take action, they are more likely to press for the most appropriate, least-cost technologies.

Getting different players together seemed to be a common concern. Depo urged that some means be found to get stakeholders together so they could develop a consensus on goals and a comprehensive plan. The value of regional alliances was one finding of research by Williams and Strover. If nearby towns with similar telecommunications and/or economic development needs band together, their clout in lobbying state government and as economic players greatly increases.

One way that user coalitions or regional alliances might pursue economic development is by piggybacking interexchange fiber optic networks that may pass nearby, or through innovative users of existing state-owned telecommunications networks.

It would be worthwhile for regional alliances to consider how telecommunications can enhance quality of life in rural areas and indirectly enhance economic opportunity, said Fred Williams. Companies cannot attract top-notch managers if a county is underdeveloped and the schools are poor. Telecommunications can be a focal point for bringing the towns in a region together. This in turn can help improve the coordination of development strategies and promote regional identity.

## 7. The Future Research & Action Agenda

In moving forward with this issue, Kennedy asked the group what specific types of research would be most useful. These were among the suggestions:

REA loan-making. Hatfield suggested research into the potential role that the REA could serve to redirect its loan funds.

Telco stodginess: Why? It would also be useful, said Hatfield, to study why telcos are non-responsive to their clients. How do telco coops differ from for-profits in responding to marketplace needs? Do regulated coops act differently than unregulated coops? Are other ownership patterns significant? Do funds from large sources such as the REA correlate with telco innovation?

A technology inventory. Hatfield also suggested taking a larger inventory of what technologies and services are available, citing in particular a new IBM/Motorola mobile data system; VHF interconnections that can be more efficient and inexpensive than cellular; and BETRS, which telcos systematically ignore.

Sam Simon later agreed: It would be useful to have an inventory of other telecommunications networks such as FS 2000, inter-exchange carriers, fiber backbones, etc., so that would-be users could explore ways to tap into those networks. Such an inventory would also help highlight those areas in which radio, satellite and broadband systems would be most suited -- providing new access to remote areas or new competition to telco-dominated areas.

PUC investment decisionmaking. Simon suggested research into how PUCs actually are using their state certification process -- i.e., how are they applying their authority over new facilities investment? He also suggested an inventory of technologies available (and their capacities) in key rural areas.

The telecommunications/economic development linkage. Howland urged that future research try to document the linkage between telecommunications and economic development, using more sophisticated econometric models. Such research might yield answers as to which telecommunications industries might be most responsive to rural needs.

Business applications of telecommunications. Williams

urged more studies of the business, value-added applications of telecommunications in rural America.

Prod cable innovation. Manto said that cable television should be prodded to provide greater local cable-access programming and programming experiments. Telcos, cable and local high schools might work cooperatively in building a network, Hughes suggested.

Public planning of telecommunications financing. This is a urgent need, said Barger, because neither PUCs nor telcos are capable of undertaking this function.

Piggyback existing public networks. Johnstone suggested using existing public telecommunications networks, especially at universities or high schools, to serve as a foundation for economic development. (Yet this implies public ownership, warned Hatfield, which may not be good over the long term.)

Educate the economic development community and telcos. Before jumping to regulatory action, said Nancy Williams of GTE, why not explore this middle ground of promoting private initiatives? "Community awareness can drive changes in telcos' behavior, even in monopoly situations," she said. The same holds true for economic development professionals.

Encourage states to improve their own telecommunications network management services. This strategy, suggested by Manto, could be more rapidly and easily adopted by state governments. If the state network were seen as a potential competitive edge, it could be extended to local governments and even business. Networks exist to sell lottery tickets statewide; why not piggyback those networks for other purposes as well?

Like earlier gatherings, the conference generated a rich array of provocative ideas and pointed rebuttals. It now falls to the Aspen Institute's Rural Economic Policy Project and its associates to synthesize a new manifesto and action plan.