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The Blue Sky Dialectic: How Cable Communications Succeeded as a Business by Failing as a New Medium, 1969-1989

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CERTIFICATE OF APPROVAL

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ABSTRACT

Dozens of "blue sky" forecasts of cable communication's glorious future were made by scholars, research institutes, public interest lobbies, and governmental advisory bodies in the late 1960s and early 1970s. Because cable could carry a greater number of video signals than the broadcast spectrum and was capable of bi-directional communication it was siezed upon as a means to alleviate problems such as social alienation and political disempowerment. However, interactive cable failed to develop as expected. Through an analysis of critical events, this thesis assesses the cycle of enthusiam and disappointment--each time conducted at a higher technological plane--that characterizes the history of cable-based interactivity. It concludes that the periodicity in interactive service development is the result of events that determined the evolutionary course of cable's regulatory regime. Thus both regulation and competition have in their turn alternatively been the forces behind interactive service development.

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It is not technology that will shape the future of telecommunications in this country. Nor is it the market. It is policy.

-- John deButts, former Chairman of American Telegraph and Telephone[1]

As for diversity of ideas and the opportunity to search for truth--leading values in the liberal theory of the cultural marketplace--the corporate order systematically undermines it. Technology opens doors and oligopoly marches just behind, closing them.

-- Todd Gitlin, former President of Students for a Democratic Society[2]

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[1] Wilson Dizard, The Coming Information Age (New York: Longman, 1982), p. 123.

[2] Todd Gitlin, "New Video Technology: Pluralism or Banality?" democracy Volume 1, Number 4 (October 1981), p. 70.

Chapter I
Introduction

Statement of Problem

America, it has been said, is not so much a place as an idea, and central to this idea has always been the concept of modernity as the progress of human capabilities. Perhaps the most enduring myth in this culture built around modernity and progress is an unshakeable faith in the future--that it will be cleaner, brighter, more beautiful, more democratic, and produce more of the goods an increasingly wealthy populace desires, while maintaining "liberty and justice for all." The collective enthusiasm of Americans has been transferred in part from the drive to conquer physical frontiers in the 19th century to the pursuit of technological ones in the 20th, but the faith remains. Successive generations have in their turn placed their confidence in electricity, telephones, automobiles, radio, television, nuclear power, and now computer technology as the vanguards of a more perfect order. The realization of this vision, however, is always imminent, receding around the corner, forever slightly ahead of us.

At one time the cable communications industry was the beautiful baby of this American technovision. Cable was supposed to be the technology of cultural pluralism. Coaxial cable's enormous capacity relative to standard copper wire, and its ability, unlike broadcast television, to carry a return signal from a subscriber's home were the technical bases of the cable faith. In the last years of the 1960s and the first few years of the 1970s it was forecast that cable would deliver programming and computing power that would make information and education cheap, plentiful, and easily accessible. While there would always be a scarcity of broadcast frequencies due to the physical

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limits of the radio spectrum, cable was free of these constraints and could deliver video programming that was more specialized and localized. In this way cable would give viewers a broader range of entertainment and informational opportunities, or so it was hoped.

The cable industry is now mature. While there were only 70 systems in the US in 1950 serving just 14,000 subscribers, there are now more than 8000 systems serving 45 million subscribers, or over half of all American households with television.[3] Cable has been a smashing financial success. From 1974 to 1980 Cablecast Newsletter's index of cable operators' stock shares multiplied an incredible 31 times--from $2.65 to $82.99. Between 1979 and 1981 alone the stock of the six largest "pure" cable companies appreciated more than four times faster than the stocks of the 400 companies included in the Standard and Poor's index.[4] And cable's performance is continuing. The costs of bidding and the capital costs of building systems are becoming less burdensome now that virtually all major cities have awarded franchises. Industry revenues are almost five times what they were in 1980, having climbed from $2.34 billion in 1980[5] to $11.4 billion in 1987.[6] This has been reflected in the enormous increase in the value of cable properties. Systems were selling in 1988 at 12 times estimated cash flow, as contrasted with 8.5 times first year's cash flow in 1980. On a per subscriber basis systems that were

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[3] Broadcasting/Cablecasting Yearbook and Cablevision, July 4, 1988, p. 56.

[4] Donaldson, Lufkin, and Jenrette, The Cable Television Industry (New York: author, 1981), p. 3. Hereafter cited as DLJ.

[5] DLJ, p. 5.

[6] Celia Capuzzi, "A Rosy Future but Proceed with Caution," Channels 1988 Field Guide, p. 100.

valued in the range of $500 per subscriber in 1980 were worth in the range of $2000 per subscriber in 1988. Cable's revenues from advertising, estimated at $30 million in 1980 surpassed the $1 billion mark in 1987.

In the last twenty years cable has unmistakably been a financial success. Its unique technical capabilities, however, were left on the drawing boards. While there have been programming innovations carried via cable, cable has become primarily an alternative delivery vehicle for video programming to mass audiences on the model of broadcast television. Why did the dream of cable as an interactive medium fail to become reality? Can the failure of interactive cable be attributed to the failure of regulators to guide the industry with a firm hand? Or is the failure due to the disinterest of industry decision-makers to follow this path of development or their attraction to other revenue sources? Does blame lie instead with consumers who failed to make the first interactive cable services commercially successful? Alternatively, is cable as a technology simply badly suited for the delivery of signals in two directions? Or were those who forecast blue skies for cable's future development simply overselling the medium's potential?

Each of these processes--technological innovation, regulation at the national, state, and local levels, the financial maturity of the industry, the intensive lobbying of those who sought to make cable a vehicle for the solution to social problems, and the response of consumers to interactive services--provides part of the explanation. This thesis critically reviews the history of cable television in the United States in the last twenty years and analyzes the interrelationship of these processes. It will compare and contrast the competing explanations for cable's development along the lines of broadcasting and assess the critical decisions and influences upon the

industry's development that led its current status as an essentially one-way medium.

Significance and Scope of Problem

The failure of the cable television industry to take on the social role prescribed for it by the public interest lobby provides two important lessons on the interrelationship of the actors involved in the introduction of new communications technologies.

Most other technologies may be adopted by individuals without regard to the decision reached by other individuals. Acting alone, they assess the relative advantages of adoption versus nonadoption and then respond. Technologies of communication, however, are fundamentally different because generally they must be adopted by groups rather than individuals. And if the technology is built around providing an electronic pathway for social interaction it must also achieve a critical mass of adopters before it becomes useful for this purpose.

The creation of a new medium for interactive communication thus requires the active coordination of service creators and hardware developers so that standardized communicating devices can be placed in people's hands at the same time a set of applications of the technology has been conceived of and communicated to these potential users. In the case of the only mass scale interactive medium yet developed in the US--the telephone system--this was accomplished by concentrating ownership of all elements of the network in a single company run as a monopoly. The required coordination, therefore, was accomplished in a very direct way. Even with a heavily concentrated industrial structure the integration of technology, services, and a large base

of users was not accomplished quickly. It took more than two generations for the telephone to become widely accessible in the US.

The cable television industry presents almost the mirror image of the telephone industry. It is not highly concentrated and systems were not originally designed for interconnection or for interactivity, but for the passive retransmission of broadcast signals. Thus, with the development of an interest in interactivity both the structure of the industry and the design of the existing networks themselves mitigated against large-scale coordination.

This coordination might have been accomplished by the government, but the case of cable television shows just how unsuited the American government is for this purpose. Although decentralization by function (executive, legislative, and judicial) and by jurisdiction (federal, state, local) may uphold other important values, in the management of technological innovation this division makes coordinated action virtually impossible. The American government apparently lacks the institutional capabilities to act with intelligence and dispatch in the management of technological innovation.

The case of cable television presents an example in which social and political goals were explicitly articulated and strongly associated with a well-stated set of technological objectives. However, the policy-making apparatus was too weak to realize those objectives. The power of private decision-makers was such that goals other than those related to the financial performance of cable television companies were subverted. The capacity of the American government to promote technological innovation to meet other social or political goals in other areas when the goals are less well-defined is therefore called into question.

Therefore the diffusion of innovations in communications media is far

more complex than the simple linear diffusion and adoption model in which the relevant actors are individuals making purchasing decisions. In the case of the diffusion of innovation involving interactive communications a substantially more complex model is called for.

The process of innovation in the cable television industry is enlightening in another sense as well. The political battle over building interactive capacity in cable systems did not proceed in a direct, linear way but was characterized by a cyclical pattern of enthusiasm followed by disappointment. Invariably a period of great hopes for the future of cable as a bi-directional medium was followed by an event or action that scuttled this enthusiasm, after which it was once again resuscitated and the pattern renewed. This has happened several times in the last two decades, although each time the debate has been conducted at a more advanced technological level. What is interesting about it is that apparently different forces are at work at different times in provoking the development of interactivity. It would appear that the adoption of innovation in this industry is a dialectical process rather than a unidirectional one.

Focus Questions

This inquiry will follow three related sets of questions to try to unweave the roles of each group of actors in explaining cable's failure to develop interactive services.

1. Historically, the hopes of reformers, social scientists, and governmental agencies that cable could serve broader social purposes rather than as an alternative means of accumulating mass audiences have been opposed by industry decision-makers. They have seen such requirements as an unnecessary burden

and have argued instead that the removal of regulatory obstacles would bring about the desired technological innovation more quickly than direct intervention. The public interest lobby has argued for more direct means of accomplishing social objectives through, for example, specific design requirements for cable television systems.

The first question then concerns the nature of the relationship between financial performance and the development of interactivity in the cable television industry. Does it appear that interactive development is enhanced by successful financial performance? This is closely related to the second area of inquiry, which is concerned with the role of regulation in bringing about interactivity.

2. How have the public interest lobby and the industry competed in the regulatory arena over interactive services, and with what result? Even after regulators were captured by the public interest lobby and converted to their agenda the demands of capital markets for robust and rapid financial performance led the industry's decision-makers away from interactivity and to investment in other areas. Thus, by failing to serve the essential and primary goal of maximizing return on dollars invested the unique technical capabilities of cable as a technology were eliminated despite the opposition of regulators. This is seen most clearly by the reduction of the power of municipal regulators as a result of the Cable Communications Policy Act of 1984. After the passage of the Act and the diminution of the power of local franchising authorities virtually all development of interactive cable came to an end.

3. Yet, even with the success of industry decision-makers in getting out from under regulations mandating the development of interactive cable the vision

did not go away. It becomes a critical element in the competition between cable operators for lucrative municipal franchises in America's major cities. What accounts for this periodicity in interactive cable development? Why is the process cyclical rather than linear? Why isn't there simply one battle after which cable either adopts the one-way or two-way visions of cable's future and then proceeds along that path? What accounts for the continual renewal of the interactive cable vision?

Assumptions and Limitations

The key critical assumption is the definition of the "public good." To public decision-makers, scholars, and activists this can be defined outside of market interaction. To business decision-makers it cannot be defined except by competition within a market of buyers and sellers. This thesis will adopt the perspective of those who believe that a public interest may be served that is not expressed in a commercial relationship. The decision on the framework or platform upon which cable services are built--the network and its capabilities--is the essential one for the kinds of functions that will be built into a cable system. This decision is made well before there is any meaningful action by consumers in their role as purchasers of cable services. The earlier point of intervention sought by consumers, government officials, and others is because the capabilities of the cable system are decided at the point of design and construction. While they argue that there is a public interest in cable systems capable of subscriber-to-subscriber interaction they cannot, however, cite evidence as compelling as the verifiable and certain consumer demand for one-way video entertainment. Thus while they argue a public interest in interactive services this claim is, from the perspective of

industry decision-makers, on very shaky ground.

What is important is not an objective evaluation of who is correct in their definition of the public good. What is crucial is that the government-academic-public interest lobby perceived in the late 1960s that the public interest was associated with interactive cable and that this interest was clearly stated and forcefully pursued. Those outside the industry clearly lacked the power necessary to guide its development along the lines they envisioned and realize their conception of the public good. This self-definition of the term is the essential point, not that they were right or wrong to identify it with a particular set of technical criteria for cable systems.

This disagreement over the concept of the public good carries over into a dispute over the concept of "success." To the public interest lobby success may include services that failed to gain broadscale consumer acceptance but nonetheless showed promise in meeting other social goals. To cable operators, on the other hand, success is defined as profitability. The term will be treated gingerly due to this fundamental dispute. No objective evaluation of success will be sought other than the definition used by each group of actors.

The other key limitation of this study is the scope of the definition of "innovation." While there has been innovation in the cable industry it has been innovation of a particular type. It is possible to argue that the development of new services has proceded along the lines of those services most commercially viable, which simply were not the services desired by the agencies and organizations that in its early years looked to cable as a vehicle for social goals only marginally related to television. Thus the important limitation is that here we are using a particular path of develop-

ment--interactivity--as a way of measuring innovation when it is but one path. It is important to recognize, therefore, that there have been other areas of innovation in the industry. Interactivity, however, has not been among them.

Definition of Terms

The most important concept is interactivity, which here will be taken to mean the presence of some consumer-controlled component that either allows signals and messages to be sent to the system's headend (central point) or to other users of the network. An electronic medium for human communication that includes some bi-directional (two-way) component is an interactive medium. Interactivity will range from that which is implemented by rudimentary polling mechanisms that gather short yes/no or multiple choice responses, to systems built around terminals that allow textual communications between individuals to which the system operator is not a party. The latter systems, which also allow navigation through an online service composed of text and graphics is commonly called videotex, a word that has fallen into some disfavor but will be used here. Systems in which video signals may be sent in two directions will be considered as lying beyond this definition of interactivity, although they of course are interactive. The use of cable systems as a "last mile" conduit for traditional voice telephone services will also not be considered within this definition, although this too is interactive. Neither two-way video or cable-based telephone services have ever been sufficiently widespread as to figure significantly in the interactivity that may be made available with cable communications. Hybrid telephone/cable interactive mechanisms, in which the downstream path is provided by the cable system but the return channel is provided by the telephone network, will be considered within this

definition, although this technical configuration is quite recent and does not figure historically in the battle over bi-directional cable. Systems in which video, voice, and data communications may travel in both directions are called broadband networks.

The vision in which cable is seen as an interactive medium has become intimately connected to the pursuit of technologically-enhanced forms of political participation, or teledemocracy. Teledemocracy will be used as the catch-all phrase for the image of the wired city in which individual alienation and powerlessness is diminished by the establishment of a new medium that breeds cooperation, communication, and empowerment by virtue of its interactive design. Not all of the literature concerned with teledemocracy includes cable television as its means of implementation, although much of it does.

The following chapter will review the research that has been conducted on cable television as well as interview that literature for its coverage of regulation as well as for interactivity. The literature on teledemocracy will also be reviewed in detail. Next, the means by which we may explain the cycle of birth, death, and rebirth of two-way cable will be assessed and a single method chosen and evaluated. Then that framework for analysis will be applied to the last twenty years of the cable industry's development to see if the causes of interactive cable's fate can be separated and evaluated. Finally, we will discuss that analysis and draw lessons from it.

Chapter II
Review of Related Literature

The literature on cable television can be classified as falling into one of three categories: predictive, descriptive, or evaluative. They will be taken up in reverse order. Since the goal of this research is to explain the dynamics involved in the development of cable-based interactivity this chapter will begin by reviewing the ways other scholars have sought to evaluate cable television with an explicit analytic framework.

Scholarship that has been essentially descriptive, that is to say without a theoretical framework for evaluation, or focused on a particular aspect of cable will be used in the second part of this chapter in exploring the key themes of this reseach. These first of these themes is the evolution of the regulatory framework for cable. The second theme is technological innovation in general and interactivity in particular. Teledemocracy and its relationship to cable will also be reviewed, although it draws on sources much broader than works written specifically about cable television.

Finally, because a detailed evaluation of the forecasts of cable television's future development is so critical to this research it will be reviewed only after the methodology for its analysis has been discussed and selected. Thus, anything written to serve as a prediction of cable's future has been deferred until after the framework that will be used for evaluation in this research has been made explicit.

A. Evaluative Research on Cable Television

Five scholars have attempted to evaluate cable television as a medium and as an industry. Although there is a much larger number of investigators

who have analyzed individual elements of the industry these are broad attempts to develop a framework for analysis of cable in its entirety. By what criteria have these scholars evaluated cable?

Several evaluations follow the school of critical analysis by conducting philosophical inquries. Seymore Mandelbaum, for example, attributes "the poverty of the cable experience in the USA" to the failure in American culture to treat cities as "deep communities of mutual obligation." He acknowledges his own membership in "the first generation of academic enthusiasts for the broad social promise of cable television" that "dreamed of multi-purpose broadband networks as the central technical element of a synthetic conception of urban communication." Yet, despite the industry's failure to live up to those early dreams "fantasies of its potential persist."[7]

Cable's failure to develop into broadband networks cannot only be attributed to the roles played by "power, capital, and authority" but also to the inability of the original enthusiasts to germinate an intellectual tradition on American soil. What was at stake, according to Mandelbaum, was the image of urban polities "in which claims of obligation and loyalty rather than the threat of exit are the coins of influence," and in which

> civic institutions and rituals cultivate the sense of a corporate entity whose members are bound by a commitment to rules and to each other in a way which tempers short-term calculations of interest.[8]

However, this vision of the role and function of the urban community has not been politically potent in the US, a fact that inhibited the efficaciousness

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[7] Seymour Mangelbaum, "Cities and Communication: The Limits of Community," Telecommunications Policy Volume 10 (1986), p. 132.

[8] Ibid, p. 137.

of the wired city enthusiasts as a political force:

> The resistance to the creation of deep bonds of mutual obligation has, however, been very powerful and (at least until now) has prevented the emergence of the idea of an urban communication infrastructure and its institutional complements.[9]

Although broadband networks including "an audience response through a return loop" could be built "to support rich dialogic processes intimately connected to action--the essential requirements of a deep community" institutions on the national and local levels "have been very reluctant to realize these potentials."[10] He concludes, however, that "the game is not yet over" because the advance of the technology and the franchising processes will continue to bring together broader social concerns than the profitability of a cable operator.[11]

Another critical analysis, Thomas Streeter's inquiry into what he calls "the discourse of new technologies," is also close to the approach taken in this research.[12] Drawing from the continental traditions of semiotics and structuralism, he uses the term discourse to refer to "systems of representation that order social life and provide a framework for comprehending social acts and events."[13] He analyzes the "pattern of talk common in the policy-making arena around 1970" and finds that

> a new way of talking and understanding became attached over the home delivery of television signals by wire, and this in turn

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[9] Ibid, p. 138.

[10] Ibid, p. 139.

[11] Ibid, p. 140, 138.

[12] "The Cable Fable Revisisted: Discourse, Policy, and the Making of Cable Television," Critical Studies in Mass Communication Volume 4 (1987), pp. 174-200.

[13] Ibid, p. 196.

echoed back on developments in the field of media policy.[14]

He finds that this discourse "made a concrete, if modest, difference" by creating "a sense of expert consensus, of unity and coherence where there actually was a variety of conflicting motivations, attitudes, and opinions."[15] This discourse

> inspired a sense of urgency, of possibility, and of a need for action, for response. By creating a terrain for collective action while simultaneously obscuring underlying conflicts, the discourse of the new technologies played a central role in galvanizing the FCC's reversal on the CATV issue.[16]

As he shows, cable was characterized as having

> the potential to rehumanize a dehumanitized society, to eliminate the existing bureaucratic restrictions of government regulation common to the industrial world, and to empower the currently powerless public."[17]

While the delivery of a multiplicity of programming sources, some of them locally produced, was important to this vision, Streeter shows that "central to [the] argument was an enthusiasm for the two-way or interactive potential of cable television."[18]

However, instead of being able to realize their vision, Streeter shows that the enthusiasts were used by cable industry policy-makers in their battle with the dominant broadcast television interests. He shows how a coalition of five groups came together to lobby for the young medium including the industry itself, economists concerned with regulatory problems, liberal elites seeking

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[14] Ibid, p. 174.

[15] Ibid, p. 175.

[16] Ibid, p. 175.

[17] Ibid, p. 181.

[18] Ibid, p. 180.

an alternative to the system of commercial television, policy-makers dealing with the management of communications policy, and progressives searching for forms of communication that were more democratic than the prevailing system.

Among these groups only the cable industry itself benefitted from the discourse, which "loosened the regulatory framework at strategic moments, allowing cable to be ratcheted gradually into its place between the usually calcified, tightly joined elements of the corporate industrial system."[19] Streeter does not conclude that the industry was able to manipulate the debate to serve its own ends, although "it nonetheless served the industry much more effectively than it did the social and democratic ambitions that helped generate the debate."[20]

Finally among the critical analysts, Patrick Parsons applies Anthony Gidden's theory of "structuration" as a framework for the study of cable in the United States.[21] He characterizes the battle over cable's social role as first one of definition, which

> flow not from the technology itself but from the struggle of directed agents seeking to reify and associate with the technology a given set of functional characteristics.[22]

The definitions thus reached play a major role in determining the way policy-makers will mold the regulatory environment, according to Parsons.

In Gidden's model social systems are not seens merely as frameworks constraining social action but also as products of this action. The analytic

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[19] Ibid, p. 195.

[20] Ibid, p. 196.

[21] "Defining Cable Television: Structuration and Public Policy," Journal of Communication Volume 39, Number 2 (Spring 1989), pp. 10-26.

[22] Ibid, p. 1.

stress, says Parsons, "is placed on social behavior and more specifically on the purposeiveness of individuals in situated space."[23] Giddens accepts the Marxian objective of revealing invisible patterns of dominance but rejects of social theories such as Marx's historical materialism. Gidden's structuration rejects dialectical models as too deterministic. Change is seen as a "vibration of social activity" that is bound by the system norms of a particular place and time as well as produced by "the purposeful interaction of individuals."[24]

In Parson's application of structuration to an understanding of cable television policy he begins with an exploration of the framework of interaction, citing the FCC, Congress, and the courts as the relevant actors. Missing from this analysis, significantly, is any mention of the role played by local governments as franchisors, a notable omission. He then focuses on the "definitional evolution" of cable television. Existing at first as merely a technological adjunct to broadcast television, the conceptualization of cable began to change when it began importing signals into areas where they were not available over the air. Parson's then characterizes the conflict between cable and broadcasting interests as one over the "definitional paradigm" that would rule cable.[25]

As Parson's shows, cable operators themselves sought a definition of their facilities as extensions not of the facilities of the broadcasters but of the equipment owned by recipients of the broadcast signal, a position

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[23] Ibid, p. 11.

[24] Ibid, p. 12.

[25] Ibid, p. 18.

required by the fear of having to pay copyright fees if defined as a programmer. He observes that

> the designation and promotion of CATV within such an analogy was not a serendipitous event; it was an action planned by knowledgeable agents for specific political and economic purposes.[26]

He views the rise of the "blue sky" vision of cable as a broadly accessible information utility as a new definitional paradigm within which cable had to operate, although not one of the industry's own making. And according to his analysis this definititional struggle continues to the present day, constituting the "dialectic of control."

Parson's concludes that this framework, by rejecting the primacy of the social or technical structure and underscoring the role played by active agents, shows how definitions of structure come to be created and re-created.

Kenneth Laudon adopts a more empirical approach to the evaluation of cable.[27] Although he offers no theoretical framework within which to evaluate cable, he identifies seven criteria by which to judge how well the industry has performed: independence, business uses, information retrieval, accountability, programming diversity, interactivity, and political participation. He concludes that cable's increasing integration into the mass entertainment industry has replaced the vision of the industry as a small scale, independent provider of alternative programming for specific audiences. Cable has proven unable to compete with the telephone network in the delivery of information or business services. Interactivity failed to attract additional subscribers and despite some programming innovations like C-SPAN, cable's impact on political

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[26] Ibid, p. 20.

[27] "The Wired Society: Promise and Performance," paper for the Annenberg School of Communications Washington Program, July 12, 1984.

involvement has been minimal. He concludes that cable will "follow the path of broadcast television which is to rely upon mass audiences, low programming diversity, and high levels of economic and institutional concentration."[28]

Finally, another empirical work is William Dutton and Thierry Vedel's comparative analysis of the industry. Dutton and Vedel use the idea of an "ecology of games" developed by Norton Long to critique both the pluralist and elitist approaches to politics.[29] In Long's model, events are often the consequence of unplanned and unanticipated interactions among somewhat independent "games." Individuals make decisions based on relatively narrow roles and seldom with an entire community of interests in mind.

> In Dutton and Vedel's application of this model to cable they attempt to identify the central games, players, or contenstants and their attempts to shape the outcome of each contest by definition of the issues in order to change the scope of the conflict or change the nature of cleavages that determine how the players choose sides.[30]

They find that in the case of the U.S. games such as partisan politics were relatively unimportant while first amendment and anti-trust rules as well as cable's initial definition as an adjunct to broadcasting are the most important rules determining the industry's development. Similarly, while revenue considerations (cable as a source of income for the government) and cultural policy goals have been important in the European context they have not been as influential in the U.S. Cable policy in the U.S. has been reactive, putting government in the position of mediating and legitmating agreements reached by

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[28] Ibid, p. 28.

[29] "Comparative Politics of Cable Television: A British, French, and U.S. Ecology of Games," paper presented at the 1989 Annual Meeting of the International Communication Association, San Francisco, CA, May 1989.

[30] Ibid, p. 12.

non-governmental actors. They conclude that the current configuration of the industry are due in large measure to an ungoverned, uncontrolled, and largely unpredictable decision-making framework.

B. Relevant Themes in Cable Scholarship

The remainder of what has been written on cable television is focused on a few key areas, the bulk of which is concerned with two areas that are not developed in this research. Neither programming nor audience effects research are relevant to this investigation, except peripherally. The most important area of investigation for this analysis is the work concerned with cable regulation and economics in general and with the franchising process and the Cable Communications Policy Act of 1984 in particular (hereafter referred to as the Cable Act). This exploration of cable's regulatory environment has been an attractive area for research in part because cable, alone among all the technologies of communication in the U.S., has been regulated at each level of government. Occasionally these different levels of government have been at cross purposes with one another. Following a review of this area we will take up the literature on innovation in general and interactivity in particular, then explore that which has been written about teledemocracy.

1. Regulation/Economics

Works in this category can be placed in three subcategories. First are general investigations of cable regulation and economics. The next are those works concerned with franchising and the process of regulation on the local level. Finally there is a growing body of literature specifically looking at the impact of the nation's first and only major policy statement on cable, the

1984 Cable Act.

a. General

A large number of books and articles on regulation and financial performance of the cable industry exist. Among the most interesting are those by Don LeDuc because his 1973 contribution to this literature, Cable Television and the FCC,[31] was one of the earliest scholarly works to call for deregulation of cable and his 1987 work, Beyond Broadcasting: Patterns in Policy and Law,[32] was among the first to acknowledge the limits of deregulation and call for a certain degree of reregulation.

In LeDuc's 1973 investigation the history of cable regulation is told in great detail up to the Third Report and Order (1972), called by Broadcasting "the FCC's magnum opus on CATV." The FCC's interest in regulating cable and its authority for doing so were in question throughout the industry's early years. It was considered neither a common carrier (Title II of the Communications Act of 1934) or a broadcaster utilizing the radio spectrum (Title III of the Act.) As such, the FCC eventually regulated it as ancillary to broadcasting, a perspective that held great dangers for the development of cable and its capabilities to send a return signal to the place of program origination. The agency vigorously opposed a congressional effort in 1960 to give it jurisdiction over cable, so when it ultimately decided to act to promote a particular path of development of the cable industry--one quite favorable to interactivity--it lacked the legal basis to do so and was rebuffed by the

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[31] Philadelphia: Temple University Press, 1973.

[32] White Plains, NY: Longman, 1987.

courts.

The 1972 rules were an attempt to write rules for cable development for the first time. They contained signal carriage and minimum performance standards that contained requirements for two-way cable plant. LeDuc's characterization of the industry up to that point in its development, however, held out little promise that the new regime would be upheld, as in fact it was not. LeDuc found that the industry was content with "only the image of broadband service" rather than the reality. It "provides cablecast programming without strong conviction and 'public access' channels without deep committment." Interactivity, called "subscriber-initiated services," are seen as "more than a decade away."[33] The ability of the FCC to successfully bring about technical innovation in the industry was evaluated quite negatively, with the result being that "the lowest common denominator of mass entertainment [is] already beginning to take root." The FCC is seen as

> capable of encouraging innovation only to the extent that the interests of the industry and the public seem to coincide; and since the industry can be presumed willing to encourage innovation service its interests, the agency's present role in this process might be described as at best superflous and at worst repressive.[34]

At bottom, as LeDuc evaluates it, is the problem that the FCC was only able to evaluate innovation in the context of current services. Its solid capture by broadcasting interests (indicated by the moritorium placed in the late 1960s on importing distant signals into the top one hundred media markets) meant that cable's development was continually stifled by regulators while its unique technical capabilities were ignored by industry decision-makers.

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[33] p. 204, 206.

[34] p. 207.

As LeDuc asserts once again in his 1987 work, cable regulation was historically uncertain, tentative, and provisional throughout the 1970s:

> The FCC was forced throughout the entire period of its cable control to operate at the very edge of its jurisdictional base and was never certain when the federal courts would say that the agency had exceed the boundaries of its congressional granted authority.[35]

The emphasis in the later work is on programming supply rather than the distribution industry, so it contains little of interest in the history of the development of interactive services. He points out, however, how important the cable operators with programming interests view regulatory activities that benefit them such as syndicated exclusivity, copyright fee administration, and mandatory carriage rules. Thus, he concludes,

> if media industries are reluctant to rely on the vagaries of a marketplace in areas most significant for the media's economic survival, it may be equally unwise for the American public to rely too heavily on this same marketplace to determine the qualities of anything as significant as that mass-cultural environment these services create.[36]

Three other important works on the regulatory regime for cable television, both turned into historic documents by the passage of the Cable Communications Act of 1984, are worth mentioning. Martin Seiden's Cable Television U.S.A.[37] deals with the same time period as LeDuc's Cable Television and the FCC. He is similarly critical of the Commission's activities. Seiden asks rhetorically if it would not have been in the public interest to simply have left local governments with full responsibility for regulating

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[35] p. 84.

[36] p. 146.

[37] New York: Praeger, 1972.

cable.[38] Richard Berner's Constraints on the Regulatory Process: A Case Study of the Regulation of CATV[39] also covers the politics that resulted in the 1972 rules on cable.

Steven Rivkin's A New Guide to Federal Cable Television Regulations[40] is an update of his previous work written in 1972. The second work covers the period of 1972 to 1977, during which the FCC lost several important court cases challenging its authority to regulate cable. Most important to the development of interactivity was the case in which the commission's "ancillary to broadcasting" argument was ruled insufficient to premept state regulation of two-way, point-to-point, nonvideo communications in the National Association of Regulatory Utility Commissioners v. FCC.[41] As a result, these services were subject to state-level interdiction by telephone company-dominated public service commissions. As Rivkin says, prophetically, "in time the Commission's achievements through its 1972 package of cable rules might yet prove to be ephemeral."[42]

Kent Webb's The Economics of Cable Television,[43] although specifically concerned with a detailed empirical investigation on the demand and pricing of cable services, also contributes to an understanding of cable-based interactivity. He attempts to relate demand to the number of motion picture

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[38] p. 124.

[39] Cambridge, MA: Ballinger, 1976.

[40] Cambridge, MA: MIT Press, 1978.

[41] 533 F2nd 601 (1976).

[42] p. 5.

[43] Lexington, MA: Lexington Books, 1983.

theaters in an area, the number of pay services on a cable system, and the presence of two-way capabilities and finds that none of them effect demand. He does, however, believe that there is substantial potential consumer acceptance for interactivity nonetheless.

Two articles have been written dealing specifically with the relation between the regulatory framework and the development of interactivity. Frank Lloyd's "Cable Television's Emerging Two-Way Services: A Dilemma for Federal and State Regulators"[44] considers the forces at work to bring about interactive services by reviewing the FCC's 1972 Report and Order, which not only required new systems to be built with two-way capacity but called for all systems already built to be rebuilt to provide interactive services by 1977. These actions were justified by the FCC, as Lloyd shows, as a way of causing the development of 'a nationwide broadband communications grid by cable.'[45] He reviews the Court of Appeals' decision holding this to be an unjustified extension of the commission's authority into strictly intra-state two-way nonvideo communications. The FCC was dealt another blow by the Midwest Video case, which found that the commission had no authority to adopt any requirements or regulations in this area because it did not meet the test adopted by the Supreme Court in 1968 that justified cable regulation. Thus although the Court in Southwestern Cable legitimized cable regulation as "ancillary to broadcasting" in 1979 in the Midwest Video case the two-way requirements were struck down as not fitting within this criterion.

Lloyd reviews these events but concludes that

competition among cable operators for local franchises is bringing

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[44] Vanderbilt Law Review Volume 36 (1983), pp. 1045-1091.

[45] 49 FCC 2nd at 1082.

two-way technology on stream at least as fast, and probably faster, than federal requirements could have done.[46]

The danger, however, is that state and local authorities will step in and take up regulation of nonvideo, point-to-point communications services and prevent cable operators from entering this area. Local authorities are called a "wild card" in the regulatory structure that may either require or prohibit interactive service development.

He cautions against "premature regulation of cable television's beginning steps in providing two-way services" because it "might inhibit the financial community from making the investment in cable needed to develop these services."[47] He urges "preemptive FCC action or federal legislation...to insure that undue regulation does not inhibit cable's promise for developing interactive services," and cites the 1983 version of what was to become the Cable Act.[48] It specifically banned states and municipalities from regulating or restricting cable's two-way service offerings. The final version of the bill, however, was silent as to the proper role of state and regulatory authorities in this matter.

M.D. Learner's Harvard Law Review article also called for minimal regulation.[49] He argued that cable's "impressive technical capabilities" were being jeopardized by the regulatory regime in place. Cable produces data communications with 50-60% fewer errors than does the telephone network, has

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[46] p. 1066.

[47] p. 1080.

[48] p. 1084.

[49] "The FCC and Interactive Cable Technology: The Case for Minimal Regulation," Harvard Law Review Volume 97, Number 2 (December 1983), pp. 565-83.

one-one hundredth of the "average per week downtime" than services delivered via the telephone network, and transmits information up to 100 times faster, according to Learner. Because of these advantages, he writes, the price of interactive and data services are able to be offered as much as 40% less than comparable telephone company services.

Yet, according to Learner, until cable operators are protected from the entry requirements that could be placed on them by state regulators most will only offer the minimal services outlined in their franchise agreements. Nor is that the only threat. Learner cites the power of telephone industry interests at the federal level as well. Congress at the time had been considering a "universal bypass" bill that would require technologies that take business away from local phone companies to contribute to a fund that would compensate them for the loss of business! He concludes that the FCC must protect two-way cable from state regulation if "national cable policy" is to be "preserved."[50]

Whether cable and telephone companies are in fact rivals or allies in the development of interactive services is explored by Walter Baer's 1984 article in Telecommunications Policy.[51] Baer takes Pacific Bell's proposed involvement as the owner of the network over which cable and more advanced services would be delivered in Palo Alto, California as evidence that telephone companies will be more involved in cable in the future. He notes that cable operators have only been restricted from owning cable systems in their areas since 1970, however, and that they continue to serve important functions

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[50] p. 577.

[51] Volume 8, Number 4 (December 1984), pp. 271-89.

as distributors of video and as operators of cable systems in areas other than those they serve with telephone services. The leaseback arrangement in particular seem to Baer to be a likely way for the telephone industry to increase its involvement with video distribution until the restrictions preventing them from offering the services themselves are removed. "The real battle between telcos and cable companies," he writes, "will probably focus on...refranchising...toward the end of this decade."[52] He observes that the evolution of both networks

> does not necessarily demand a single integrated telecommunications link to the home. There are no technical reasons why two systems cannot coexist and compete for services.[53]

He concludes that the choice between having one or two networks reaching the home with overlapping or distinct services will be made on social and political rather than economic or technical grounds.

Several essays by Columbia professor Eli Noam also explore regulatory issues. In Proceedings from the Tenth Annual Telecommunications Policy Research Conference[54] Noam contributed a piece called "The Political Economy of Cable Television Regulation" that "analyzes the consequences of monopolistic control of channel access by local cable system operators on the diversity of programming and the free flow of information.[55] He determines that monopoly control of local cable systems is not conducive to diversity and examines three bases for a new regulatory regime: common carrier status,

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[52] p. 289.

[53] p. 289.

[54] edited by Oscar Gandy, Paul Espinosa, and Janusz Ordover (Norwood, NJ: Ablex, 1983).

[55] p. 118.

public ownership, or direct regulation of programming. He concludes that opening up video delivery to the telephone industry is the most effective means of breaking cable's local distribution monopoly.

These arguments are extended in Noam's "Local Distribution Monopolies in Cable Television and Telephone Service: The Scope for Competition" in Telecommunications Regulation Today and Tomorrow,[56] and in "Private Sector Monopolies: The Case of Cable Television Franchises," in Productivity and Public Policy,[57] as well as in "Competitive Entry into Local Cable Transmission," in Policy Research in Telecommunications.[58]

Finally, of the seventy PhD dissertations written about cable in the last decade a fifth were concerned with regulation.[59] Edward Shafer's, for example, focused on the role of the FCC and what influenced the FCC commissioners to make the decisions they reached during the twenty year period between 1959 and 1979.[60] Sixteen of the twenty-six commissioners were interviewed and a theory of regulation based on "transition" and "consensus" was developed. He concludes that staff and personnel changes, new information resulting from research within the agency, outside pressures, and the desire for consensus provide a framework for understanding the agency's actions.

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[56] Eli Noam, editor (New York: Harcourt Brace Jovanovich, 1983).

[57] Marc Holzer and Stuart Nagel, editors (Beverly Hills, CA: Sage, 1984).

[58] Vincent Mosco, editor (Norwood, NJ: Ablex, 1983).

[59] Dissertation Abstracts Online, January 1977 to August 1988.

[60] "An Assessment of the Role of Federal Regulation in the Development of the Cable Television Industry," (George Washington University, 1980).

b. The Franchising Process

A second broad category of literature concerned with regulation explores in whole or in part the element in cable regulation that makes it unique: a local component. It is quite unlike the regulatory structure governing the broadcasting, publishing, or the telephone industries. In a regulatory regime for communications that has become more global and international with the introduction of new distribution technologies such as satellites the local franchising process is an oddity. One of the central policy goals of the cable industry in the last decade has been to throw off local regulation or at least to radically limit it. In some measure it has succeeded.

This regulatory regime provides a point of access into the process so that social demands can be articulated, as happens very rarely in the regulatory framework governing the other technologies of communication. Unlike the automatic relicensing process for holders of broadcast licenses, for example, the franchising (and to a lesser degree refranchising) process for cable television has historically been a means for interventions concerned with broader questions of social impact. As one local regulator has written in defense of the franchising process:

> Not suprisingly, the only telecommunications infrastructure open to public planning and participation became the focal point of public concerns over the social role of the media.[61]

Whether the franchising process as re-written by the 1984 Cable Act removes this obstacle to free market sale and assignment of cable franchises is still an open question, and will be discussed below.

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[61] Nancy Jesuale, "The United States: Faith in the Marketplace," in Dutton et. al. Wired Cities (Boston: G.K. Hall, 1987), p. 55.

The "premier textbook devoted exclusively to cable television,"[62] for example, clearly shows interactivity as having been greatly enhanced by its articulation in the franchising process. Thomas Baldwin and Stevens McVoy's Cable Communication,[63] written in 1983, says that

> videotext information retrieval systems are becoming standard in franchise applications [because] franchising battles are providing incentive for offering videotext services immediately.

They cite the lack of hardware standards to accomplish interactivity as the key constraint to the development of such services, but speculate that interactivity is key to the future commercial success of cable. "In the end," they write, "it may be two-way services that distinguish cable from other communications services and provide the competitive edge."[64]

Their characterization of franchising authorities as the key force producing this kind of innovation is worth quoting in detail:

> The cable industry has been forced into experimenting with two-way services by the demands of franchising authorities and competition for franchises. Only the most committed of these companies are likely to sustain the efforts in the absence of early realization of a demand that can be met economically. In the meantime, the cost of experimentation in two-way may be well worth the value of a franchise.[65]

This perspective lends credence to the theory (developed below) that the virtual elimination of the competition for franchises and the considerable reduction of the power of franchising authorities--both accomplished by the federal Cable Communications Act of 1984--have drastically changed the

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[62] Ronald Garay, Cable Television: A Reference Guide to Information (New York: Greenwood Press, 1988), p. 1.

[63] Englewood Cliffs, NJ: Prentice-Hall, 1983.

[64] pp. 68, 71, 141.

[65] p. 141.

industry's involvement with interactive services. If it is true, as Baldwin and McVoy state, that franchising authorities have been the leading force working on behalf of interactive service development, it would hold true that a diminution of their power would reduce the industry's interest in this kind of innovation. This is essentially what happened, as will be explored in detail in section IV.

Other observers reinforce the perspective taken by Baldwin and McVoy on the role of competitive franchising in producing certain kinds of technological innovation in the industry. Timothy Hollings' Beyond Broadcasting: Into the Cable Age[66] shows that at first municipalities set minimum standards for new systems that advanced the industry beyond one-way video distribution. "The competitiveness of the franchising process and the consequent power of local authorities," Hollings writes, "has undoubtably been responsible for this rise in standards and hence in costs."[67] Yet it is not the minimum standards themselves that produced interactivity. "Competition has frequently raised bids well above the stipulated minimum," Hollings observes. It is this "competitive and local character of the American franchising process" that leads to "impractical bids."[68]

In Hollings' discussion of cable's involvement with videotex development he repeats his evaluation of these activities as essentially a franchising ploy: "Once again it must be said that such a commitment reflects more the competitiveness of franchise bidding than a belief in videotex's short- or

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[66] London: BFI Publishing, 1984.

[67] p. 127.

[68] p. 127, 130.

medium-term profitability."[69] He notes, however, that cable operators are more confident about the future potential of institutional networks offering point-to-point data communications for business customers, potentially a step toward consumer-oriented interactivity. He observes that these institutional loops have been designed of a size and capacity that is generally far in excess of franchise requirements.

David Rice's "Substantive Issues in Cable Television Franchising"[70] is an introduction to the issues citizens and municipal decision-makers must face in franchising a cable operator. He advises cities to "build a modest upstream capacity while providing for future expansion as demand grows." A franchise should include a "carefully drafted clause with an appropriate trigger mechanism for activation of upstream capacity." He acknowledges that expensive multi-trunk cable systems were being built at the time "as a result of furious competition for franchises."[71]

Frank Lloyd's "Cable Television's Emerging Two-Way Services: A Dilemma for Federal and State Regulators"[72] considers further the forces at work to bring about interactive services. He reviews the FCC's 1972 Report and Order, which not only required new systems to be built with two-way capacity but called for all systems already built to be rebuilt to provide interactive services by 1977. These actions were justified by the FCC as a way of causing

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[69] p. 224.

[70] Journal of Media Law and Practice (London), Volume 4 No. 1 (May 1983), pp. 58-94.

[71] p. 74, 73.

[72] Vanderbilt Law Review Volume 36 (1983), pp. 1045-1091.

the development of 'a nationwide broadband communications grid by cable.'[73] He reviews the Court of Appeals' decision holding this to be an unjustified extension of the commission's authority into strictly intra-state two-way nonvideo communications. The FCC was dealt another blow by the Midwest Video case, which found that the commission had no authority to adopt any requirements or regulations in this area because it did not meet the test adopted by the Supreme Court in 1968 that justified cable regulation. Thus although the Court in Southwestern Cable legitimated cable regulation as "ancillary to broadcasting" in 1979 in the Midwest Video case the two-way requirements were struck down as not fitting within this criterion.

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> competition among cable operators for local franchises is bringing two-way technology on stream at least as fast, and probably faster, than federal requirements could have done.[74]

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[73] 49 FCC 2nd at 1082.

[74] p. 1066.

[75] p. 1080.

tion...to insure that undue regulation does not inhibit cable's promise for developing interactive services," and cites the 1983 version of what was to become the Cable Act.[76] It specifically banned states and municipalities from regulating or restricting cable's two-way service offerings. The final version of the bill, however, was silent as to the proper role of state and regulatory authorities in this matter.

William Dutton, Herbert Dordick, and Amy Phillips characterize the dispute over the proper activities of the cable industry as being based more on values and interests than upon a disagreement over facts.[77] There are technical and legal complexities, they acknowledge, but "the political disagreements outweigh legal and technical problems."[78]

They outline the reasons people defend the process of local franchising, unique to the cable industry, as a means by which the government insures that cable serves all citizens without discrimination, forces the companies to be responsive to local advertising and programming needs, and protects the First Amendment right of listeners to receive free and uncensored speech via public access channels. The franchising process is seen as "establishing cities as effective bargaining agents for the general public."[79] Ultimately, they conclude that additional research is unlikely to resolve the proper role of local authorities in the regulation of cable. "Fundamentally," they decide,

> the cable debate is a struggle among perspectives on the appropriate role of government not only in the American economy but

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[76] p. 1084.

[77] "Perspectivies on National Cable Policy: Focusing the Issues," Telematics and Informatics Volume 1, Number 2 (1984), pp. 153-170.

[78] p. 154.

[79] p. 167.

also in the provision of communications and information services.[80]

Without a more comprehensive policy for the merging of the telecommunications and computing industries, they decide that small scale, local experimentation with policy alternatives will continue.

Another scholar to identify the critical role played by local regulators is Ithiel de Sola Pool. Pool shows that "from a constitutional point of view nothing could be more different than cable television and television."[81] First cable was able to avoid FCC jurisdiction by making the case that it did not use broadcast spectrum and thus was outside of the commission's authority. Having done that, Pool shows that it then set out to become precisely the equivalent of television--a new means of delivering television to households.

However, Pool is relatively positive about cable's future and the prospect that it will become a "multiservice carrier." In his analysis, the demands of municipalities for large amounts of bandwidth have been "wise" and the industry has been "short-sighted...tempted by quick profits rather than a permanently viable system."[82] To be viable in the long run cable must discover non-entertainment applications. The problem, as Pool characterizes it, is that "cable systems have been run by people in the entertainment business."[83] They lack the technical competence and research laboratories of the telephone industry. Pool admits only that "there may be a delay in the transformation of cable networks into multiservice common carriers," but

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[80] p. 169.

[81] p. 161.

[82] p. 168, 170.

[83] p. 175.

believes that with time cable's users will demand it and cities will enforce this demand. Pool writes,

> On successive renewals of franchises, cities can gradually shift the terms away from the initial broadcasting conception of the cable system to a common carrier conception....Since no franchisee is guranteed renewal of a franchise, the entrepreneur from the start has to calculate a budget to recover costs within the franchise period...No confiscation would follow from obliging systems to lease channels more liberally under successive franchise renewals...Most important of all, cities should require large numbers of channels on the system...The main responsibility for ensuring free and pluralistic cable networks that allow leased access for all who wish it lies with the cities.[84]

He acknowledges that there are First Amendment limits on what cities may do,

> but within that scope they may set up their cable systems in a number of ways. Some will move toward a pluralistic system of cable access faster and others more slowly, but the direction of the movement for a free society is clear.[85]

Mitchell Moss and Robert Warren's review of the "Public Policy and Community-Oriented Uses of Cable Television" leaves them somewhat pessimistic concerning the reality and future promise of interactivity.[86] They cite the hope of cable, that

> systems with a large number of channels, interactive capacity, and the ability to vary the spatial transmission can create opportunities for enhancing public dialogue among citizens and between citizens and officials, directing citizen participation in public proceedings, and improving the efficiency of municipal services and administrative process.[87]

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[84] p. 187-8.

[85] p. 188.

[86] Urban Affairs Quarterly Volume 2, Number 2 (December 1984), pp. 233-254.

[87] p. 235.

By the time this article was written in 1984 operators such as Warner had begun going back to municipalities and renegotiating the agreements that won them their franchises. As a result, Warren and Moss observe that the prospects for interactive cable are much diminished. "Some cable operators are withdrawing from bidding for franchises when city governments require extensive and expensive public-use provisions," they write.[88]

Because the data on the community-oriented uses of cable has been "uneven, limited in detail, and at times, incomplete," they conducted a small study of cable with the limited data available on the nation at large, the greater amount of data on the top fifty cable systems, and much more detailed sample of cable systems in the New York metropolitan area. They found that three-quarters of the systems in the US in 1981 had not even one governmental, educational, public access, or leased access channel. There are no records for the extent of interactive services (although it is estimated by Baer that less than 2% of all subscribers had access to any interactive services)[89], so they looked at this measure of innovation in the top fifty markets. Less than a fourth of them had interactive capacity and a undetermined percent of them had actually operating interactive services. Moss and Warren conclude that the number having access to such services is "extremely small."[90] In the New York region, fewer than 10% of the systems surveyed had two-way capacity, which were reported to be receiving little use.

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[88] p. 236.

[89] Baer, op cit, p. 284.

[90] p. 242.

Given the effort underway to remove the guidance at the federal level that had survived court challenge Moss and Warren predicted that cable's future as a community communications medium were not good. Unless access and interactive programming become clear goals of public policy they believed that "there is little reason to believe that this record will be improved upon."[91]

c. The Cable Communications Policy Act of 1984

In part, Moss and Warren's fears were justified and in part allayed by the passage of the Cable Communications Act in December 1984. Public access was formalized and legitmized by the Act, but interactive services were seriously compromised. With a virtual presumption of renewal, operators were freed from the competition that had in the past led to the more technologically-advanced systems. By the mid-1980s they were virtually unheard of in franchise bids, but for the most part by this time the largest cities were already franchised and the bulk of the franchise-holders were now protected from having to compete with other cable industry interests during refranchising. This was an unusual event in any case before the Act, but it became entirely unknown afterwards.

Since the Act several articles have been written assessing it and criticizing it, some of which implicate interactive services. W.O. Knox[92] attacks the franchising process, and Michael Wirth and Linda Cobb-Reiley attack the intellectual and legal foundations not only of the franchising

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[91] p. 251.

[92] "Cable Franchising and the First Amendment: Does The Franchising Process Contravene First Amendment Rights?" Federal Communications Law Journal Volume 36, Number 3 (December 1984), pp. 317-335.

process but the Cable Act as well. To Knox the franchising process actually delays the development of advanced services because it is in the interests of the operator to delay their introduction.

> Once an operator has received a franchise, it will be in his own best interest to delay the development and installation of new technologies until it is time for the renewal of his franchise. This will enable him to put some great "new" ideas on his renewal application so as to allow him to maintain the franchise.[93]

Although public access channels are provided for in the franchising process Knox sees them as a restriction on the First Amendment rights of cable operators. "It is for the marketplace," he writes, "to create such limitations and uses, if any."[94]

Wirth and Cobb-Reiley base their objections on cable systems as a "limited public forum" in which governmental regulation is essentially forbidden.[95] Taxation, access provisions, and the franchising process itself are seen, therefore, as unconstitutional.

Thomas Hazlett's Journal of Broadcasting and Electronic Media article in 1987 is another post-Cable Act critique of the franchising process.[96] Local governments are seen as creating "market power" by creating monopolies and putting them up for auction. The "supranormal profits" created by this process go to local politicians and selected interest groups. He notes that it this particular type of competition--for franchises--is linked with a

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[93] p. 330.

[94] p. 333.

[95] "A First Amendment Critique of the 1984 Cable Act," Journal of Broadcasting and Electronic Media Volume 31, Number 4 (1987), pp. 391-407.

[96] "The Policy of Exclusive Franchising in Cable Television," in Volume 31, Number 1 (Winter 1987), pp. 1-20.

particular type of innovation and industry development. "Not all competitive roads," he acknowledges, "lead to the same consumer welfare destination."[97]

Finally among the journal articles on Cable Act, Wenmouth Williams and Kathleen Mahoney have published an assessment of "The Perceived Impact of the Cable Policy Act of 1984."[98] Local regulators facing refranchising hearings were the least pleased with the new regime and cities that retained rate regulatory authority were most likely to be content with the new law. Conflict between operators and cities may increase, however, because "municipalities lost much regulatory power while retaining the same level of service oversight." Most participants, they conclude, are "fairly satisfied with their situation."[99]

2. Innovation and Interactivity

The second body of research serving as a foundation to this work is that which has been written about technological innovation in the industry and the development of interactivity in particular. Although a few works have been written that detail cable's evolution as an alternative program distribution channel, mostly what is of concern to this inquiry is what has been written about what was thought to be cable's unique capacity to provide both television signals into homes and a return signal from the home.

Only two works exist on innovation in general, both journalistic rather than scholarly. Both Kirstin Beck's Cultivating the Wasteland: Can Cable Put

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[97] p. 18, 19.

[98] in Journal of Broadcasting and Electronic Media Volume 31, Number 2 (Spring 1987), pp. 193-205.

[99] p. 203, 204.

the Vision Back in TV?[100] and Thomas Whiteside's three part series in New Yorker in 1985[101] explored the pressures on cable as a programming innovator. Although both acknowledge that there are marginal services for audiences not served well by broadcast television, for the most part they conclude, in Whiteside's words, that "the cost-per-thousand notion of marketing efficiency...remains the supreme consideration in commercial television."[102]

Interactivity is somewhat different than programming innovation because it was thought at one time to have a revenue-producing potential. Thus, unlike programming for small audiences, interactivity was represented as being the path to new sources of revenue to operators to offset the costs of providing it.

Interactivity is an easy concept to grasp superficially but a difficult one to define rigorously. It is, as many have identified, the key conceptual element separating both the "new" media from the old and the new way of studying communication from the old.[103] First, interactivity is an inherent property of a functioning communication process, although not even unmediated exchanges between humans inhabiting the same time and space are always successful. As Rogers points out, "if interactivity means a two-way exchange of utterances in which the third remark is influenced by the bearing of the second on the first" then not all human face-to-face communications are

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[100] New York: American Council for the Arts, 1983.

[101] "Onward and Upward with the Arts," May 20, May 27, June 3, 1985.

[102] June 3, p. 105.

[103] Everett Rogers credits interactivity with "driving the epistemological revolution in communication science" in Communication Technology: The New Media in Society (New York: The Free Press, 1986), p. 194.

interactive.[104] Interactivity can therefore be thought of as a relative attribute of the communication process rather than an absolute one.

At the same time it is a also an attribute of the technology. In the schemata developed by Gayeski and Williams even traditional linear media are shown as having some rudimentary interactivity. This is accomplished through direct address and the ability to pause for a response.[105] Interactivity between users of communications systems can be anything from so-called digital response (yes/no or multiple choice) through completely interactive, which is to say including the indications of tone, inflection, volume, and the non-verbal cues present in real-time unmediated face-to-face communication.

In the case of cable television there is a wide variation among applications of the concept of interactivity. In general, interactive cable has meant digital response, although higher levels of interactivity are possible with more complex and expensive equipment. Cable's experience as an interactive medium, however, never really advanced beyond the rudimentary level despite the acknowledgement that this was the key technical characteristic that defined the medium. That which has been written about cable-based interactivity reflects cable's limited experience with interactivity. Works on interactivity may be classified as being evaluations of the effects of interactive cable, policy studies, or technological primers.

The foremost evaluation of audience effects was a Spring 1978 issue of Journal of Communications that included several articles on interactive cable, most of which were assessments of the value of interactive cable as an

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[104] Ibid, p. 4.

[105] "Levels of Interactivity," OmniCom Associates 1984.

educational medium.[106] This had been a key component of the NSF-funded cable studies in the early 1970s. Peg Kay's "Policy Issues in Interactive Cable Television," which closes out the series of reports, is an attempt to synthesize what was learned. She notes that the debate on privacy safeguards has yet to result in any specific rules or regulations, that the NSF carefully avoided anything having to do with public opinion polling, and that cable's less than universal distribution meant that the "information gap" between rich and poor was likely to worsten if cable were used as a means of mass public education. Finally, she notes that even after the FCC's effective moratorium on new cable system construction in the top 100 markets was lifted in 1972, "virtually nothing happened," leading her to conclude that nothing much was going to happen soon on interactive cable.

Loy Singleton's Telecommunications in the Information Age,[107] is an example of a primer on interactive cable. He treats two-way cable in a chapter separate from the chapters on cable system operations and programming and interprets interactivity as the "secret weapon" the cable industry requires to differentiate it from other video delivery media. He acknowledges the technical problems with early two-way cable experiments but notes that the birth of pay-per-view (PPV) programming in the late 1970s gave a new boost to operator interest in bi-directional cable. And he repeats the oft-stated observation that franchising competition also promoted two-way service development. In the late 1970s,

> new cable franchises and old ones being rebuilt began to feel

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[106] Volume 28, Number 2. One article is concerned with the delivery of social services generally, and the others are about the Reading, PA experiment (three articles), Spartanburg, SC (one), and Rockford, IL (two).

[107] Cambridge, MA: Ballinger Publishing, 1983.

> competitive pressures to attempt to offer every sort of service that was technologically feasible.[108]

There are several problem, as he notes, with the commercial introduction of services based on two-way cable. The primary revenue generator among all the services associated with interactivity is pay-per-view programming, which provides both opportunities and risks for the cable operator.

> For PPV to become more attractive to cable operators, the industry must overcome a sort of "catch-22" situation. Most operators cannot make enough profit on PPV because of the expense involved in PPV exhibitions on one-way systems. So PPV alone will not finance the cable industry's conversion to two-way technology. Without the two-way technology, most operators will not participate extensively in PPV, and so forth.[109]

The other key obstacle to using PPV revenues to justify the investment in bi-directional cable plant is that it is not absolutely necessary for PPV. Operators of addressable cable systems (in which the services of individual subscribing households may be changed without a service call) can and do use the telephone network as a means of ordering pay-per-view programs. This can be done with a voice telephone call or with a telephone network return path from the cable converter that literally dials the phone and places the order via a data connection. Or, as Singleton notes, PPV can be implemented with a device that can be mailed out to subscribers called a notch filter that the customer installs.

Yet, as he notes, cable and interactivity are linked in public discourse, to the industry's benefit.

> Perhaps more than any other aspect of the cable industry, the potential of two-way services has caught the imagination of the

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[108] p. 38.

[109] p. 44.

public.[110]

Singleton cites the high profile of Warner's QUBE system in particular as having put pressure on other operators to offer similar services. However, he evaluates only PPV and home security services as being "the most promising candidates for survival" because only they hold promise for immediately increasing revenues to the cable operator.[111] Although he acknowledges that other services could be developed with two-way cable they are distinguished from PPV and security applications because they presumeably would lack the immediate direct financial return.

> Two-way and interactive services potentially can provide many socially valuable services to the community. Interactive cable can be used for educational purposes by local school systems, for example. All citizens with television sets could be given access to city government and a voice through instant polling of entire communities. All the sick and inform could receive emergency assistance devices in their homes. The possibilities are too numerous to detail.
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> Does two-way cable's potential for contributing to social and health care problems faced by most communities place an obligation on cities, cable operators, or citizens to see to it that some channels, perhaps some revenues, are set aside for those purposes? Do all citizens have the right to share in the technological benefits that now can be enjoyed by those who can afford them?[112]

He concludes that these questions will be answered as two way services become part of all cable systems. However, that path to responding to these questions, as will be discussed below, was closed before answers could be found.

Finally, there are several policy studies on interactive cable. Lee Becker's evaluative research on cable is historical and focused on inter-

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[110] p. 46.

[111] p. 47.

[112] p. 48.

activity.[113] He asks both what is possible with the technology and what is likely given the regulatory structure within which the industry operates. His analysis is conducted both on the level of individual subscribers as well as institutional actors.

Becker first reviews the experiments in interactive cable supported by the National Science Foundation in the 1970s and concludes that they "produced strikingly little evidence of the superiority of interactive cable in comparison with other technologies for the communication of information."[114] Then he explores the research conducted on subscribers to Warner Communication's much-studied QUBE interactive cable system in Columbus Ohio. He observes that they are not significantly different than subscribers to any other cable systems and that "interactivity has probably never been very important to QUBE's subscribers." While the QUBE and NSF-sponsored systems were similar technologically, Becker concludes that market forces are unlikely to bring about the kinds of social and educationally-oriented services cable was used for in the publically-supported tests. "[I]f market forces dictate," he concludes, "...interactivity will become a tool of promotion and programming rather than of community advancement...what interactive cable can do and what it will do in the market environment are two quite distinct things."[115]

The history of cable-based interactivity has also been explored by Robert Pepper, the National Telecommunication and Information Agency's

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[113] "A Decade of Research on Interactive Cable," in Dutton et. al. (eds) Wired Cities (Boston: G.K. Hall, 1987), pp. 102-123.

[114] Ibid, p. 112.

[115] Ibid, p. 120.

Director of Domestic Policies.[116] In a 1984 paper he recounts the studies and articles in the late 1960s and early 1970s that had promoted a role for cable beyond simply video carriage and identifies the promulgation of the 1972 FCC rules on cable as the point at which the agency "embraced this vision."[117] Yet a dozen years later Pepper admits that cable has failed to develop in this direction and seeks to determine why.

He identifies the resistance of industry decision-makers as the key reason cable did not develop interactive services.

> The cable industry has not developed the interactive broadband networks envisoned by the technologists a decade ago in part because significant segments of the industry did not want to develop beyond being a delivery service for one-way video entertainment services. Indeed, industry opposition led to the elimination of such obligations.[118]

He then recounts the industry's successful challenge of the 1972 rules. After looking at potential competitors to cable, he identifies the telephone industry as the most likely actor to develop interactive services. As he explains, the former Bell companies are precluded by the 1982 consent decree from offering electronic publishing services until 1989 at the earliest. So the opportunity for the development of interactive services, while it rested with cable in the 1980s and was unseized, will move to the telephone industry in the 1990s.

Pepper shows that videotex services did not develop in the US in the

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[116] "Telecommunications and Telematics Policy in the United States: Cable Television and the Realities of Competition," presented at the Forum International Sur Les Politiques Publiques des Nouvelles Technologies de la Communication, organized by Le Centre d'Etude de la Vie Politique Francaise Contemporaine, Fondation Nationale des Sciences Politiques (Paris, May 1984).

[117] p. 1.

[118] p. 4.

1980s in part due to this regulatory arrangement. He also quotes John Malone of TCI as stating the industry's perspective on the cost/benefit ratio provided by interactive services:

> Cable never was, should not have been, and never will be...an efficient way to return signals from the home...The technology is poorly equipped, and to make the technology work overburdens the facility with so much, not only capital, but operating expenses on a continuing basis as to render it very, very unacceptable.[119]

Operators are also hesitant to put serious effort into two-way cable out of doubts about demand for two-way services and fear of state regulators, according to Pepper. He decides that in the international context each nation must decide whether or not to follow the American model of development. "The answers," he concludes, "will not be determined by technology, but rather by political decisions."[120]

In conclusion, cable's involvement with interactivity has meant some kind of digital response mechanism which, although relatively inexpensive to implement, severely limited its utility to subscribers, as detailled below.

3. Teledemocracy

Assumptions on the relationship between communications technologies and forms of political participation have underlay the design of political institutions throughout history. The limitations the dominant media of communication placed on the design of public institutions can be seen in everything from the Greek lyceum's reliance upon direct, face-to-face interaction through the Roman Empire's creation of roads and a postal service to

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[119] Pepper, p. 19. Malone is quoted from M. Hardart, "Empire Building, Brick by Brick," CableVision February 13, 1984, p. 36.

[120] p. 26.

interconnect its dispersed holdings, through the creation of an American democracy built around units in which citizens could travel in a day or less to the seat of government. The framers of the US Constitution debated both the questions of how much participation was desireable as well as how much was physically possible in such a large country in which it took weeks or months for news to travel to its furthest reaches. Marx and Engle's Communist Manifesto placed great faith in the changes in consciousness that would spring from the new forms of association and means of communication made possible by the factory system.

The development of electronic media in the twentieth century has refueled this debate, which has been conducted in both the fields of communication and political science. In communication research the Toronto School of Harold Innis and his student Marshall McLuhan can be credited with emphasizing the importance of the channel of communication as an variable in the communications process equal in importance with source, message, receiver, and feedback. "Political communication" has become a growing subfield.

In political science three changes are coterminous with the growth of modern media. The entire discipline became increasingly communication-oriented as political scientists sought an explanation for the devolution of both parties and voter participation. These developments were happening at the same time the electronic broadcast media and sophisticated polling techniques became dominant forms of political communication and feedback, leading to a good deal of speculation on their precise relationship. In addition, a subset of literature developed dealing specifically with the development of communications technology and the evolution of forms of political participation that herein will be referred to as teledemocracy.

Political reformers, excited by this work and by the possibilities they saw in changing the media environment, sought to reform the communications process as a way of resuscitating political participation. Finally, students and practitioners of urban planning sought to add communications-related functions to their area of study and prescription.

Much of this debate siezed upon the cable industry. It was seen as a young and dynamic medium subject to regulatory control and hence to the influence of reformers seeking to renew the spirit of democratic participation. With the most articulate and powerful social critics seeking more "participatory democracy" and the government itself committed to "maximum feasible participation" in its new anti-poverty programs, cable's arrival on the public agenda as a regulatory issue in the late 1960s virtually guaranteed this.[121] The "blue sky" cable literature that forecast a thrilling new role for cable as an urban communications medium will be considered in detail in Chapter IV below. In this section the foundations of the study of urban communications systems and the literature on technologically-enhanced forms of political participation will be explored as closely related topics.

Computer industry professionals had speculated on the potential relationship between cable and "information utlities" or mass scale interactive computing since the early 1960s,[122] but the first social critics to identify cable as a means of developing new forms of political participation arrived on

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[121] The first phrase is from the Students for a Democratic Society's manifesto The Port Huron Statement and the second is from the Johnson administration's Model Cities program. Rules for incorporating public input into governmental decisions were also an important part of the environmental legislation such as the National Environmental Policy Act of 1969.

[122] The first use of the term "information utility" was Martin Greenberger, "The Computers of Tomorrow," Atlantic Monthly July 1964.

the scene in 1970. Hans Magnus Enzensberger's New Left Review article criticized the current communications regime because it

> allows no reciprocal action between transmitter and receiver; technically speaking it reduces feedback to the lowest point compatible with the system.[123]

Although not anticipating emancipation by "technological hardware," the solution, as he saw it, had a great deal to do with changes in communications technology.

> Network-like communications models built on the principal of reversability of circuits might give indications of how to overcome this situation.[124]

Specifically, he proposed "a video network of politically active groups."

Robert P. Wolff's In Defense of Anarchism carried the argument further.[125] To Wolff,

> the obstacles to direct democracy are merely technical, and we may therefore suppose that in this day of planned technological progress it is possible to solve them.[126]

He proposed that

> In each dwelling, a device would be attached to the television set which would electronically record votes and transmit them to a computer in Washington.[127]

A federal subsidy would provide televisions for those without them and each evening instead of showing the news all networks would broadcast a debate on the issue on the agenda. Following a week of discussion and debate there

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[123] "Constituents of a Theory of the Media," Volume 64 (November-December 1970), p. 13-36.

[124] p. 23.

[125] New York: Harper and Row, 1970.

[126] p. 34.

[127] p. 34-5.

would be an instant vote on these measures.

Wolff argues, as do all radical democrats, that the demand for participation is itself empowering and leads to a heightened sense of personal efficacy and involvement on the part of individuals.

> The initial response to a system of instant direct democracy would be chaotic, to be sure. But very quickly, men would learn--what is now manifestly not true--that their votes made a differernce in the world, an immediate, visible difference. There is nothing which brings on a sense of responsibility as fast as that awareness.[128]

As a result, the poor and powerless would have as much power as the rich and influential and "social justice would flourish as it has never flourished before."

Instead, what flourished was the dream of technologically-enhanced participation and the study of urban communications systems. For example, Columbia University's Technology and Society Program launched one of the early experiments with "participatory technology." Their proposed "mass dialogue and response system" was called a "Multiple Input Network for Evaluating Reactions, Votes and Attitudes," or MINERVA (also the name of the Roman goddess of political wisdom.)[129] The design of the MINERVA group was based on two-way cable systems and response pads in each subscriber's home. A society-wide broadcast would begin the discussion of a public issue, after which progressively larger groups of people would use the technology to debate and evaluate proposals and then vote on them. Only a few people, of course, would be able to address the audience, but each person so selected would have the complete

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[128] p. 36.

[129] Amitai Etzioni, "MINERVA: A Study in Participatory Technology," Working Paper I (February 1972) p. 6.

attention of all audience members. The possibilities for switched audio and video participation were also considered but cable was selected for its high bandwidth, bi-directionality, and ability to carry messages in multiple media. The MINERVA team also proposed the combination of radio or broadcast TV with telephone response mechanisms for larger communities.

The MINERVA group's work, supported by the National Science Foundation, had a serious impact upon the development of cable as an interactive medium. It dismissed the lack of demand for two-way cable as a result of lack of consumer awareness and called for the development and study of actual operating systems in which the possibilities for interactive political discussion could be explored.

> It is of course clear that the best way for the public to be exposed to the advantages of such a development is through familiarity, either directly or indirectly, with the benefits that accrue to real people living in actual communities that have been wired to provide these services.[130]

Taking that advice, the NSF began a series of experiments involving actual services to test and develop consumer interest in interactive services for political communication and other purposes, which will be explored in detail below.[131]

At the same time, works began to appear that explored "the new field of urban communications," as George Gerbner, Larry Gross, and William Melody's Communications Technology and Social Policy: Understanding the New 'Cultural

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[130] Ted Werntz, "A Preiminary Review of CATV as a Two-Way System," Working Paper V (February 1972), p. 3.

[131] Etzioni and other members of the project team also published "Participating Technology: the MINERVA Communications Tree," in Journal of Communications Volume 25 (Spring 1975), pp. 64-74.

Revolution' put it.[132] Much of this literature centered upon the trade-off between transportation, an area subject without question to urban planning, and communication, a potentially new area of responsibility. Part of the Gerbner et al. book touches upon two-way cable, however, and speculated about its place in the cities of the future. They place the establishment of the "wired city" as "early as the end of this decade," but acknowledge that it will neither be an unmitigated disaster nor the savior of the urban community. "The direction in which cable goes," they write, "is in the hands of state and local governments in terms of the regulations they develop as franchise conditions."[133]

Mark Hinshaw's essay is indicative of how the planning literature of this era treats two-way cable. He sketches two scenarios which more or less correspond to the Orwellian nightmare of total control and the socialist vision of the liberation of individual creative energies. In the first, interactive media made available to corporate and governmental planners the data necessary to shape attitudes and behavior. In the second the growth of two-way cable "influenced the development of more fluid, diverse, and participative social environments," including the replacement of the system of representation "with more direct and cooperative decision-making mechanisms."[134]

By the middle of the decade some serious experiments and proposals for accomplishing this goal were presented. Tom Johnson, Clark McCauley, and Omar

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[132] New York: Wiley, 1973. See also Arnold Wise, "The Impact of Electronic Communications on Urban Form," Ekistics (July 1971).

[133] p. 289, 290.

[134] "Wiring Megalopolis: Two Scenarios," p. 315.

Rood published an updated version of the dream contained in the Woolf proposal that also called for a national plebicite.[135] The technological foundation of their proposal, however, was government-issued voting boxes that citizens plug into the telephone network rather than anything cable-based.

However, Kenneth Laudon, who had been part of the MINERVA group, published Communications Technology and Democratic Participation in 1977 which did address the development of the cable industry.[136] Writing at the same time the microcomputer industry was beginning he called the possibility of widespread access to computers "a fantasy of flabby futurism," that had to be considered "extremely unlikely." Thus, he conducted an experiment with the application of telephone conferencing to the internal decision-making of the New Jersey League of Women Voters. First, he concluded that Michel's iron law of oligarchy is not challenged by the growth of a new medium:

> The appearance of a new political resource in the form of citizen technology--regardless how it is organized or what technology is used--is likely to be utilized by the most politically skilled and organized groups in the population.[137]

Worse, he predicted that interactive cable would be represented to mass audiences as a means of serious communication of political preferences though not in reality applied to that end.

> As we were treated to headlines in the early 1960s that read COMPUTERS JOIN WAR ON CRIME, so in the early 1980s we will learn that CABLE TV AIDS DEMOCRACY, and so during the half-time of the Superbowl an important national issue will be discussed by twelve experts, followed by a vote of the national audience, the results

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135 "The Next Democracy: Technology in the Service of Self-Government," World Future Society Bulletin (November-December 1977), pp. 1-6. Also The Next Democracy: Public Participation and the Government of the United States, unpublished manuscript (1975).

136 New York: Praeger, 1977.

137 p. 110.

> of which will be sent to Congress and the president. Depending on the average distance between the television room and the refreshments, several million persons will punch questionnaires, call a station, or push a button an a little black box. To the unaware citizen this may seen at first glance a useful development. The growing recognition that the little black boxes are not connected to anything of importance, however, will only worsen and complicate the sense of alienation from U.S. institutions.[138]

Clement Bezold's contribution to the consideration of new forms of political participation was the publication in 1978 of Anticipatory Democracy[139] which reviewed forty-four projects to develop regional and local participation around planning issues between 1965 and 1977. While these projects utilized standard broadcast media for their implementation, the popularity of these efforts to encourage greater participation, at least among politicians, also may be said to have heightened awareness that the media could do more than deliver information in one direction and that local governments could influence the way the media were applied in the public sphere.

Ted Becker's teledemocracy experiments in Hawaii (1978), New Zealand (1981), and Los Angeles (1982) combined new and old media.[140] Generally the response mechanism was coupons published in newspapers. Cable was used only as a broadcast medium, although Becker believed that cable was "ready to spread through the United States like wildfire," and that it would bring with it mass interactive media that people would use to demand greater participa-

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[138] p. 116.

[139] New York: Random House.

[140] "Teledemocracy: Bringing Power Back to the People," The Futurist December 1981, pp. 6-9; with Christa Slaton, "Hawaii Televote: Measuring Public Opinion on Complex Issues," Political Science Volume 33, Number 1 (July 1981), pp. 52-65.

tion in the decisions affecting their lives. "The forecast is nothing but bright for teledemocracy," he wrote in 1981, "thanks to modern science."[141]

The teledemocracy literature and urban planning profession's consideration of wired cities were at first boosted then dashed by the franchise wars of the late 1970s and early 1980s. The QUBE system developed by Warner became the center of attention. Both those who were urging cities to ask for more and plan for future growth as well as those who looked to interactive cable as a path for new forms of political participation focused on QUBE (discussed in detail below).

The International City Management Association, for example, brought out a text on Telecommunications for Local Government that urged municipal officials to "sieze the initiative." Whether advanced telecommunications systems would bring good or ill was seen as "in the hands of local officials and the decisions those officials make today." The ICMA recognized that two-way capability was included in virtually all bids for cable franchises and urged officials to "stop thinking about 'television' systems and start thinking about cable 'communication' systems."[142] The insistence of municipal officials on state-of-the-art cable systems was represented as being in the long-term best interest of the cable system operator in that "obsolete, limited channel, one-way cable systems" would be in danger of being killed off by satellite-delivered programming.[143]

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[141] quotations from The Futurist (December 1981), p. 8.

[142] (Wasington, DC: ICMA, 1982), pp. ix, x, and 87.

[143] p. 168.

Teledemocracy also thrived as an idea in the early 1980s, gaining both supporters and critics, most of whom were silent on the ability of cable to serve as a vehicle for enhanced political participation.[144] However, Benjamin Barber's Strong Democracy incorporates two-way cable into a broad attempt to achieve greater political involvement.[145] To Barber,

> interactive systems have a great potential for equalizing access to information, stimulating participatory debate across regions, and encoraging multichoice polling and voting informed by information, discussion, and debate.[146]

Barber's plan called in part for a "Civic Communications Cooperative," whose goal would be "to promote and guarantee civic and democratic uses of telecommunications."[147] He also promoted the idea of a "Civic Videotex Service" that would be

> a standard, nationwide, interactive, and free videotex service that would provide viewers with regular news, discussions of issues, and technical, political, and economic data...Each citizen would be guaranteed the same access to vital civic information and would be linked into an information-retrieval system with vast educational and development potential.[148]

Thus to Barber the new media were a means by which the lost pleasures of

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[144] Among the supporters: Michael Goldhaber, "Microelectronic Networks: A New Workers' Culture in Formation?" Critical Communications Review Volume 1 (1983), pp. 211-243; Sam Lehman-Wilzig, "Political Participation in the Post-Industrial Age," World Future Society Bulletin July/August 1983, pp. 9-14, and "Teledemocracy from the Top," Telecommunications Policy March 1983, pp. 5-8; and John Naisbitt, Megatrends (New York: Warner, 1982), pp. 103-117, 159-187. Among the critics: Jean B. Elshtain, "Democracy and the QUBE Tube," The Nation August 7-14, 1982, pp. 108-110; Michael Malbin, "Teledemocracy and its Discontents," Public Opinion June/July 1982, pp. 58-9, and Barry Orton, "Phony Polls: The Pollster's Nemisis," Public Opinion June/July 1982, pp. 56-60.

[145] Berkeley: University of California, 1984.

[146] p. 276.

[147] p. 277.

[148] p. 279.

common discourse and decision-making could be recaptured.

Along the same lines, though without the theoretical underpinnings, Richard Hollander's Video Democracy[149] makes the same claim. Hollander, however, more clearly links his democratic agenda with cable. "What the cable industry has failed to see," he writes, "is that interactive TV is its only option" due to pressures from the telephone industry on the one hand and alternative video technologies on the other.[150] The potential of the technology has not been realized, according to Hollander, because industry leaders have not offered unique and serious programming choices. "It (QUBE) was never designed to be a political vehicle," he writes, in contradiction to the insider view offered by TCI's John Malone that in fact the goal of QUBE and other interactive systems was to curry favor with regulators.[151] Hollander calls for commissions "in every state, perhaps in every county" that would write plans for "utlizing interactive cable technology for the purposes of running local government."[152] A.J. Bahm's Computocracy, based on networked personal computers rather than interactive cable, was directed toward the same set of goals.[153]

By the latter half of the 1980s works were being published that assessed the wired city and teledemocracy experiences of the late 1970s and early 80s.

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[149] Mt. Airy, MD: Lomond Publications, 1985.

[150] p. 19.

[151] p. 20.

[152] p. 142.

[153] Albuquerque, NM: World Books, 1985.

Christopher Arterton's Teledemocracy: Can Technology Protect Democracy?[154] includes a useful categorization of attempts to achieve greater participation through the use of advanced media and reviews the attempts to do so. "Increased interactivity through telecommunications" is cited as one of the characteristics of new media that will change the way in which information is communicated. Arterton asserts that political participation "inherently demands an interactive form of communication,"[155] but cites the example of citizen's band radio to show that as long as users interact as discrete individuals the content of the medium is not likely to be overtly political. However, while he concludes that "a huge number of value choices are already implicit in the regulatory polcies under which a medium is established,"[156] Arterton says little on the history or future of cable television in particular.

On the other hand, William Dutton, Jay Blumler, and Kenneth Kraemer's Wired Cities: Shaping the Future of Communications[157] is almost entirely focused on cable. In it, Kenneth Laudon evaluates the "Promise Versus Performance of Cable," Carol Davidge assesses QUBE, Robert Pepper looks at cable in relation to other telecommunications service providers, and Lee Becker reviews the history of research on interactive cable. With the goal of studying the "the actors and motivations behind the development of new

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[154] Beverley Hills, CA: Sage, 1987.

[155] p. 37.

[156] p. 185

[157] Boston: G.K. Hall, 1987. The problem of doing research in this area is highlighted by the case of this work, which is catalogued under the Library of Congress headings for "telecommunications systems" and for "cities and towns--communications systems" but not for cable television.

technologies and policies,"[158] they review experiments in Japan, France, Germany, and Britain as well as the United States.

In their history of the idea of wired cities, the editors cite the historic though not logically necessary connection between the cable television industry and the dream of universal access to "an integrated array of all kinds of electronic information and communications services."[159] They note that the concept developed in concert with the Johnson administration's "Great Society." In their re-telling of cable's history they cite the industry's weak financial performance in the early 1980s and consumer interest in premium video programming as the twin reasons cable grew in the direction of entertainment programming rather than in the direction of local community-oriented programming or interactive services. They observe a post-cable re-emergence of the wired cities vision in the 1980s fueled instead by micro-electronic and fiber optic developments in the computing and telephone industries. As Dutton et al. indicate, the wired city vision of technology as a tool for achieving equity, diversity, and democracy provides a normative scenario for the development of communications--one that existed prior to and outside of any governmental actions to realize it.

The Laudon, Pepper, and Becker essays, comprising as they do the heart of the book's contribution to cable scholarship, will be summarized here. The Davidge essay will be considered in the discussion of QUBE, in section IV below.

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[158] p. iv. They note that there have been few studies of this kind.

[159] p. 4.

To Laudon interactivity was "the belle of the cable fable." In its failure, however, Laudon acknowledges that QUBE in particular was successful in helping Warner secure franchises. The participation of 25% of all subscribers on a monthly basis in interactive programming is cited as an indication of the lack of consumer interest in such services. Although Laudon notes that participation in public policy shows ran second to game shows. Although overly optimistic in years past, cable's future is still as "an alternative, full service interactive telecommunications network." However, Laudon says such a network will not be realized until "a long, long time in the future."[160] The safer path for cable to follow, and the one he says is most likely to be followed, is for cable to emulate the broadcast model of programming directed to mass audiences.

Pepper cites the cost of the hardware necessary to make cable systems bidirectional as the most important reason that interactive services have developed with the telephone network as a transport medium. Since cable is not universally available, Pepper says that it cannot compete with the telephone network as a means of providing mass scale interactivity. Finally, he identifies the regulatory obstacles provided by state public service commissions as another key reason operators have not spent more time or money developing interactive cable.

Finally, Jeff Abramson, Chris Arterton and Garry Orren's The Electronic Commonwealth attempts to assess the impact of the new media technologies upon American politics.[161] They identify interactivity as the most important

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[160] p. 37, 39.

[161] New York: Basic Books, 1988.

element in the newness of the new media, the characteristic that "sharply distinguishes the new media from the old." Despite the "massive attention" interactive cable has received, they recognize it as "but a possibility for the future."[162] They write:

> When we started research for this book in the early 1980s, it appeared that the technology for two-way or interactive television might make a dramatic contribution to democratizing the electronic media...[Yet,] no promise of the new media remains more unfulfilled than the arrival of interactive television...As of 1986 only Warner Cable Corporation and Viacom Cable were marketing interactive cable. Only rarely these days does the programming have political or public-affairs content; typically it is home participation in a quiz show...[This] vulgarization of two-way cable into a gimmick for quiz shows is an illustration of just how difficult it is to break the mass-entertainment hold on television.[163]

Thus in the time it took them to complete their book, interactive cable went from being seen as "another great miracle of our time"[164] to an odd historic footnote in the history of electronic media.

This outcome was by no means pre-determined by either policy or technology. It might have turned out differently. The next chapter will outline a means by which we can gain some analytic power over this question as we attempt to explain the many lives of two-way cable and discuss the regulatory framework, interactivity, and teledemocracy. In the chapter that follows we will apply that framework to the historical record to see if the causes of interactive cable's demise can be separated and evaluated.

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[162] p. 61, 63.

[163] p. 291, 292.

[164] Joseph Newman (ed.), Wiring the World (Washington, DC: US News and World Report, 1971), p. 5.

Chapter III
Methodology

What we are attempting to explain are the dynamics underlying the development of interactive cable services. The most compelling feature in the history of cable's relationship with interactive services is its periodicity--the boom periods of enthusiasm followed by periods of disappointment when the dream failed to materialize as anticipated. Given that pattern, how best can this phenomenon be studied? What analytic tools provide the best framework for understanding?

Since the evolution of cable network capabilities is the subject of this analysis theories centered upon senders, messages, or receivers may be discarded. Thus, approaches designed to study the role of senders as agenda-setters or gatekeepers, or content analyses of messages, or the uses and gratifications sought by receivers or the effects of the messages upon them, limited or otherwise, are not applicable to this research. Neither are survey research or experimental methods appropriate to understanding the series of events that led to this non-adoption of interactive cable.

Instead, this study is focused on the evolution of the communications conduit, but not in the sense of understanding the affect of the conduit on message distortion but in the sense of the technical attributes that are or are not incorporated into the network. For this, four methodological techniques were analyzed in detail.

Quantitative techniques were investigated but ultimately discarded. A statistical correlation between the financial performance of cable operators and the development of interactive services at first held out some analytic promise. One conceivably could chart the financial growth of the industry and

correlate that with the development of interactive services to see if interactive services have historically shown their strongest growth in times of robust financial health for the industry.

However, although there are many figures available to measure financial performance, numbers characterizing cable's development of interactive services are essentially impossible to come by. The closest substitute would be the number of miles of bi-directional cable plant, but these figures are not kept by the FCC in an aggregated way. Only the firms engaged in analysis of the cable industry have maintained such figures, but they are estimates that have not been empirically verified. They are also no longer kept, casting further doubt upon their usefulness. A conceivable substitute is the price of bi-directional cable amplifiers. A competitive market for these components--which are necessary for a substantial amount of interactivity--existed for a brief time in the late 1970s and early 1980s. However, the market for these components is epiphenomenal. It reflects other activities rather than serving as a cause. In addition, there are forms of interaction that use the telephone network as a return channel for which neither type of cable-specific hardware is required. For these reasons, statistical correlation as a method of investigation has been eliminated.

Three other methods that allow post-hoc evaluation of change over time were investigated in depth. They were studies of the diffusion of innovations, evaluation research, and critical events analysis.

A huge literature exists on the difffusion of innovations. The advantage of this approach, as Rice puts it, is that it "indicates how adoption of new media technologies may become inextricably caught up on social and

institutional structures."[165] Typically, this model includes four elements: an innovation, the channels through which it is communicated, the time it takes this communication to occur, and the members of the social system who are involved. However, as Rogers points out, there are factors related to new media that make diffusion different in their case than for other technologies.[166] These factors are the necessity of group adoption before the technology serves a useful purpose or the problem of critical mass, the fact that these technologies are tools that may be applied by users in different ways unlike many technologies, and the problem contained by the differences between physical adoption of a technology and its actual integration into the users work and recreational habits. In the case of new media, the gap between mere adoption and actual implementation may be quite broad.

Rogers goes on to show that until the 1970s the diffusion of innovations literature was focused exclusively on individuals. More recently, however, it has been applied to the adoption of technologies by organizations. This changed the methods of research from surveys to in-depth case studies and he offers a model for research conducted along these lines. However, while we may concur with him that "innovation is a keenly social process, so it is important to examine the key social roles that govern the speed and adequacy of implementation,"[167] the model of organizational adoption does not fit the study of adoption by an entire social or political system. The interplay

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[165] Ronald Rice, The New Media: Communication, Research, and Technology (Beverly Hills, CA: Sage, 1984), p. 75.

[166] Everett Rogers, Communications Technology: The New Media in Society (New York: The Free Press, 1986), pp. 120-22.

[167] Ibid, p. 143.

among the key actors does not follow the stages of initiation, decision, and implementation in a linear pattern but instead stops and starts and returns to the beginning or skips to the end in seemingly random order. And although consumer adoption is an important force acting upon the development or nondevelopment of interactive services by cable operators it is only one force, and one that appears to come relatively late in the decision-making process after others have decided the communications functions that will be incorporated into the network. The process of diffusion of innovation in the cable industry is an interactive, fundamentally political process and must be studied as such.

Evaluation research is also a possible approach. As Rogers points out, the majority of scholarship on the new media follows this approach. However, this approach has two major drawbacks for this study--it may not easily be conducted post hoc and is focused on the individual level of analysis. As Rogers delineates, the typical research design using this method gathers data from users by either surveys or interviews both before and after the introduction of a new technology.[168] However, seldom are communications researchers invited to begin their evaluation prior to the introduction of a new medium but worse from our standpoint is that this method is once again focused on the individual level of analysis.

As Rogers points out further the search for effects at the individual level is not effective at studying what causes change over time, except crudely. He suggests process research as a means to explain how and why a sequence of events occurs. Denis McQuail also argues in his criticism of

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[168] Ibid, p. 217-18.

traditional communications research techniques that in the case of new media we are "studying a process (something that is concretely happening, e.g., the installaction and putting to work of new message distribution and exchange systems) rather than effects."[169] He suggests an integrated approach that includes both lessons learned from the diffusion of innovations as well as the approach taken by Kraus et al. in studying critical events. This approach, as McQuail represents it,

> has the advantages of focusing on events (often extended) and of calling attention to the need to study in an approximate time sequence the following: elite and general public actors and their goals and perceptions; what actually happens; and the societal or community context of events...It requires a wide variety of techniques of data collection and analysis and a degree of integration of data at individual and societal levels.[170]

Because this technique allows integration of the actions of elite actors with the response of mass audiences over time, because it can be conducted after the events have already occured, and because it is focused on the societal level of analysis, this technique was selected for application to the question at hand.

Critical Events Analysis

The definitive statement of critical events analysis is by Kraus et al.[171] They describe this technique as an integration of events-based

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[169] Denis McQuail, "Research on New Communications Technologies: Barren Terrain or Promising Arena," in Dutton et. al. Wired Cities (Boston: G.K. Hall, 1987), p. 436.

[170] McQuail, p. 436.

[171] Sidney Kraus, Dennis Davis, Gladys Lang, Kurt Lang, "Critical Events Analysis," Steven Chaffee (ed) Political Communication (Beverly Hills, CA: Sage, 1975), pp. 195-216.

explanations focused on individual actions and the modelling of interrelated social variables. "Critical events analysis," they write, "seeks to identify those events which will produce the most useful explanations and predictions of social change."[172] It attempts to integrate both data drawn from the individual and societal levels of analysis, and its purpose is "to provide a scientific explanation of how elite actions have social consequences and how certain social processes constrain elite actions or negate their intended impact."[173]

Kraus et al. review the application of this method to the study of single events such as bombings,[174] political conventions,[175] and kidnappings.[176] The trouble with these crisis-oriented events, as Kraus et al. show, is that they serve to heighten the power of elites, which "may be able to command conformity from the public or widespread acceptance of elite action that will not extend to more normal situations."[177] This method is not however, limited to the study of attitude change as a result of single, dramatic, public events. They point out that event or series of events may "become crucial points of reference by which other events are evaluated." It

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[172] ibid, p. 196.

[173] Ibid, p. 200.

[174] H. Lever, "The Johannesburg Station explosion and ethnic attitudes," Public Opinion Quarterly Summer 1969, pp. 180-89.

[175] K. Lang and G. Lang, Politics and Television (Chicago: Quadrangle, 1970).

[176] R.M. Sorrentino and N. Vidman, "Impact of events: Short- vs. long-term effects of a crisis," Public Opinion Quarterly Vol 34 (Summer 1974), pp 158-70.

[177] Ibid, p. 203.

is in this latter definition that we will apply to the term critical event.

In designing a study using this approach, Kraus et al. recommend that "only a small number of variables be intensely studied."[178] They suggest that data be gathered by means of focused interviews with elite actors and direct observation or by surveys. Although "each event can be viewed as a case study more or less complete in itself,"[179] the events may also be interpreted in cumulative fashion, as the baseline from which successive events are examined. They conclude that this approach integrates a number of existing research methods. Its strength lies in its ability to be used to interpret complex social processes over time.

Since Kraus et al. no scholarly articles have been written specifically about this method,[180] although it has been applied in a number of studies such as the explosion of the space shuttle Challenger,[181] the abortion debate,[182] and environmental policy-making.[183] As with Kraus et al. the focus has often been upon the role of the news media in communicating an event or series of events and the resulting attitude change. However, another application of critical events analysis as reported by Miles and Huberman is not concerned

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[178] Ibid, p. 206.

[179] Ibid, p. 213.

[180] At least none with the three words critical events analysis in the title, according to the Social Science Citation Index.

[181] G.R. Petty, et. al. "Feeling and Learning about a Critical Event," Central States Speech Journal Vol. 37, Number 3 (1986), pp. 166-179.

[182] J.C. Pollock, "Media Agendas and Human Rights--Supreme Court Decision on Abortion," Journalism Quarterly Vol. 55, Number 3 (1978), p. 544-.

[183] A.C. Schoenfeld, "Press and NEPA--The Case of the Missing Agenda," Journalism Quarterly Vol. 56, Number 3 (1979), pp. 577-585.

with either public events or with attitude changes.[184] It is of a study by Stiegelbauer et al. that attempted to extract critical incidents that occurred during the implementation of a new academic program. The Stiegelbauer et al. study selected events that had a "strong catalytic effect" on the need for the program.[185]

Research Design

In its ability to integrate elite actions with mass response and to explain a series of events that make up a complex social process over time critical events analysis is suitable for the current research. In our application of it, however, we are not concerned with necessarily public events, the role of the media in communicating an event, or with a change in mass attitudes as a result of the event but with pivotal events by which succeeding events are evaluated.

Critical events analysis will be operationalized in the following way. Four sets of actors and four processes will be examined. The first set of actors are public interest representatives, including scholars and study groups that issued reports on the future of cable television. The second set of key actors are the regulators of cable television including federal, state, and local regulators. Industry decisionmakers are the third set of actors and

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[184] Matthew Miles and Michael Huberman, Qualitative Data Analysis (Beverly Hills: Sage, 1984), pp. 128-130.

[185] S.Stiegelbauer, M. Goldstein, L. Huling, "Through the Eye of the Beholder: On the Use of Qualititative Methods in Data Analysis," Qualitative and Quantitative Procedures for Studying Interventions Influencing the Outcomes of School Improvement (R&D Report 3140), (Austin: R&D Center for Teacher Education, University of Texas).

will be defined to include both those who manage cable properties and those who make key decision about cable in capital markets. Finally, the mass public is the fourth actor.

The role of these actors will be explored by tracing four interrelated processes: technological development, regulation, economic and commercial development, and consumer acceptance.

In chronologically reviewing the literature of cable television from 1969 to 1989 any action by one of the actors involved in these processes that fundamentally alters the power relationship among them will be considered a critical event for the purposes of this study. Thus key decisions, policies, or actions are candidates for designation as critical events. If they establish a new order among the actors, or create a new framework within which their interaction must be conducted the event will be identified as "critical." In essence these are events that change the commonly accepted "rules of the game" within which all actors must operate.

Data gathering will consist of analysis of the documents that in whole or in part delineate the history of cable television, with particular attention given to that which has been written about interactivity. To a limited degree, interviews and usage statistics will be used where appropriate. The purpose is to examine most closely the critical turning points at which cable might have developed interactivity on a broad scale, and it has been selected due to its ability to integrate elite level decisions with mass level responses.

Chapter IV
Analysis of Data

The history of interactive cable and five critical points in its development will be explored in this chapter. The first critical point is the FCC's 1972 Report and Order mandating bi-directional cable systems and the second critical event is the successful challenge of the agency's authority to issue such regulations. The third critical point is the era of the major franchising battles in major American cities in the period of 1979 to 1981 in which interactivity played a major role. The fourth point will be cable's period of retrenchment, symbolized by Warner Communication's cancelation of interactive programming on QUBE in January 1984. Finally, the passage of the Cable Act of 1984 marks a fifth critical turning point in the history of cable's relationship with interactive media because the power of local franchising authorities was substantially reduced.

Each of these points has been selected because they fundamentally altered the power relationship between the actors involved in the evolution of cable television and provided a new basis for their interaction.

A. The 1972 FCC Report and Order

The action of the FCC in 1972 calling for all cable systems to be interactive was the first official endorsement of interactive cable. Its foundation, however, was based on the plethora of future forecasts produced by government and privately sponsored study groups that began in 1968.

Although the commission acknowledged as far back as 1959 that cable could pose a threat to broadcasters it concluded that Congress would have to

act before it could regulate cable.[184] Then, as Richard Berner's case study of agency policy-making shows, the elevation of Kenneth Cox to the head of the FCC's Broadcast Bureau in 1962 brought a nearly immediate reversal of this position.[185] Cox believed that the agency was being internally inconsistent--attempting to promote local broadcasting yet licensing the microwave importation of signals to cable systems--so as soon as a case came along that could be used to reverse the agency's previous position it was taken. The FCC used the Carter Mountain case to reverse itself, finding the importation of distant signals to be harmful to local broadcasters.[186] In the face of Congressional inaction, the agency asserted authority over cable as "ancillary to broadcasting," a legal foundation that was to have significant ramifications later on. In 1965 the agency issued its first set of rules governing cable and in 1968 the Supreme Court upheld the Commission's regulation of cable regulation as "reasonably ancillary for the regulation of television broadcasting."[187]

As the Commission was gradually assuming authority for directing the future of the cable industry a strong and seemingly unified campaign was underway by a number of different public interest groups. Through studies and reports, these groups, some under official sponsorship others independently, sought to provide a focus and direction for federal regulators to follow.

First among them was a task force established by President Johnson to study US communications policy. Led by White House advisor Eugene Rostow this

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[184] CATV and Repeater Services, 26 FCC 403, at 428-9.

[185] Constraints on the Regulatory Process: A Case Study of the Regulation of Cable TV (Cambridge, MA: Ballinger, 1976).

[186] 321 F.2d 359 (DC Circuit 1962) Cert. denied, 375 US 951 (1963).

[187] US v. Southwestern Cable 392 US 157 (1968).

high-level group was established in the summer of 1967 and made its report at the very end of the Johnson Administration in December 1968. The task force's major conclusion was the cable had a tremendous capacity to enhance program diversity. Interactive capacity was seen as a key element in providing a broad range of programs:

> Among the ways suggested for vastly increasing the diversity of television programming is a system that would permit a subscriber to dial the program of his choice from a library of TV tapes. The facilities necessary for this service could also be used to provide television channels for remote shopping and information services...[188]

The report expresses doubt, however, that this means of delivering video selectively to each household will generate enough revenue to offset the substantially higher costs. Instead, it predicts the birth and growth of the videotape recording industry.[189]

Not suprisingly, the National Association of Broadcasters moved quickly to squelch this potential competitor. In the document they issued to the Rostow Commission to state their case they reported that "the very survival of free television" was at stake. They called for a concerted effort "to defeat this concept of a wired city."[190]

As the 1970s began, however, the voices of those who looked to cable as a means of multiplying the diversity of programming sources and establishing a

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[188] "A Survey of Telecommunications Technology," Washington, DC: President's Task Force on Communications Policy, June 1969, Part 1, p. 86.

[189] Also written in 1968 as a cable proposal was Harold Barnett and Edward Greenberg, "A Proposal for the Wired City," Washington University Law Quarterly Volume I (Winter 1968), pp. 1-25.

[190] Herman W. Land Associates, Television and the Wired City: A Study of the Implications of a Change in the Mode of Transmission, Washington, DC: National Association of Broadcasters, 1968.

communications regime that promoted political participation grew in strength and number. A study sponsored by the Ford Foundation and published by the Rand Corporation in January 1970 for the most part sided with cable industry leaders in calling for few restrictions on cable programming.[191] However, the ability of cable operators to act as a gatekeeper in selecting the information that subscribers would be able to receive as systems became more advanced led the author, Leland Johnson, to suggest that common carrier status could be "highly desirable" in the long run. But besides offering the possibility that subscribers would be able to use cable's interactive capacity to schedule the viewing of programs at their own convenience, Johnson was silent on the subject of interactivity.

The most forceful and widely-read panegyric on the future of cable was probably Ralph Lee Smith's "The Wired Nation," first published as a special issue of The Nation in May of 1970.[192] Smith cited the high costs of political advertising via broadcast media and the lack of locally-produced video for the half of the population that lived in cities of less than 50,000 inhabitants as among the reasons to promote the development of cable over the objection of broadcasters. But his vision of "an electronic highway" was the most ambitious of his proposals. Just as the federal government had subsidized travel by building roads so should there be "a smiliar national commitment for an electronic highway system, to facilitate the exchange of information and ideas."

Smith blasted the regulatory structure and urged reform. "Cable TV is,

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[191] Leland Johnson, The Future of Cable Television: Some Problems of Federal Regulation Report RM-6199-FF (Santa Monica, CA: Rand, 1970).

[192] As a monograph it was published by Harper and Row in 1972.

at present," he wrote, "not only incorrectly set up to provide full benefits to the public; it is set up in a way to abridge basic freedoms of speech, press and assembly."[193] He called not only for common carrier status for cable but urged that operators be designated public utilities and regulated as such. Many of the services he cited as being "strongly in the public and national interest" are based on the presence of a return channel such as library services, facsimile and mail deliveries, and crime prevention and detection services. Unless national planning was better with cable than it was for broadcast television, Smith warned that cable would fail to live up to its promise.

The month after Smith's work was first published, the Alfred Sloan Foundation established its own commission to look into the matter.[194] It also deplored the distance between cables "awesome" promise and its "trivial" impact. To that point in its development, according to the Sloan Commission report, cable had

> dealt primarily with entertainment at a low level of sophistication and quality...It has been obliged to think of the mass audience almost to the exclusion of any other, and in doing so has robbed what it provides of any of the highly desirable elements of particularity.[195]

Although the Sloan Commission report did not call for common carrier status it did recommend that cable operators be required to build systems with at least a limited return path. It predicted that this would be a conventional component in cable systems by the end of the decade. Interestingly, the

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[193] p. 90.

[194] On the Cable: The Television of Abundance (New York: McGraw Hill, 1971).

[195] p. 167.

options they outlined for the development of interactivity included only the "digital return" (ie. the ability to say yes or no to a question posed by an on-screen host), and audio or video back to the head end (both of which were considered impossible). The presence of a terminal more sophisticated than a simple yes/no switch was not considered by the commission.

A conference in 1970 sponsored jointly by the University of Chicago and the American Federation of Information Processing Societies (AFIPS) also tried to move cable away from its pure entertainment orientation. A number of papers were presented that considered cable's future as a non-entertainment medium. Participants converged towards a consensus that cable was the most cost-effective choice among the various alternatives for "design[ing] an equitable distribution of information power for all strata of society."[196]

In August 1971 FCC Chair Dean Burch wrote a fifty-five page letter to the Senate Communications Subcommittee outlining the Commission's proposed new approach to regulating cable. By the time this letter had grown into the Commission's 1972 Report and Order virtually everyone with a typewriter had published a comment on cable's revolutionary potential.[197] Between 1969 and 1972 the Ford, Kettering, Sloan, Edward Jon Noble, Kresge, Markle, Rockefeller and Stern Foundations contributed $8,932,000 to the study of the future of

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[196] Harold Sackman, Mass Information Utilities and Social Excellence (Princeton, NJ: Auerbach Publishers, 1971), p. 6.

[197] Other attempts include: William Mason, "Urban Cable Systems," MITRE Corporation Report M72-57 (May 1972); Peter Goldmark, "Communication and the Community," in Communication, a Scientific American Book (San Francisco: W. H. Freeman, 1972); Joseph Newman, Wiring the World: The Explosion in Communications (Washington, DC: US News and World Report, 1971); G.M. Walker, "String the Wired City: Two-Way TV descends from Blue Sky to Real World," Electronics September 1971, pp. 44-9.

cable television.[198] Industry leaders such as Irving Kahn were predicting "a significant number of systems with some type of two-way services in operation" within a few years. Operators began two-way tests in 1970 and 1971 in New York City and Massachusetts.[199]

Richard Vieth's Talk Back TV: Two-Way Cable Television covers this period of interactive cable development quite extensively.[200] Vieth recounts the experiments conducted by five companies (Rediffusion, Sterling Communications, Telecable Corporation, Teleprompter, and Mitre Corporation) in late 1970 and early 1971. Although each implemented interactivity differently these experiments represent the first wave of cable-based interactivity.

To Rediffusion, a British company, interactive cable meant a "Dial-a-Program" system in which a telephone dial was fitted to the television receiver. Users literally dialed the program source they wanted, which was then sent to them.

Sterling Communications was the company that owned the franchise for lower Manhattan. In its tests, ten terminals in four buildings allowed users to vote on "Miss Home Terminal of 1971." Although there were plans for a 500 terminal test, the acquisition of Sterling by Time, Inc. led to the end of this experimentation. The four-button set-top device used by Sterling was "typical of first-generation hardware for two-way TV," according to Vieth, who added that

> whether or not such units have enough appeal for the consumer of TV services when compared to more extensive (and more expensive)

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[198] The Network Project, Notebook Number 5: Cable Television June 1973, Appendix D (from foundation annual reports).

[199] Wiring the World, ibid, p. 21, 60-62.

[200] Blue Ridge Summit, PA: TAB Books, 1976.

terminals is a question that cannot be answered before sufficient trials have been made.[201]

The Telecable experiments represented a step beyond the first generation hardware. Telecable integrated video, voice, and keyboard-based communications but made them available at first to a single subscriber (a 17 year old boy suffering from a brain tumor). This was extended to six subscribers but then cancelled in 1973. Ultimately Telecable applied for and received money from the National Science Foundation to conduct education-related experiments in Spartanburg, South Carolina in conjunction with the Rand Corporation (discussed below.)

Teleprompter was at the time the nation's largest cable system operator. Due to lack of an acceptable home terminal, the company placed a video character generator in each household that could be used to create a textual message on a monitor at the cable company headquarters. A prototypical terminal was developed, according to Vieth, but not used in any actual tests.

The Mitre Corporation's experiments in Reston, Virginia used a hybrid cable-telephone system in which the return path was provided by the telephone network. The telephone was used to select a still picture at the cable company head end that was then displayed on the home television

As a result of all this activity Vieth concludes that

> it is a foregone conclusion that two-way TV will become fully developed at some distant time. Not out of absolute necessity, to be sure, but from sheer weight of research and preliminary development...The studies and reports, the various pilot projects, the public and private investments, and the simple determination of a whole spectrum of individuals and organizations lead to the inescapable conclusion that two-way TV is here to stay.[202]

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[201] p. 40.

[202] p. 194.

Elsewhere, however, he urges a "realistic assessment" of two-way TV and "a healthy skepticism regarding supposed social benefits."[203]

As a result of all this activity, the Commission's new regulatory blueprint for the next decade embraced both the television of abundance and the interactive visions built up by the "blue sky" literature. It required that new systems have a minimum capacity of twenty channels of which some had to be reserved for public, educational, and governmental access. New systems also had to have two-way capability and currently operating systems would have to be rebuilt by 1977 to provide the same capacity.[204]

B. The Challenge of the 1972 Rules

The Commission's rules faced the immediate opposition of industry decision-makers. They perceived the requirements as being an unnecessary drain on their financial resources which would inhibit the number of subscribers and enhance the status of broadcast television. However, the Commission also provoked another powerful interest group. The FCC policy included pre-emption of state regulation of the non-video two-way services it was requiring cable systems to provide. The purpose of this federal preemption was to limit the ability of the state utility commissions (traditionally dominated by telephone company interests) to squelch cable's growth into areas traditionally seen as the domain of the telephone industry.

Thus the attempt by the industry's leaders to get out from under FCC jurisdiction in 1972 in United States v. Midwest Video Corp. on the grounds

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[203] p. 210.

[204] Docket Numbers 18397, 18397-A, 18373, 18416, 18892, 18894, 36 FCC 2d (1972).

the FCC had exceeded its jurisdiction was not successful. The Court found the Commission's objectives for program diversity and localism justified program origination requirements. The Court upheld the "ancillary jurisdiction" argument, but found that this "does not in and of itself prescribe any objectives for which the Commission's regulatory power over [cable] might properly be exercised."

This left open a challenge by the National Association of Regulatory Commissions (NARUC) that did successfully limit the 1972 rules. The state regulators considered their sovereignty violated and thus had a vital interest in challenging the rules. Agreeing with them, the Court of Appeals for the District of Columbia held in NARUC v. FCC that strictly intra-state two-way cable services are not subject to FCC jurisdiction.[205]

Then in 1979 the Supreme Court went even further. In FCC v. Midwest Video Corp. ("Midwest Video II") the Court held that the FCC had exceeded the limits of its authority by requiring free and leased access channels and two-way capacity. Since the Communications Act explicitly states that broadcasters shall not be designated common carriers and the FCC's rules had imposed obligations to offer facilities for public use over which they would have no editorial control the court felt that cable operators were being treated impermissibly. In a footnote, however, it did allow the possibility that the two-way capacity requirement could be justified on other grounds.[206]

During this period of legal challenge of the rules mandating two-way capacity the blue sky literature thrived. In 1973 Ithiel de Sola Pool edited

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[205] 533 F.2d 601 (1976).

[206] 440 U.S. 689 (1979).

a book entitled Talking Back: Citizen Feedback and Cable Technology.[207] It included six background papers written for the Sloan Commission and offered cable as a solution to the sense of alienation cited as being on the increase. In his introduction, Pool wrote:

> The social effects of interactive two-way cable technology are our central interest in this book. Providing citizens with increased participation in the running of their own communities is a priority goal. The thesis of this book is that the communications technologies that can most deeply affect the character of community interaction and community structure in the decades ahead are those that permit communication among medium-sized groups of persons, with two-way interaction among them.[208]

Although Pool and the other contributors considered both positive as well as negative consequences of interactive cable, and limited their predictions for the near term to "digital feedback" mechanisms, they also explored in detail how cable's bi-directionality could be put to work in a wide range of social and professional activities. Although more prudent than most, Talking Back still painted a picture of the Wired Nation.

The Nixon Administration's Cabinet Committee on Cable, formed in 1971, made its report in 1974.[209] It called for cable to be designated a common carrier, after which all public, educational, and governmental carriage requirements would be lifted. Local governments would remain the franchising authorities, but other than description of a demonstration program that included interactive services the report did not deal with the FCC mandate for two-way cable plant. At this point in cable's history, the future presence of

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[207] Cambridge, MA: MIT Press, 1973.

[208] p. 5.

[209] US Cabinet Committee on Cable Communications, Report to the President (Washington, DC: Government Printing Office, 1974).

interactive services was assumed.

The last major work in the blue sky literature of cable's early years as a mass medium also called upon government-sponsored demonstration projects to get two-way cable off the ground. James Martin's The Wired Society[210] proposed model cable systems "in selected areas, such as new towns or university areas."[211] Yet, he acknowledged that making these pilot projects a national reality would be difficult because of legal and regulatory problems. However, he predicted a growing market for interactive television from hobbyists, education, and "because of fads devised by the cable television industry that [will] become fashionable and sweep the country."[212] Like Smith, he compared the federal expenditure on highways in the previous ten years ($70 billion) and called for a similar investment in "electronic highways," which "would work miracles."[213]

By 1979, however, it was clear that the legal foundation for a federal mandate of interactive cable was lacking. There was no point in the FCC issuing a new set of guidelines without Congressional action. The Congress had begun consideration of changes to the Communications Act in 1976, but it was to take until 1984 for a set of changes to be agreed upon by both houses. For a time though, it looked as if competition between cable companies for franchises from local governments would be even more effective at bringing about interactive cable than even direct federal intervention.

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[210] Englewood Cliffs, NJ: Prentice-Hall, 1978.

[211] p. 169.

[212] p. 170.

[213] p. 288.

C. QUBE and the Franchise Wars: Marketing Interactivity

Two elements contributed to the important strategic role played by interactive services in the period of intense competition for major urban franchises. First, price and performance improvements in cable hardware made interactive systems possible. Second, even if the federal government was not able to legally mandate interactivity, the concept proved quite popular among municipal franchising authorities who included it in their minimum requirements and in their evaluation of competing bids.

One company proved without question the political viability of interactivity. Warner Cable bid for and won the Columbus, Ohio franchise in part by promising a large channel capacity and two-way services. With that system online in 1977, Warner went from being one company among equals in the industry to being the premier cable operator. In 1980 it won 1.1 million of 1.6 million of the US homes that were up for bid, an unprecedented portion of the new business. Never had a single company so completely dominated competition for new franchises. As a leading industry analyst put it,

> it is clear that the company's two-way interactive system has been an important ingredient in its share of victories being so high. While many competitors are bidding two-way interactive services, Warner appears to be benefiting from the fact that it is the only company with a real live model in Columbus.[214]

Warner's success at hyping interactivity, however, was to bring both two-way cable and the company down in a short number of years.

During the "franchise wars," however, Warner and QUBE were highly regarded and highly publicized. With so much written about it ("as if it were

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[214] DLJ, p. 19.

the second coming of Christ," according to one Columbus resident)[215] it is important to recall what it was. In its first generation QUBE subscribers were given a small five button keypad. With it subscribers could respond to the on-screen prompts to "touch now" to register their opinions. Although eventually upgraded in part to a fifteen button keypad, QUBE did not allow information access, electronic mail, real-time online conferencing, electronic transactions or any of the services that were to grow up around personal computer-based interactivity in the early 1980s. Hardware vendor Pioneer promised Warner that it would deliver a full alphanumeric keyboard in 1981 to give each QUBE subscriber the ability to send and receive electronic text and navigate through an online service, but this upgrading never took place.

As Warner built systems in Cincinati, Pittsburgh, Houston, Dallas, Milwaukee, and St. Louis these other cities were brought into a "QUBE Network." But in actual operation QUBE was plagued with problems. Programming on the interactive channel was only promoted on that channel and no where else. The few interactive shows that were produced by the 37 member "QUBE Network Staff" were very difficult to produce and continually interrupted by technical problems. Interactive cablecasting was conducted from 4-5 and 7:30 to 8 each weeknight but the "enormous problems with system reliability" led to scrambling on the air. Results of polling such as 450% agreement with a statement were not uncommon, according to a former employee, nor was a break in the satellite linkage between the Columbus studio and the headend at any of the QUBE cities. This eliminated that city's subscribers from participation

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[215] Margaret Yao, "Two-Way Cable TV Disappoints Viewers in Columbus, Ohio, as Programming Lags," Wall Street Journal September 30, 1981, p. 31.

in the program.[216]

The head of programming for QUBE acknowledged those faults.

> We failed to develop programs forms which would make the passive television audience into active two-way participants because we patterned the programs after existing television. We did not create programming indigenous to the two-way system.[217]

In January 1984 Warner closed down QUBE. Whether or not it was a failure is an open question. Despite the assertion by Hollander and others that QUBE's interactivity was merely to please the franchising authority, three quarters of subscribers to basic cable in Warner's cities took QUBE. A Louis Harris survey in 1982 found 86% of subscribers satisfied with the service. Although it cost Warner $20 million, QUBE's attention to and knowledge of audience desires led to the creation of The Movie Channel, Nickelodeon, and MTV. However, these successes came with the near death of the company. Warner once again led the industry, but this time by returning to the city councils they'd signed agreements with begging to be released from their obligations--especially interactive cable. So ironically QUBE's success as a franchising gimmick killed it. The $20 million spent on QUBE led to more than 35 times that amount in debt the company took on to live up to the franchising committments it had won. But the interactive experiment took the blame. "QUBE set back two-way services by at least fifteen years," complained former Warner executive Paul Beneteau with several years hind-sight.[218]

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[216] interview with Lisa DeLegge, March 1984.

[217] quoted in Carol Davidge, "America's Talk-Back Television Experiment: QUBE," in Dutton, et al, op cit, p. 99.

[218] personal interview, June 1986.

D. Interactive Cable Liquidated

As a result of its success at winning franchises Warner attracted American Express, which bought half of Warner Cable in 1979 for $175 million. The new company then took on $700 million in debt as it went about actually building the systems it had agreed to build. Then in 1982 Warner Communication's subsidiary Atari had a disasterous year. Warner was unable to raise its dividend and its stock fell sharply. In January 1983 it hired former Transportation Secretary Drew Lewis, whose job it was to reverse the $50 million in annual losses the company had incurred in the early 1980s. His cost-cutting did reduce debt from $875 million to $500 million and lowered debt-to-earnings ration from 20 to 4 times net operating income, but at the cost of selling most of the large urban systems, part of the company's interest in MTV, and other properties. And all interactive programming on QUBE was ended.[219] "We just promised too much," said Lewis to Dallas officials, "and now we find that to break even we can't live up to those promises."[220]

Even after its demise QUBE has been quite controversial. "Divide the expense of QUBE by the number of homes it won for Warner Amex in the franchise wars, and you'd have to conclude there isn't a company that wouldn't have paid for it gladly," said one cable industry analyst. Yet one of the most detailed investigator of QUBE's history rejects this interpretation of QUBE as a franchising ploy. According to Carol Davidge,

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[219] figures are from Carol Davidge, op cit.

[220] Sandra Salmans, "Cable Operator's Take a Bruising," New York Times March 4, 1984, Business Section p. 1.

> Warner has often been accused of establishing QUBE to win the franchise wars. This was not the case, inasmuch as the funding for QUBE began long before the industry was optimistic about city franchises.[221]

Despite this dissent, an overwhelming number of observers find in QUBE exactly this strategy. As outlined in section II above, most observers view the commitment to interactive cable as an epiphenomenon of the competition for franchise bidding.

Another interpretation of the industry's behavior over this period also appears to have some validity. In 1979 and 1980 the industry stumbled upon a previously unknown phenomenon: people would pay for more than one pay television channel at the same time. In 1979, fewer than 50 markets offered more than one pay channel. That number had multiplied by eight in just a year, leading to a 50% gain in pay cable units. As the new systems came online energy and channel capacity were given to these efforts with genuine success. Between 1979 and 1984 the fastest growing element of cable industry revenues were individually-priced permium television services, growing on average 152% annually compared with 134% annually for all revenues.[222]

Thus not only were the high-tech systems no longer necessary because the franchising wars were ending, but the industry did not see in them the source of rapidly expanding revenues the pay cable services offered. From Warner's experience the industry learned that interactivity was a high risk strategy to follow, and one that only worked for a short period of time, and not very well at that. As Davidge observes, "the cable industry as a whole was uncomfort-

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[221] Davidge in Dutton, et al, op cit, p. 85.

[222] NTIA Telecom 2000: Charting the Course for a New Century (Washington, DC: National Telecommunications and Information Administration, October 1988), p. 543.

able with the QUBE experiments and [was] almost gleeful at the demise of its interactive programs." Interactivity simply did not represent the quickest financial reward. If it did harbor secret future revenues they were very far in the future, or would never arrive.

Most importantly, however, the political needs of the industry had changed by 1984. The franchise wars were over and the "era of refranchising" had begun. A huge number of smaller city franchises were up for renewal in the mid-1980s because they had been written during the time in the late 1960s that the FCC maintained a moritorium on the importation of distant signals into the top 100 markets. The industry felt that it was in need of federal relief from having to compete for franchises in cities that already had incumbent operators. So in the early 1980s, with Reagan in office and the Senate under Republican control, it redoubled its efforts to secure legislation limiting the ability of cities to get operators to compete with one another at renewal time. This proved to be the final nail in the coffin of interactive cable.

E. The Era of Refranchising and the Cable Act of 1984

The Cable Communications Policy Act of 1984 neither mandates nor forbids cities to seek bi-directional cable systems in their franchise renewals. But the substantially altered relationship between franchising authorities and incumbent cable operators makes it unlikely that cities can "negotiate" for anything at all.

Cable industry negotiators sought to include language in the bill that would establish a presumption of renewal. The renewal provisions of the Act permit a franchising authority to consider only four factors: if the operator

has "substantially complied" with franchise provisions, whether the operator's service has been "reasonable" in light of community needs, whether the operator has the legal, financial, and technical abilities to provide the services it promises in its proposal, and if "the operator's proposal is reasonable to meet the future cable-related community needs and interests, taking into account the cost of meeting such needs and interests."[223]

The National League of Cities (NLC), which had negotiated on behalf of the nation's cities, intepreted this section as permitting "the exercise of considerable discretion as to whether to grant or deny renewal." However, one might conclude from the 100% renewal rate since the passage of the Act that the industry was more successful than the NLC at accomplishing its agenda. As National Cable Television Association President James Mooney characterized his victory, the new law would "sharply limit local government's ability to regulate cable."[224] Municipal officials either viewed the bill as "a massive giveaway" or at best "a necessary compromise." At the same time as the Cable Act, cities also received exemption from anti-trust damages, which since 1982 had been a major source of difficulty. In that year the Supreme Court ruled that cable operators could sue a city for refusing to issue a franchise. Under the new regulatory regime operators could almost certainly presume renewal, but municipal officials couldn't be forced to pay treble damages, common in anti-trust suits. The companion bill "was designed to take away a weapon of the cable operators," acknowledged one industry attorney in

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[223] 98 Statute 2792, Public Law 98-549, Section 626 a.1.D.

[224] "Congress Passes Cable Bill," CableVision October 22, 1984, p. 11.

the aftermath.[225]

It is not necessary to determine precisely who won in the passage of the Cable Act, but rather to observe that the ability of franchising authorities to deny renewal and force competition between operators for a new franchising period came to an end. And by December 1985, the first anniversary of the Cable Act, cable's involvement in interactive services had come to an end. The dream of a cable-based national broadband network no longer animated either Congress or the FCC, the power of municipalities to win this prize for their citizens was drastically undercut by the Act, and in the industry itself "two-way interactive" was a dirty term. With relief, the chief executive officers of both of the nation's largest cable companies could celebrate the death of interactive cable: "Cable makes a lot of sense," said John Malone of TCI, "but it has to be plain vanilla cable."[226] Trygve Myhren of ATC concurred: "Two-way cable costs you more than it gets you, there's no question about that."[227]

In conclusion, the combination of fate, market pressures for quick returns and for increasing stock dividends, the rise of other revenue sources, and the lack of pressure from government or consumers led to the demise of interactive cable. In particular, the robust financial health followed by the highly publicized crash of one of the industry's most spectacular performers allowed industry decision-makers to conclude what they wanted to conclude from

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[225] J. L. Freeman, "Congress Grants Cities Immunity From Damages in Antitrust Cases," CableVision October 22, 1984, p. 29.

[226] "The Suprising Success Stories in Cable Television," Businessweek November 12, 1984, p. 81.

[227] New York Times March 4, 1984, op cit, p. F-22.

the beginning--that the future of cable lay in its taking the path of broadcast television. The accumulation of mass audiences for large national advertisers appeared as early as the 1960s to be cable's safest development path. And although it was resolutely opposed by everyone except the industry's financiers and decision-makers, their ability to make the industry's innovation decisions led them precisely down the path a coalition of government, scholars, and public interest groups had tried in vain to block.

Chapter V
Summary, Conclusions, and Recommendations

Given the newness of cable to most of America, our predisposition to be optimistic toward the future in general and technology in particular, and the general social upheaval of the late 1960s it was perhaps inevitable that cable became a vehicle for social objectives broader than simply making money. As Kristin Beck has written, "the fervor, optimism, and social spirit of that period had pervaded the writings on cable television."[228] In particular, bi-directional cable was heralded as being a major way social alienation was to be treated and political participation improved.

Despite the expenditure of about $9 million by public interest groups and foundations to guide the development of cable from 1969 to 1972, and the virtual adoption of those recommendations by the Federal Communications Commission in 1972, those efforts failed. For a time cable might have developed interactive services in the effort to win major urban franchises from city councils, but the success of one company's efforts with this strategy brought both the company and the interactive service down. The industry was then as a whole able to go back to city councils and ask to be released from franchise obligations, now that it had been "proven" that interactive cable didn't work. Cable's decision-makers during this time period were genuinely frightened with being taken over by larger companies if they did not just continually increase earnings but also profitability--a very difficult thing to do given the industry's enormous capital committments in the early years of a franchise.

However, there is nothing in this record that predetermined the outcome.

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[228] Cultivating the Wasteland, op cit, p. 187.

Several reasons for the failure of interactive cable appear to be contributing factors.

First, interactive cable failed because the wrong lessons were learned from the early experiences. The experience of Warner and QUBE were generalized to be lessons for all cities and all operators, when in fact they were highly specific to a particular context. The obituary written about QUBE and other early experiments, while widely acknowledged as true, doesn't appear to be correct. While Warner was highly compromised by the success of QUBE as a franchising gimmick and the industry as a whole saw its profits dip in the early 1980s, its basic health was never in doubt. Looked at historically, revenues continued their rapid climb throughout the 1980s, even in the face of huge capital commitments. As long as the public and the industry accept that the death of this "premature baby struggling for life"[229] means that no other children can survive, no other qualified entities will even attempt to be parents.

Warner's special position in the history of cable-based interactivity bears some scrutiny. Were they clever or foolish? At first they appear to be victims of their own franchising success. They simply lacked the capacity to handle all that new business. However, some questions remain. Why didn't Warner the cable operator cooperate with Warner the owner of Atari, which was the leading home computer manufacturer? The conclusion that is easiest to reach is that the company did not want interactive cable to succeed as a real business, or that it was unwilling to invest the time and energy necessary to create this new business. Yet, Warner's QUBE experience led to the creation

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[229] Priscilla Mead, Council Member, Upper Arlington Ohio, quoted in Davidge, in Dutton et al, p. 98.

of MTV and Nickelodean, which are two of the industry's most important programming successes. Perhaps if Warner had been less successful at winning franchises it would have continued to develop interactivity on QUBE until it stumbled upon the right mix of hardware and programming. Unfortunately there is no way to know.

Second, QUBE was one particular implementation of interactivity and a quite limited one at that. The digital feedback or polling method only allowed users to respond to questions put to them by an on-screen image. That experience with severely limited interactivity was generalized into a commonly-accepted lesson that there was nothing of commercial value that used cable's bi-directional capacity. Because QUBE was not upgraded in time to a full alphanumeric keyboard, interactive cable and the microcomputer never met one another.

While QUBE was going online in 1977 the first microcomputers were just coming to the market. In 1979 Atari brought its first low cost microcomputers to market and the software packages that were to lead to a vast explosion in consumer demand for the computers were also introduced. In a decade the microcomputer achieved a rate of adoption more than five times faster than either the telephone or the automobile and might have provided the home terminal that QUBE never became.

However, interactive cable and the microcomputer essentially missed one another. The only commercial service designed for cable delivery to home computers, X*Press Information Service, is delivered via one-way cable due to lack of alternatives. Some amount of rudimentary selectivity is possible, but

no interaction of any kind is allowed.[230] So, despite the massive increase in data communications revenues being captured by the telephone companies, cable is not participating in that activity.

Finally, cable and interactivity parted ways because cable operators found easier ways to make money. Cable companies have pursued vertical integration, buying up programming sources so they can earn production, distribution, and advertising revenues. Cable interests spent $737 million in 1988 to produce their own original programming for basic cable networks, an increase of 16.7% over the previous year.[231] This is exactly the kind of industrial organization that the cable studies of the early 1970s warned against. Even the Office of Telecommunications Policy and President Nixon's Cabinet Advisory Group on Cable recommended a separation of cable's interest in programming and distribution. That is, however, precisely the path the industry has pursued.

The most obvious pattern in interactive cable development--the waves of boom and bust--appears to be caused by the change in regulatory dynamics in the five periods. The public interest lobby was most effective in the pre-1972 period and successfully captured the regulatory apparatus to validate its vision of cable's future. However, the multiple points of entry into the regulatory apparatus worked to the industry's favor in the second period. It could choose cases to pursue in the courts, and was helped especially by the fact that state-level utility regulators sought to overturn the 1972 rules.

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[230] David Lytel, "X*Press to Success or Obscurity?" Information Today March 1986, p. 9.

[231] Kristen Beck, "Basic Cable Goes Hollywood," Channels 1989 Field Guide, December 1988, p. 92.

In the third period intra-industry competition for franchises was the most powerful force acting to bring about interactivity. This would not have been possible, of course, without a regulatory framework that demanded local franchises. The commercial failure of a single company was the most important element in the fourth period, whether or not this was objectively generalizable to the entire industry or not. Finally, in the fifth period the restriction on the powers of local regulators as a result of the Cable Act and the end of interactivity are not coincidentally related. Without the ability to articulate the desire for interactivity through this vehicle the public interest lobby simply had no place left to go to push for interactive cable.

This analysis suggests that cable's unique regulatory structure had a great deal to do with the development of interactivity. Since as a recent National Telecommunications and Information Agency report puts it, "the local government's franchising authority over cable television is under attack,"[232] those who continue to seek interactivity through cable systems would do well to defend it. Without competition at the local level for franchises cable-based interactivity would have died with the striking down of the 1972 rules and never have been heard of again. As a direct result of the much-maligned regulatory regime for cable, however, interactivity stayed alive as a policy goal because it stayed alive in the public imagination.

To get an idea of what might have happened if cable had taken the road not chosen, it is worth asking: If Congress had given the FCC the proper authorization to mandate interactive cable in 1972, how might the industry be different in 1989? Certainly there is ample precedent for this kind of

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[232] Telecom 2000: Charting the Course for a New Century (Washington, DC: US Department of Commerce, 1988), p. 558.

Congressional action, especially the 1962 legislation mandating that all new television sets contain the hardware necessary to receive UHF signals. But in the case of interactivity the legislative mandate was lacking. What might have been?

First, the current frontier in cable programming is impulse pay-per-view, similar to those offered by most hotels in which the user may sample a program and then be charged after watching for a certain period of time. With two-way systems these services are trivial to implement, but without them impulse pay-per-view is very difficult. If consumers will take multiple pay units there is the possibility that they will also use multiple impluse pay channels. But this is an open question now, as virtually no one in the industry has the technical means at their disposal to test this hypothesis.

Second, there could have been by now genuine competition between cable companies for local loop voice traffic. These can either be the "last-mile" connections for long distance carriers or actual local telephone services. As former FCC commissioner Kenneth Cox put it, "If a real broadband network is ever constructed, its operators could virtually provide conventional telephone service for nothing."[233] But needless to say this is not in the interests of the former Bell companies. Despite this, the federal government has opened the door for cable to pursue this business. Cable's reluctance to be enticed into areas outside of its traditional activities, however, has hardened into a resolve to stay in the television business because "everyone knows" there is no money to be made in bi-directional cable services.

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[233] quoted in Smith, The Wired Nation, op cit, p. 65.

Third, in terms of business services, two-way cable might have provided some genuine competition with telephone networks for high speed data and voice links. Very few cable operators are pursuing this business however, as almost none of them have two-way systems. On the level of consumer information services, cable had the ability to build integrated systems with the right home terminals and headend equipment and bundle the services together with the hardware costs, as the telephone companies are prohibited from doing. This might have been done in distinct local markets years before the French experiments in online services, which now generate more than a billion dollars annually, ever got started.

Even without having been able to make the 1972 Rules stick, the Federal government has been giving cable every opportunity to develop interactivity, but to no avail. The telephone companies have been constrained by the FCC and the courts from getting into the provision of interactive services until quite recently. The 1982 Consent Decree, for example, that settled the government's anti-trust case with AT&T left the door wide open for cable. AT&T agreed not to engage in "electronic publishing" over its own network until 1989. Thus from 1984 to 1989 the former Bell operating companies were specifically precluded from developing electronic publishing, and yet cable had already "learned" that there was no future in interactivity.

The FCC has also jumped in to entice cable operators to pursue interactity and non-video services. In August 1985 the Commission successfully ruled that Cox Cable did not need to get a "certificate of public convenience and necessity" from the State of Nebraska before offering data communications services. Despite the fact that these services were entirely intrastate in nature, the Commission found that

> any state regulation of institutional services offered by cable companies that act as a de facto or de jure barrier to entry into the interstate communications market or to the provision of interstate communications must be preempted.[234]

The decision allowed MCI long distance customers to connect with the national network via Cox's local cable system, but Cox discontinued the service soon after winning the decision because it did not show a profit.

Telephone industry executives are confident that cable will not be able to move into services that require bi-directional plant because

> cable may be the strongest competitor to the local distribution network in the long run...[but] less than 2% of existing cable systems have two-way capacity...[235]

Thus national policy is highly favorable toward creating cable-based competition for traditional local telephone exchange services similar to the competition that has been fostered between alternative carriers of interexchange services. Yet the opportunity finds the cable companies looking the other way, toward broadcasting instead of telephony. Cable's data and interactive revenues represent less than a half of one percent of the industry's revenues. "Sophisticated data and voice services," observes an industry newspaper, "are considered a 'blue sky' menu that most operators have not even considered."[236]

It is difficult to find that the public interest has been served by this regulatory failure. But in evaluating this record, different people find different lessons. The FCC's Cable Television Bureau Chief Steve Ross admits with chagrin, "we were a total flop." Yet to industry leaders such as investment banker John Suhler it was two-way cable that was the flop.

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[234] Telephony, November 4, 1985.

[235] Telephony April 20, 1981.

[236] MIS Week, August 14, 1985, p. 1.

> Cable hasn't done anything about information services or any of that stuff because there is no demand, no demonstrated need...If anyone could prove a market need then they'd scramble for the business.

Ultimately it is impossible to determine who is "right" without knowing something about the future. Are there consumer-oriented information services that would attract a mass market audience? Is there a way to make videotex pay? This question--the successor to the question of two-way cable's viability ten years ago--is now at the heart of yet another new wave of enthusiasm for interactive services.

The new wave of enthusiasm is built around three things--the adoption of fiber optics by cable operators, potential inter-industry competition with telephone companies for the delivery of cable's traditional product, and a post-Cable Act reaction on the part of local and federal regulators to see cable controlled through this competition as a substitute for direct reregulation.

Fiber optics by itself has attracted considerable attention in the cable industry. Its enormous carrying capacity had been ignored by the industry until the mid-1980s because it had been deemed too expensive. But operators are now pursuing fiber optics with a great deal of enthusiasm because it can lower operating costs.[237] Their configuration of fiber-based systems, however, make them poorly positioned to provide interactivity. They are still

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[237] Fred Dawson, "Cable Sees a Shortcut the Telcos Can't Follow," Cable-Vision August 15, 1988, p. 39; Fred Dawson, "GI Makes Major Moves into Fiber," Cablevision September 12, 1988, p. 12; Fred Dawson, "The Next Step in Fiber," Cablevision October 10, 1988; Fred Dawson, "TCI Leaps Into Fiber," Cablevision December 5, 1988, p. 44; James Chiddix, "The Fiber Opportunity: Unparalleled Since the Advent of Satellite Services, Cablevision April 24, 1989; Fred Dawson, "Fiber Momentum Builds with Several New Projects," Cablevision June 5, 1989, pp. 8-12.

systems optimized for the one-way delivery of video, and it is for these reasons that the industry is deploying fiber. For the most part they are positioning themselves for high-definition television, not interactivity.

And yet even interactivity itself is making a minor comeback. Firms that are seeking to provide interactive entertainment are leading the way.[238] However, the new wave of interactive services either ignore cable as a distribution medium or require unique hardware delivered by cable operators to subscribers. Cable's ability to provide user selected video music clips and home shopping services are also being pursued. Yet despite Cablevision's front page announcement of "The Second Coming of Interactive TV" the premier service featured in the article--JC Penny's TeleAction service--was dead in six months.[239] Notably, virtually none of the services currently trying to gain a toehold expect operators to build them a return path. They use the telephone network or an FM radio frequency.

The telephone company's potential involvement either as part of an integrated system or as a provider of video programming thus is heavily linked to this new wave of enthusiasm for interactivity. Although the potential for telephone company involvement has always been there theoretically, it was only recently a live issue again, after an eighteen year silence. The FCC has opened an inquiry into a proposed elimination of the cable/telephone cross ownership restrictions which would allow telephone companies to build and operate cable systems in their own areas, which has been in place since 1970.

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[238] Linda Haugstead, "Firm Aims to Develop Interactive TV Games, Multichannel News February 15, 1988, p. 1.

[239] Craig Kuhl, Simon Applebaum, Wayne Friedman, "The Second Coming of Interactive TV," Cablevision October 24, 1988, pp. 28-46; Joe Terranova, "J.C. Penny Checks Out of Telaction," Multichannel News April 3, 1989, p. 1.

The installation of fiber and the elimination of the cross ownership restrictions are closely related. The action is represented as a means by which telephone companies will be able to support the capital investment necessary to build integrated digital networks that allow video, voice, and data to be carried on the same pipeline. This would allow them to deliver multi-media products such as are now being produced for personal computers that can read CD-ROM disks.[240]

The justification of the telephone company's involvement in cable as a means of getting fiber to American households is an echo of the blue sky literature of the early years of cable. For example, a citizen's lobby called Opt In-America believes "OPTIC Fiber can bring the INFORMATION Age to Every Home in America." Fiber--either the cable industry's implementation of it or the telephone company's--will reduce illiteracy, improve education, eliminate gridlock, make America more competitive, and end America's "cultural stagnation."[241]

The telephone company's ability to bring this technological nirvana to America's households is their strongest arguments for being freed of the 1982 Consent Decree restrictions keeping them out of the electronic publishing

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[240] Michael Rogers, "Here Comes Hypermedia," Newsweek October 3, 1988, pp. 44-45; Stuart Johnson, "IBM, Intel Codeveloping DVI Multimedia Products," InfoWorld April 3, 1989, p. 1; "Laurie Flynn, "Macworld Expo Focuses Attention on Multimedia," InfoWorld August 7, 1989, p. 1; Rachel Parker, "Macworld: Multimedia Gets Down to Business," InfoWorld August 14, 1989, p. 1.

[241] Opt-In America White Paper: "The Information Age is Calling: Will Cable Get the Message?" PO Box 18958, Washington, DC 20036; Gary Slutsker, "Goodbye Cable TV, Hello Fiber Optics," Forbes September 19, 1988, pp. 174-179.

business[242] and for being generally allowed to own and operate cable systems.[243] To slowly bore away at the restrictions keeping them out of this lucrative business--even if they never develop services more advanced that the one-way delivery of video entertainment--the telephone companies have been pursuing a strategy of building demonstration projects on a small scale.[244]

Not only have the telephone companies argued that they be allowed to compete with cable companies in the interest of the development of advanced services, a number of people in the regulatory community have sided with them with the hopes of providing some competition for cable. FCC Commissioners and Members of Congress supporting the telephone company side have argued that competition would bring about improved service and lower rates to con-

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[242] Jeannine Aversa, "White House Moves to Lift Restrictions on Baby Bells," Multichannel News December 21, 1987, p. 1.

[243] Tom Valcovic, "The Rewiring of America: Scenarios for Local-Loop Distribution," Telecommunications January 1988, pp. 30-36; Lisa Stein, "Debating Telco Entry," CableVision December 19, 1988, pp. 12-13; Jeannine Aversa, "FCC Hears Pros, Cons of Telcos in Cable," Multichannel News December 26, 1988, p. 20-21; Lisa Stern, "Cable/Telco Debate Appears Stalemated," Cablevision January 16, 1989, p. 42-43; Lisa Stein, "Quello Rocks Telcos," Cablevision January 30, 1989, pp. 22-24; Rachel Thompson, "Cable Goes Nose-to-Nose with Telcos," Multichannel News August 28, 1989, p. 53, 59.

[244] Fred Dawson, "Number of Fiber-to-Home Projects by Telcos Double," Cablevision February 15, 1988, p. 12; Jeannine Aversa, "Telco Wins Okay for FO Cable System," Multichannel News January 9, 1989, p. 3; "Jeannine Aversa, "FCC Approves GTE's Cerritos Project," Multichannel News May 1, 1989, p. 1; Lisa Stein, "NCTA May Appeal Cerritos," Cablevision May 8, 1989, pp. 18-19; Laurence Swasey, "Digital Fiber-to-Home Passes Test in FL Community," Multichannel News July 24, 1989, p. 34.

sumers.[245]

Will these activities lead to a new 'blue sky' period for cable? Some observers believe so. In his review of urban communication policy Seymour Mandlebaum notes that

> grand hopes have often been dashed but technological innovations and waves of new recruits who do not remember the first dream have constantly refreshed enthusiasm for the promise of urban broadband networks.[246]

Kenneth Laudon's reassessment of his earlier predictions also leads to the promise of a renewed enthusiasm for interactivity via cable. Although the earlier optimistic view of cable's development was not realistic, the vision it contained outlines the future of the medium--although one that will not come nearly as fast as originally hoped for, says Laudon.

> The real future for cable is as an alternative full service interactive telecommunications network capable of replacing the telephone system which is approaching, in concept, one hundred years in age. It's about time we had a telecommunications network which is economical, high-capacity, fully networked and interactive, and capable of handling video, voice, and digital communications. Without such a common switched network in the United States, the prospect is that we'll be setting up hundreds of thousands of local area networks and office systems unconnected to one another when it would be so much more economical and rational to develop a highly-integrated, interactive cable network system. Unfortunately, this view of the real potential of cable television is a long, long time in the future.[247]

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[245] Jeannine Aversa, "Bill to Lift Restrictions on BOCs Expected Soon," Multichannel News February 29, 1988, p. 18; Jeannine Aversa, "Cable Reregulation Heats Up," Multichannel News April 17, 1989, p. 1; Jeannine Aversa, "Congress Introduces Cable Legislation: Seeks Open Door for Telcos, Rate Regulation," Multichannel News May 22, 1989, p. 1; Jeannine Aversa, "FCC Nominees Favor Competition, Not Regulation," Multichannel News August 7, 1989, p. 17.

[246] "Cities and Communication: The Limits of Community," Telecommunications Policy Volume 10 (1986), p. 138.

[247] The Wired Society: Promise and Performance, paper delivered to Annenberg School of Communications Washington Program, July 12, 1984, p. 26.

He finds the current telephone network more than adequate for today's needs.

Despite its impressive financial performance and the best efforts of a huge coalition of government, academic, and public interest groups, cable has not lived up to the vision that saw it contributing to cultural pluralism or greater interaction between the elite and those whose role is to be citizens and consumers. As a result it may be the telephone industry that picks up this vision of "wired cities" and uses it as a wedge with which to enter what has been cable's traditional line of business. Ironically enough, it may be that the cable industry's best weapon against the groundswell of regulatory and popular support for telephone industry involvement in video and advanced interactive services would be to recapture the blue sky vision through a new wave of interactive experiments. Even with the diminution of the power of local franchising authorities there appear to be few reasons, after all, that the cycle of enthusiasm and disappointment for advanced communications services can't go on indefinitely.

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