

**Executive Summary
Information and Society Working Group
Annenberg Public Policy Center**

Background

In February, 1995, in response to a request from Kathleen Jamieson, Dean of the Annenberg School for Communication and Director of the Annenberg Public Policy Center at the University of Pennsylvania (APPC), a working group was formed to plan activities in the area of Information and Society. The initial group included professors David Farber from Engineering and Gerald Faulhaber from the Wharton School and was chaired by Oscar Gandy from the Annenberg School. The working group was expanded to include professors C. Edwin Baker from the Law School, Richard J. Solomon from MIT, and Pablo T. Spiller from UC Berkeley. The success of the working group was enabled by the first rate administrative support it received from Ms. Deborah Stinnet, and the careful meeting summaries produced by Katharina Kopp, Sue Yoon Kim, and Jon Shapiro. Ms. Kopp integrated these summaries into the final document which forms the essence of this report.

Planning Workshops

A series of three special day-long workshops were organized in order to provide the Center with guidance in the area of Information and Society. The sessions were initially seen as reflecting a division of labor, interest, and expertise. The first meeting was primarily for engineers and technologists, the second was primarily for economists, and the third was for social theorists. The invited participants were asked to 1) identify and characterize what they saw as the primary policy concerns within their specialized areas, and 2) to recommend to the Center how it might best utilize its resources to contribute to the policy process in this area.

The Technology Group developed a classificatory scheme as an aid to their discussion and as a framework for their recommendations to the Center. The scheme identified those technologies that 1) were expected to emerge within five years without further policy intervention; 2) were expected to emerge only with a substantial economic or policy push; 3) were expected to be blocked or delayed by social or political factors. The following were among the key recommendations made by the participants:

1. Maintain technical currency through interdisciplinary exchange, including short sabbaticals and electronic conferencing.
2. Integrate the academic with the practical, and develop an awareness of the social, economic and political implications of information technology.
3. Increase public awareness of policy issues and "wrongheaded" solutions, while retaining neutrality.
4. Utilize journalists as information intermediaries.

The Economic Policy Group had a series of structured discussions focusing on: 1) the role of public policy in shaping the new technologies; 2) intellectual property and the networked future; 3) immediate policy concerns; and 4) the Annenberg Public Policy Center agenda. The following conclusions were offered:

1. Public policy choices will determine how effectively markets can deliver on the promise of the new technologies. Experience suggests that markets solve the problem of standards, interconnectivity, and interoperability only when a single firm dominates the market (e.g.,

the Bell System, IBM, Microsoft), which in turn gives rise to problems of monopoly power and regulation. Public policy will affect market outcomes by encouraging/discouraging competition, standard-setting, mandated/open interconnectivity and other decisions.

2. Many have discussed universal service in the context of the new network services, much as if the old telecommunications model can be carried over without change into the new environment. Whether and how public policy defines a universal mandate, and upon whom responsibility for it rests, will determine the shape and content of the networked future.
3. The new media give rise to challenges of traditional intellectual property regimes. New adaptations of copyright and other forms of IP will shape what will be made available on net, by whom, to whom, and at what price.
4. The immediate policy issues now facing Congress and the states focus principally on regulation of telecommunications. The debate has not been well-informed by either economists or an understanding of how this industry is changing. The issues discussed have been the traditional ones of regulated utilities.
5. The Annenberg Public Policy Center can perform a powerful role in bringing high-quality economic analysis to bear on the critical public policy debates in Congress and the states. By providing a public forum for the best research on these policy issues, the APPC can i) educate the public about the true stakes of the information game; ii) provide the press with informed analysis of what issues are important and why; iii) act as a "knowledge resource" for public policy makers at the state and Federal level.

The Social Theory Group made use of framing statements to guide discussion in four areas: 1) the informational horizon; 2) the problem of access; 3) the public policy process; and 4) the Annenberg Public Policy Center Agenda. Among the recommendations offered by the group, we note a challenge to the Center to:

1. Raise the level of discourse about policy objectives.
2. Gather and disseminate policy relevant information that is not available from other sources.
3. Extend its definition of the policy actors to include the public interest community that can inform and be informed by the Center.
4. Recognize the limitations of journalists as informational intermediaries.

Information and Society Proposals

In a series of discussions held following the specialized meetings, professors Farber, Faulhaber and Gandy agreed on the following recommendations for the structure of the APPC: In order to realize its objectives, the Center needs:

1. an identifiable active group of individuals whose primary academic and scholarly interests are consonant with the mission of the Center. This group would (eventually) include i) full-time faculty members of Annenberg, who would be joint with other schools such as Wharton and SEAS; ii) visiting faculty from other schools, who would be in residence at Annenberg, possibly with joint appointments at other schools; iii) faculty at Wharton or SEAS who would be "Research Associates", whose scholarly interests are consonant with the APPC mission, and who may teach, draw research support, attend and give APPC seminars, etc.; iv) doctoral students from Annenberg, Wharton, and SEAS working with

Center Associates, attending and giving seminars, etc.

2. a series of events, sponsored by the APPC, ranging from academic seminars to conferences to press briefings to Congressional policy research updates. The core people participating in these events would be the active group of scholars, but would also include those from other universities and policy centers with similar interests. Conferences would be designed to generate a series of books and papers published under the APPC aegis. Opportunities to communicate with the press, the community, and legislators/ regulators would be actively sought through events designed to attract these audiences.
3. Two special conferences with associated publications might be planned for Fall, 1996 and Spring, 1997 to explore critical issues identified by the planning workshops. The Fall conference would examine those forces likely to block the introduction and dissemination of information technologies identified by the Technology Group. Among the technologies that were seen as likely to be blocked were 1) privacy-enhancing systems, 2) electronic money, and 3) language translation. The conference would provide for the discussion of commissioned papers by leading researchers familiar with the technology and the forces of opposition.
4. The Spring conference, tentatively titled "Engaging the Marketplace," would explore the advantages and disadvantages of reliance on the marketplace for the production and distribution of information and information technology. This conference would help to identify both the problems and the potential for marketplace solutions to the problems that are unique to informational resources, goods, and services.
5. a Center Director, who would be the "spark plug" that arranged and organized events and visitors to the APPC, is an essential first step. We envision this individual as a recognized scholar who is also highly entrepreneurial and highly visible in the policy community. We suggest a "high-energy individual with an urge to build and a need to be seen, and who is willing to commit to Annenberg and the Center full time. The mission of the APPC is unlikely to be realized without the leadership of such an individual, so we view locating and attracting such an individual as the top priority item for the APPC.
6. an APPC Advisory Board, consisting of i) academics from other Penn Schools, such as Wharton and SEAS; ii) academics from other universities with interests consonant with the mission of the Center; iii) members of the media community (press, TV, Internet, etc.); iv) members of the public policy community.

Our specific recommendations are, therefore:

- a) identify and hire a Center Director, as described above. This is a matter of the greatest urgency.
- b) identify potential visitors to the Center, who could spend one year, one term, or one summer in residence, doing research, giving seminars, organizing meetings, speaking with the press, etc. We need to be looking now for summer '96 and fall '96 visitors.
- c) identify potential Center Associates within the university, and design programs to involve them in the intellectual and policy life of the APPC. We need to get this into place this spring '96.
- d) identify an Advisory Board and put it in place by April '96.

Summary of the Three Planning Meetings for the Annenberg Public Policy Center

The goal of this series of three meetings convening technologists, economists, and communications and political science scholars, is to provide the Annenberg Public Policy Center with suggestions and guidance in what the Center should adopt as its mission. The participants of the three meetings were asked to identify and advance the central questions in their respective disciplines as they relate to communications public policy; in doing so they were asked to adopt a long-term perspective that takes the interests of the discipline of communications policy and the interests of the Policy Center into consideration. The Center hopes to become an institution in communications policy making that does not duplicate existing efforts, that aims to make connections across a variety of academic disciplines, and that significantly advances the process of communications policy making and its understanding.

I. Technology Policy

a) 'Gating' Technologies

According to the participating engineers and computer scientists, projections of critical future technologies cannot be made beyond the next 5 to 10 years. The participants agreed to focus on critical 'gating technologies,' i.e. technologies, which once developed and deployed, would produce significant changes in the way in which various aspects of society work and thus would produce a 'paradigm' shift.

Participants found throughout the discussion that it was difficult to separate the technological from non-technological gating factors. However, participants agreed that in order for public policy makers, in the public and private sectors, to make informed decisions with regard to future technological developments, they need to have a full understanding of what is possible in terms of technological advancements. Policy makers need to know the quality of these technologically feasible devices, i.e. how they would impact our world, and what applications they would enable. This is important information for policy makers in addition to information about the social constraints that might prevent technologies' development and deployment. With this kind of information policy decision makers and the public at large will be better able to produce desirable future scenarios and they will be better informed in their strategic decision to push and encourage the development and deployment of some technologies over others.

Most of the debate among the technologists tended to focus on non-technological gating factors. Gating factors are not only produced by technology or technologists themselves but can also be produced by non-technological factors, such as government regulation, corporate control, or lack of natural resources. Government and the lack of incentives or even the existence of incentives to prevent the development of gating technologies was as clearly identified as a source of those non-technological gating factors as were large corporations aiming to maintain their market position. For example, previously the Bell Labs focused their research on narrow band technologies, now the research increasingly focuses on broad band technologies because the prospect of the government making more spectrum available provides a strong incentive. Similarly, corporations with their priorities focused on market returns generally are not interested in big advances in technology innovations. Moreover, corporate incumbents dominate the pace of innovation and newcomers with less market power, but with stronger incentives for innovative leaps are closed out of the market place. Similarly, in the academic setting, engineers are slowed down in their rate of innovation by the conservative funding process, particularly by relatively conservative funders such as DARPA and the peer review process that does not facilitate the implementation of radical ideas.

Clearly, the different cycles of innovation in research and development are dependent on the social environment in which engineers and scientists operate. Even though some of the

constraints on scientists might be self-induced as was suggested with the example of the Luddites and an apparent desire presently to slow down the speed of innovation as a reaction to a previous phase of fast innovation, it was suggested that governments, corporations and other funding institutions can considerably influence the quality and quantity of innovation.

The participants identified three categories of critical gating technologies in the next 5-10 years: a) those that will be developed anyway, 2) those that require a policy or economic push (investment) and those 3) which will be potentially blocked by different social forces.

a) Technologies that will happen anyway (investments already made)	b) Technologies that will require a policy or economic push (investments outstanding)	c) Technologies that will potentially be blocked by some social factor
1. Voice recognition, authentication	1. Transmission costs will be reduced by 1/100	1. Privacy(1)
2. Packet switched everything(1)	2. Storage architecture(1)----	---->possibly
3. Untethered narrow band	3. Untethered broad band:--- symmetrical and asymmetrical(2)	---->possibly
4. Symmetrical narrow band/broad band satellite	4. Tethered broad band(to the home)	2. Open systems
5. Asymmetrical tethered broad band(2)	5. Reliable systems	3. Anything that is Not-ATM
6. Medium size flat panel, 42''	6. Symmetrical (broad band) cable	4. Universal Service Access
7. Transducers	7. Electronic Paper	5. Electronic Money
	8. Big flat screen	6. Language translation
	9. Decent human interface(1)	
	10. Plug and play(1)-----	---->possibly
	11. Batteries/power source(1)	
	12. Trusted systems	
	13. Intelligent agents-----	---->possibly
	14. Educated designers(for software and hardware)(1)	
	15. Indexing and search fuzzy content based retrieval(2)	

Technologies or its applications that were identified but could not be categorized according to the above table, were 'telemedicine' and 'liability.'

Furthermore, an international interoperability standard was identified as desirable but identified as being outside the technological realm of this meeting.

b) Objectives and Values of Public Policy Makers

Although it was not always clear what the objective of the public policy making process and of communications technology policy in particular should be, maximizing the consumer welfare was clearly identified as the main objective. Technology is only good in so far as people use them for their benefit and in so far as it can provide the greatest possible increase in consumer welfare. Consumer welfare can be defined as having to pay the lowest possible cost, access to a diverse and plentiful amount of information, choice and empowered citizens and consumers.

The participants identified the 'super critical' technologies that 'should' be developed. There was some confusion throughout this debate as to the value or standard these gating

technologies 'should' be developed by. If, for example, information access is the objective, then a voice translation technology is clearly very desirable. On the other hand, if from a perspective of the United States the goal is to maintain international market domination in the communications industry, then voice translation is undesirable. At the same time, voice translation would be very desirable for the Japanese as it would allow them to increase the marketability of Japanese products. (Japanese language constitutes a barrier to entry.)

Supercritical Gating Technologies(1)

- power source/batteries
- storage architecture
- decent human interface, plug and play
- educated designers
- packaged switch
- privacy

Critical Gating Technologies(2)

- untethered broad band
- asymmetrical tethered broad band(if done right)
- index searching, fuzzy content based retrieval

Privacy was identified as a critical objective which gating technologies should provide for. Overcoming the deep distrust of citizens, particularly towards government, would be a critical advancement that technology could provide. Participants agreed that the real threat to privacy comes from the corporate sector, but that most people are not aware of this. Since corporations have a very high interest in personal information, however, they will strongly oppose privacy protection technology.

Untethered broad band technology could provide for greater ease and deployment of mobile communications. The regulatory rules, however, do not encourage a technological architecture that would facilitate the development of untethered broad band technology. There was no clarification what the social value in the applications of mobile communications would be and if indeed it was clear what it should be used for, i.e. the social value of its application.

Electronic currency is another technology that will most likely be blocked by powerful interested parties. For example, law enforcement agencies are opposed to it because they foresee much greater possibility of money laundering and the internal revenue service does not know how to tax it.

c) Role of Public Policy Decision Makers

Participants agreed that an identification of the technologies which raise public policy questions, either because they bring with them some socially problematic 'side effects' or because the technology enables users on such a scale that it will change social interaction profoundly, would be highly desirable. For example, the development of indexing and search technologies would raise privacy issues that should probably be addressed by public policy makers.

Untethered broad band technology would make the use of technology and its communications distance insensitive which would require public policy makers to address the pricing structure of communications which still operates in the old pricing sensitive paradigm. Since the existing industries would be reluctant to change a pricing structure that has benefited them for so long and provides them with the main reason for existence, public policy makers will likely have to become involved in the interest of the social good.

d) Universal Service

More importantly, perhaps, it would be critical to identify what the social values and objectives are, how technology can help to achieve them, or which blocks need to be removed so that technologies can be developed to achieve them. A good example is universal service or universal access as a policy objective that some say would increase the social good. Despite much talk to the contrary, society is currently not experiencing a socially broad based information revolution, according to one participant. Rather than increasing and facilitating access to technology, information, and communications, the technology development goes towards increasing functionality, thereby satisfying the needs of those few experiencing the information revolution, but not benefiting the broad social good. The social objective should be to make the interface and the operating system simpler, not to increase functionality. Human needs need to be addressed and prices need to come down in order to reduce the gap between the information rich and the information poor.

Policy makers need to identify the blocks that are likely to prevent socially desirable objectives, such as universal access. For example, there seems to be no incentive for the market to provide simpler interfaces and operating technologies in order to come closer to the goal of universal access; instead there is the tendency to increase technology's functionality. What the role of government could and should be, what incentives it could provide, for example, needs to be addressed.

Also, if the objective is not only universal access but diversity and richness of information, there might be a role for policy makers to encourage technologies that could lower the hurdle for information providers to make their services available. Unbundling the network and providing access to wires might be one solution. But this clearly is not a simple problem. Providing better interfaces and easier use of computers and lowering prices for communications and hardware could encourage a mass market which would then lower the hurdle for information providers. But since all these factors are interdependent something needs to be triggered, for example by government and the provision of subsidies.

e) The Role and Objectives of the Annenberg Public Policy Center

All participants agreed that not even the engineers and other technologists know enough about all the aspects of technology and of each other. More importantly, however, public policy makers do not know enough about technological issues. Perhaps most importantly the public does not understand the issues involved. For example, the communications and hardware costs are artificially high due to regulators and corporations. The AT&T break up did not happen because of pressure from citizens but because corporations felt cheated by its pricing structure. Thus, there is not only a need for people in the field to become more informed, but there is also the need for the constituency of policy makers and the constituency of citizens to become more informed about critical technologies and their social and economic consequences.

1. Recommendation:

The program needs to stay current and well informed about critical technology issues. It should promote dissemination of cutting edge research and information and promote interdisciplinary exchange. Short sabbaticals (ca. 3 months) of technologists and electronic conferencing would help in that effort.

2. Recommendation

The Program should not be solely academic; it needs to keep its connection to real life technology problems and applications.

Different potential audiences for the Public Policy Center were identified: the traditional Washington policy makers, such as Congressional staff; journalists, both those in the business section already writing on the subject and to be newly recruited journalists of the feature and political sections; and the public at large, as well as citizen and grass roots organizations. Participants liked the idea of choosing journalists as the key target audience since they provide not only a link between the expert community and the public, but also between the expert community and public policy makers, particularly the generalist policy makers which are known to heavily rely on the media for their information needs in specialized policy areas. Parallels between the environmental movement and communications policy areas were drawn where educated journalists appear to have been able to educate the public. The public once mobilized was able to exercise considerable pressure on the policy makers according to the discussants.

3. Recommendation:

The target audience for the Public Policy Center should be journalists.

4. Recommendation

The Center could be useful in raising the salience of issues, to alert the public to 'wrong' policy solutions.

Very important for the Public Policy Center will be to develop the reputation and trust of an honest information broker. This is particularly so, because there appears to be no group or organization in the policy field that does not have an agenda. The only institution that could be regarded in that way is the former Office of Technology Assessment (OTA) that was recently abolished by Congress.

5. Recommendation:

Stay neutral.

The Public Policy Center could also explore the applications that the above identified critical technologies would enable. It would have to explore the social and economic impact of those applications. If the understanding of the social and economic implications of applications is well developed there would be a better rational and incentive to push the development of the underlying technology with the most desirable applications. Also, if one understands the applications and their impact one is in a better position to understand why some of them and their underlying technology are likely to be blocked by relevant social forces and is in a better position to counter those pressures if so desired. The challenge will be to explain to the uninformed citizen how communications technologies and their applications will impact their lives. Journalist educated at the Policy Center about applications should be in a better position to do so.

6. Recommendation:

Develop a better understanding of the social, economic and political implications of communications technologies' applications.

The Public Policy Center could address some of the key issues in the technology area. These issues are:

- spectrum auctioning and spectrum 'giveaways' to broadcasters

- universal access
- cost of transmission
- education of designers
- legal implications, such as liability and copyright
- commercialization of information

II. Economic Policy

1. Impact of New Information Technologies

a) Economic Issues

The main public policy issues from the traditional perspective of economists are:

- transportation issues, particularly that of interconnection (technical, economic and accounting issues)
- quality and service, particularly for interactive technology, which requires a higher level of consistent quality and service (touches upon pricing issues);
- standardization and the need for coordination across the board;
- infrastructure issues which include payment mechanisms for hardware and software, new pricing schemes that go beyond the current fixed cost plans, and a whole infrastructure that allows for commerce;
- commercial mechanisms such as intellectual property.

b) Information Excess or a Problem of Access?

Perhaps the real problem today, however, is excess of information. This excess of information may result in a scarcity of attention. The question is how to separate the useful information from irrelevant information. The challenges that will need to be overcome are those of filtering, organizing, summarizing and evaluating information which require social, institutional and technological innovations. For economists, then, there is a new source of scarcity, that of mind-share, or attention. Perhaps there has always been 'too much' information around. Perhaps technology is growing just as fast or faster than the supply of accessible information, but the attention scarcity exists because implementation of these technologies is often an obstacle. Perhaps it is the problem of the political economy of access to that information rather than the information itself, which has always been there, that is now a social problem.

c) The Problem of Scarcity Persists?

Contrary to some opinions voiced, it was suggested that scarcity of resources, particularly transportation, is still a policy problem, one that is linked to pricing of information transportation. Pricing on the Internet is not volume nor usage sensitive which could be a problem in the future where new applications will require much higher volumes of information transportation. Similarly, on the m-bone, or video and broadcast transportation network, video is likely to crowd out other (non-video) traffic since no feedback mechanism for overcrowding is built in and video information packets cannot be cut up as text documents can.

d) Markets vs. Government Regulation

Public policy makers should focus on whether or not economic problems can be solved by the market or whether they require government policy intervention. The areas most likely requiring government intervention are those where policies would produce big externalities, such as standard setting, interconnection, and making things work together effectively (plug and play). If these issues are left to the marketplace to sort themselves out, there might be the

danger that the 'marketplace' solution will tend towards a monopoly market which would only be in the interests of the firms. Coordination problems are at the heart of many of these issues. Historically, monopoly has solved the coordination problem (i.e. telegraphy). One may wonder then why firms do not buy each other out and consolidate into one big monopolist, especially if it is in their best interests to do so. New pricing schemes that raise other political issues might be a solution to this problem of scarcity.

e) Communication Technologies and Effects on Labor Markets

Another concern with new technologies is their effect on labor and wages. With the rapid pace of technological development it is possible that skills required for the average job could exceed the skills of the average worker. One consequence could be the formation of a large class of people whose annual salary will be capped by the price of a computer chip. On the other hand, it can be argued that standard business practices will not allow this to occur. This is based on the belief that corporate cultures are only willing to adopt new technologies if they do not require much change in the organizational structure. The real issue then is how to get new technologies into a form that will be incorporated into existing business practices. However, the potential that the labor market will be severely affected by new technologies exists. Inevitably, new players which do not have to struggle with slow technology adoption rates and businesses operating internationally with different cultures can enter markets and change the labor market significantly.

2. The Role of Public Policy in Shaping New Technologies

a) Public Policy Objective: Equity

Whereas economists are mostly concerned with efficiency, such as interconnection, interoperability, and pricing, it was suggested that an equally or perhaps more important public policy problem is that of equity, particularly that of universal service. Universal service as a public policy issue raises a wide range of issues. First, it does not seem so obvious to all that universal service is desirable. For many the answer to this question depends on how universal service should be defined in the future. Once a useful definition of a universal service concept for the digital age has been agreed upon, then the question is whether or not government should be involved in achieving that policy objective, and if so, how. This raises the problem of who should pay for universal service; and what should the mechanism be?

Universal service definitions will have to distinguish between a variety of aspects of the communications technology and the content itself. There is the general infrastructure and questions about how and who should pay for the costs for moving from the current to the new infrastructure that will provide for the new services. There is the end-user technology such as computers and other communications devices. And there is the issue of the content of the communication and if and how that content should be subsidized.

b) Market vs. Government Regulation

Universal service issues provoke a diversity of opinion. There is no agreement whether universal service requires a monopoly market structure, as in the past, and if so whether that is desirable. For example, universal service requires cross subsidization and policy makers may decide that monopolies are the best way to provide for that, whereas economists might disagree. Economists suggest that a monopoly market structure is no longer a necessary arrangement for financing universal service. Also, one single standard for communications will be necessary for universal service, but that might not require one single provider as in the past.

Furthermore, policy makers might decide that a particular technology, like fiber to the

home, constitutes the basic communication service that should be universal and thus preclude competition across different technologies. Some argue that universal service should also include educational standards and social service provisions, for example, educational television programming. Others suggest that competition alone is going to provide the diversity and quality that the consumer demands and no content requirements for universal service are needed.

More fundamentally, the issue was raised whether the public policy goal of universal service for telephony combined with government regulation was fundamentally flawed and that it was, in fact, counterproductive, that universal service could have been reached faster, cheaper, and better without a government enforced monopoly. Television, it was suggested, is an example of near universal service without government intervention. It was pointed out, however, that television with its relatively low infrastructure investment costs cannot be compared with telephony. Interoperability and interconnectivity might have been the only advantages of the monopoly universal service requirements. This is not so, if one considers cross subsidies and the lowering of prices for rural and remote areas. On the other had it has been argued that those subsidies could have been provided for by direct payments to the end consumer.

c) The Policy Making Process Itself

Universal service would be a good example to ask the question what and who are the interests that define universal service, who defines or does not define it as a policy problem, where is the demand for it coming from, and how is the discourse about this public policy issue reflected in those differing influences. The public at large, does not appear to be the force behind universal service demands. Policy makers might push for it to preserve their own existence by preserving the regulatory structure. Telecommunications providers historically supported it as an easy entry and creation of a profitable communications market and the monopoly market structure kept out competitors. In a truly competitive market, it was suggested, few will demand it.

This question of the support for universal service in telecommunications and who and how public policies become relevant for policy makers' consideration should be seen in a larger context. Universal service in the digital age raises the historic political problems of inequalities between the rich and the poor, the advantaged and the disadvantaged. There is a general collapse of 'universal service' in a wide range of industries such as health care, insurance, and credit card and ATM services. Here the fundamental problem appears that once there are truly competitive markets, those who are healthy, or relatively well off, i.e. the majority, that they are also better off with the abandonment of universal provisions, since prices for those included in the service will go down. Those not so well off under universal service provisions, will be even worse off without them.

Perhaps looking at historic examples or other industries could help policy makers and academics to better understand the dynamics and incentives, or lack thereof, to provide for universal services. The idea that the Annenberg Public Policy Center has a role in defining universal service, its political economy, the interest groups involved and their incentives to push or suppress it, and why and how it has or has not worked in the past in communications or in other industries, including a normative component in those studies, was endorsed. To avoid a too narrow approach the Center should study 'universal access to information' which would include insurance industry policies as well.

7. Recommendation:

Center should study universal access to information and the public policy making

process itself.

8. Recommendation

Particularly it should help to identify the policy actors who define and push for particular policy solutions.

d) Other Economic Public Policy Issues

Stranded investments or sunk investments in the telecommunications infrastructure which were made with implicit contracts will be a considerable policy problem.

The new numbering system, if cable and other providers enter the telephone service market, will be a considerable problem and a potential barrier to entry for competitive services.

3. Intellectual Property and Information Technology Markets

The objective of public policy making should be to stimulate economic growth, which is tied to the issue of stimulating innovation and thus to intellectual property which is one incentive mechanism for innovation. Intellectual property regimes as a public policy tool, however, may have other consequences than facilitating innovation. For example, it may determine market structure when it leads to concentration. Moreover, intellectual property regimes may not even facilitate technology sharing. It may function mostly as a 'barrier to entry.' This would run counter the objective of spreading innovation and avoiding inefficiencies in investments.

Information technology is affected in various ways by intellectual property regimes. For example, in the area of intellectual property for software where the facilitation of cooperation and sharing is the objective, copyright might not be the right mechanism. Intellectual property laws might encourage a dominant firm from controlling standards.

It appears that different models of intellectual copyright regimes might work for different circumstances and industries. In the software industry, where intellectual property protection is weak, there is nevertheless a very high level of innovation. Here, it seems a legal mechanism is not necessary to ensure innovation. In the local area networks industry, however, companies have to share information about their different software in order to make sure they will be compatible and so they share that information based on pre-agreements that are only possible with intellectual property rights. Culture also appears to be a factor in facilitating innovation: the culture of sharing in Silicon Valley lead to a more rapid growth in information technologies than in other localities of the industry with different cultures.

Thus it seems very difficult to identify or assess if the intellectual property regime has a systematic impact on the economy and is working for the social benefit. Nevertheless, it is very important to answer questions such as whether an intellectual property regime can help or hinder the rate of innovation or the social welfare at large, what its most important components are, what is feasible and appropriate for different sectors or for the entire industry. There appears to be not enough debate on this complex problem and most interests groups are not aware how intellectual property regimes affect their interests.

9. Recommendation:

The policy center should identify how an intellectual property regime can or cannot maximize social welfare.

What Needs to be done in Congress and by the Administration?

a) Issues discussed in Washington

- How should the federal regulation of telecommunications be changed?
- How can money be raised for the government?

There has been relatively little input from the Administration. Most of the controversy involves a struggle among the telco giants on the Hill. Economics or economists have not offered much in this debate. One problem seems to be that the policy makers are dealing with problems that are not 'interesting' to the economists since economists already work on the next policy problem.

Much of the debate is about traditional telecommunications issues and technologies; there is little focus on new technologies:

- If there is competition in the local telephone service market, will bottlenecks arise?
- What will the effects of private networks on the public network be?

b) Issues that will Affect Legislation:

- While Congress is trying to devolve things to the states, it understands that often state regulators block competition. Although unlikely, Congress could pre-empt state regulators on this issue, who have no interest in welfare maximization and little incentive to raise money for the federal government.

- The current legislative struggle takes place among very large players. Each player is trying to enter the market of the other for fear that the opponent will enter his own markets. In fact, the focus of debate in Washington lately has been the struggle over who can play in whose market. One consequence has been a massive disinformation campaign.

- Should arbitration in this struggle be by a regulatory system or the courts via antitrust laws or by market forces? Market outsiders prefer the latter.

- There is very little talk about innovation. The argument that somehow institutions inhibit innovation is not made in Washington.

- Spectrum reform is occurring at the FCC, not on the Hill. But there is pressure on the Hill to sell spectrum to raise money for the federal government.

- There is also pressure to eliminate regulation altogether. Some advocate the elimination of the FCC and to turn the spectrum to the free market. However, nowhere is there any mention to eliminate state regulation.

Participants agreed that policy maker s' views should get rid of state regulation first where most of the corruption and inefficiency is, then reform the FCC. However, the disadvantage would be that policy making would lose some of its testing grounds and alternative approaches to federal policy making. The states and the Public Utility Commissions have been a source of a lot of input from academics.

c) Academic Input

It is not entirely clear whether the public policy making process has low or satisfying academic input. It seems that low academic input is more of a problem on the federal level, and less of a problem on the state level. Annenberg could play a role in moving the discussion of ancient telecommunications policy issues to current ones.

5. What should the Annenberg Public Policy Center's Agenda be?

The critical issues that were raised are the following:

- Interoperability
- Interconnection and standards
- Intellectual property policy and innovation
- Anti-trust and regulation/market solutions
- Pricing
- Universal Service
- Economic policy and communications content
- International policy issues
- Information 'overload'
- Process of economic policy making itself

a) Economics of Content

The key economic policy issues are that of pricing and compensation, not the least because they are central to solving the policy issue of universal service. Pricing issues should not be thought of in traditional economic terms, however. Pricing policy also significantly affects what kind of content will be produced and who gets it. Thus pricing mechanisms may not only satisfy efficiency objectives, but they may also come in conflict with other policy goals such as equity, diversity, and protection of minorities, when it affects the composition of contents. Also, the nature of the intellectual property regime has considerable implications for the filtering and sorting and thus access to information. The 'economics of culture,' therefore, seems to be linked critically with traditional concerns of economists. This appears to be so, even if some economists strongly oppose the notion that economists should or are involved in these more overtly political policy issues.

b) Economists and their Role in Public Policy Making

This debate raises the more general question of how economists understand their role in the public policy process. Economists should provide for solutions that politicians have asked for. If content issues are considered legitimate by the political process, economists need to be involved here as well, it was argued. Thus economists see themselves more as technicians who are not to pass value judgment on policy makers' objectives.

c) New Understanding of Economics

The range of policy options economists consider and how they understand policy problems may no longer be appropriate, according to participants. Policies will affect not only telecommunications markets, but generally information and information technology markets. There appears to be some danger that the traditional thinking about these issues is becoming outdated, particularly traditional theories of network economics or pricing may be obsolete. Better understanding of competition and dominance theory, for example, may be more relevant. (What happens when a dominant firms loses its dominance? How many operators should be licensed at one time?) More significantly, there appears to be a consensus among many economists that regulation as we know it, is outdated and that it is no longer a policy option.

The role of institutions needs to be studied better, such as those of Intelsat, Comsat, and domestically the role of the FCC, particularly when some economists have called for their outright abolition. In general, the international arena is almost void of analysis: spectrum auctioning, global alliances, bilateral settlements, and cultural 'hegemony' issues are only a few of the important global issues.

III. Communications and other Social Scientists

1. Information Horizon

a) Adoption Rates

Different factors influence the adoption rate of communication technologies. Income and education are powerful predictors for adoption rates of, for example, the telephone and computers in the home. Race is less powerful once income and education levels are controlled for. Older people tend to adopt more slowly than younger people. More significantly, age is a good predictor for adoption rates of technology as it explains generational differences of whole cohorts. Women have been slower in adopting information technology than men; perhaps women are more interested in functionality than men. Once the functionality is provided for women quickly adopt technology. Among Internet users, for example, women are the single highest number of users who came on the Net in the last 6 months, i.e. when the functionality of Internet applications and browsing tools improved considerably.

There are a variety of interrelated factors that need to be considered with regards to different adoption rates. Different adoption rates for different technologies might be explained by the degree of interactivity of the different technologies. For example, television adoption rates were faster because television is only a one-way communication technology that requires less infrastructure than the two-way telephony or the multi-way Internet. Similarly, the automobile adoption rate is similar to two-way adoption rates of communication technologies which requires heavy infrastructure investments.

One possible way of conceptualizing access is a three dimensional access map. On one axis is bandwidth, that ranges from zero to gigabits. On the second level there is directionality, ranging from none, to one (broadcasting), to two (telephony), to n-directionality (future of the Net). The third axis is the connectivity axis. Perhaps there is a fourth axis, that of devices, ranging from low to high end technologies.

The differences in adoption rates do not only refer to adoption of technology in the home but also in public institutions such as schools and libraries. Income is a considerable factor in predicting which institutions have or have not the new technology. In the past access to information or technology through public institutions ensured that the income gap in the population would be at least somewhat alleviated. Now it is no longer clear whether there is a commitment in society to providing public institutions with these new communications technologies. Thus, while some speak of information overload, or perhaps more correctly data overload, there are real and increasing problems with gaps in access, gaps in access to information and gaps in access to other people between different groups in society.

b) Underlying Policy Values

One needs to keep in mind that there are a variety of values that implicitly or explicitly drive public policy making. For example, there is a danger in constructing users along the lines of the above categories because they reflect a market driven paradigm. It might be more appropriate to look at how people really use technology. Adoption rates, for example, may depend more significantly on whether or not the technology provides social network opportunities.

Maintaining global competitiveness is an underlying dominant objective for many public policy makers. In the area of intellectual property, for example, public policy makers aim for rules in international treaties that will help protect their specific economies, without understanding much about the technology at hand. These high protectionist rules, however, might hamper follow up innovations and thus turn out to be detrimental for national and international markets. While some policies pursue one particular value or objective they might at the same time be to the detriment of other values. Therefore, it is important to point out that

the deployment of information technologies might have considerable negative externalities, more than is made explicit by interested parties, such as by corporations developing an 'entertainment' infrastructure. Users will not only be accessing all kinds of useful information, but they will also be consuming entertainment which could be considered as less relevant for the social good.

The values or interests could reflect those of society at large, the user or corporate marketing strategies. The imperative of speed, for example, is an indication that much of the concern with adoption rates is market driven. Often the concern with speed leads to a less than thoughtful consideration of the implications of the adoption of certain technologies over others. Market concerns will also affect what kinds of technologies with what kinds of communication capabilities will be employed. If commercial concerns dominate this process, for example, there will be less of an incentive to create a decentralized network, an open architecture that facilitates multi-way communication. If an analysis of the forces pushing speed in technology adoption determines that they are solely market driven at least two questions become critical: to what extent do government regulators *want* to shape this process and to what extent *can* they shape this process?

There are conflicting views about the beneficial roles corporations play in public policy making. Corporations have taken over many of public policy roles traditionally occupied by government. For example, corporations such as AT&T now offer to provide money for school investments in technology. For some this is a purely market driven attempt to capture the market. Others contend that public policy by corporations is more democratic because it is at least competitive. Decentralized decision making is better than centralized policy intervention.

Society at large might be interested in ensuring that all members have the same opportunities and thus will try to ensure that all are able to read and write. Literacy produces substantial externalities which is why 'paternalism' by the government is important, perhaps necessary. It appears that computer usage or access similarly to traditional forms of literacy produces considerable externalities which makes public policy intervention by government necessary and desirable. From this collective, societal perspective it is also important to better understand what students learn from the collective uses of computers beyond its immediate functionality.

An alternative to the focus on the corporation or society at large, is the individual. There seems to be too little attention on the individual and her needs and her relationship to communities. The ability to connect to communities seems to be a strong motivation for individuals to become 'connected.' The context and the process rather than the devices themselves is what motivates people. Perhaps it is more important to focus on why it is important to have access to the devices, what purposes they serve, such as opportunities to associate with other people or to participate more actively in public policy making, rather than to focus on the technical access question.

c) Public Policy Options

Generally then, the gap in adoption rates reflect the pursuit of different public policy solutions. Which among those options, which all have advantages and disadvantages, to pursue is the main question. One option is to leave public policy making to market forces, a second option is to leave it to some scientific, technological elite, or thirdly the option is to leave it to public intervention, that is regulation by democratic institutions. The latter is what is most often thought off when considering public policy options. It must be emphasized, however, that the 'market solution' in itself is a public policy choice. These three conceptually different approaches are in reality quite intertwined and rarely exist in a pure form. At different points in time, however, one option is preferred over the others. For example, the market has been the

preferred policy option of choice since at least the early 80s. There is nothing inherently more 'natural' about market policy choices than about public policy choices by elected governments; both constitute social interventions.

The problem with the market model is that the market is entirely guided by profit making concerns. Contrary to the ideal democratic process it only values people's preferences by their wealth: one dollar one vote. Moreover, the market has a very short time horizon and cannot plan ahead. It would be too simplistic to say that the bureaucrat making decisions on behalf of a diverse society would be the only alternative. One of the challenges is to develop alternative approaches. Canada with its public hearing procedure in telecommunications policy making might be a good example.

2. Access

a) Equitable Opportunities

In order to create equitable opportunities in the democratic process, education, and economic development a variety of policy options will need to be considered. These policy objectives raise issues relating to the network infrastructure/architecture, universal access to the infrastructure, universal access to information, and the design of the machine/human interface:

A hierarchical or a switched symmetrical architecture might be more suitable for the above policy objective. Universal access was facilitated by cross subsidies from 20% of the most profitable customers to the remaining 80%. What should the mechanism for underwriting services be like for the less well-off in the future? Electronic redlining: How can an equitable timely deployment of the new technology be ensured when there are incentives to invest first or only in geographic areas that promise much higher returns on investments than other areas. Universal access to information: How can information be subsidized for the less well off in the future if there is a trend away from advertising financed information/ entertainment to pay-per consumption. How can a certain type of content be ensured if there is a lack of public interest obligations for information providers? How will the development of new machine/human interfaces impact language, culture, modes of thinking, perceptions of reality, and our notions of community and individuality? Equity in education: How can it be ensured that technology in education will be used to teach *all* students critical learning skills including those in poorer school districts where teachers currently lack the training to use the technology in its most challenging and effective way? 'Cultural equality:' Even if there are provisions for universal access how can it be ensured that all use it. The technological culture or the discourse culture of the communication technology may constitute obstacles for some groups in society to feel equally welcomed or comfortable to participate.

b) Community Technology Access Centers

One of the possible solutions are the technology centers that help to increase access in communities with generally less opportunity. These centers, with the help of public private partnerships, can help in a variety of ways: in the diffusion of technology, information, job training, or economic development. These centers, however, chronically lack sufficient grants and sustained financial support. Business support may be one option to fill that need. There is the risk, however, that business objectives do not coincide with the long-term objectives of the community interest.

c) Geography

Geography it seem pervades the talk about public policy : neighborhood, community, nation state. In the past, policy makers wanted to control what they regulated, but in the future

this will not be as easy. Banking, for example, is an area that is much harder to regulate due to electronic technology. The trend towards globalization makes corporations much harder to control. Similarly, individuals can bypass geographic boundaries and regulations by using communications technologies. What is the role of the nation state with multinational corporations and individuals bypassing national laws and regulations? However, as policy making also becomes globalized in international organizations, there is some opportunity for intervention. There is a research opportunity here: to lay bare the relationships and to find the gaps where intervention is possible.

This trend towards transcending geography may also have socially beneficial aspects. Communities will also be able to transcend geography and will be able to form regardless of location. Particularly those that are marginal now will be able to organize and become more viable. The Internet makes 'owning ones press' much more affordable and might move the society towards a more equitable 'marketplace of ideas' where not just the media giants control the content of communication.

d) Policy Values

There is a danger of 'inevitability speak' and 'rapid speak.' There seems to exist a perception of inevitability of the triumph of certain technologies in the future. As with the 'rapid speak' there are underlying beliefs reflected in such language. The 'inevitability speak' may reflect the American confidence in the positive power of technology. We need to be aware, however, that predictions of such kind have often not worked out and might not do so in this case.

Public policy making should be driven by explicitly made values. There are many more options than are currently considered by the policy makers. Societies should ask themselves what kind of information society they want to build. Should it be driven solely by consumption or, for example, by such activities as association. One of these values underlying policy making might be provision of access to the means of association. It could be that cheap bandwidth is important for that, or that physical non-commercial space is actually more important. There is lots of evidence that there is a considerable decline in the opportunities for association and that it might be an essential aspect of the democratic process and thus should be encouraged by public policy making. The process of association, what makes it possible, what factors hinder it, the nature of community that people feel attracted to, the relative importance of face-to-face as opposed to virtual association, all these aspects of association are not well understood and should be studied more. It should be recognized, however, that the social sciences are biased favorably toward the importance of the concept of association. There may also be social effects negatively linked with the concept, e.g. when different groups do not communicate with each other. Raising the awareness of a variety of policy values, scenarios and their implications among the public and policy makers could be a role that the Annenberg Public Policy Center could pursue.

10. Recommendation:

Raise the awareness of the possibilities of policy objectives, other than the consumption driven model.

11. Recommendation:

Explore the process of association and its values for the democratic processes.

3. Policy Process

a) A Broader View of the Policy Making Process

There is a need to broaden our conception of the public policy process if the goal is to be effective in influencing public policy making. The policy process deals not just with what the government does. One can broadly distinguish between the policy formation process and policy making itself. The formative process requires much more attention than it has in the past.

b) Transformation of the 'Social Contract'

One vehicle for broadening our conception of the policy process is to analyze the transformation of the 'social contract.' Whereas in the past there was a consensus that government oversaw public interest based regulation (such as universal service) there is now a move away from that model to market based policy solutions. This is due to powerful business user interests and less so due to new technology. Now the model is based on market power where oligopolies make decisions about consumer needs and employment markets. First businesses have increased their power systematically and have recognized communications as a critical resource. Now, belatedly, other organized interests have become aware of this and try to redefine the 'social contract.' In order to understand how this transformation has occurred and what the direction will be in the future, or how to influence that process, one needs to look at the policy formation process more carefully.

c) The HOW's of the Policy Formation Process

Another way that can help us think about the policy formation process is to ask how that policy formation process works. There are different levels of activity that interact and shape the ultimate policy making decisions: resources of powerful actors, determining research agendas, the agenda setting process, and opinion making. In the past little attention has been paid to these wider issues, such as the political economy of funding research, how agenda items are chosen in think tanks and research institutions, and how some issues become legitimate whereas others get systematically excluded. Concentration on the decision making process at the FCC excludes what went on before, how policy questions have been narrowed so that some issues become illegitimate for consideration. There is also almost no research on how the media covers the policy making process, i.e. the opinion making process. By the time the policy making decisions are taken up by the media the decisions outstanding are almost technical in nature, so that the issues have already been settled long time ago, save for some insignificant details.

d) The WHY's of the Policy Formation Process

It is also important to understand the why's of the policy formation process. How do policy makers arrive at certain policy options, what is driving that process. These forces include the objective of economic growth; legitimation issues, i.e. that there is a general acceptance of the system and its institutions that nobody wants to question; and control and security objectives whereby, for example, the Dept. of Defense plays an important role in obstructing radically new policy scenarios. Research focused on formal rules and regulations of the government body misses these larger dynamics.

The policy formation process is dialectical in nature; it throws up its own contradictions, and thus is not a predictable and easily understood process. Understanding public policy making in these broader terms also provides an entry point where the Annenberg Policy Center can exercise most leverage. What the Center should avoid is to adopt approaches that are already being pursued. For example, good research is done elsewhere on rhetoric, discourse, and framing issues. One way of avoiding to reinvent the wheel is to collect the research that is already out there.

12. Recommendation:

Collect and make research available that is relevant to the Annenberg Center but that is done somewhere else.

e) Research Problems

A significant problem of doing more relevant research analysis of the policy formation process is that of access. Research on the earlier stages of the process is difficult because access to information is restricted. Researchers often do research on problems about which information is available. Also, researchers often lack the insider understanding of corporate or governmental decision makers.

e) Similarities between Communications Policy Making Process and other Policy Areas

The transformation of the social contract raises the question whether that transformation is specific to the communication policy process or whether it is a general phenomenon that affects other areas of policy making as well. To some it is not clear whether corporations always get their way. That would be too simplistic. However, even though some might argue that AT & T had to give in to pressures for divestiture (against its interests), the business user community, one could say the most powerful corporate powers, won. Clearly the business community as such is not a monolithic interest group. But in the end as a whole it might come out as the winner.

f) Influencing the Public Policy Making Process

A central question that raises much apprehension is how academics, or the Annenberg Center specifically, can impact the process most effectively. Both expanding research on the policy making process and intervening in it actively is desirable. Some suggest that it is the language of academics that needs to be improved if they want to be listened to by public policy makers. Generally, communication skills, and strategic thinking needs to be improved. This should not be perceived as being co-opted but rather as good communication skills. For example, advocates should not talk about what is 'fair' and 'right' in educating children but that the future competitive advantage of the United State is at stake. Building relationships with policy makers is another strategic move academics need to think about. Here previous 'inside' work experience is most useful.

Providing the research at the early stages of the policy formation process is the most effective way of influencing policy outcomes. However, the problem is how to get into the process in the first place. Most of the time academics need to conform to the objectives of the policy formation institutions they would like to serve. Usually institutions look for those academics that conform broadly with their ideas. It is not clear how to get the 'universal access' issue on top of the agenda. Most of the time, talk about 'information poor' is conceived by decision makers as 'whining.' In general sociologists' opinions, as opposed to economists, are in very little demand by Washington policy decision makers. Clearly, the lack of power in the process does not help. In Canada, where a much larger percentage of workers is unionized than in the US, the unions, for example, are able to get issues of employment that will be affected by communications policy making on the policy table.

Alternatively, it was suggested that the traditional approach to influencing the policy making process will not be successful. The policy process is deeply pathological and Americans are deeply suspicious of planning anything. The constitution makes planning also problematic. Moreover, the bottom up approach does not always result in useful legislation, as the Cable Act

suggests. Instead an indirect, clandestine approach should be thought about.

Another reason why academics have not been able to get their concerns incorporated in the policy formation process is that there is a disconnect between academics and social movements. Intellectuals are not taking up their responsibilities. The quality of policy analysis of the public interest movement in the '94-'95 legislative debates was generally poor. Academics did not participate in this process sufficiently. Thus one of the possible audiences the Annenberg Public Policy Center could take on is the public interest movement. More generally informing the public about important issues could be the chosen mission for the Center. In return the Center should also be informed by the public, so that the research early on is informed about what is important and relevant.

13. Recommendation:

The Annenberg Policy Center should adopt public interest movements or the public at large as their constituency. It should not only inform but also be informed by this constituency.

g) Who Should the Audience Be?

There is also a disconnect between the 'elite' research institutions such as the Annenberg School and other universities where academics feel excluded from the policy making process and what the Center will be about. There should be an attempt to look back and bring the academics in the 'hinterlands' into the process.

An educated and informed press could be a good communications vehicle to inform the public. So far the press, if at all, is covering communications policy issues mostly in its business sections. It is not surprising that the media is not making communications policy a bigger agenda item. The policies discussed affect their very own business interests and an informed and critical public is not necessarily in their interest. If the Annenberg Public Policy Center chooses to adopt journalists as its target audience, which was welcomed and endorsed by the participants, one should recognize the inherent limitations in being able to modify and broaden the public policy debate.

14. Recommendation:

The Center should adopt journalists as intermediaries between the public and academics and between policy makers and academics. There are, however, inherent limitations as to what journalists will be able to push on the media agenda.

4. Annenberg Public Policy Center

The decision makers that will design the Annenberg Public Policy Center will have to take a variety of issues into consideration. They will have to decide what kinds of issues the Center should address which is closely related to who the audience for that Center should be. How should the work at the Center be conducted to serve those audiences and issues well? What are the mechanisms to be an effective participant in the public policy formation process? What kind of organizational or institutional design structures would serve these objectives best?

a) Issues:

- The Center should address aspects of interpersonal networking and multimedia and how this will affect the political process, for example, the access to politicians and political organizations.

- The Center should be international in scope.
- The Center should look at the potential of community technology centers and their effect in broadening access.
- The Center should have a historical component in its research agenda, even though it might not always be directly relevant to the policy questions of the day. Generally the policy process is ill informed about historical precedents.
- Since there is already a lot of policy research going on, the Center should not duplicate existing approaches. The comparative advantage of the Center could be a research focus on rhetoric and discourse analysis of the policy process. It could fulfill a monitoring function and intervene in ongoing debates when necessary.
- The Center should focus on intellectual property issues. This is an area where essentially only industry interests fight the policy issues out amongst themselves. The decision making process is void of democratic mechanisms. The public interest representation is non-existent or taken up by librarians. There is no forum in which to air the public interest concerns. The Center could provide such a forum.
- The Center should focus on developing and creating theories about the public policy formation process, of which there are only few. Academics need to invent understanding and create vocabulary for something that has not been articulated. Rather than having a historic, backward approach, a look forward into these new phenomena is required.
- The Center should contribute to a 'debabilization' of the field and should aim to break down the barriers between different interests groups and disciplines and create new ones.
- The Center should study and problematize what it means to be an intellectual in society. Powerful examples, like Cornel West, should be studied for their methods and effectiveness in influencing the policy formation process.

b) Audience

Even though there might be a tension between creating critical scholarship and adopting certain groups as key constituencies, it is possible to do both. One needs to be aware of the inherent tension in this process, however. Facilitating informed participation should be the objective.

- Journalists are a good choice for the target audience.
- Foundations should also be considered as a possible targets. With their resources and motivation to be part of the process, they are a valuable and powerful potential 'client' of the Center.
- In general the barrier between the general public and academics needs to be broken down. Academics need to inform the public, but they in turn need to be informed by the public.
- Other academics that lack understanding about the policy making process should also be a target of the Center.
- In general the Center should be open to a variety of constituencies, including trade unions.

c) Mechanisms

There are a number of choices how the Center could become influential in the policy making process. It could attempt the direct approach, or the 'Aspen' approach by which policy makers are invited and close connections to policy decision makers are cultivated. Secondly, the Center could aim for a more general approach: policy enlightenment where the focus is on enlightening decision makers on how to ask the right questions, rather than giving them all the answers. Thirdly, the Center could go through the media to affect the policy making process. Here one should distinguish between the different types of media, such as for example the trade press, computer bulletin boards and the general mainstream media.

- A two semester long focus on a particular policy process, preferably with a particular

organization or 'client' in mind has been a successful model in Texas. There the students study the entire process from beginning to end and provide their client with policy options and recommendations. Subsequently the report is well publicized.

- The Center should be so good in its work that people in the field would always want to turn to it for advice or insight. A model to emulate is the MIT Media Lab, for example.

- The Center should focus on policy questions mostly and not necessarily all the answers. It should help policy makers to be able think about a problem in a different way, to ask different kinds of questions.

- The Center should emulate other successful institutions in publicizing its work . Examples are the Heritage Foundation and the MIT Media Lab. Public relations needs to become party of the daily life of the Center. Academics who are mostly interested in producing publications in academic journals rather than mainstream media should be provided with incentives to participate in the public policy making process.

- The Center should publicize its work by writing short pieces, such as op-eds, and by engaging in the legislative process.

- Rigorous scholarship which includes teaching should remain central to the work of the Center. The Center should stick to what academics do best: research.

d) Institutional Design

- There should be a board that includes not just academics but representatives of the policy making process, editors, publishers, journalists, corporate board members, and representatives of the not-for profit communities.

- The Center should have citizens from all walks of life represented in some form so that the research agenda and the Center's activities can be guided by the public's concerns and interests. If these representatives are well chosen they can then in turn carry the Center's agenda to their constituencies and thus create a ripple effect. These representatives should come from a multiplicity of different power bases and interests and should be equally well represented as the powerful.

- A historian should be hired who can inform the current policy making process.

- The design needs to be multidisciplinary.

- Retired or semi-retired government representatives or science fiction writers could be useful in anticipating future developments.

- The Center should be international in approach and should establish links to other Centers around the world.

- An intellectual property scholar should be appointed.

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