INFORMATION RESOURCES POLICY VIEWED BY AN OUTSKIRTER *

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* Outskirter is one from the outskirts of something

Program on Information Resources Policy

Harvard University

Center for Information Policy Research

Cambridge, Massachusetts

An incidental paper of the Program on Information Resources Policy.

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Incidental Paper I-81-5

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Action for Children's Television
American District Telegraph Company
American Telephone & Telegraph Co.
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Auerbach Publishers Inc.
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United Parcel Service
United States Government:
    Central Intelligence Agency
    Department of Commerce:
        National Technical Information Service
        National Telecommunications and
            Information Administration
    Department of Energy
    Federal Communications Commission
    Internal Revenue Service
    National Aeronautics and Space Admin.
    National Security Agency
    United States Postal Rate Commission
    United States Postal Service
United Telecommunications, Inc.
Voice of America
Warner Amex Cable Communications Inc.
The Washington Post Company
Western Union

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-Not to worry; so also were both the medieval
goldmakers and Columbus!-*

I. INTRODUCTION

A Brief Guide to the Paper

This paper is essentially a medley of four self-contained essays on information resources policy. The reader who wants to confine himself to professional aspects may, guided by the individual titles and abstracts on the preceding page, select among Chapters II-V.

This chapter explains the main title and the motivations and background for the individual essays. It is written in a more personal tone than the following chapters.

Information Science

Narrowly defined there is a rather small community of information specialists in the world and these maintain a not too visible profile.

The core of this group, which develops the theory and tools of the profession--the information scientists--is relatively insignificant in number. This core is haunted by colleagues both inside and outside expressing a fundamental skepticism: Does its tool bag, somewhat arbitrarily filled with elements from technology, economy, mathematics, and sociology (among others), qualify the bearers to name themselves scientists?

Reluctant to share this image, the information policy researcher is a newcomer in the core group. At prestigious universities like MIT, Stanford, and Harvard, groups labeled "Communications Policy" or "Information Resources Policy" already are well established.

One of the few findings of this policy research which the outside world has paid general attention to is the proposition that more than 50% of the Gross National Product of industrialized nations originates in "the information business." Superficially interpreted, this seems to leave all else--agriculture, mining, hardware industries, trade, service industries, etc.--to split the rest in mostly single-digit percent blocks. Many of the traditional industries have responded by finding the economic classification from the new information profession a bit too imperialistic.

One part of the "truth" is that the "pure" information sector (covering traditional groups like journalists and librarians as well as, for instance, telecommunications and computer personnel) is growing rapidly, but without having reached numbers that threaten the ranks of the traditional main economic sectors. Traditionally, many information functions were lumped into a broad "service industry" category. Another part of the truth is that within other traditional sectors, a larger and larger part of the employees perform tasks that may be described as information work.

The undisputed trend to emerge is that efficient management of information resources is becoming of prime importance to any societal activity.

The information science profession is thereby in a stressful but challenging position: it is still fumbling to bring its basic tools and procedures in order while a large proportion of the surrounding world are customers to any significant progress achieved by the profession.

The "Outskirter"

With a background in education, library automation,and research admin-
istration, I personally definitely belong to "the information profession" in
its broader sense. As a visiting scientist at the Center for
Information Policy Research at Harvard University, however, I also became
a temporary member of "the professional core." The opportunity of working
on the inside of research while still having all motivations directed from
outside makes it natural to write for the broader information profession on
topics engaging the research community. To realize this mediating objective,
I have perceived myself as a professional outskirter[1] (as relative to infor-
mation policy research), gaining thereby some freedoms from the strictest
standards of scientific publishing.

Being a Norwegian citizen, I am   (relative to the U.S.) an outskirter
also in terms of geography, culture, politics,and language. No doubt this
has had its manifestation in the choice of topics, opinions expressed,and
style of writing.

Tools and Framework

Information science in general and more specifically information policy
research is poorly equipped with basic tools and framework. The Program on
Information Resources Policy, however, has published a framework for media
description and analyses. Having had the opportunity to employ it, my first
essay, under the title "The Media Space" (Chapter II), sums up thoughts

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[1]Outskirter simply means one from the outskirts of something. He is not so
far from the center as to be an outsider and not important enough to be a
frontiersman. His disadvantage of distance from the center is compensated
by less obstructed views of the outside.

surfacing from my work. Some changes in the framework are proposed, definitions are sharpened,and the idea of studying the media in a space is added.

The International Arena

The international aspects of information resources policy comprise a new research arena for the program at Harvard. Naturally, as a foreigner I have taken a particular interest in the development.

The new arena is being developed by Oswald H. Ganley, a former U.S. Career Foreign Service Officer. His Kennedy School of Government course, "Communication and Information in Foreign Policy," provided the opportunity for an early introduction to the arena,and inspired my development of some supplemental thoughts.

My second essay, "The Blurring of National Borders" (Chapter III),tries to present major issues in international information policy as I perceive them. It stresses the important relation between organization and communication and perhaps implicitly demonstrates the difficulties in detaching an international information policy research paper from serving some preselected interest.

A Cornerstone of Western Unity

A European coming to the U.S. for his sabbatical year will know that the political center of gravity in the U.S. is a bit apart from ours. But being politically a middle-of-the-road nobody at home, I expected no difficulty in finding a common neutral political/philosophical foundation for my cooperative professional work here. But eventually both my colleagues and I came to

realize that behind the assumptions explicitly built on in research, in a social-related science there are also unarticulated cultural and political attitudes sneaking in on us from our environment, disguised by their local plausibility.

At a time when my basic attitudes seemed to mismatch quite a bit with "the theology" of the program, I found it necessary to ask myself privately: What is the rationale behind the unity Americans and Europeans feel and express to each other and are defending together?

The obvious answers were not so convincing as I thought them to be. Sparing the reader from my exploration, my (layman's) conclusion was that a whole range of freedoms are common and seemingly also compatibly defined. In particular, the freedom of expression seems to be a cornerstone of our unity, perhaps important enough alone to be defended.

Thereby brought back to information policy, I decided to examine the cornerstone a little more carefully. The third essay, "Freedom of Expression" (Chapter IV),presents the results and predictably also demonstrates my point about unconscious attitudes coloring our assumptions.

Scrap or Wrap?

The half moral, half economic question of whether you should scrap or repair your shoes when they no longer perform adequately has its parallel in terms of organizational development under technological change: When should existing organizations stick to their old technology and eventually die with it as new organizations operating the new competing technology take over? When is internal restructuring and technological reorientation appropriate?

In the case of the shoes, probably scrapping is chosen too often because environmental costs and effects on non-renewable resources are not taken

into account. By parallel, it may be that scrapping of organizations is too often chosen because the social costs (stemming from the grief, the unemployment,and the insecurity following lay offs) is carried by individuals and/or their government and often not taken into account by the decision makers.

The issue is highly relevant in the information sector where new and intertwining technologies make change the only reliable law for decades to come. Carriers such as mail services and telecommunications, processors like libraries and newspapers,and various content creators all must decide whether stability, transition in technology,or a new organizational generation is the answer.

In addition to the argument of hidden social costs, there is another reason why restructuring should be tried more often: operating a technology to a certain end often has brought qualities that are implicit and invisible by-products that only are explicitly discovered when lost, as the newcomer takes over. In a transition within an organization, the chance of a merger between old knowledge and new opportunities is greater.

This basic attitude colors the fourth essay, "Electronic Distribution of Newspaper Content" (Chapter V).

Acknowledgments

I am specifically aware of the impact from the personal contact with and writings of Benjamin M. Compaine, Oswald H. Ganley,and Larry Povich at Harvard.

I have probably subconsciously "borrowed" from the writings of Anthony Smith and Jerome A. Barron.

-Whenever you think you see something, shoot!
If you hit, bring it in and name it target.-
(Author unknown)

II. THE MEDIA POLICY SPACE

The Traditional Chain Media

There was a time when a discarded newspaper could quite easily be traced back to its origin without facing too many crossroads on the path: the distribution could be followed backwards through the newsstand and the truck to the print plant, and the styling and replication through the press and typesetting to the journalist at the typewriter.

Conversely, viewing the process in its natural direction, journalists could equally easily perceive how the content they put on paper would reach the reader, and the intermediate functions would again be predictable.

It was meaningful, then, to use the term newspaper not only for the final sheets of inked paper, but also for the process that created it, or the typical content in it,or indeed the total organization that engaged in its production. Because the typical news content, the final display of the end product, the processes behind it, and the producing organization were so heavily related, little confusion arose from perceiving the whole chain as one medium, the newspaper. Similarly, the book, the television, and the theatrical film could be perceived as distinct media.

Today this equivalence is fading. Watching a romance on a TV screen leaves little indication whether the programming has traveled via cassette, cable, broadcast, satellite, or a combination of them, and also whether you are watching a film, a live broadcast program, or an original cassette production.

Similarly, authors often do not presently know the ultimate format of their writing; or a multidisplay by, for instance, videodisc, paperback, and network TV presentations may be planned from the outset.

The earlier single chain of processes between creation and consumption are in other words increasingly being interlinked to a network to produce a great number of possible new paths of functions for content to travel through on its way to user display.

Clearly, then, the linear perception of the television, cinema, book,or newspaper as a medium is breaking down, and may even become a straightjacket that prevents innovative exploration of the alternative paths.

When opening up information policy research in the media arena, therefore, the Program chose to avoid the traditional media as its prime classification scheme for phenomena and is instead experimenting with content, process, and display as its main framework components.

The preceding reasoning, the basic framework,and many details in this paper follow Compaine's content, process,and format framework.[1] Some deviations, clarifications, and extensions are given here without detail comparison with the original work.

A New Framework

Abandoning the traditional media as the cornerstones for phenomenon description and analyses, the idea is to search for a new taxonomy that will stimulate conceptualizing appropriate for a new and changing media environment. We are therefore looking for a framework with few primary

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[1]Compaine, Benjamin M. _A New Framework for the Media Arena: Content, Process and Format_. Program on Information Resources Policy. Cambridge, Mass., 1980.

components, not too abstract, covering most perceivable
aspects needed for input in information policy analyses but still having the
flexibility to be adjustable to many new approaches. Only secondary consider-
ation is given to select components that are independent, can be made meas-
urable, and can be rigorously defined.

My suggestion is content, process ,and display as the three <u>basic compo-
nents</u>.

Content carries (beside the obvious interpretation of the word itself)
the popular meaning of "the information" as created or otherwise provided
by the sender, or received by a user. It is used very broadly to encompass
any kind, any purpose, any language of expression, but disregarding all
aspects of its creation-manipulation-presentation processes and its physical
expression to the users.

Its <u>elements</u> are *messages* that can be composed of, for example, words,points,
or tones, which can be aggregated, for instance (through sentences and paragraphs)
to stories, to pictures,or (through measures and movements) to symphonies.

Possible descriptive <u>characteristics</u> are numerous and include intent,
actuality, value, propagation interest, subject area, and volume.

Each of the characteristics--or any combination of them--may be used
to define sets (discrete or continuous of *types of content* (classification
schemes), provided type criteria are given. Type examples corresponding to
the examples of characteristics given above could be: propaganda, new, $10,
government, geography,and 60-column lines. Here the type of actuality ("new")
may have been chosen from the discrete, binary set "new," "not new,"and the
value type ($10) from a continuous real number dollar scale.

The content is, then, a half metaphysic notion designating something
that is closer to what the brain or heart (and maybe a machine) produces or
feeds at, than what the eye can see or the ear hear.

Since the purpose of this framework is only policy analyses, further elaboration is left to philosophers to explore.

Process is the second basic component and refers to all activities undertaken along the path from (and including) creation of the content, through all types of handling and transmission to the consumption by the user.

Its elements are *functions* that may be very general (e.g., creating, handling, transmitting), or somewhat more specific (e.g., composing, editing, broadcasting) all the way down to very detailed activities (e.g., proof-reading, hyphenating, modulating). Functions can be aggregated, which means that very complex activities also are functions (e.g., book publishing, news gathering).

Descriptive characteristics are again numerous. To each characteristic a scheme of *types of process* may be defined by given criteria. The characteristics may be of a general character applicable to all (or most) functions. Examples with function and type in parentheses could be speed (composing, 10 measures/hour), cost (proofreading, 1¢/line), error rate (telephone line transmitting, 1 error/million bytes), or capacity (trucking, 16,000 pounds/ cargo). Characteristics may also have limited application such as recall (retrieving, 0.5), bandwidth (radio transmitting, 9.8 kilohertz), or projection time (movie projecting, 0.02 sec.).

Although process is also an abstract notion, its elements are perhaps closer to ordinary language. It seems that any verbal noun derived from a verb operating on content is a function. If these are the only functions, we may have a workable definition of process.

Display,[1] the third basic component, is used to connotate all aspects

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[1] In the original version of the framework, *format* is used as the third basic component. It was used in a narrower sense as covering the physical presentation only, but in a wider sense by also designating intermediate representations between internal functions.

of how content ultimately is made available to users. The focus is on the representation that content is given to reach users, the extent of possible and actual interaction with users,and control over the use process.

The <u>elements</u> of display are *contacts*. A contact may be very general (for instance, "electronic media consumption") or very specific ("particular ink-on-paper telex read by receiver"), but also complex ("international news presentation"). Contacts may, similar to messages and functions, be aggregated; for instance, over users, over different time periods for the same user, over physical presentation forms and/or control modes.

The <u>characteristics</u> of contacts may be general for instance: format (the physical form of the content presentation), layout (the logical structure of the distribution of content within format), control mode (by whom and how is the use process governed), or penetration (who is reached). Characteristics can, of course, also be more specific and of limited use, such as: physical signal type (sound), VDT type (525 lines), speed governance (by sender), or subscription coverage (22%).

Examples of *types of display* are already given in the last parentheses for some specific characteristics and with criteria implicit in the examples. Types at a general level could be: for formats-- ink-on-paper, video on screen, light projection, sound, etc.; for layout-- various sizes, number of columns/lines,or color range; for control (with direction as criterion) -- one-way, two-way, interactive; and for penetration (by demographic criteria)-- percentage of age groups in areas at time intervals.

Display is the interface between user and content. Content itself, or the process of use, is not a part of this interface. The final form that carries content to users, the actual exposure of content to users,and governance of the use process constitute the contacts.

The Media Space

So far we have very carefully avoided expressing directly what sort of objects we want to describe by content, process, and display. The answer inherent in the examples seems to be that "media" in the traditional sense (e.g., newspaper, theatrical film) can be described rather completely by our three-legged framework. However, the scheme takes us even further.

Interpreting content, process, and display as individual dimensions, we have defined a three-dimensional space. It is our proposition that in this space we can describe a variety of media phenomena. We observe that the space itself, the media space, contains all possible content, combined with all process that might be employed in delivering any part of it, in any possible display.

Clearly, the three-dimensional perception of this mighty reality (leaving room also for the future) is simplified, since each of the basic components is itself multidimensional. Any specific description is moreover dependent on the actual selection and definition of characteristics for each dimension.

A random choice of a subspace within the media space would mean some restrictions on content type (according to some characteristics), also a restriction to certain process and display types. Only a few of these choices are realistic, in the sense that the chosen content could (possibly, now or in the future) be given the chosen display by the chosen process. The realistic combinations will be called media entities, which then are

> existing or potential selected realistic combinations of
> content, process, and display, all three defined by type
> according to certain characteristics and class criteria.

Clearly, "traditional media" such as the book, television, magazine, etc., can give rise to media entities. But so also can any potential combination arrived at by substitution or adding to content, process,or format in an existing entity, provided the result is still realistic.

It is also important that a media entity need not be (a) "the linear (chain) type" (see newspaper example,p. 8), but also can be (b) "anything that displays via VDT" (see VDT example,last paragraph,p. 8), or (c) "anything that fiction can be processed or displayed by" (see top of p. 9).

Even the notion of (d) "an encyclopedic media entity," encompassing all existing content, brought to any display by suitable process, can be embodied in the media entity.

content   process   display
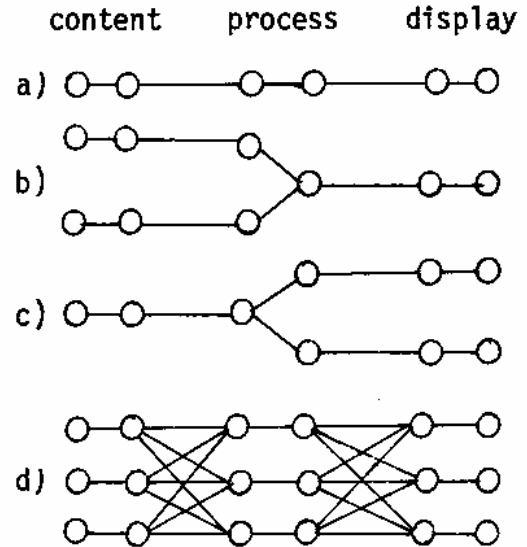
The Media Planes

Focusing on the media space being three-dimensional, we can attempt to reach some propositions observing the usual physical space. Perceiving a geometric structure (e.g., a cylinder, sphere, or cone) in space, one of the many ways to describe, analyze, or plan the creation of such a structure might be to draw its projections on the three planes obtained by omitting, one at a time, the three dimensions.

The resulting three-plane figures are obviously not the same kind as the original structure (they have, for instance, no volume), although the triangle or elipse has some relationships to the cone.
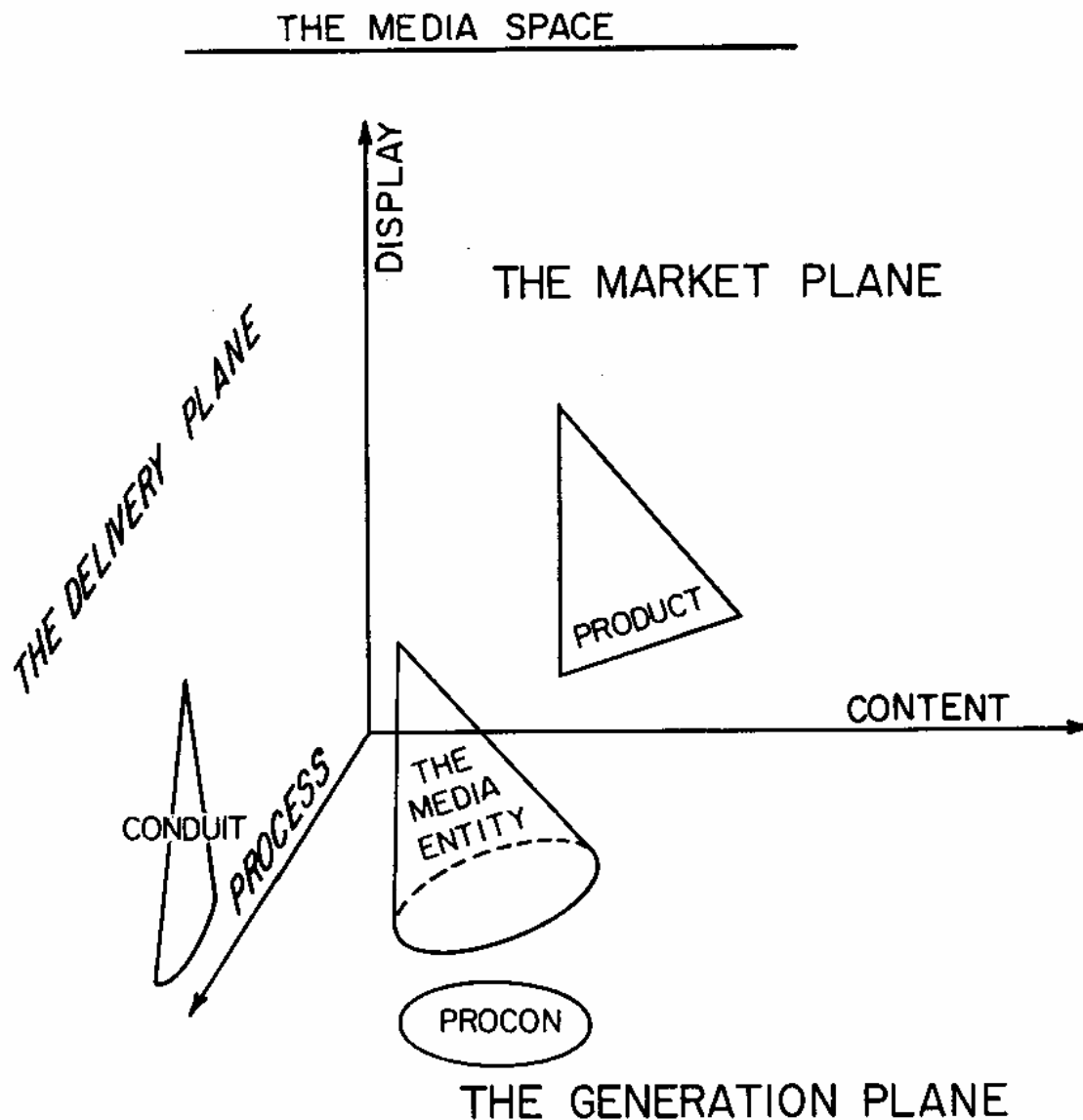
THE MEDIA SPACE

In geometry, the usefulness of projections is dependent upon how dimensions are defined. Remembering that our three-dimensional media space is a considerable simplification of reality, the fruitfulness of its two-dimensional reductions must therefore be a good measure of the strength of the chosen framework.

Turning to the media space, we observe not only that media entities must be transformed to another form by being reduced to two dimensions, but also that (as opposed to the geometrical example) we must expect

three different new kinds of media phenomena to emerge,since our three
dimensions are of different natures. In fact, reducing the number of
dimensions increases the breadth of phenomena describable. Each of
the three new kinds must therefore be different superclasses of media
phenomena, generated from media entities by removing restrictions set by one
of their dimensions. Even if we want to maintain a restriction to
realistic units (defined (defined analogous to realistic media entities on
page 13), the notions must be broader than media entities.

Looking a little closer at each of the reduced descriptions (or extended
notions), first we intend to study the plane defined by the content and
display dimensions; that is, we disregard the process aspects. The units
we find must be some aggregate of messages, having a physical format and
layout and a certain exposure to users. No functions concerning how to
produce, transmit, or use them are considered. These message/contacts units
very clearly fit the notion product.

The world of existing and potential media products must be the media
market. Accordingly, we name the plane defined by the content and display
dimensions the media market plane. This indicates that policy issues
related to media marketing phenomena--such as product development, adver-
tising,and market ratings--to be described and analyzed mainly demand con-
sideration of content/display relations.

A confirming view/example is given by Christine D. Urban: "In summary,
we can hypothesize that consumer media behavior appears to be a function of
situational and individual factors, as well as the content and format of
the media."[1]

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[1]Factors Influencing Media Consumption, Program on Information Resources
Policy. Cambridge, Mass., 1981.

Second, we consider the plane defined by the process and display dimensions, disregarding content. What we are looking at must be "pipe-networks" of intellectual and technical functions in relation to formats, layout, and user connections that are "empty" in the sense that no content is provided. There are no perfect but a few near notions to use as labels for these function/contact combinations. "System" or "delivery mechanism" are possible candidates, but, although deviating from common use, we choose conduit because of its associations with communicating, which probably is a necessary general media function.

The most concrete perception of the conduit arises when focusing on a system for production and delivery connected to a certain user group, such as a turned on, but idle radio broadcasting system, a satellite with users waiting for data to flow, a telephone network with users starting to access Prestel, or the newspaper perceived as an organization connecting users to content. Certainly media functions are not confined to technical transmission, so that the conduit picture must be given also an abstract side containing the human procedures for interaction with contacts. Examples could be the codes for TV interviewers' behavior on screen or for newsstand operation.

If the question is how and to whom a media entity connects, its conduit is the answer. "To whom" is answered both by who speaks and who listens, "how" both by which functions are employed and by which physical and logical means the messages are presented.

This suggests that existing and potential conduits constitute "media delivery," discarding the alternative "distribution" because of its slant to the mass aspects. The plane spanned over the process and display dimensions, therefore, is named the media delivery plane. Policy issues dealing

with media delivery--such as market penetration development, changes in delivery technology or education of distribution manpower--should, accordingly, mainly demand overview of process/display relations.

Third, we set aside display considerations, leaving the process and content dimensions to define a new plane. Among what we see must be compilations of messages in relation to the functions employed to handle them in their abstract rather than physical form. No use aspects are involved.

There does not seem to exist any common notion for these "displayless" process/content media phenomena. Let us, therefore, go the opposite way and take a look at some words: authorship, media retrieval, data flow, media freedom, censorship, creativity, communication noise, journalism. Our proposition is that they are all likely elements to occur in this plane, since they are strongly content and process oriented without being confined to any one of them, and they have sparse relations to display. Lacking a natural designation of the phenomena in the process/contact plane, we name them procons.

The world of interaction between content and process must be heavily dominated by the gathering, creating, retrieving, and restructuring of content, since functions that change only the physical representations are not supposed to act on content. We find the media generation plane to give relevant associations.

Cross-sections of Media Entities

In the preceding subchapter, reductions to two dimensions were used to focus on media phenomena more general than media entities. A second way of using the reductions of dimensions is to confine ourselves to the study of

media entities by making two-dimensional cross-section views (or rather thin slice-cuts) through the entities.

It is simplest to perceive the meaning of this by choosing a plane representing some constant in one dimension. To give examples, choosing first "court reporting" as a constant function in the process dimension gives the opportunity of studying related content/display issues in any media entity. Second, choosing "pornography" as a constant message designation in the content dimension leaves related issues to be described by process (e.g. censoring) and/or display (e.g., format/time/penetration limitations) for any media entity. A third example would be to choose a constant contact in the display dimension, say "Canadian TV-screens." A description by content/process relations of one of any media entities (with the given display) gives a tool for analyses of relevant policy issues.

In general, any intersection through the space gives a two-dimensional image of the media entity, though most of them are very abstract, at least until some kind of metric is developed to define logical order among and distances between the points on each of the three axes.

*-The cause of the New International Information Order
is strengthened by the growing realization
that information structures are in a sense
predeterminants of the viability of nations.-*

Anthony Smith

III. THE EROSION OF NATIONAL BORDERS

The Organization-Communication Map

Imagine that sometime back in the 1950's you sat at a huge geographic
world map with a sharp pencil at hand. For each phone call, letter, tele-
gram, broadcast,or other communication reaching its destination anywhere in
the world, you drew a pencil mark on your map, connecting the origin and
the termination point of the communication. If you ended this exercise at the
time some areas were becoming crowded by the pencil marks, the whole globe
would be more or less densely covered by one enormous graph.

It seems a safe hypothesis that, if you took a closer look at a limited part
of the map, the graph would seem dissolved into clumps surrounded by less
densely covered zones. Scholars in communication, law, sociology, information
science,or politics could even each in their special language formulate a
"law" stating that these clumps correspond to countries.

(A quasi-mathematical formulation of the law could be: If two points of
a national border are known, one of the borderlines between them is closely
approximated by the shortest curve, crossing the least possible number of
edges of the communication graph.)

The Blurring Borders

Repeating the exercise in 1981 would probably show both constancy and changes in the picture: the pattern of national clumps still prevails, but the border zones have become more blurred by crossing pencil marks. The change is easy to prove without going through the exercise: communication statistics tell us beyond doubt that the international communication traffic increases at a much higher rate than the domestic.

Shaping Information Policy

This increased traffic is now causing concern in groups far beyond the directly involved communicators and the carriers. Many aspects of it have already reached the agendas of international organizations.

The bulk of questions raised aims mainly at creating international traffic rules suited for the new highways of communication opened by satellite, fiber optics, computers,and other new technologies. Taken one by one, the decisions made seldom disturb the political or policy balance of interest silently agreed upon previously. But in the same way as tiny pencil lines ultimately form a black clump, the steadily growing number of technical agreements sooner or later constitute a trend also in a second dimension: a de facto, implicit information policy is formed.

Increasingly, however, nations are becoming aware of policy implications of technical arrangements in the information field. At times,technology makes jumps so violent that no one can overlook the policy dimension, as in the case of resources surveillance satellites. Under the World Administrative Radio Conference of 1979, there was concern that political issues might block from being considered the 15,000 technical proposals on allocation

of world frequency bands. Again, the policy dimension was clearly visible not only because of the size of the task, but also because decisions will be in force for up to 20 years.

Quite naturally, then, information policy issues are now being explicitly discussed in international organizations, often under the label "trans-border data flow."

Common Goals and Conflicting Priorities

When an international organization like the Organization for Economic Cooperation and Development (OECD), UNESCO, the Council of Europe, or the International Telecommunication Union (ITU) puts an information policy question on its agenda, the participating nations are forced to formulate--at least for themselves--the goals to be approached by the decision.

With some aspect of trans-border data flow under discussion, the list of goals might include:

- protection of personal privacy rights;
- support to national security endeavors;
- avoidance of obstructions to free commodity trade;
- stimulation of national industries;
- furtherance of free flow of information;
- support for national sovereignty;
- maintenance of an open information service market;
- protection of national cultures.

A list like this would, in almost any international forum, find unexpectedly high support as showing the existing concerns. Controversies would start, however, even in a homogeneous group like the OECD countries, when

trying to agree upon the meaning of "free flow of information" or "national sovereignty;" terms that in the information field are more commonly used in declarations than in treaties and conventions. *The relevant policy issues derived from approaching these goals seem to be the conflicts between the goals rather than the legitimacy of each of them.* As they reach the point of determining priorities among competing goals, even friendly neighboring countries experience tensions. An example is the dispute between Canada and the U.S. over border-zone U.S. TV-stations beaming programs with advertising into Canada. The cultural and the protectionist vs. the free flow and free trade considerations are clearly conflicting, and perhaps even overtones of sovereignty concerns are present.

Surface Solutions and Background Disparities

Studying actual cases in OECD gives the impression that at times the U.S. is fighting a lonely war for free trade and information freedom. The balance of trade in computers, communications, and information services-- where the U.S. enjoys a healthy surplus in all three sectors--seems to offer the explanation. But here lies a pitfall which may lead to a hasty conclusion. The buyer and seller will seek terms in the interests of both parties and trade only when such interests are found. Recent examples from the shipping and automobile industries show that the U.S. has no difficulty in perceiving interest beyond a good price and quality performance. Presuming that the U.S. also understands such interests when claimed by others, the observable incompatibilities in opinions at the OECD table must have a deeper explanation.

If the various OECD nations individually were to give priorities to the eight goals listed above, even given that short-term self-interest should

be neglected, the participating nations probably would be aware of larger
differences in basic political attitudes than we like to observe within
the demcratic West. Thus, where the U.S. accepts--far beyond self-interest--
only liberal trade as the language of information policy, most other coun-
tries are willing to risk reduced economic efficiency to promote their
priority goals, and they believe more in elected governments and their
agencies than in the market to represent the true priorities of the peoples.

Whereas on the surface conflicts seem settled by reasonable compromise,
the deeper problems often are buried unexpressed, just to survive and yield
distrust. For example, the clearly outspoken U.S. suspicion that Europe
tries to protect home industries under cover of privacy protection or sov-
ereignty concern, or the European perception that greed is the only driving
force behind U.S. actions, threatens the climate of Western unity.

Privacy Protection as Testing Ground

The easy reaching of an OECD agreement on principles of privacy pro-
tection data laws seems to counter the existence of a policy incompatibility.
But realizing that:

- although both the European countries and the U.S. support
  individual privacy protection, neither side gives the highest
  priority to this concern;
- both sides can promote their primary goals without sacrificing
  privacy;
- the U.S. seems to consider data flow restrictions based on
  privacy concerns as the last inroad to "freedom," while Europe
  probably considers this only as a first and uncontroversial case
  of compromising free flow ideals to other goals;

we can safely expect information policy questions to gain crucial importance
in years to come.

The Principle of Free Flow

Strongly supported as the free flow is by liberals, the vast majority
of culture workers, scientists,and educators on both sides of the Atlantic,
it is still fighting a defensive battle when up against other goals.
Examining the list of trans-border data-flow-associated goals in search of
an explanation, we might notice a slight disparity in mode between "further-
ance of free flow of information" and the rest: while "free trade,"
"industry stimulation" and "personal privacy" are explicit in which inter-
ests they serve (and therefore have beneficiaries and constituencies in
the open), free flow rather has the mode of a moral principle or of an
objective favorable to realization of other goals.

Perhaps it would be constructive to replace free flow in the goal list
by the legitimate purposes it actually serves. This would bring constitu-
encies to their defense and perhaps also shed light on unwanted free flow
hitch-hikers.

Instead of continually battling other goals, the free flow could be
promoted to be a higher order principle of global information relationship,
ruling over silence, censorship, obstructions,and payment in the vast terri-
tories not explicitly exempted. It is tempting to use the analogy to the
role water plays in the ocean, or air in the atmosphere.

Meanwhile, there has been precious little discussion about the paradox that
while information policy is but slowly getting recognition of its importance,

trans-border communication traffic continues to increase in volume, forms, and ends.

The Law or the Border to Break Down?

Turning back to our world map, then, does the increasing trans-border traffic threaten to negate our hypothetical law? If we believe leading organizational research, the answer is no. From an organization theory point of view, the relationships between organizational behavior and information flow is quite extensively described, leaving no originality to our law. It follows, for instance, as an inversion of the well-known principle: When substructuring a large organization, define boundaries to minimize the need for coordination (communication) between sub-units! By negation, any organization with excessive external communication must be unstable.

To put this law to a real-life test, there is still far to go. Trans-border communications are,in absolute terms,still very moderate compared to domestic flows. Playing with one scenario, however, based on the truth of the law and an increasing trans border flow, leaves only two outcomes.

First, communication may break down the borders. This could happen if maximum economic efficiency, free flow of information,or adherence to any political, religious,or philosophical belief is considered important enough. Then, higher order political structures like international organi-zations, defense alliances, federal states,or regional economic pacts might grow in importance over more local units, to produce the balance between communication volume and organizational closeness the law demands.

History is rich in examples showing that increased communication has set the stage for political integration. Both NATO and the European

Economic Community became possible after a period when warfare, aid programs, and increased trade and travel had raised the level of cross-border communication.

Second, if preservation of existing national borders is sustained as a prime goal, regulations that reduce trans-border traffic or break it up by control at the borders are likely to be launched (cf. the Canadian Bank Law stating that banks "...shall maintain and process in Canada...such records").

Separatist movements may find part of their explanation by focusing on communication: Where geographic distance or other physical obstruction to information flow earlier allowed for a cultural/political unit to survive with weak formal boundaries, separatists now feel they must strengthen them in order to keep up with communications that break through physical barriers (cf. the Basker Province case in Spain). The revitalization of provincial languages witnessed in many countries may be similarly explained.

The Non-geographic Organizations

The suggested world communication map probably gives a striking, but also a slightly false picture of the reality. The relationship between organization and communication cannot be accurately displayed on a map showing geographic distance. If the map seems convincing, it is because of the high correlation between geographical distance and organizational closeness in the type of organizations we primarily have had in mind (federations, countries, states, counties).

But there are other organizations whose members are far less geographically assembled: families, churches, labor unions, and multinational corporations,

to mention a few. If communications within such organizations were not considered "border crossing," probably there would be little blurring of borders on our map.

Drawing a map to show all existing organizational relationships and communication between all human beings would have to give up accounting for physical distance, probably would need a multiplicity of dimensions to remain "true" in showing organizational distance, and certainly would lose its power of facilitating obvious interpretations concerning geographically-oriented political institutions.

To laymen in organization theory, the most striking fact to be read out of such a map would probably be: When and if loyalities to non-geographically correlated organizations take priority, the physical border disappears from the organization-communication map.

The Role of Information Science

There is a need for increased awareness among information professionals of the possible effects their work may have on the structures of the organizations they serve.

In this paper we have dealt with information flow in a very crude way, disregarding   the nature of the content, the processes involved in communication, the direction of flow,and other aspects of display. It seems to be a natural task for information policy research to establish the possible distinctions in organizational effects for different types of information flow.

*President Reagan, visiting Canada, when
asked for his reaction to the political
demonstrators:
  - I thought they were imported to make
    me feel at home.-*

IV. FREEDOM OF EXPRESSION

The Rationale for Freedom of Expression

The individual's deeply felt urge for freedom of expression is probably
universal. The reason why this freedom is not always and everywhere an
obvious right is that its suppression may be a powerful weapon in the hands
of religious, economic, ideological, or political warriors.

Fortunately, some societies have made great progress through allowing
free expression, and thereby making possible an alliance between societal
forces and the individual to nourish the freedom of expression and defend
it against potential threats.

The philosophy behind the societal motives for defense of free expres-
sion is beautifully focussed in the famous citation of Judge Learned Hand:

> "...right conclusions are more likely to be gathered out of
> of a multitude of tongues than through any kind of authorita-
> tive selection."

The marketplace of beliefs, answers, and ideas, scrutinized by the public,
can be expected to produce truth, quality, and salvation.

The Elements of Free Expression

Most Western countries have some form of constitutional guarantee
to ensure freedom of expression. In its beautiful language--
durable in principle for centuries, but limited to 1790 words, --

the First Amendment to the U.S. Constitution defines the right

implicitly in a way that gives it a double portion of authority:

> "...respecting an establishment of religion, or prohibiting
> the free exercise thereof; or abridging the freedom of
> speech, or of the press; or the right of the people
> peaceably to assemble...."

Explicitly stated, reflecting today's language and situation, the

right to free expression could read:

You have the right:

- to define for yourself your areas of unquestioned beliefs
  and their contents;

- to question, rationalize,or innovate on any subject;

- to express your beliefs and thoughts in any form of speech;

- to reach your audience through a system of media and
  communications;

- to assemble ,to witness, to express, and communicate with
  fellow citizens.

A surprisingly high proportion of First Amendment citations in the

literature omit the reference to religion. The strong concept of unity, how-

ever, created by including religion, thought, speech, the press,and assembly

within one sentence, is deliberate. It defines expression magnificently

and it creates an obvious focal point at the individual's right to speak.

This paper, however, does not go further into details concerning

freedom of belief, thought, and assembly.

Congress Shall Make No Law...

The interpretation of the freedom of expression, as voiced by the U.S.

Supreme Court, has come further than just discarding the "authoritative

selection":

> "It is the purpose of the First Amendment to preserve an
> uninhibited marketplace of ideas in which truth will ulti-
> mately prevail, rather than to countenance monopolization
> of that market, whether it be by the government iself or a
> private licensee."

The problem is that the market needs guarding but can accept no guardian!

This is strongly indicated in the explicit part of the First Amendment

stating that

> "Congress shall make no law...abridging..."

By these simple words the highest authority has made it "as impossible as

possible" for itself to interfere *negatively* with the citizen's freedom of

expression.

It is hardly a secret that at the time of adoption, the First Amendment

would not even have stopped forthright censorship if legislated by a state.

Equally clear from the Supreme Court reasoning cited above, present inter-

pretation is that the First Amendment can be turned against anybody that

hampers others' expression by active force or even passively by monopoli-

zation.

The Scarcity of Attention

There are limits to the freedom of expression, most of them arising from an

outweighing of the benefits of that freedom by other important values. For instance,

protection of national security, personal integrity, personal safety,or

religious sanctity may motivate laws that allow stopping expression,or

intimidate expression under threat of punishment. The single most impor-

tant legal limitation to expression lies in the way "expression" is separa-

ted   from "action," the unjustified cry "fire" in the crowded theater

being the supporting borderline example.

With the very cautious practice of law and the tendency toward the mostly expanding interpretations concerning freedom of expression that are currently observable, it seems that we are facing mostly justified limitations, not serious threats.

The main actual limitation to expression stems not from law or other formal authority, but from the fact that *desire to be heard exceeds the desire to listen*. The scarcity of attention to speech in any form therefore triggers a pressure on expression. The scarcity itself probably could not be labelled as lack of freedom, but the system by which the pressure is managed or the rationing performed surely must be examined for suppressive tendencies.

The Principles of Access to Attention

Person-to-person communication is rationed mainly by the receiver's decisions on listening, facing though some limitations of freedom of direct expression caused by protection against intrusion. (Perhaps the question can be raised whether the opportunities for reaching influential people even with a request for access is too unevenly distributed to conform with freedom of expression.)

A large portion of expressions seek audiences that need the means of media and communications to be reached. An important threat to the freedom of expression thereby arises because middlemen, not the ultimate addressee, make decisions crucial to attention.

If one accepts that the sum of attention is exceeded by the urge for an audience, *any addition to the means of communication cannot preclude some necessary rationing*.

The ultimate models for rationing would be:

1) an equally distributed right to media and communications access that could or could not be sold to others, or could or could not involve cost coverage;

2) an economic free market where attention could be sold by whoever could capture and channel it;

3) access according to anticipated value of the content of the message.

The equal right principle is well known from voting, the market principle from distribution of goods and services. Value is considered by the recipient of the expression and therefore also may be acceptable as a criterion for rationing: meaning is preferable to noise, truth to lies, originality to plagiarism,and beauty to triviality. Value, though, is highly disputable and subjective,and perhaps therefore as unsuited for "authoritative selection" as the "conclusions" themselves. Who should in this case be the trustees? (Surveyed readers? Communications workers? Media owners? Editors? Government?)

The practical world employs a combination of equal right, market force, and value models concerning rationing access, and the value assessments are contributed to from all bodies mentioned above.

It is natural that a country's political mainstream influences its choice of model and trustees. It should not be surprising, then, that the U.S. relies mainly upon the market force model and owner trusteeship. But it is not any less "free" or less "democratic" when other Western countries choose more balanced right/value models and give more trusteeship to workers or government, when this closely follows the majority political preferences.

Media Concentration

The hunt for unwanted guardians of First Amendment rights has also reached the media owners. Under the label "media concentration," academics as well as politicans and the media themselves have looked into whether or not changing ownership patterns are diminishing the number of speaking tongues.

There is strong evidence in support of a concentration taking place: natural economic forces create monopolistic one-newspaper-towns, owner chains make the local independent newspaper or small publisher more infrequent, and increasing cross-ownership and conglomeration lessen cross-media independence and variety in contents.

Reducing the conclusive power of this evidence is the fact that concentration in the media, by comparison to other industries, is not alarming; that new evolving ownerships are more concerned about economics than content; and that more corporate ownership in itself may mean more owners and tongues. It is also argued that the head-on competition that is lost in the newspaper business is largely outweighed by competition from higher and lower level units (national newspapers, local shoppers) and from other media.

Observers of media practices report incidents where chains speak with one tongue. But on the other hand, abuses were heard of also before concentration. One advantage of larger economic units is that they are less likely to be intimidated by strong outside powers.

A synthesis of these factors seems to offer a contradiction: the concentration and diminishing number of voices are evident, but the expected

effects on number of tongues[1] are not clearly observable. I would like to
offer two possible explanations:

1) The power of media ownership is very much like that of the one-shot
   gun. You cannot expect to hear too much noise from the exercise of
   its power.

2) If a reduction in voices does not result in a reduction of tongues,
   the reason may be that in any case, the media group is so narrow
   (described by any sociological indicators such as age, sex, race,
   economic status, political belief) that not too many tongues are
   needed to represent its views.

The Content Trustees

Editors and journalists comprise a group of "freedom-of-expression trustees"
that because of its size is hard to control. This profession has moreover
developed ethics--and is partly also supported by laws--that promote diver-
sity and high standards. Finally, the fact that most of the many existing
pitfalls are regularly fallen into by some member of the profession is
normally offset in the marketplace of ideas by other members' actions.

Our main question must be whether the profession is subject to any form
of concentration that may curtail expression.

Evidence that editors' associations or journalist unions have tried to
control content by collective behavior is very scarce and indicates no need
for general concern. Unorganized but commonly accepted abuses of narrowing
the tongue spectrum are also hard to find, and not too likely to occur in the
socially broad group of journalists with a stake in--if in any distortion--
a stretching of the spectrum.

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[1]Voices are different in a physical sense (e.g., coming from different
persons) tongues are different in content..

The least credible aspect of the media's ability to present a diversity
of views is the treatment of issues where the media themselves are interest
groups. One example is the interpretation of the First Amendment rights,
where media regularly both overemphasize the breadth of press protection
and separate press freedom out of its broader context of citizens' rights
of expression. Another example is the coverage of economic interest con-
flicts such as the present AT&T Electronic Yellow Page controversy.

The Power of Media and Communications Workers

If sufficiently well organized, the communications workers are in a
position to control content. By their power to shut down media and commu-
nications systems by strike, they can directly influence the information
stream, and the threat to do so might even intimidate owners and editors
in their decisions about what to publish.

The reason why this is a very rare event is not that unions are too
weak. It is not surprising, since they were the first workers to become
generally literate, that the print workers guilds (and later unions) were
formed early,and still are among the strongest and most militant organiza-
tions. Strikes have quite frequently shut down media, but in most of the
few cases where this has been done to influence content, the ownership has
tried to use the media as a weapon in their own conflict with the workers.

Midway in the computerization process and with electronic delivery systems
ahead, workers--especially traditional print and transportation personnel--
will need their strong unions to protect their interests, hopefully without
using control over content as a threat.

The history of literate workers becoming powerful may repeat itself.
The power of air traffic personnel controlling electronics and managing

physical transportation is an instructive example. In addition to being
in command of information streams, modern communication workers increasingly
also will be controlling information assets (data banks) that may be
degraded even by lack of proper maintenance during conflicts.

The seemingly self-imposed restraint on behalf of unions from influ-
encing content is admirable, but not sufficient to secure freedom of expres-
sion. As for other personnel engaged in vital societal functions, a
limitation of the right to strike on content issues may be sought, and
so would be measures that prevented conflicts in one part of the information
sector from silencing tongues of other parts.

Domination

Looking back on the discussion of how government, owners, professionals, and
workers may influence expressions, one finds the recurrent theme is that if the
multitude of tongues is to be preserved *no one single source or force must
dominate expression*. Domination, then, is the generalized evil that must
be fought, whether it comes from any of the mentioned players, from any
individual within the groups, or from any organization in or across the groups.

The guardianless guard of freedom of expression can only be safely
realized through a proliferation of power over content that leaves no one
in control of what other tongues will speak.

The Threats from Media Consumers

The readers/viewers/listeners have for a long time been told that they can
best exert their media influence by casting their "buy/not buy" votes in the media
marketplace. In 1981, the Coalition for Better Television set out to reform

this wisdom. Via boycott threats aimed at advertisers supporting the "wrong" programs,the Coalition expected to successfully influence TV content.

The reaction to this should not be to talk about "censorship" or "conspiracy," but to realize that their success is only possible if the market, by fragmentation of user influence, has created a power vacuum that such organizations can enter.

The threat of excessive power for the Coalition for Better Television will be present only until most other supplementing and opposing views are similarly organized. By then,the former relative influence among various program tastes is likely to be largely restored. The net effect, however, will be a transfer of some power from the media to the user--a change that is unlikely to reduce freedom of expression.

The long-term perspective is perhaps the most challenging: as democracy matures, ad hoc organizations (in the media field as well as in general) are likely to cluster or merge into broader units where more stable cultural, ethical, or political guidelines, rather than views on current issues, attract support. These organizations (parties?) might well be the same as those competing for direct governmental power. How, then, do we distinguish between the (legitimate) power of a user group and the governmental power the First Amendment tries to avoid?

Influence from Advertisers

The media advertisers seem to complete the list of prime players that could dominate expression. For many media, the advertisers are, in economic terms, the major user group. It is easy to see the danger of domination here.

The obvious case is where an advertiser has the economic power to influence the content directly. Less intentional but more widespread is the effect on expression stemming from the media's struggle to produce maximal audiences, thereby often both sacrificing expression for mass entertainment,and supporting opinions, lifestyles,and attitudes favorable to the advertiser's business goals.

A less well understood effect is that the media, heavily financed by advertising,are likely to end up in a life and death struggle for monopolistic survival. The calculations used to prove that newspapers have natural monopolistic characteristics are not convincing if revenue comes mainly from readers. Or more directly, if newspapers were 25% (not 75%) financed by advertising,they would not have the strong monopolistic tendency, and we would probably still have head-to-head competition between newspapers in most cities.

These arguments indicate that a press, less reliant upon advertiser money, would probably be a better servant for the freedom of expression. It may seem ironic that a change in media owners' attitudes (towards economic goals) that in the first approximation (by delegation to editors) supports freedom of expression, in the second approximation seems to mislead the press to betray responsibilities coupled to its special constitutional rights.

It may be that the siphoning off of some classified advertising that no longer needs the newspaper as a vehicle, combined with the more individualized reader's profiles--both made possible by electronic delivery--may revitalize the press as an instrument of expression.

International Domination

With little success, authors have tried to explain to Americans why the Third World wants "a new world information order" with less Western, especially American, media influence; the "international" news-gathering agencies are the particular focus of attention.

Let us try a one word explanation: domination! No matter how much we can prove that Western news services are accurate, cheap, open,and uncensored, we can never escape that we dominate them. Since domination is the negation of freedom of expression, we thereby are in open conflict with our own basic principles,and in danger of losing credence in the rest of the world. Short-term economic and political goals must be toned down if we want success in offering our freedom of expression as the cornerstone for world society cooperation.

*-The German Zeitung, the French Journal and
the Norwegian Avis do not need formal divorces
of news from paper to enter electronic distri-
bution.-*

V. ELECTRONIC DISTRIBUTION OF NEWSPAPER CONTENT

Introducing the Background of Some Controversial Propositions

Reviewing the viability of the newspaper quickly draws attention to its

distribution function: duplication (printing) is a highly sophisticated,

time-precious function that is very vulnerable to disturbing incidents.

Physical delivery has to conquer increasing average distances to users,

and paper volume grows as content diversifies to respond to more specialized

user needs. At the same time,the direct revenue from a new reader does not

cover even the marginal cost of printing and distributing another copy.

Distribution is heavily dependent upon goods and services with

steadily increasing real prices: newsprint, oil,and until recently also

labor,have gone through price escalations far above general inflation rates.

In addition, the newspapers' dependency upon child labor (the "little

merchants" for home delivery) and the dubious environmental record (dirt

and noise in the print plants) cause worries for new costs in the

future.

There can be little doubt that distribution of newspapers is an eco-

nomically vulnerable function.

On the other hand, electronic distribution of media content to video

display terminals (VDTs) in the homes is becoming more and more technically

feasible: telephone lines connecting some 96% of U.S. homes are already

there capable of handling limited data volumes. Cable TV broadband systems

are being rapidly deployed, bringing more alternatives of content to some 25% of U.S. homes (1981). Both these technologies are expanding their capacities at the same time as digitalization, direct broadcast satellites, fiber optical cable, laser,and holography technologies are contributing to additional options, capacity extensions,and quality improvements. It seems safe to assume that it is already technically feasible to reach all homes with a two-way electronic delivery system having capacity enough for newspaper purposes.

Moreover, these technologies are dominated by computer and other components enjoying decreasing real costs, and their physical environment and employment effects seem well fitted to future general policies.

The technical, economic,and political feasibility of distributing newspaper content electronically, therefore, seems to be emerging,and the propsect of 10 years ahead reaching some 90% of the homes with a system seems realistic.

This combination of trends points towards opportunities for newspapers and conduit operators to develop new joint media products. The question, which has attracted the attention of newspaper publishers, cable operators, telephone companies,and others is: What possible media entities may be created by substituting the newspaper display and distribution processes by electronic delivery to VDTs in the homes?

Underlying the search for answers to this question is the need for the continuation of the societal functions the newspaper now serves. One must, in other words, search for :

> •products that fulfill and can develop with needs and expectations in present newspaper user groups (readers and advertisers).

Among otherwise equally viable options, the newspaper organization will look for:

- continued use of its existing strengths (capital investment, process know-how, market relations, etc.).

Successful products are more likely if they also rest on:

- realization of the strengths added by the new conduit.

These three points set boundaries for an area where innovation is expected, primarily in the industries involved.

Growing out of work on a proposal to contribute by analyzing strengths and weaknesses of the newspaper and cable TV media entities, this paper presents some personal opinions that do not pretend to cover all relevant issues.

The Newspaper - A Former Mass Medium

To challenge the dominant perception that the newspaper is a typical mass medium, let us list and later discuss its fit to these general mass media characteristics:

- the communication is one way;
- one sender reaches many receivers;
- the message is public;
- the same message reaches all receivers;
- the message is consumed at the same time and speed by all receivers;
- there is a recurring time schedule of emission.

According to these characteristics, commercial one-channel TV seems to be the absolute mass medium. The personal phone call, fitting none of

the characteristics, must be the extreme "non-mass medium." Where do we find the newspaper on the scale between them?

At the time when the poorly edited, four-page paper was read straight through by most readers immediately after it appeared on the street, the mass aspect was predominant. The newspaper reader, however, has always been able to choose his time for attention. This means not only that the simultaneity of communication is broken,but also that the reader is commanding the speed and is less dependent upon an eventual emission schedule. Today even further deviations from mass characteristics are apparent:

- Reader studies show that an average reader probably extracts some 10% of the total newspaper content. A quick combinational calculation shows that even among a million readers, it would be unlikely to find two readers reached by exactly the same content. The message actually reaching each of us is highly individualized.

- Although distribution is mainly one-way, advertising, letters to the editor, a broad editorial staff,and an emerging possibility of general public access are starting to break down the one-way, one-to-many newspaper model.

My conclusion is that the newspaper gradually has lost some of its mass characteristics. Today it seems more accurate to describe the newspaper as a *mass produced tool for individualized information transfer*, rather than as a mass medium.

The relevance of this observation to our topic is that--if other newspaper characteristics can be maintained--the transition from printing plant/ truck to databank/wire distribution from the user's point of view will be less radical in nature than now perceived. *The newspaper can rightfully consider*

*itself the logical founder of electronic systems for selective, individual-
ized distribution of non-professional information.* Such a philosophical
orientation--rather than worrying about "the fragmentation of the mass audi-
ence"--is likely both to better serve users and to found the defense of the
newspaper organization interest.

The Newspaper - A Retrieval Tool of Underestimated Beauty

There are many candidates for being the main strength of the newspaper.
The established organization for gathering and handling news is a prime and
little-disputable choice. My next and less obvious proposition is that the
main strength of the newspaper lies in its ability to organize content to
allow readers efficiently to extract a selection close to their interest:

- A high number of access points and an even higher number of
  paths into content are open;
- The content is built up by blocks (stories, ads) of self-
  contained information value, but still aggregative to topics,
  genres, subjects,and/or sections;
- The physical page, the column/line,and position on the line
  constitute a three-dimensional format/layout structure upon
  which the content structure easily, consistently,and intuitively
  simply can be mapped and made retrievable;
- A rich variety of sizes and styles of types is available to
  express facets of the content by indicating importance, urgency,
  or other qualifiers.

These points only indicate the strong tools of content organization
employed by the newspaper. Unfortunately, though (for its ability to

convert to electronic distribution),most of this know-how seems to be held in an implicit form. To analyze the present system and express its content organization (logical, physical, and mapping) explicitly, would be a major step toward electronic delivery.

A system used for human retrieval of content consists of two parts: the human mind and the formal structures built into or onto the content. Important features of a good external system are that it functions as an educational tool for building up the mind-internal system and, as this develops, rewards the user by simplified access and better results. It is easy to see that newspapers--contrary to most present electronic delivery systems--have these characteristics. But it is harder to find a blueprint to its construction.

Changing the delivery conduit to a wired VDT offers a format a little less structured than a pile of paper. On the other hand,a computer can hold a much more sophisticated logical structure than the paper pile. This means that a cable news system should be capable of simulating the juxtaposition in columns, pages,and sections of the paper version to express connections between related content items. Moreover, the computer can deliver all other retrieval possiblities of the newspaper and more, and also partly add to the individual (normally human internal) component by devices locally situated or at least locally controlled.

It is a common misunderstanding that creating this transition is a job for computer specialists or technicians. *The newspaper should recognize that the critical knowledge is in understanding retrieval systems, editing, and human behavior.* Once the newspaper know-how in these areas is explicated, a data base model to implement and improve it is likely to be the simpler step in the process.

Many users of automated abstracts services have come to recognize that, while retrieval in the narrow sense (when you know exactly what you are looking for) may be performed extremely quickly and precisely, something seems to be lost in the automating process: How do you use the tool if you cannot express your need in subject terms? What happened to the loose scanning, the half-restricted browsing, or the direct random choice you could easily perform in the printed form, maintaining at the same time good control of how far from your prime subject area you wanted to travel?

These aspects of the information organization are even more important for newspapers, where users are more likely to deliberately expose themselves to some surprise than to seek a particular piece of information. The degree of surprise, however, still should be determined by the user. The solution for the electronic newspaper, therefore, is neither an inverted file subject retrieval system nor only a handful of continuously fed, one-way cable channels.

Again the solution is to be found in the good examples of how the paper newspaper can be organized. First, newspapers know which content characteristics are most likely to produce user relevance when used as clustering criteria. Secondly, they can also conceptualize, define, and expand this example list of logical use modes: retrieval, scanning, browsing, random selection. Third, newspapers know their present tools for expressing content relationships (e.g., by physical hierarchy, by distance on pages, or indexes),and they know the techniques users can employ in approaching content (e.g., sequential reading, zooming, pointers (headlines), turning pages). Adding to this the simulation, retrieval,and memory capacities of the computer gives all together rich opportunities for creating tools that are true successors of the traditional newspaper. The single most important feature

in the long run is probably that the system be mutually heuristic. That
is, while the user learns to expand his user procedures, the system should
become capable of anticipating the user's modes and subject slants without
a need for the user to conceptualize his options of choice.

The newspaper library may be the place to go to find some personnel
qualified to support this transition. Whereas the skills for news content
organization today probably lie in some editorial and layout groups, their
knowledge in this field may be craftslike because most of the "organization-
of-knowledge-product" is implicit in the primary contents. The librarian,
however, is also trained in manipulating representations of the content
units (be it by catalog cards on books, or computer records of newspaper
clippings) into explicit information organization tools.

The Future of Advertising is in Capturing Attention Without Intrusion

Before discussing the technical opportunities of electronic advertising,
a few points and propositions concerning future media advertising are
offered.

The media's heavy reliance on advertising revenue has been coinciding
with highly materialistic attitudes in the public and a corresponding
need for product information to be distributed. As consumer interests
eventually may turn to consumption of less tangible products, not only will
the service sector advertising market be growing, but, also more important, the
non-advertising content itself can regain strength as a revenue capturing
product.

Because more and more people enter information-handling-related jobs,
the pressure on the average consumer's information capacity increases,

resulting in improved individual screening and selection skills being developed at work,and eventually also being emphasized by the general education system. Mere exposure of advertising may, then, produce negative attitudes if the user feels that obstacles to the information sought are introduced. User *attention* becomes the valuable asset.

The user is literally paying attention mainly for the benefits of utilizing media. As the relevance of this attention and the cost of the user's time increases, so does the implicit price paid, and also the value to the advertiser of the attention captured by the newspaper.

It is likely that the information pressure on the individual may grow to the limit where unwanted exposure will be subconsciously considered intrusion of privacy. In the process of distinguishing intrusion from acceptable exposure, awareness of the consumer benefits from advertising will rise, probably in favor of the personally useful and generally informative content over promotion and marginal-interest marketing.

If the propositions inherent in the above reasoning hold, the following points can be made concerning the newspaper future:

- The newspaper can capture more revenue from readers;
- The newspaper can deliver the segmentation valuable to the efficient marketing of services;
- By proper linking of advertising to relevant categories of editorial and news contents, the newspaper can produce high attention to exposures;
- The newspaper allows the users to spend time proportionate to their interests focusing on an advertisement;
- The value of attention and thereby prices of (capturing) advertising will rise;

•The more self-governed the use of a medium is, the better it

will score on a privacy or "information pollution" index.

The belief by newspapers that in an electronic two-way distribution system readers will use their control over the distribution to bypass all advertising is unjustified self-condemnation. Most readers will probably prefer an intelligent mixture of editorial and advertising content; the criterion being relevance, entertainment value,and sensitivity to individual attention pattern.

The main difference of the paper from the electronic version is the computer's enormous advantage over the paper in producing multiple "neighborhood" relations between pieces of content. If this can be used to increase the reader's information value for given exposures, attention will be increased, willingness to accept exposure will grow, and revenue basis can be enlarged.

The theory of how to build the content relations model can be developed from present know-how of organizing and mixing ad and non-ad content in the paper. Data base theory can very likely produce valuable additional insight in how to build the electronic newspaper.

It may be worth considering sharpening development goals by selling attention--which can be easily measured in an electronic version--rather than column-inches or even exposure of advertising.

Do Not Expect to Sell Yesterday's Newspaper Tomorrow

The stream of newspaper content pooled in a data base holds promises for a rich variety of utilizations. Concentrating on two points, however, I want to warn against some of the ideas presented on new options.

Many newspapers report that, due to limited page volume, they actually print only 10 to 20% of the material processed. Seeing the data base as a liberator from this constraint, some of them expect to open for much more content to be distributed electronically.

Since presumably the 15% published does not constitute a random sample, any extension must imply a lowered score on some optimizing scale. User attention, not paper volume, is the most critical limitation on transfer. Therefore any extension lowering quality is counterproductive. Only high-quality material, currently deleted from print because of expected narrow reader appeal,should be added. The limited volume of the printed newspaper has been a very valuable countermeasure against information pollution,and overload that in many content areas may be a more serious problem than lack of information. The electronic version should not do away with this virtue.

The second dead end of newspaper data base thinking is to perceive an ever-growing arsenal of knowledge that can be used for years after creation. Investment in hope of long-term external use is probably a failure. Even if day-to-day information is deleted, society is not going to rely on a single newspaper for its retrospective overview. When actuality is no longer a critical factor, increased demands on objectivity, multi-angle approach, accuracy,or cross-checking possibilities will favor the multi-source organization (archive, library, independent data base [Nexis]) and the textbook, lexicon,or research source.

A complete data base may be a useful internal tool, but all material published should have a realistic economic as well as technical depreciation scheme. Giving users obsolete material may harm the newspaper even more than non-use.

Regulate Industries, Don't Industrialize Regulations

It has become possible to make a living by describing the present regulatory status of various media and carriers, and to plot possible shelters where new ventures can prosper under the most favorable combined regulatory and economic conditions.

In the case of a mature industry with a stable regulatory situation, such data may be valid input to policy decisions. In a new area under development, however, they may be more misleading than guiding. Structuring a new industry under constraints erected to avoid effects not likely to result under future technological conditions must be devastating both to the industries and society at large.

An example may clarify this: Suppose that a newspaper has decided to transfer its total distribution function to a cable-VDT conduit and wants to maximize its contact with its present market. Franchising practices and cross-ownership rules in force seem to ban the newspaper from building or owning the necessary cable capacity. A lease would be effective only at the discretion of the involved cable licensees. The rules yielding this outcome, however, were designed to deny a newspaper owner the latitude to reduce the number of "voices" in a community by buying out *content* competitors, not to stop what may be the natural technological development of the news industry.

Instead of extrapolating present rules, one should seek the more stable principles behind laws, regulations,and court decisions;and perhaps also the likely trends in eventual developments of these principles. *The expectation is that the regulatory environment will develop accordingly by exemptions, court decisions, new rulings, and/or new legislation.* Serving as just

a little more than a continuation of the example, these principles might
be:

- any development that supports or enlarges the general indivi-
  dual's right to speak and gain access to his intended audience will
  be supported;
- the freedom of the press--as far as it is instrumental to support-
  ing the citizen's freedom of expression and the right to know--
  will be defended;
- steps that abridge speech or monopolize the necessary means of
  its communication will be denied everybody, including newspapers.

Under the condition stated in the example and with intentions within
the principles suggested, newspapers may feel confident that the regulatory
environment will develop to allow a secure cable access to the public, by
ownership if necessary.

In short, a newspaper should--as long as it plans to act according to
First Amendment principles and its own legitimate professional and nonmon-
opolistic business goals--freely explore future opportunities without regard
to present regulatory environment.