SCR

37

THE LEGISLATURE OF THE STATE OF ALASKA
TWELFTH LEGISLATURE

FISCAL NOTE

I. REQUEST
Bill/Resolution No. SCR 37
Title "Relating to the use of computers and telecommunications systems"
Requested by House Judiciary Committee Date 4/22/82

II. FISCAL DETAIL
Agency Affected Department of Law
Program Category Affected Legal Services
ERU, Program, Or Subprogram(s) Affected Legal Service Operation
(Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 82	FY 83	FY 84	FY 85	FY 86	FY 87
100 PERSONAL SERVICES						
200 TRAVEL						
300 CONTRACTUAL		19.0	-0-	-0-	-0-	-0-
400 COMMODITIES						
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS,CLAIMS,ETC.						
TOTAL		19.0				

FUNDING (Thousands of Dollars)

GENERAL FUND		19.0	-0-	-0-	-0-	-0-
FEDERAL FUNDS						
OTHER (Specify Source)						

POSITIONS

FULL TIME		-0-	-0-	-0-	-0-	-0-
PART TIME						
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instruction, Section III)

The proposed comprehensive and detailed revision of Alaska Statutes concerning the use of computers and telecommunications systems requested by SCR 37 would require an estimated six (6) weeks of attorney time. Because of existing and anticipated demands on staff attorney time, this project would be most efficiently performed under a professional services contract by an attorney with special expertise in the field. At the going contractual rate of $75/attorney hour, the contract amount would be $18,000. An additional $1,000 is estimated to be necessary for printing the requested proposal along with an analysis and commentary.

IV. DATE 4/22/82 PREPARED BY Peter B. Froehlich
AGENCY Department of Law
PHONE 465-3600

Original: Legislative Finance
cc: Budget and Management
Prime Sponsor (First Legislator Named)
82-001 (Rev. 12/81)

ACST
THE ALASKA COUNCIL ON SCIENCE AND TECHNOLOGY

March 3, 1982

Senator Charles H. Parr
Alaska State Legislature
Pouch V
Juneau, Alaska 99811

Dear Senator Parr:

In keeping with the Alaska Council on Science and Technology's policy to inform the legislature and governor on research needs and priorities, enclosed is the ninth in a series of twelve research needs reports for use by decision-makers in Alaska: "Alaskan Communications and Information Transfer" - (revised January 1982).

Recommendations for research needs [illegible]ities in this particular report include:

1) Research on development of a statewide telecommunications network;

2) Research to enhance the development of telecommunications technology suitable to arctic conditions;

3) Concurrent with #2 above, the need to initiate studies to monitor and evaluate the technologies available today which would best meet the needs of citizens with regard to telecommunications and information transfer;

4) Research to determine the best means to build, maintain and access data banks; and

5) Planning and research into the best methods to use available telecommunications networks for educational applications.

The Council and I hope this report, as well as the others issued in the past, will serve as a useful aid in making decisions concerning research relevant to the state. If you or your staff need extra copies, please give me a call at 465-3510.

Sincerely,

Christopher Noah
Executive Director

Enclosure
CN:cp

Christopher Noah, Executive Director - Pouch CV, Juneau, Alaska 99811 - (907) 465-3510

ACST
THE ALASKA COUNCIL ON SCIENCE AND TECHNOLOGY

ALASKAN COMMUNICATIONS AND INFORMATION TRANSFER

Research Priorities and Recommendations

A Report

Based Upon the Results of the

ACST Communications and Information Transfer

Committee Workshop

Held February 1980 in Anchorage, Alaska

Revised January, 1982

Christopher Noah, Executive Director - Pouch CV, Juneau, Alaska 99811 - (907) 465-3510

ALASKA COUNCIL ON SCIENCE AND TECHNOLOGY SPECIAL REPORT

ALASKAN COMMUNICATIONS AND INFORMATION TRANSFER: Research Priorities and Recommendations

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CONTENTS

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EXECUTIVE SUMMARY

Alaska has the need and the opportunity to develop a statewide telecommunication network serving both rural and urban areas of the state, one that can evolve as technology and demand change. Such a network interfaced with data processing systems, informational storage systems and instructional capabilities located around the state can create for Alaska vastly improved services that are more cost-effective than those in use today.

BACKGROUND AND STATUS OF RESEARCH

The Alaska-Siberia Telegraph project, and by virtue of it, Alaska's early role in international communications was terminated in 1866 by successful completion of the Atlantic telegraph cable. Not until Alaska's emergence as a strategic military location during World War II did communications again become a major issue in this region. Then recognition came of the special complications auroras and related geomagnetic disturbance phenomena presented for arctic and sub-arctic communications.

In response, Congress passed a bill in 1946 to establish the Geophysical Institute at the University of Alaska to research communications and related problems. Since then, steady progress has been made toward solving the technical problems of long-distance communication in Alaska, although the use of new radio frequencies and new space-age techniques have required ongoing fundamental research in the propagation of electromagnetic waves and in transmission technology. Much of current research involves the effect of the variable geophysical environment upon the ability of radio signals at different frequencies to carry information over satellite-ground station links.

Alaska's high-latitude location has made it impossible to use the ionospheric reflection of high-frequency radio waves for reliable long-distance communications, as was common at lower latitudes prior to the satellite era. Partly for that reason, and partly because Alaska's great geographic extent created special demands on communication capabilities, Alaska was quick to move into the application of satellite technology to the state's needs. In fact, the state has taken a leadership role, both politically and technically, in the innovative application of new technology to the needs of Alaskans throughout the state. Probably more so than in any other state, Alaska's elected officials and others in government have maintained awareness of and appreciation for the benefits of modern communications technology.

Compared to that of research and development in the technologic areas, the status in the non-technologic areas is far from satisfactory. In such areas, the definition of what the problems are can be as difficult as finding the best solutions. Research in these areas often must deal with combinations of economic, social, legal and psychological questions in situations where the technological and social climates are changing rapidly.

MAJOR ISSUES IN COMMUNICATION AND INFORMATION TRANSFER RESEARCH

- A leading issue in Alaska is how best to provide for the orderly development of the state's telecommunications network. It is certain that the demand for telecommunications capability will continue to grow. The desires for two-way voice and one- or two-way video communication capabilities are strong, and there is increasing demand for transmission of data, fueled in part by the wide assortment of telecommunications and data-processing devices available on the market.

- An important issue affecting all aspects of Alaskan communications and information transfer involves the unique physical and social environment surrounding all activities in this general field. Alaska is unique among the states in its combination of great size, its location in the disturbance-prone auroral region, its low population density, its cultural and social diversity, its current economic wealth, and its strategic economic and military location on the North Pacific Rim. At issue is the appropriate degree of federal responsibility for arriving at solutions to the Alaskan communications problems and the extent to which federal regulations should flex or otherwise accommodate solutions appropriate only for Alaska.

- A large proportion of Alaskan scientists, technologists and governmental decision-makers, regardless of their individual fields of speciality, recognize the need for more effective technology and information transfer as a major issue deserving greater attention. The problem is perceived as having many facets ranging from strictly technological aspects to how to better provide information to those who need it for making informed decisions.

- A never-ending but important issue is how to build and manage Alaskan data bases in a cost-effective manner that yet provides for useful integrations of data sets, eliminated duplication of effort, and allows easy access to users.

- As the Alaskan telecommunications capability rises, we become more able to utilize it for teleconferencing and instructional purposes. An issue of importance is how to foster through research and development the most effective ways to use this capability. At issue also is the psychological and social impact of increased telecommuncation use, especially on rural peoples.

ANALYSIS AND DISCUSSION

The issue of how Alaska can best develop its telecommuncations network is complicated by national developments over which Alaska has little or no control. Telecommuncations economics is a particularly troublesome area. Economic problems have manifested themselves most visibly in increased intrastate telephone rates that already are limiting innovative uses of telecommuncations in Alaska. Some change in the economic structure of telecommunications is inevitable, and it is clear that new arrangements will be needed to assure the economic viability of Alaskan telephone service. In particular, we need to examine economic problems peculiar to village telecommunications.

Telecommunciations technology has undergone great advances during the past decade. Many of the new developments are applicable nearly everywhere over the globe and, therefore, usable in Alaska, yet there remain some specifically Alaskan needs. These needs largely center around dealing with environmental constraints created by Alaska's far-north location and provision of low-cost technology for village use. Research and development to meet these needs likely will require funding from state sources.

The problem of identifying and setting priorities on research needs in the area of technology and information transfer is particularly thorny because of the diversity in the user audience. Technologies and informational products suited to technical workers may be unsatisfactory for non-technical persons. A further complication in the assessment of the utility, feasibility, and consequences of adopting a particular technology of informational procedure often must involve many considerations. These can include user availability, user needs, user perceptions, identification and definition of the technology, delivery and maintenance support for the technology, cost-effectiveness, and analysis of the economic, social and environmental impacts.

Since Alaska is the subject of much research, there is considerable information available about a variety of topics. However, much of this information is available only to the individual or agency collecting the data and making the analysis. Printed materials produced by state agencies are required by statute to be deposited in the State Library, but even there large gaps exist, especially in consultant studies and surveys. Some information collection and dissemination is presently accomplished through such activities as the Current Research Profile for Alaska, an annual listing issued by the Arctic Environmental Information and Data Center; participation in the Washington Library Network computer bibliographic center by several major Alaskan libraries; and data management activities by various agencies such as the Alaska Department of Natural Resources and the U. S. Bureau of Land Management.

Historically, the initial step in solving information problems has been to collect data on a piecemeal basis without thought to multiple uses, external access, or delivery to others in forms or formats different from those used by the collecting agency. As an information need occurs in a specific area, a system is established to handle it but with little regard for other applications of the same data. This results in desparate and virtually unlinked sets of information resources that are underutilized for decision-making and planning purposes. Steps that can be taken to improve the situation include:

- Development and use of compatible formats for data prior to integration;
- Development and use of machine-readable presentations;
- Use of accessing terms (e.g., those used in the Washington Library Network authority files) that foster logical growth and multidisciplinary use; and
- Adoption of geographical location entries with sufficient accuracy to computer draw maps of many different scales.

During the 1970's the hopes of Alaska's educators for instructional telecommunications capability were raised exponentially by a series of experiments that showed conclusively that technology was no longer a barrier to the delivery of a wide range of educational services. The time has come when these hopes must be realized by operational systems which are an integral component of the educational delivery system and not an exotic add-on. In effect, we must now bring into one network at the local, state, national and international levels the whole range of audio/visual materials that are in common use in the classroom. Through such networks the abilities of each individual teacher or student working independently can be expanded to whatever level is necessary to achieve the desired education goal.

PRIORITIES AND RECOMMENDATIONS

1. Research on Development of a Statewide Telecommunications Network: Alaska should give top priority to researach oriented toward the orderly development of a statewide telecommuncations network. Research and assessment efforts needed to permit this development include:

   - Formulation of a full range of technological and organizational options for the network;

   - Estimation of economic benefit associated with various telecomunications capabilities; and

   - Evaluation of the probable effects of regulation, competition and subsidy upon the development and economic viability of a statewide network.

2. Telecommunications Technology: Specific research and development needs in Alaskan telecommunications technology are:

   - Development of satellite technology that employs high effective radiated power and, therefore, requires only small, low-cost ground facilities;

   - Development of low-cost, application oriented ground equipment for use be telecommuncations consumers;

   - Development of a small, low-cost telephone office suitable for use in a village, or development of an alternative to a central office for providing service to a number of telephones in a village;

   - Research to determine the best way to bury telephone cable in permafrost locations;

   - Research to determine the effect of rain attenuation on satellite earth stations operating in Alaska that use the 14/12 and 30/20 GHz up/down links;

   - Investigation and demonstration of packet broadcasting in Alaska;

   - Demonstration and evaluation of reliability and economic feasibility of meteor burst communications;

   - Development of a "source book" for Alaska telecommuncations; and

   - Development of design handbook for television earth stations that only receive.

3. Information and Technology Transfer: There needs to be a reasonable on-going level of research directed toward monitoring and evaluation of available technologies and of the informational and technological needs and desires of Alaskans, both rural and urban.

One aim is to provide insight into the educational, social and cultural impacts of the growing availablity of new technologies and informational services, the help guide decisions on future developments.

4. Data Management: Rapidly improving computer and related technologies are permitting the accumulation of large amounts of data on Alaska -- especially on its natural and human resources. Ongoing research is needed on the best means to build, maintain and access data banks. First priority should go to an evaluation of existing data collections, the evaluation to include user identification and need, physical location and format of data, accessing and processing methods, and attendant costs.

5. Educational Applications of Telecommunications and Computers: In Alaska, we now have networks for instructional video, computer-assisted instruction, and teleconferencing. Plans are under way for the expansion of those networks to a statewide capability in which each educational administrative unit in the state will be able to take part and in which each unit will have systems that are integral to its own local needs. To proceed beyond the present level of planning, research is needed into the best ways to use the available networks in such areas as cross-cultural education and Arctic and Alaska-related science disciplines. Second in priority is research into how best to incorporate into Alaskan use the wide body of general instructional material available to others elsewhere.

MONEY

The News of Business

"CHARGE!"

The purchase patterns of **credit card** owners have been researched by Joseph W. Powell, director of market research at MasterCard International. During the study, 1,100 MasterCard and Visa cardholders reported all their purchases over $10 for a two-month period and the means of payment they used each time. The findings are interesting.

Payment by credit cards accounted for nearly twice as many transactions (forty-four percent) as either cash (twenty-six percent) or personal checks (twenty-five percent).

Forty-seven percent of bank card holder owners used the revolving credit (extended monthly payments) feature of their credit cards, although the cardholders who pay back the entire amounts due immediately are generally higher spenders with their credit cards. Information: Alex McCallum, 212-974-5762; or Fritz Lyon, 212-980-9120.

SHIPPING

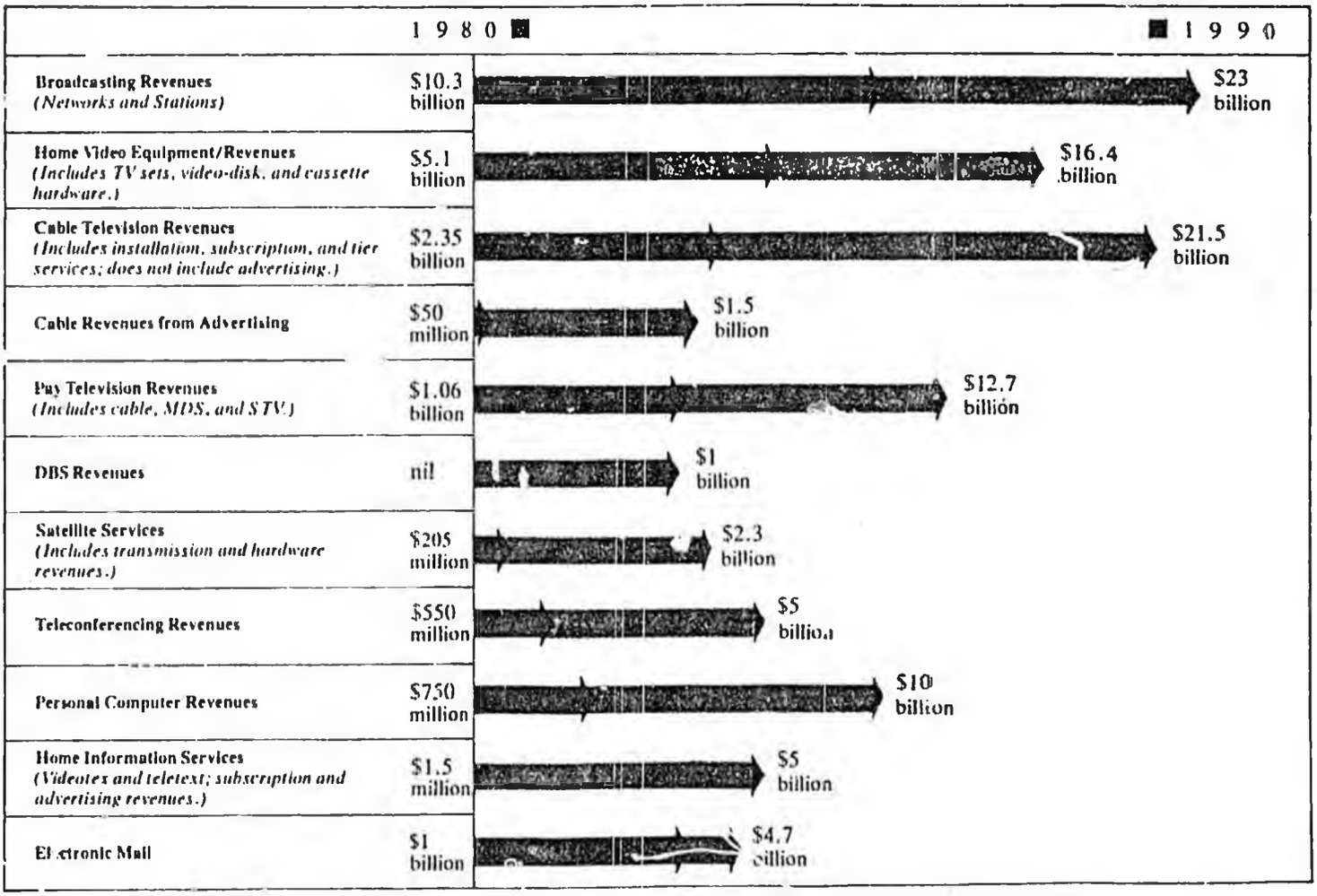
A Korean shipping firm will help modernize and operate a grain elevator at the Port of Astoria, Washington. A fifteen-year leasing agreement has been signed and work was begun in January. The company plans to spend $40 million to renovate the long-idle elevator and bring it into compliance with federal and state safety standards.

Sea-Land plans to increase its weekly cargo-carrying capacity between Seattle and Alaska by fifty percent by April. "To meet the increased needs of both the Alaska business community and residents who depend largely on the ocean carrier to transport everyday necessities as well as construction materials, we are dedicating an additional 366-container-capacity vessel to Alaska trades," said Sea-Land Service, Inc. Executive Vice President Jack Baker.

THE ENERGY BUSINESS

Two hundred million acres of **offshore** tracts will be offered for oil and gas lease sales in 1982, according to Interior Secretary James Watt. This is five times the amount offered in the past thirty years. "When you restrict the supply to...small amounts, you force the prices up and only

Communications in the Eighties



New technology will make communications the most explosive business frontier of the eighties. Just how big these new industries will be depends on so many variables that predictions are risky. But on the strength of projections like these, corporations are taking the plunge. These projections were prepared with the help of Tony Hoffman of A.G. Becker, the Wall Street investment firm. Reprinted with permission from Channels *magazine. Copyright 1981 Media Commentary Council, Inc.*

February urged the industry to sort out the fares muddle and to get rid of the directional differences. This is what IATA is attempting to do by researching the possibility of implementing the Special Drawing Right as the basic tool for tariff calculations in place of the US dollar and the pound sterling. We are giving priority to this and are gratified for the governmental support and understanding we have in this effort.

The fuel price rise trigger mechanism and the SDR concept are only two examples of the way in which the airlines are tackling current real-life problems through IATA.

I would not like to leave you the impression that I'm only critical and negative. Let me conclude by stating what I am for. And what I think can be achieved even in the difficult climate up ahead.

I firmly believe that a *gradual* liberalization in the regulatory environment — and a *reasonable* measure of competition — are beneficial to consumers and airlines alike. I believe, however, that policies of instant international deregulation and unbridled international competition can only result in cut-throat pricing and duplication of services with adverse impacts on airline profitability and fuel utilization. I am concerned that with escalating operating costs and a worsening general economic environment, the scope for liberalization and low fares today is more limited than might have been thought three years ago when the CAB embarked on the domestic experiment. *In fact, I believe the results of that experiment and its effect should be closely monitored to ensure that only the sound aspects of deregulation are exported on to international routes and then only at a pace which the economic conditions in those markets can absorb.*

My message today is — for heaven's sake let's take things a step at a time, particularly in today's economic climate and adapt the evolution of this international industry intelligently to the cyclical movements of our environment. To force aviation against the economic stream is deliberately conjuring holocaust. We have a climate in which bankrupt policies can quickly lead to bankrupt airlines. Perhaps the current sombre scenario will prompt in the eighties a re-evaluation of international policies without losing sight of the objective of any efficient airlines of serving the public as adequately and cheaply as the financial environment, largely created by governments, will permit. Perhaps we shall see an appreciation of the merits of a measure of cooperation and coordination both between governments and operators. I sincerely hope so.

The ICAO assembly this year in September is the next opportunity for aviation nations collectively to demonstrate unity of purpose and policy and implement common-sense. Secretary of Transport Neil Goldschmidt's recent statement recommending the use of "discussion and negotiation to steer a common course that will benefit the industry, the traveller, the nations of the world" was a welcome word by a statesman at the right moment of time. I also entirely agree with him that "only by working together" — and I would add the corollary avoiding unilateral action by any government or agency — "can we realize the promise of the future of air transportation."

In the past the scheduled airlines and IATA have been accused of rigidity and conservatism. *We* have made notable changes in *our* traditional approaches and philosophies. *We* have clearly demonstrated *our* ability to adapt. Is it not ironic that those who fervently preach innovation are now the real stick-in-the-muds — mired in a morass of dogmatic and simplistic theory without much relation to the realities of life. Surely now is the time for them to show some flexibility and realism in the face of hard economic facts. An open mind and flexibility in action are what we need to survive in the 80s. Putting it a different way: today more than ever it must be clear to any thinking and responsible individual that the problems of the 80s require diplomatic solutions between mature partners and friends, not impositions by "independent" agencies. As Fred Kahn once said "Try it. You'll like it."

Thank you.

The New Economic and Political Order of the 1980's

RESTRUCTURING OUR SOCIETY

By JOHN NAISBITT, *Senior Vice President, Yankelovich, Skelly and White*

Delivered to the Foresight Group, Stockholm, Sweden, April 17, 1980

IT is always special for me, and I am pleased to be with such a broad representation of Swedish businesses. This morning I will be talking with you about five powerful trends that are restructuring the United States, and to varying degrees, Sweden and the other developed countries of the world. Let me list them first, and then return to each of them for a more detailed discussion.

1. The United States is rapidly shifting from a mass industrial society to an information society, and the final impact will be more profound than the 19th Century shift from an agricultural to an industrial society.

2. There is more decentralization than centralization taking place in America — for the first time in the nation's history; the power is shifting not only from the President to the Congress, but — less noticed — from the Congress to the states and localities.

3. We are now a truly global economy because of instantaneously-shared information, and the world is deeply in the process of a redistribution of labor and production. As part of this process all of the developed countries are de-industrializing.

4. The American society is moving in dual directions of high tech/high touch. The introduction of every new

technology is accompanied by a compensatory human response — or the new technology is rejected.

5. There are the beginnings of a job revolution in America, a basic restructuring of the work environment from top-down to bottom-up.

Before dealing with each of these structural changes, I will briefly outline our methodology. In developing the Trend Report for our clients we rely almost exclusively on a system of monitoring *local* events and behavior. We are overwhelmingly impressed with the extent to which America is a bottom-up society, and so we monitor what's going on locally rather than what's going on in Washington, or in New York. Things start in Los Angeles, in Tampa, in Hartford, in Wichita, Portland, San Diego, and Denver. It's very much a from-the-bottom-up society.

The tracking concept employed in determining these trends has its roots in World War II. During the war, intelligence experts sought to find a method for obtaining the kinds of information on enemy nations that public opinion polls would have normally provided. Under the leadership of Paul Lazersfeld and Harold Lasswell, a method was developed for monitoring what was going on in these societies that involved doing a content analysis of their daily newspapers.

Although this method of monitoring public thinking continues to be the choice of the intelligence community — the United States annually spends millions of dollars doing newspaper content analysis in various parts of the world — it has rarely been applied commercially. In fact, we are the first, and presently the only group, to utilize this concept for analyzing our society. We have been doing content studies every day since 1970 of the 150 major newspapers in the United States.

The reason this system of monitoring the changes in society works so well is that the "news hole" in a newspaper is a closed system. For economic reasons, the amount of space devoted to news in a newspaper does not change over time. So, when something new is introduced into that news hole, as it is called, something or a combination of things has to go out or be omitted. The principle involved here can be classified as forced choice within a closed system.

In this forced choice situation societies add new preoccupations and forget old ones. We keep track of the ones that are added and the ones that are given up. Evidently, societies are like human beings: I do not know what the number is, but a person can only keep so many problems and concerns in his or her head at any one time. If new problems or concerns are introduced, some existing ones must be given up. We keep track of what preoccupations Americans have given up and have taken up. We are keeping track of the changing "share of the market" that competing societal concerns command.

The information collected on various issues or topics is not extrapolated, but is used to look for patterns. For example, there are five states in the United States where most social invention occurs. The other 45 states are, in general, followers. California is the key indicator state; Florida is second, although not too far behind; with the other three trend setter states being Washington, Colorado and Connecticut.

An example of this phenomenon is provided by a look at who the governors are in these five states. Connecticut and Washington are the only two states where women have been elected governor in their own right. The other states have elected the "new" politician: Graham, Lamm and Brown. The new politics has little to do with the old liberal-conservative dichotomies. Rather, it has to do with appropriate scale, decentralization, fiscal conservatism, and a lot of experimentation.

Now let's look at the five trends.

1. *The United States is rapidly shifting from a mass industrial society to an information society, and the final impact will be more profound than the 19th Century shift from an agricultural to an industrial society.*

In 1950 — I want to talk about the percentage of the labor force in the various sectors — in 1950, 65 percent of people working in this country were in the industrial sector. That figure today is around 30 percent. It has gone from 65 to 30 percent since 1950. That is a dramatic change. (In 1900, at the turn of the century, it stood at 35 percent.) In 1950, the number of people in the information sector of the society — information occupations — was 17 percent — and now exceeds 55 percent. Information occupations are those involved in the creating, processing, and distribution of information, including banks, stock markets, insurance companies, education and government.

For years we have been hearing that we are moving into a service society. Yet the service sector (absent information occupations) has remained relatively flat — about 11 or 12 percent for decades. (The character of these service sector jobs has changed — we have few domestics today and a lot of people in fast food jobs — but their ratio to the work force has remained fairly constant.)

It is clear that the post-industrial society is an information society.

One of the important things to notice about this shift is that the strategic resource in the industrial society was capital; the strategic resource in the post-industrial information society is knowledge and data (and that's not only renewable; it's self generating). That explains the explosion of entrepreneurial activity in the U.S. Because the strategic resource is now what is in our heads, access to the system is much easier. Not only will we see an impressive increase in the creation of new small firms, but if large institutions are to survive, they will restructure to encourage entrepreneurial activity within their institutions.

Now, the mass instrumentalities that were created, that were consonant with the industrial society, are now out of tune with the times. Just as in 1800 the fact that 90 percent of us in the labor force were farmers dictated the societal arrangements of the day, the fact that most of us were in industrial occupations until recently dictated the arrangements of a mass industrial society — which are now out of tune with the new information society. Let me give you three examples. Labor unions. In 1950, with 65 percent of the work force in this country in the industrial sector, more than 30 percent of the workers in the country were members of unions. That's now 19 percent. There's no way that's going to do anything but continue to go down, as we move more and more into the information society. A late entry in mass industrial society, network television. Network — notice I'm saying network, not television — network television started down last year, and it is on a long, slow, irreversible slide downward. I'll talk more about that later. National political parties, which had their heyday in the industrial society, exist today in theory only. Things like department stores and national chain stores which are in

tune with the mass, industrial society have been yielding over the last decade and a half to things like boutiques. This phenomenon, the breaking up of mass instrumentalities, you'll see everywhere.

Starting a year ago, the number one occupation in the United States became a clerk, replacing the laborer, and the farmer before that. Farmer, laborer, clerk: a brief history of the United States. (What comes after clerk? I can't decide whether it is soldier or poet.)

In connection with this shift to an information society it is important to notice a powerful anomoly developing: as we move into a more and more literacy-intensive society, our schools are giving us an increasingly inferior product: this is a powerful mismatch. SAT scores (the tests to qualify for college) have been going down each year for more than a decade. We all experience that our young people are not outstanding when it comes to writing and arithmetic. Consider this: for the first time in the history of the United States, the generation that is graduating from high school today is less skilled than its parents. Lastly, with the basic restructuring of the society from an industrial to an information society, the traditional groupings of goods and services won't work any more. That is why the economists are almost always wrong. And they will continue to be as long as they rely on the old indices. We need new concepts and new data if we are to understand where we are and where we are going.

2. *There is more decentralization than centralization taking place in America — for the first time in the nation's history: the power is shifting not only from the President to the Congress, but — less noticed — from the Congress to the states and localities.*

Trends move in different directions, at different speeds. They have different weights. They have different life cycles. About three or four years ago, the heft and feel of the movement toward decentralization became greater than the heft and feel of those forces toward continued centralization.

The two great centralizing events in America's history were the Great Depression and World War II, plus the centralizing impact of industrialization. We are now receding from these centralizing influences.

You remember, in the '50s and into the '60s (and beyond) we began to celebrate individual diversity more than we had celebrated it before. In the '60s, we started to celebrate ethnic diversity. Polish is beautiful, as well as black is beautiful. We started to celebrate our ethnic restaurants, which of course had been there all the time. An extraordinary thing happened, by the way, in the late '60s. We gave up the myth of the melting pot. For years we had taught our children in fourth grade civics (or thereabouts) that America was a great melting pot, as if we were all put in a giant blender and homogenized into Americans. Now we have given up that myth and recognize that it is our ethnic diversity that has made us such a vital, creative country. Then a phenomenon of the '70s was jurisdictional diversity, geographical diversity. We have no national urban policy today because a (top-down, master plan) national urban policy is out of tune with the times. The only national urban policy that would be in tune with the times is the national urban policy that would respond to local initiatives. It is an inappropriate question to ask, "Are we going to save our cities?" That's an either/or formulation. It doesn't work in the new multiple option society. The point is, we'll save some of our cities; we will not save others. We'll save some of our cities a little bit; we'll save others a great deal. And it will all turn — again — on local initiative. That's also why we're not getting a national health policy, because you can't do a top-down monolithic kind of policy anymore because of the growing diversity in the United States.

Now, where we feel *centralization* continuing most painfully is in government regulations, as we well know. And that's changing. That's really bending back. It was a Republican, Nixon, who opened China. A Democrat never could have done that. And I think just so, the Democrats are the only ones who're going to be able to at least get the deregulation started, because Republicans would come under too much pressure. You know about the airlines, and you know about the trucking industry, which I thought would be the last to go, the railroads, radio. The watershed in this, I think, was in February of 1978, when the U.S. House of Representatives voted against a consumer protection agency. What was not, I think, sufficiently underlined at that time was that the first and second term Democrats voted 43 to 37 against establishing that agency. More and more, we are going to see the political left and right meeting on this issue of being against big government and against government regulations. And that's part of a larger power shift, too, that's going from the President to the Congress — and from the Congress to the states, which means more state regulations.

Proposition 13, I think, has to be understood as having a lot more to do with the initiative trend, or the referendum trend, than it has to do with taxes. We are submitting to the political process questions we never submitted to the political process before. The watershed on that was Proposition 15 in California three years ago, when the citizens in California voted on whether or not to build a plant (a nuclear plant, but nevertheless, a plant). We have never submitted that kind of question to the political process before. Business got very involved in that because they had so much at stake. And in the process they helped to legitimatize this notion of submitting this kind of question to the political process. There is no end to it. Last November, more than 400 questions were voted on around the country. There have been many votes on where we can and cannot smoke. Five jurisdictions last year voted on using or not using public funds for abortion. Two cities voted on South Africa. Long Beach, California, voted on whether or not to have an oil tanker terminal, and, later on the color of street lights. We never voted on those kinds of things before, but we're going to see more and more of this. It's a part of this larger, "direct democracy." We'll be voting on a great range of new things, at times "leapfrogging" the traditional political process.

In America, the large, general purpose instrumentalities are folding everywhere. An early sign and instructive analogue of this was the demise of *Life, Look* and *Post*, the huge circulation, general purpose magazines nine years ago. That same year, 300 special purpose magazines were created, most of which are still being published. Four hundred or so were added the following year, and so on. There are now more than 4,000 special interest magazines being published in the United States, and no general purpose magazines. This phenomenon is an analogue for what is going on in the U.S. Two years ago the National Association of Manufacturers and the United States Chamber of

Commerce announced they were going to merge for all kinds of wonderful reasons, none of which was true. They were going to merge in order to survive. About a year ago they announced that they couldn't negotiate the merger, so now, presumably, they're going to die separately (except that the Chamber has lately become much more responsive to the grass roots, and that may save it). The American Medical Association, another umbrella organization, is getting weaker as the groups within it — the pediatricians, surgeons, etc., and the county and local medical groups are getting stronger.

A year ago two big labor unions, the meat cutters and the retail clerks, merged to form a huge union — for survival. That's the dinosaur effect: they get larger just before they go under. (We haven't noticed it, but there have been 50 mergers of labor unions in the last eight years.)

These kinds of umbrella organizations are out of tune with the times, just as network television now is becoming. ABC, CBS, and NBC will be the *Life, Look*, and *Post* of the '80s and '90s. Back to the magazine analogue, network television will lose ground to new options: the incredible array of cable, video disks, and new special-interest networks — a Spanish language network, the all-sports network, the all-news network, the BBC in America network, etc. My guess is that by the end of the '80s, the three big networks may have fewer than half the viewers they have today.

The cross-over in politics came in 1976 — a Presidential year — when the number of people contributing to special interest groups, like "Save the Dolphins" exceeded the number of people who contributed to the umbrella Democratic and Republican parties combined. That trend is continuing. The two great American political parties now exist in name only. We have a Congress filled with independents. We may get some new political parties, but in tune with the decentralization of the country, they will be local, new political parties, not national. We already have the Right-to-Life party on the ballot in New York State. I am aware of your environment party and your health food party here in Sweden. We will have local special-interest parties developing in the U.S.

The magazine analogue is also instructive in connection with leadership. In the United States, we have all noticed a dearth of leadership. We have no great captains of industry any more, no great university presidents, no great leaders in the arts, or in civil rights, or in labor, or in politics. It is not because there is any absence of ambition or talent on the part of those who would be leaders. We don't have any great leaders any more because we followers are not creating them. Followers create leaders — not the reverse — and we followers are not conferring leadership as we did in the past. We are now creating leaders with much more limited mandates: closer to us and on much narrower bands. In the old Taoist model of leadership, "find a parade and get in front of it," those who would be leaders in America are finding much smaller parades — and many more of them.

3. *We are now a truly global economy because of instantaneously-shared information, and the world is deeply in the process of a redistribution of labor and production. As part of this process all of the developed countries are de-industrializing.*

The other side of relying on less centralized political authority is the growing world economic interdependency. Sir Arthur Clarke said that the two inventions that accounted for America's swift economic growth were the telegraph (later the telephone) and the railroads. Similarly, the two great inventions that are making us a global village are the jet airplane and communication satellite. In another way Marshall McLuhan captured the sense of interdependence when he recently said, "there are no passengers on spaceship earth. We are all crew."

We are now a truly world economy because of instantaneously shared information. We have wiped out the "information float." And we are now deeply in a process of resorting out who is going to make what in this world. As part of this process all of the non-communist, developed countries are de-industrializing. Even Japan (the most flexible country in the world) is getting out of the steel business and the shipbuilding business. She knows that in these markets (which are at saturation worldwide), South Korea will outdo her in steel and ships will be more economically built by the new shipbuilders: Brazil, Poland and Spain.

The U.S. and the rest of the developed countries are on the way to losing the following industries: steel, automobile, railroad equipment, machinery, apparel, shoe, textile, and appliance. By the end of the century, the Third World will make 25 percent of the world's manufactured goods. The end of the century is only 19 years away. Remember when President Kennedy was inaugurated? That is how far it is to the year 2000.

We developed nations are probably going to kill ourselves competing over steel and cars, when we should be moving in other new areas as the Third World takes over the old tasks. That is why the Chrysler bailout was so important. That bailout is a big step down; the path of turning the U.S. automobile industry into an *employment program*, just as Britain turned its automobile (and steel) manufacturing into an employment program. We have to see Chrysler, and the other automobile companies in a world context. Consider: In the world automobile market we are reaching saturation; it will soon be a replacement market. There are now 86 countries that have automobile assembly plants. Japan takes 13 man-hours to build a car; the U.S. takes 30 manhours. Imports passed Ford and became number two to General Motors in 1979 with 20 percent of car sales in the U.S. But in the bellwether state of California imports were 50 percent of car sales last year. It has been part of the conceit of the U.S. automobile companies that they never diversified. They thought they would go on forever. Now even Henry Ford is getting out while the getting's good.

Yesterday is over. We have to look to the new technological adventures: electronics, bio-industry, alternative sources of energy, mining the seabeds. We have to work out policies (or at least let the market place do it) to make the transition from the old to the new. By the way, how reliable is the Dow-Jones as a barometer to the economic health of the society or stock market with all those companies from the dying industries on its list? Like the economists, they need a new index.

4. *The American society is moving in dual directions of high tech/high touch. The introduction of every new technology is accompanied by a compensatory human response — or the new technology is rejected.*

With the introduction of television, for example, came the group therapy movement, which, in turn, has led to the personal growth movement and the human potential move-

ment. (Watching TV in bed with someone is, of course, very high tech/high touch.)

Similarly, the high technology of the medical field (brain scanners and heart transplants) has led to a new interest in the family doctor and neighborhood clinics. A novel high tech/high touch example is citizen band (CB) radio: people using this technology to get in touch with another human being — anybody! And, moving closer to our offices, the high technology of word processing has initiated a revival of handwritten notes and letters. The high technology of chemistry and pharmacology produced the pill which led to a revolution in life styles (away from either/or to multiple-option). Jet airplaines have led only to more meetings. A poignant example of high touch/high tech is how the high technology of life-sustaining equipment in hospitals led to a new concern for the quality of death (and to the hospice movement).

Whenever institutions introduce new technology to customers or employees, they should build in a high touch component; if they don't, people will try to create their own or reject the new technology. That many account, for example, for the public's resistance to automation and electronic accounting. Electronic Funds Transfer (EFT) is failing everywhere.

The high technology of the computer has been somewhat intimidating to many of us, but now I see its high-touch potential as "computer as liberator." Let me explain. A company with 40,000 employees has always treated those 40,000 the same; it had to because that was the only way it could keep track of them. And that has been unfair, because people are different. Now with the computer to keep track, that company can have a different arrangement with each of its employees as to relation of salary to retirement benefits, work hours, job objective and so forth. And that is the trend: each of us having an individually-tailored contract with our employer. Also, the computer will outmode the hierarchical system of organization (and that is liberating!). We had to have a hierarchy in order to keep track of everybody and what they were up to. Now with the computer to keep track we can restructure to horizontal organization of many small entrepreneurial groups. The pyramid has been outdated by the new technology.

5. *There are the beginnings of a job revolution in America, a basic restructuring of the work environment from top-down to bottom-up.*

Whenever pressing economic trends converge with changing personal values, you get change in a society. That's why we can start to look for some revolutionary changes in the workplace. A whole new attitude toward American workers is on the way. And it could result in a revitalization of the spirit of work and America's sagging productivity.

Here's the situation. The productivity growth rate is on a dismal downswing. Last year was the worst for productivity improvement in the nation's history.

At the same time, over the last two decades, personal values have been changing radically; there's a growing demand for more satisfaction from life. Workers feel it, too. Their psychic pain is reflected in their low productivity. They are sick of being treated like machines in the service of increased productivity. Workers refuse to produce and even deliberately sabotage the products they work.

They are no longer content with the traditional remedies offered up by labor unions, such as more pay, four-day weeks, better health benefits. What they really want, like everybody else, is deep human satisfaction from their work.

But industry had no compelling need to give it to them — until now. These dropping productivity figures will finally force industry, in economic desperation, to give more than token attention to the mental health of workers. The workplace is in for a good shaking up. And the American worker is about to be saved by one of the most unlikely forces in society — call it humanization, personal growth, "the human potential movement," participatory management, the values of the sixties. Call it whatever, it is about to converge with the economic necessity of the seventies and eighties to rescue the American worker from a deadened existence. For one thing, American industry is beginning to eye the way Japanese companies are run. Japan's productivity runs circles around ours. As I mentioned earlier, it takes Japanese workers 13 manhours to build a car, compared with 30 manhours for American workers.

It's often mistakenly thought that Japanese workers are so productive because they perform like robots, ever subservient to authority. The opposite is true. Unlike American workers, the Japanese are given enormous freedom to both plan and execute their work and solve problems alone without the help or interference of managers. The plants are run not from the "top down" like ours where managers deliver orders, but from the "bottom up" where workers make many crucial decisions. Fully 90 percent of Japan's industrial work force is organized in work groups of 8 to 11 people. The whole theory is: the workers know their job better than anyone else, and given a chance, workers will be creative and self-motivated. Interestingly, the Japanese developed some of their management techniques from the theories of our own humanistic psychologists, such as the late Abraham Maslow.

When the Japanese use their techniques on American workers, the changes are astounding. The Japanese Matsushita Company several years ago took over a Motorola plant near Chicago and began to produce Quasar TV sets. The company retained 1000 on-line workers but dismissed half of the 600 supervisors and managers. Within two years, production *doubled* and the reject rate of sets dropped from 60 percent to 4 percent. Moreover, through good quality control, the company reduced its annual warranty costs from $14 million to $2 million. Just think, too, of the countless consumers who were spared the frayed nerves of dealing with defective products. That alone is an important contribution to the nation's sanity.

Our workers are not stupid or lazy. They, like everybody else, want a chance for more personal satisfaction. And they are about to get it — even if the trigger is such an eye-glazing event as lower productivity figures. U.S. industry leaders may not understand such a trend as changing personal values, but they do understand dropping productivity.

Because of how economically interlaced the U.S. is with the rest of the world, the only weapon it has against inflation that is in its full control is productivity improvement. As Peter Drucker says in his new book, "Managing in Turbulent Times," productivity improvement will be management's most important task for the '80s. And in this regard, for the '80s, creative management will be more important than creative technology.

In closing, I want to say that I think the decade of the '80s

will be very exciting and uncertain. We must make uncertainty our friend. It is, among other things, the only certainty we have. In the decade of the '80s, we will be restructuring our society from an industrial to an information society; we are decentralizing at home while at the same time we move into a truly world economy where the redistribution of production spells opportunity for all of us; we are becoming an increasingly high touch world as we continue to push high tech; we are becoming a multiple-option, highly market-segmented society; and we will be a more participatory society with greater opportunities for each of us to realize our potential.

In short, we will be a much more complicated society, and the period of working through the structural changes will be painful, but we will be a more interesting, creative, and nourishing society.

No Arts, No Letters — No Society

MENTAL BANKRUPTCY

By HARVEY C. JACOBS, *Editor,* The Indianapolis News

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IT is flattering to me, a newspaper man, to be invited to talk about the arts and letters, and especially under the sponsorship of a group dedicated to excellence. Newspapers are not generally held in high esteem today. Norman Mailer wrote some time ago that half the stories in the newspaper are 50 percent incorrect. The rest are 75 percent incorrect. "If a person is not talented enough to be a novelist," he said, "not smart enough to be a lawyer and his hands are too shaky to perform operations, he becomes a journalist."

Therefore, I am honored to be asked to share some thoughts about a few problems journalists have in common with the academic community. Our respective futures depend upon sizable number of Americans being able to communicate — to be able to read and write and, above all, to think and form conclusions based upon reason and knowledge. I feel sure you share my pessimism — that all is not well in this process of gathering facts and drawing logical conclusions. Many of you may be victims of such failures. Others are engaged in rectifying these failures, but all of us are in the boat together — sinking into the sloppy swamps of neglect and carelessness in language and communication.

I was invited, I understand, partly because of something I wrote in *The News* about the lost art of letter-writing. From time to time I view with alarm the tilt toward poor scholarship, fuzzy language and tongue-tied students. I happen to be a letter writer; I like to receive good letters, and I also know how out of step I am: hardly anyone writes letters any more. Why write, even my own children say, when it's so easy to make a telephone call?

Writing letters, we are told by the anti-letter crowd, is a bother and also costs too much money. In some offices letters may cost up to $12 to $15 each — dictation, transcribing, typing, mailing. But the real reason more letters aren't written is that most Americans do not know how to write a letter. Since I have been editor of *The News* I have learned the most effective way to deal with irate callers. After the caller has spewed invective for a minute or two I say: "That's well said. Now put those thoughts in a letter and we'll be glad to publish it."

The silence is deafening. "Put it in a letter? Oh, no, I couldn't do that. I don't write very well. When I sit down to write, my brain goes into cerebral arrest" — or words to that effect.

In the letter-less society of the future how shall we acquire insights into our heroes? The hands of all biographers would be tied without letters. The best in literature, the best in biography, the best in creative and candid comments have been preserved in letters. Imagine, for example, the void left if a letterless society had existed in Bible times. Paul said in his letter to the Galatians: "Ye see how large a letter I have written unto you with mine own hand." No ghost writers, no telegrams, no telephone calls, no keying into a computerized data bank — just a plain letter in which a man's heart is laid bare.

Mostly because Americans cannot express their noblest and tenderest thoughts in a letter, a gigantic greeting card industry has come to dominate the most intimate channels of communication. This industry thrives on a laziness that would have shattered our forefathers. The attitude toward the art of letter writing is well summarized by one card which, on the cover, says: "I should write," and inside it exclaims: "But you'd probably write back!" Such a communication puts an end to all exchange of opinions and sentiment and reduces what could be a pleasurable experience to a salable absurdity.

Why is the letter such a neglected form of communication? English classes once elevated the letter to distinctive forms and required students to compose all of them. Perhaps a few teachers still do, but students report that not many dwell long on the letter. Perhaps they don't because of their own ineptitude.

I received a lengthy letter from a veteran Indianapolis high school teacher with 13 misspelled words in it. Bear with me while I run a few of them by: VIGEROUS, YOUND, FRAM, IRRATATING, IMPLACATIONS, CAREFULL, SENCE, CAUGHING, BREATH (E), AUDIANCE and DISPITE. A letter from another teacher began: "I was shigrinned to learn . . ." and so on for a page or two.

It's fashionable to blame Johnny because he can't read or write, but I suspect he does about as well as his father or mother — or perhaps even as well as his teachers. Trying to place the blame for our communications problems brings back a little rhyming explanation:

The college professor says:
Such rawness in a pupil is a shame;
High school preparation is to blame.
The high school teacher says: