

**Institute  
for  
Analytic  
Journalism**

**A  
Proposal  
By**

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# Executive Summary

The primary objectives of the Institute for Analytic Journalism are:

- To bring a new paradigm of intellectual and methodological leadership to the journalism profession and journalism education instead of trying to meet the perceived — but narrow — traditional needs of the profession;
- To find and introduce existing cognitive tools appropriate for all of journalism, media enterprises and the communications industry broadly defined;
- To bring these existing but unused analytic and storytelling tools to the attention of appropriate audiences.

These objectives shall be accomplished by:

- Creating, initially, a master's degree program for mid-career media and communications professionals or individuals trained in other fields but desirous of academic or professional careers in communications. This program will focus on methods, data and analytic techniques largely unknown to traditional journalism and media management;
- Creating task-specific consortia of university, media and technology entities to research and evaluate new analytic, story-telling and communications methods that could be used by the media (e.g. intelligent agents, geographic information systems, content analysis, complexity studies, risk analysis, Virtual Reality Markup Language);
- Conducting international conferences bringing together individuals skilled in these relatively new methodologies and technologies and media executives and practitioners. (We anticipate working closely with existing professional journalism organizations, but we are consciously not replicating their intellectual or philosophical approaches.);
- Creating a Web site(s) to publish research reports and digital tools specific for the media (i.e. javascript tools; GIS applets, etc.);
- Create and host online an international Digital Archive of important news stories and related content when necessary (i.e. assure the existence of sites such as [www.apbonline.com](http://www.apbonline.com) and [www.thesmokinggun.com/](http://www.thesmokinggun.com/) )

## INTRODUCTION

**“Analytic Journalism is critical thinking using tools. Our intent is to find or fashion the tools that will work for journalism.”**

<sup>1</sup>Of course, nothing is ever totally new. This process ascribed to AJ was well known by the classical Greek and Roman rhetoricians. They described the five steps in the rhetorical process: *Inventio* (Relevant subject matter is brought together); *Dispositio* (Material organized into a structural form appropriate for oratory.); *Elocutio* (Language is chosen to suit the subject matter, speak, and occasion.); *Memoria* (The elements of the discourse have to be retained in memory); *Actio* (The speech is delivered using the most effective techniques. )

The digital information revolution at the beginning of the 21<sup>st</sup> century suggests unique opportunities – and even greater responsibilities – for journalists and journalism educators. In the past 15 years, application of digital information resources and tools has come to be called *Computer-Assisted Journalism*. That term is a confusing misnomer because users of the phrase often neglect to differentiate levels of necessary epistemology, instruction, skills, and application. Additionally, the term mistakenly implies that computer-assisted journalism is somehow different in form and function from data and information management and knowledge-generating tools used by other disciplines. A more exact term – at least when applied to a level of greater, and only now developing, abstraction – is *Analytic Journalism* (AJ), wherein digital data is identified, retrieved, analyzed and communicated via a variety of media.<sup>1</sup> Here, the emphasis is not computers per se: the emphasis is on analysis – utilizing methodologies drawn from a broad spectrum of intellectual and professional disciplines – and communication of the results of that analysis in both traditional and evolving journalistic styles and media.

This is a proposal for the establishment of the Institute for Analytic Journalism (IAJ). The goals of the Institute shall be to bring together mid-career, professional journalists and scholars (typically those interested in the methodology) with the intent of enhancing the symbiosis between the scholars’ *ways of seeing and knowing* social phenomena and the journalists’ skills in *interpreting and explaining* those findings in a compelling way to the general public.

This intellectual and professional enterprise shall be implemented in a variety of ways, including:

- Development of a 12-month (or three semester) innovative master’s degree in Analytic Journalism, the first in the nation. Students will be drawn from the ranks of mid-career, professional journalists, typically those with five to eight years’ experience

and individuals trained in other fields but desirous of academic or professional careers in communications.

<sup>1</sup>Conferences under consideration:

- “Privacy in the Digital Age: A Conference on Methodology.”
- “What’s Coming the Day After Tomorrow? Technology Transfer to the News Media”
- “Managing Information in the Media Enterprise”

- Highly selective, international working conferences of experienced analytic journalists and scholars from fields beyond journalism education with the goal of improving “intellectual technology transfer” to journalism education and our profession. Some conferences will focus on for-fee training<sup>1</sup>
- Publications, initially online, that show and explain the implications, techniques and developments of Analytic Journalism.
- Establishment of Internet points of contact (i.e. World-Wide Web, FTP site, etc.) to facilitate dissemination of the Institute’s research.
- Establish an Archive of Digital News stories and resources, following the tradition of Mugar Memorial Library’s Department of Special Collections, and its Twentieth Century Archives.
- On-going faculty research focusing on the impact of the Digital Revolution on journalism and journalism education; privacy in the Digital Age, Complex Adaptive Systems, and Geographic Information Systems (Johnson) and risk analysis, dynamic databases and informational graphics (Ross) and examining how journalists can best communicate those issues. Johnson and Ross also focus on WWW search tools and techniques and digital data retrieval.

## WHAT HAS COME BEFORE

Analytic Journalism was born in the early evening of the first Tuesday in November 1952.

The presidential campaign that fall pitted a Democrat of scholarly mien against an internationally known hero of the nation's wars. Reporters on the campaign trail that season had typically traveled on trains or propeller-driven planes. They wrote their stories on portable Underwoods or Royals or dictated them to rewrite men — almost always men — back in their newsrooms. That is, they dictated when there were long distance lines available and the cost bearable. If not, Western Union was still in the business of sending something called a telegram.

But on that Tuesday night nearly a half century ago, when the vote counts started coming in, journalists at CBS News had a new tool in its New York City "Election Central" studios. It was the UNIVAC I computer. The machine could store only 1,200 characters (compared to, say, a million-plus characters in today's PDA), but it was of impressive size and, for its day, of impressive speed and flashing lights. Charles Collingwood anthropomorphized about its ability to calculate and project the results of the election based on CBS's exit polls. That night, UNIVAC I delivered the goods: with a mere 8 percent of the votes tabulated, its program predicted Ike would win 43 states with 438 electoral votes. That projection would prove to be off by just six electoral votes from the final result.

UNIVAC I was a visible, tangible tool. But to focus on the metal and lights, vacuum tubes and switches misses its true conceptual importance to the reality of contemporary journalism.

<sup>1</sup>Following the seminal insight of information theorists Shannon and Weaver (1948), Data is the raw material of analysis leading to Information. Information is that which reduces uncertainty and, therefore, assists in making a decision or reaching a conclusion about a question or issue.

Today, a time when something called *computer-assisted journalism* has a growing professional profile, it is vital to remember that The Machine was not and is not the important entity or concept. Instead, journalists, journalism educators and scholars in the closing years of the 20<sup>th</sup> century must recognize that data of all sorts — the full text of the Clinton administration's health policy plan, vote counts, demographic statistics, SEC filings, the works

of Dante and the collected maps of the Western Hemisphere archived in the Prado – all exist somewhere in the world in the digital format of 1s and 0s. And as 1s and 0s, that data which becomes information<sup>1</sup> can be easily moved at the speed of light, reformatted for textual, visual and quantitative analysis, analyzed and redistributed essentially without cost, save for the journalists’ time.

We are at a time of convergence of three crucial factors that permit – indeed, *demand* – the creation of an educational entity that takes advantage of this digital revolution and prepares journalists to apply the analytic potential of that convergence for the betterment of the profession and hence, the enhancement of democracy.<sup>2</sup> Those factors of convergence are:

- The availability of a critical (i.e. potentially useful) mass of data in digital form;
- More analytic/computing power for minimal cost;
- Easier-to-operate, more powerful and “richer” software.

### **Digital Data**

The trend toward the storing, retrieving and analyzing of data in a digital form is actually more than 100 years old. In 1890, Herman Hollerith’s punched card system was first used to record, store and analyze data gathered in the U.S. Census. Hollerith’s binary system of cards with rows and columns – and with holes punched or not at the intersection of those rows and columns – was the direct forerunner of today’s digital electronic databases. Not only did the system mark the beginning of a dramatic change in the storage of data, but it also marked the beginning of a specialized language that could not be read without the aid of a codebook and mechanical devices.

The reality of the Digital Revolution begot by Hollerith is that it has moved toward maturity and a ubiquity that its inventor never anticipated.<sup>1</sup>

<sup>1</sup>As early as 1992, one extremely conservative estimate found 2,000 data banks maintained by the largest 178 U.S. federal agencies. (Rothfeder, Jeffery. *Privacy for Sale: How Computerization Has Made Everyone’s Private Life an Open Secret*. New York: Simon and Schuster (1992), p. 58.) Today, the number of government data bases containing variables reflecting information traceable to an individual — census, tax or Medicare records, for example — has risen to an uncountable number.)

In the United States today, a journalist must assume that the “paper trail,” as it applies to contemporary government at all levels, no longer exists. The business of government is conducted with word processors, spreadsheet files and database records. Just since mid-1993, legislation has been introduced to make all U.S. government “open records” available in computer-readable form. Corporate filings to the Securities and Exchange Commission are now available on Internet, as are the records pertaining to legislation for the U.S. Congress and in multiple states and local jurisdictions. The Census of 1990 was available in digital form a year before printed versions reached depository libraries: the 2000 Census will never be published in ink-on-paper format, at least not printed by the federal government.

If journalists are not prepared to retrieve and analyze that digital information, they simply lack the literacy to function in the post-industrial Digital (or Information) Age. And if the profession cannot or does not perform its traditional functions in our society, what then of democracy itself?

**Information Technology Trends**

The trend in data storage was triggered by a dramatic reduction in prices in computer hardware and storage capacity. Consider the following indicators:

<b>Storage:</b>			
Clay Tablets	=	1-10	chars/cubic in
Paper	=	5,000-100,0001	c/ci
Optical Disc	=	1,000,000,000-10,000,000,000	c/ci
<b>Transmission:</b>			
Messenger	=	0.001-1	words/minute
Telegraph	=	50-500	w/m
Optical Fiber	=	1,000,000,000- 1,000,000,000,000	w/m
<b>Processing (mechanical):</b>			
Scribe	=	1-10	char/min
Calcu./typewriter	=	100-1,000	c/m
Computer	=	10,000,000-100,000,000	c/m

## Enhanced Software

The computing priesthood of the 1950s through the '70s – fortified in its glass-enclosed, air conditioned, dust-free *sanctum sanctorum* – is taking its last breath, at least insofar as maintaining absolute control over access and form of data and information. Consider:

- The budgets of cities across the nation are coming [online via Internet](#) almost daily. Any citizen/journalist with a PC, modem and spreadsheet software at home can retrieve and analyze data and debate subsequent conclusions with local – or state or national – politicians and bureaucrats.
- As Hurricane Andrew bore down on South Florida, ITT Hartford Insurance company employees listened to the radio reports and charted the progress of the storm as geographic data points with a GIS map. By estimating 10- to 40-mile paths of the storm where it could make landfall, and overlaying those maps with information on census tracts and policy holders, the company was able to estimate damage to its clients, and estimate how many claims adjusters to dispatch where. Could not city and state editors take a similar approach and prepare boiler-plate charts and maps as the storm approached?
- David Bloom of the *Los Angeles Daily News* regularly adds to his own database names of people appointed to commissions and agencies in his city. Here's what he says: "I'm interested in how the people in power are doing appointing men versus women to commissions. In the agency I cover, it is easy: The form that accompanies each appointee approval includes a check box for gender. I can see if certain members of the Board of Supervisors are naming too many males or females, and how things are going overall in gender fairness, a big issue on a board that recently added only its second female member. Not a major story, but an easy one. The data also can be married to campaign contribution information for a story about who gets appointed: unsurprisingly, those who give, get. Just have the spreadsheet sort appointees by name and the official who named them. Then compare it to contributions. Semi-instant story."

<sup>1</sup>In fact, Steve Doig of the *Miami Herald* did something quite similar. Three weeks after Hurricane Andrew, he analyzed property tax and census data with a spreadsheet and GIS program. His finding showed that had Andrew come ashore only five to 10 miles farther north, the amount of deaths, injuries and property damage would have been tripled. Doig's work was part of the collection of stories that won a Pulitzer Prize for the *Herald*.

Cost of magnetic storage is dropping rapidly; as of Fall 2000 a gigabyte of storage costs less than \$10 and it is predicted that this cost will drop to \$1 by 2005. Soon it will be technologically possible for an average person to access virtually all recorded information." Lyman, Varian, et al. "[How Much Information?](#)"

But these are fairly pedestrian examples of what is happening in a minority of newsrooms across the nation. As computing speed grows, coupled with the reduction in cost-per-unit of storage, software is written with a richness that enhances the process of thinking and analysis without concomitant cost. For example, a program called “Knowledge Seeker” will scan a large array of quantitative data and suggest correlations between variables that the journalist-user might never have imagined. Another product, from a different company, “Knowledge Finder,” will search a full-text database driven with a “plain English” command such as: “Find all the articles dealing with motorcycle injuries and passengers with or without helmets.” The “hit list” will rank the found articles by the probability the item meets the journalist’s query.<sup>1</sup>

<sup>1</sup>Under the current generation of this search algorithm, the user will select individual articles. The program “learns” from that selection and, on the next and all subsequent searches, automatically incorporate the user’s unique choice pattern into the search structure, raising the probability that the items found will have value.

## THE CONCEPT

The intellectual thrust of the Institute for Analytic Journalism shall be to draw on the total resources of the university, tapping the synergy of all its collective scholarly endeavors to develop new perspectives and tools for professional journalists. One of the major roles of the co-directors of the IAJ, in addition to teaching courses in their specialties, will be to coordinate this coming together of scholars and graduate students in on-going seminars aimed at a merger of intellectual and journalistic methodologies. For example:

- Six months after the 1992 riots in South Central Los Angeles, the Centers for Disease Control and Prevention in Atlanta dispatched a “team of six medical epidemiologists to [that city] to help sift clues, pore over records, interview witnesses and search for patterns in the five days of violence.... The investigators hoped to first describe what happened in an epidemiological sense: how many people were injured, how they got hurt and what patterns show up in the chain of violent events. Then, by studying the patterns, they hope to glean insights into how cities might break that chain, or prevent it.”

<sup>1</sup>This cross-fertilization of theory and methodology has, of course, existed for centuries, but producing some curious match-ups. Recently there was a discussion on the “Central American List” on Internet (the comments were about half-and-half Spanish and English) about how biometrics and epidemiological methods have influenced economics and market research.

Such a methodological search for patterns is just one aspect of this new journalism methodology. At the very least, the Information Age demands that a successful journalist understand the limits and potential of methodologies used by the epidemiologists.<sup>1</sup> And the best journalists will be familiar enough with such methodology to employ aspects of it in their own research and reporting.

- Two landscape architects, William Morrish and Catherine Brown, have created the Design Center for American Urban Landscape, a think tank at the University of Minnesota’s College of Architecture. Morrish and Brown are teaching municipal and corporate officials to “see” that urban areas do not rise out of a vacuum, but are a fusion of esthetics, engineering and natural systems. They have trained public officials in Midwestern cities to see that design can be an effective means of mustering a community’s physical, economic and intellectual resources. Journalists, as well, could learn to

examine their communities – both physical and human – with the perspectives and tools of landscape architecture and urban planning.

- North American journalists tend to describe the racial and ethnic population of America with only four categories: White, black, Asian and Hispanic/Latino. Yet anyone who has lived in Miami, for example, can quickly recognize that the Puerto Rican community is not the same as the Dominican community or the Mexican or Guatemalan or Cuban communities.<sup>1</sup> Similarly, the term “black” does not account for cultural, educational, religious and economic differences between individuals living in New York City but who come from the Caribbean or African or American cultures.<sup>2</sup> The challenge for journalists is to, first, recognize the lack of meaningful precision in applying broad racial or ethnic terms and, second, to figure out how to communicate the important, but often initially subtle, differences to our readers and listeners.

<sup>1</sup>Indeed, any journalist who works for a print or broadcast outlet that strives to reach all Spanish-speaking people in the United States will testify that a different vocabulary must be used to communicate with Spanish-speakers of Mexican or Cuban or Puerto Rican heritage.

<sup>2</sup>For example, the per capita income of African immigrants to the United States is \$20,100, compared with \$14,400 for native-born black Americans.

## Fundamental Tools

We believe there is a hierarchy of information and analytic tools that journalists must know to prepare themselves to appreciate and apply the special methodologies of the other disciplines.

These are, in rank order of value,

- General Systems Theory
- Statistical Analysis
- Graphic Presentation
- Simulation Theory

*General Systems Theory* is used to describe (1) the variables in any system – social, mechanical, economic, etc.; (2) the relationships between those variables; (3) the boundaries of the system at hand and; (4) the goals of that system. Training in GST is the ideal exercise to sharpen the perspective of the analytic journalist, forcing him or her to look deeply at a phenomenon and traverse various levels of conceptualization. For example, it's one thing to think of politics in America as a two-party (i.e. "variables") system. But the astute analyst must be adept at zooming in to examine the sub-variables inherent in each of those parties, plus the sub-sub-variables and the super-variables of the system, along with the relationships, which often must be viewed in a two- and three-dimensional form.

*Statistical Analysis* is often the fundamental, initial tool to describe phenomena in a systematic manner. At its lowest level, this means simply counting. But the analytic journalists must quickly move to more than just computing averages or percentages and proportions and employ correlations, lines of regression and multi-variant analysis.

*Graphic Presentation* of statistical and geographical data, sometimes coupled with what has come to be known as "exploratory data analysis," is only one of many routes toward recognizing phenomena and explaining relationships. A second, but closely related, approach

<sup>1</sup>See especially Tufte, Edward R. *The Visual Display of Quantitative Information*, Cheshire, Conn.: Graphic Press, 1983, and *Envisioning Information*. Cheshire, Conn.: Graphic Press, 1990. It is worthwhile to study the intellectual content of Tufte's arguments side-by-side with the work of even the best of journalism's experts in informational graphics, say someone like Nigel Holmes. Tufte has a much greater appreciation for the historical tradition of his craft/science along with the subtleties and shortcomings of quantitative analysis.

<sup>2</sup>Journalism professor Clark Edwards is already dipping into the realm of Chaos Theory as it can be applied to our field and rhetoric. Edwards is the founding editor of *News Computing Journal*. That publication recently changed its name to the *Journal of Mediated Communication* and published Edward's article, "Chaos Theory and Meaning: A New Perspective Concerning the Concepts of Parallel-Speak and Also-Saying." (JMC, 9:1, pp. 17-47)

follows the work of scholars such as Edward Tufte,<sup>1</sup> which can serve as the ideal bridge between high-level quantitative analysis and the general public. Yet, few journalists are familiar with Tufte's work, much less trained to apply his principles of graphic communication. This will also include work in 3D visualization (see "Breaking Education and Research Barriers with 3D Visualization CAVE Technology" <http://www.sv.vt.edu/future/ari/white/white.html>) and VRML.

*Simulation Theory* and applications) also are pillars in the Institute's intellectual foundation. The term Simulation Theory is used to describe a broad range of tools for inquiry ranging from game theory (in the narrow mathematical sense), on to Chaos Theory <sup>2</sup> and Complexity Studies to intellectual "toys" such as "SIMcity," a role-playing computer game that began as a child's toy but has evolved in complexity to become a tool for enhancing adult insight into how urban systems work. (Or don't work.) More pertinent to the media is Simventure ([www.simventure.com](http://www.simventure.com)), a dynamic simulation modeling program used to generate insights by testing "what if" analysis, strategy planning, marketing, training and e-business questions. (Also, see [http://sunsite.utk.edu/winners\\_circle/unlimited/UNAL2I6J/applet.html](http://sunsite.utk.edu/winners_circle/unlimited/UNAL2I6J/applet.html) )

## ACADEMIC PLAN

The master's degree program associated with the IAJ is designed to attract mid-career journalists or individuals with undergraduate degrees or experience in analytic work (e.g. financial analysis, geography or statistics) who are seeking careers in specialized journalism. The Institute's objectives are (1) to give its students new skills directly applicable to their chosen profession(s) and medium; (2) to recharge their intellectual batteries from a perspective of maturity usually lacking during one's undergraduate years; (3) to help some of the students prepare for second careers in higher education. Further, the Institute will strive to make intellectual contributions to the profession and the commonweal by preparing its students to flourish in the Information Age. The program shall be designed to accommodate only five to 10 students a year in order to build and maintain the perception and reality that it is for the intellectually and journalistically elite. All students admitted will have a proven record as highly skilled journalists or in their analytic work. Consequently, we will not be teaching "journalism" as much as new ways of thinking about how we practice journalism. The curriculum will be integrated in three phrases:

- **Prerequisite knowledge and skills.** Prior to enrolling for their first semester, the students will demonstrate basic knowledge of math and specified word processing, spreadsheet and database programs. These competencies shall be learned or proven via on-line tutorials provided by a commercial firm under contract with the IAJ, but the individual students shall pay for their tutorials and evaluations.
- **Phase I (Fall Semester)** objectives will be to ensure that the students possess high-order skills in the "Big Six" applications necessary in the Information Age (i.e. telecommunications, basic online publishing tools, word processing, spreadsheets, databases, geographical information systems); give them a solid foundation in social science statistical methods; introduce them to methodological

strategies from across the curriculum, and a fourth course of the student's choice (which probably will be a prerequisite for more specialized courses the second semester).

- **Phase II** (Spring) objectives will be to give the student high-level skills in one or two specific methodologies; deepen knowledge in a discipline of interest and select a topic and develop the research proposal for the culmination project to be carried out in Phase III.
- **Phase III** (Summer or Fall term) shall most likely be in residence at the student's home publication or broadcast station or in a pre-arranged internship. He/she will spend the summer conducting a major project of analytic journalism that shall be for publication. This project, along with attendant chapters on the literature, the methodology and the raw data itself shall be submitted (in digital and print formats) as a thesis at the end of the summer session. (Note: it is intended that cooperating publications shall pay both the student for his/her work and shall also compensate the IAJ for coordination and supervision of the project.) .

**NECESSARY RESOURCES** **Hardware** investment shall be centered on equipment necessary to implement a mature distributed computing environment. That means we shall focus on file servers, LANs, and shared resources. IAJ administrators shall determine the personal computers to be used by the students in each fall's entering class. The students shall be responsible for their personal laptop computer, which shall be equipped with an Ethernet connection and appropriate wireless modems. That means that instead of a "computer lab" environment, each student will come to the seminar room and plug into the LAN and its full complement of communications and analytic resources.

In this way, the IAJ can stay apace with a minimum of investment in hardware as the technology evolves. Because each student will have his/her computer, there will be no need to outfit a lab with individual machines that are obsolete by the time the paperwork clears the normal channels.

We shall endeavor to implement multimedia technology where appropriate in the educational process, along with tools such as CD-ROM recording/production equipment to publish the work of our students.

**Personnel** initially necessary will fall into two types: Academic (initially Johnson and Ross; add Information Specialist by the end of Year Three) and Support. The latter shall include a systems manager (who could also be available to the School of Communication), a full-time administrative assistant/secretary and graduate research assistants.

**Advisory Committees** shall be, first, drawn from the graduate faculty of the School of Communications and the broader campus. This board will meet regularly to set goals and help maintain the academic standards for the IAJ; help identify and attract local faculty who will be teaching in or consulting with the program.

A second advisory committee shall be drawn from the international scholarly and business community and professional and educational leaders in analytic

journalism. This board shall meet at least annually to review developments in the industry and the academy, to continually evaluate the classroom-newsroom nexus as it applies to analytic journalism and assist with fund raising for the IAJ.

**Publications** emanating from the IAJ shall, whenever possible and rational, be issued first in digital form on the World-Wide Web, or on CD-ROMs produced in-house. The first “publication” will be Professor Ross’s distance learning materials for spreadsheet and database competency. The IAJ also shall publish all conference proceedings in digital form on the program’s Web site. It is anticipated that the theses of each year’s class shall be published on the World-Wide Web and — if there is sufficient demand — on a CD-ROM, complete with all relevant data used to produce the series/thesis, photos and an extensive description of the methodology. The IAJ will issue “occasional” papers (ink-and-paper format) aimed at low-technology sites and nations.

**Conferences** and seminars shall be a regular aspect of the IAJ mission. As mentioned above, one conference is already well along in the planning (i.e. “Privacy in the Digital Age”) and another is being planned. It is our intent to also establish the presence of the IAJ in this international arena. Ross and Johnson are experienced in working and teaching in non-North American cultures, and discussions are currently underway for AJ seminars in the Netherlands, Central and Eastern Europe, and South and Central America.

## **FACTORS OF PLACE AND TIME**

The founders of the Institute for Analytic Journalism have identified objectives in considering a site for the organization and its activities. The primary ones are:

**A university community** in North America that has easy access to supercomputing facilities. It is not that we think the hardware per se so important, but rather that the presence of this equipment attracts a community of scholars and nourishes an academic community with interests similar to ours. The total urban area should be

large enough to support diverse skills, philosophies and residents.

**A university** with an active journalism/ communications program and a faculty reflecting both the professional and academic traditions.

**A city** that is often the site of conventions and conferences related to the Information Age and its technology. It is thought that such a locale will make it relatively easy for the IAJ to conduct meetings, seminars and conferences of its own and to tap the synergy inherent in cooperating with such events.

**Meeting facilities** that are affordable and managed by experienced administrators.

**Superb**, worldwide air connections.

**Fiber-optic** lines in the university and community. Presence of a technologically aggressive telecommunications company and university staff.

## **A note on the history of analytic journalism:**

Tom Johnson and Steve Ross, who did not know each other at the time, believe they were the first to teach full courses in computer-assisted journalism. They began doing so at San Francisco State University and Columbia University, respectively, in 1988. They eventually met in the early '90s at the first computer-assisted journalism conferences sponsored by Assoc. Dean Jim Brown at the University of Indiana-Indianapolis.

Ross invited Johnson to join him in team-teaching the computer-assisted journalism class to all incoming students at the Columbia University Graduate School of Journalism during the fall 1993 semester. Drawing on that collaboration, Johnson originally drafted this document in the spring of 1994, and Ross contributed much to its final form. (There have been slight updates in the document, but minimally so.) In the subsequent decade, Johnson and Ross tried to interest various journalism schools and foundations in funding the concept and research strategies, but without success.

In 2002, Steve Doig -- formerly at the Miami Herald and more recently the dean of the Cronkite School of Journalism at Arizona State University -- joined Johnson and Ross in these fund-raising efforts. The three incorporated the Institute for Analytic Journalism as a non-profit corporation in New Mexico in 2003. Since then, they have -- individually and jointly -- conducted research and training workshops in analytic journalism in the United States and around the world.

-- JTJ  
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J. T. "Tom" Johnson -- who has worked in publishing, journalism and higher education for 30 years -- recently retired as a professor of journalism at San Francisco State University. He had been on that faculty for 28 years and, during that time, has often returned to the professional world of journalism. Most recently he was a visiting professor of analytic journalism at Boston University's Graduate School of Communication. Before that, he was deputy editor of the *Saint Louis Post-Dispatch*, where he was responsible for the paper's online content, information research and computer-assisted reporting. Prior to joining the SF State faculty in 1976, he was an editor with Scientific American/W. H. Freeman and Company in San Francisco.

Before his move to California, Johnson was working on his doctorate in American Studies -- focusing on the relationships between science and technology and society - - at the University of Kansas in Lawrence, Kansas. He also holds a bachelor's degree in journalism from Trinity University, San Antonio, Texas.

Beginning in 1969, he was a reporter for the *Topeka Capital-Journal*, and a stringer for newspapers in Wichita, Kansas, and Kansas City, along with *The New York Times*, and United Press International. Simultaneously, he covered Western Missouri and Kansas for the Time-Life News Service.

Moving to San Francisco in 1974, Johnson continued his freelance association with Time-Life publications, covering stories throughout the West. Since 1980, he has increasingly turned to science writing, working on assignment for publications as diverse as *Popular Science*, *OMNI*, *Discover*, *Fortune*, *Smithsonian*, *Mother Jones*, *Air Line Pilot*, *Popular Mechanics*, *Outside*, *Endless Vacation*, *InformationWEEK*, *MacWEEK* and *Air & Space*. His work also has appeared in the *Banker's Magazine* (London), *the Chicago Tribune*, *Washington Star* and the *Detroit Free Press*.

In 1984 and '85, Johnson was a contract reporter for *Time Magazine* in Central America. Based in San Salvador, El Salvador, he reported on military, economic, social and political affairs in that nation and Guatemala, Mexico and Belize. He returned to Central America for a two-month reporting trip in the summer of 1990, supported by a grant from the Gannett Foundation, and again in the summer of 1991. His current research focuses on the methodologies emerging from Complexity Studies and their application to understanding change in the media and related issues of privacy.

A long-time personal computer user, Johnson has reported stories ranging from early word-processing systems to large-scale management information systems. In 1985-86, he designed the networked PC system used in the SFSU Journalism Department.

In the spring of 1987, he was the founding editor of *MacWEEK*, the first weekly newsmagazine for users of MacIntosh computers in the business world. He was a contributing editor to *InformationWEEK* magazine from March 1987 until May 1990. He became West Coast correspondent for *Popular Science* in May 1989, a position he held until October 1990. A consultant in the use of personal computers in journalism, Johnson is a principle in SARTOR: Editorial and Telecommunications Consultants, Santa Fe and New York City. He also is VP-Media Industries and Training of [Simventure](#), a digital consulting firm in Wayland, Mass.

Johnson is also co-author of three books: *Help Yourself to a Healthy Heart* (San Francisco: Mount Zion Hospital and Medical Center, 1984); *The Sauna Book* (New York: Harper and Row, 1977) and *California from the Air* (Mill Valley, CA: Squarebooks, 1981).

An experienced public speaker, Johnson has delivered academic papers and lectures and appeared on television and radio talk shows and numerous panels. He founded [JAGIS](#) [Journalism and GIS] and is a member of the Society of Professional Journalists, Investigative Reporters and Editors, Northern California Science Writers Association, the National Association of Science Writers, National Association of Hispanic Journalists and the Online News Association.

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Steve Ross has combined a career in teaching, writing, consulting, and technology. For the past 15 years, Ross has taught full-time at Columbia University's Graduate School of Journalism where he is now an associate professor of professional practice, teaching new media and computer-assisted reporting. He also heads the school's science and environmental reporting program and coordinates the school's joint degree program for earth science writers with Columbia's Lamont Doherty Earth Observatory. He is an associate of Columbia's Center for New Media. He has served on the University Senate as a delegate and as a member of its facilities, external affairs, and budget committees. Ross graduated from Columbia with an MS in journalism in 1970, after earning his BS degree in physics at Rensselaer Polytechnic Institute in 1969.

Since 1994, Ross has, with the support of Don Middleberg, been conducting the nation's largest surveys of journalists' use of on-line services including (but not limited to) the World Wide Web. Latest results can be seen at <http://www.middleberg.com/>. He oversaw replication of the survey in Spain and among journalists covering the European Parliament. The survey has also been replicated in England, Canada and France.

He spent the first six months of 1998 at the American Press Institute, working mainly on distance learning programs for journalists. At API, he also worked on the nation's largest study of classified ad volume in newspapers, and the Web's effect on that business. In June 2000 he finished a major study of college news offices for Campus Release Network. The study was featured in the July 2000 issue of CASE Currents, the magazine of the Council for Advancement and Study of Education. In 1999 National Council on the Aging published his massive content analysis of articles on health issues important to women over age 60. The Pulitzer Prize Board commissioned him to study newspaper Web sites and to recommend awarding of prizes for online work, also in 1999.

Ross has been working with computer databases since 1970, when he consulted for Environment Information Center (now part of Bowker, a division of Reed-Elsevier). EIC's EnergyLine and Enviroline databases became files 69 and 70 in the now massive Dialog system. His Land Use Planning Abstracts (EIC, 1973) was one of the first books ever derived from a database. Another of his 18 books, Construction Disasters: Design Failures, Causes and Prevention, is still a standard in civil engineering classrooms 17 years after publication by McGraw-Hill. Among his other books are works on the environment and planning, multimedia, finance, statistics, product safety, and toxic substances. He is under contract with McGraw-Hill to

produce textbooks (on paper and CD-ROM) for analytical journalism and for new media.

For 13 years he conducted a column on computer use in architectural practice for McGraw-Hill's *Architectural Record* magazine; in 1999 he moved to *Architecture* to write about the same topics. He also conducts a regular review column for *NASA Tech Briefs*, the world's largest engineering magazine. From 1989 to 1997 he authored a continually updated reference work, *How to MAXIMIZE Your PC*, for WEKA. The 43 published updates total more than 8,000 book pages.

He has authored three commercial software packages including a computerized version of the Standard Handbook of Engineering Calculations (Hicks) and the most complete units conversion software ever developed. Before joining the Columbia faculty, he spent two years as president of CCM, a developer of C-language graphics tools and educational software, mainly for IBM. Among CCM's products were a 20-disk high school biology series, now sold by IBM on CD-ROM, and disks on basic math and social studies. He edited *New Engineer Magazine* in the 1970s and was managing editor of *Boardroom Reports* in 1980 and *Direct* in 1982.

Many of his technical papers are in the area of quality control and statistics, particularly quality control of data in air pollution monitoring. He was named a Fellow of the American Institute of Chemists for this work in 1973. He has won the annual award of the National Society of Professional Engineers Private Practice division and was named Citizen of the Year by the New York State Society of Professional Engineers in 1976.

Prof. Ross has conducted writing seminars for IBM, Prentice-Hall and other media organizations. At Prentice-Hall he replaced Dr. Rudolf Flesch (developer of the original Fog Index) as writing coach. He has lectured and consulted extensively in the United States and abroad on media-business issues, often in association with Dan McNamee. In cooperation with McNamee and the Magazine Publishers Association more than a decade ago, he placed three magazine financial models (worth of subscriber, publishing, and circulation/advertising) into the public domain.

For the past three years Ross has paid particular attention to teaching in the former Yugoslavia and elsewhere in Central Europe, spending a total of more than six months in such efforts, in more than a dozen trips.