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Free for All

The Internet's Transformation
of Journalism

Elliot King

Foreword by Jeff Jarvis



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one location and drive it to another for processing. In 1965, EDS purchased its own IBM 1401 mainframe computer. The following year, it won the contract to design a system to process insurance claims and payments for Texas's new Medicare program managed by Texas Blue Cross and Blue Shield. In 1967, with contracts to manage Medicare and Medicaid data from both Texas and Kansas, EDS established a data processing center and debuted a distributed transaction processing center. It also constructed a private voice and data network to transmit the information.²⁹

EDS was just one of several companies scrambling into the market to take advantage of time-sharing and other advances in computing. Earlier, in 1957, Automatic Data Processing had purchased an IBM mainframe computer to process payroll data for its clients, pioneering the concept of business data processing outsourcing. In 1963, Sam Wyly and his brother Charles Jr. set up University Computing Company by installing an IBM mainframe computer at Southern Methodist University. In return for hosting the computer, SMU received free time. Using the remaining computing time, Wyly sold data processing services to Sun Oil Company, Texas Instruments, and others.

The idea that companies could put their computer expertise to work for others had many ramifications. One possibility that presented itself was that efficient, centralized computers could manage access to and retrieval of information from vast storehouses of information. In 1960, Roger Summit, a doctoral student at Stanford University, took a summer job at Lockheed Martin Missiles and Space Company, where he was assigned to work on problems of information retrieval under the supervision of E. K. Fisher, the director of information processing. The central issue was how to locate and retrieve stored information in a cost-efficient, timely manner. At the time, according to Summit, the feeling was that it

was often easier to redo scientific research than it was to determine if it had been done before.

In the course of his assignment, Summit encountered the work of H. Peter Luhn, a researcher at IBM who had invented two significant schemes for the large-scale management of information—Key Word In Context (KWIC) indexing and Selective Dissemination of Information (SDI). In 1964, at Summit's urging, Lockheed Martin established a laboratory to study the application of these technologies. A project team of six led by Summit set out to create a technology that could facilitate efficient information retrieval. Among the criteria he established were that the system had to be usable by end users without the intervention of computing staff and it had to be interactive and recursive so that searchers could immediately see their results and modify their queries accordingly. Finally, researchers wanted to include an alphabetical list of searchable terms near a desired term and the number of items in the database containing that term.

By 1965, the team developed the prototype of what became the Dialog Information Service. To test the system, Summit submitted an unsolicited proposal to apply Dialog to NASA's Scientific and Technical Aerospace Reports (STAR) database, a database with 200,000 citations and one that was in great demand. NASA had been established by the Space Act of 1958 to spearhead America's drive into space, and part of its mandate was to disseminate information about its activities and findings as widely as possible. From its inception, the agency aggressively indexed books, reports, and research concerning aerospace, and in 1962, NASA's staff, working with a contractor, started entering the bibliographic citations into a computer.³⁰

When Summit discovered a contract had already been awarded to a competitor, he proposed a smaller, less expensive parallel

project as backup if the competitor failed. For the test, Summit leased a data line from the Lockheed offices in Palo Alto, California, to the NASA Ames Research Center near the San Francisco airport. The test was conducted in January 1967. The turnaround time for a query was cut from fourteen hours when conducted at NASA headquarters to just a few minutes using the Dialog system.

Based on that success, Lockheed won a \$180,000 contract from NASA to build what was called the Remote Console Information Retrieval system or NASA RECON. This was followed by contracts to install Dialog at the Atomic Energy Commission and the European Space Research Organization and, in 1969, a contract to provide the U.S. Office of Education with a retrieval service on the Educational Resources Information Center (ERIC) database. In 1972, Lockheed launched a commercial information service under the name Dialog. The initial service provided users access to ERIC, the NTIS database from the National Technical Information Service, and PANDEX, a science citation index. At its launch, Dialog had six customers.

Other vendors were working with government agencies to make information more readily available as well. In 1969, Systems Development Corp. (SDC), a spin-off of the Rand Corporation, completed a project with the National Library of Medicine to provide access to its Medline database. The SDC version of Medline was a backup version and when the National Library of Medicine decided to terminate the contract, Systems Development Corp. decided to launch a commercial service as well, despite conducting market research that seemed to indicate that the market for online access to information would be small or might not exist at all. When Roger Summit got wind of SDC's plans to launch a commercial service, he lobbied for Lockheed to convert Dialog into a commercial service.³¹

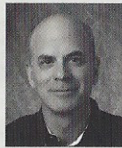
Online services were being developed with primarily commercial applications in mind. In 1964, Bunker-Ramo, which later became part of Honeywell, was formed by the merger of three companies with expertise in aerospace, computers, and data communications. Its president, Simon Ramo, who earlier had founded the company that became the defense contractor TRW and who was an instrumental figure in the creation of the intercontinental ballistic missile, assigned Herbert Mitchell the task of determining how the new company could apply its expertise to online retrieval. Mitchell had deep roots in computing, having worked with Howard Aiken on the Harvard Mark II as well as on the UNIVAC. He proposed combining several government databases into what he called the direct electronic library. Bunker-Ramo eventually won a contract from NASA to fund the project, and in 1966 they set up the first online retrieval system with the ability to order source documents remotely—an early version of what became Dialog's NASA RECON system (the name had been set by NASA before the system had been built).³²

After losing the NASA contract to Lockheed Martin, Bunker-Ramo moved in a different direction. In 1963, the Securities and Exchange Commission issued a report calling for the establishment of an automated system for buying and selling stock for what was known at the time as the over-the-counter (OTC) market, publicly held companies whose stock did not trade on the New York Stock Exchange, the American Stock Exchange, or a regional stock exchange. The specifications for the system, called the National Association of Securities Dealers Automated Quotation System or NASDAQ, were set by 1968, and Bunker-Ramo won a seven-year contract to build and operate it.³³ NASDAQ came online in 1971, and that same year, Bunker-Ramo signed a deal to provide online access to the *Wall Street Journal* and other

Information wants to be free, some argue, and the availability of news online democratizes news. Others point to the mainstream media's financial struggles and failures and see a bleak future for the Fourth Estate. In *Free for All*, longtime scholar of digital media Elliot King intertwines the development of computing as a communications platform with the history of the efforts to use this technology for journalism.

King begins with a brief history of the development of news media from the appearance of newspapers in the sixteenth century to the rise of broadcasting and the Internet. As he chronicles the emergence of online communication and social media as the third major technological platform for news, what results is a much less daunting view of the current media landscape.

Free for All cuts through the ballyhoo and the browbeating heard elsewhere to provide anyone who has an interest in the future of journalism with the grounding necessary for an informed discussion.



ELLIOT KING, a veteran technology reporter, has been on the cutting edge of communication technology since he established his first e-mail account in 1984. He is a professor of communication at Loyola University, Maryland, founder of his school's digital media lab, coauthor of *The Online Journ@list* (2001), and special editor of three volumes of the *Electronic Journal of Communication*, about journalism and the Internet.



A longtime print and online journalist, **JEFF JARVIS** is an associate professor and the director of the interactive journalism program at the City University of New York's new Graduate School of Journalism. He is author of *What Would Google Do?* (2009) and blogs about media and news at Buzzmachine.com. He is consulting editor and partner at Daylife, a news start-up, and a new media columnist for *The Guardian* and host of its *Media Talk USA* podcast.

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