

Shifting from Print to Electronic Products: Two U.S. Experiences

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Summary

1. Many U.S. Government agencies have moved rapidly in recent years from a predominately print environment to electronic dissemination of information. This shift was prompted by several imperatives. First, customers were expressing dissatisfaction with the timeliness of receiving information. Second, government initiatives were encouraging agencies to be more responsive to customers. Third, those who collect and compile the information wanted to expand access to their products. Movement toward dissemination of information on the World Wide Web was a timely and effective way to respond to these requirements.
2. This paper recounts the experiences of the Energy Information Administration and the Census Bureau, two U.S. statistical agencies that have made a major shift to electronic dissemination. Included is a discussion of several of the major unresolved issues.

The Energy Information Administration Experience

Background

3. The Energy Information Administration (EIA) is the independent statistical and analytical agency within the US Department of Energy. EIA was created in October 1977 as the consolidation of the energy information gathering and information dissemination programs of several predecessor agencies. EIA's mission is to provide "high-quality, policy-independent energy information to meet the requirements of Government, industry and the public in a manner that promotes sound policymaking, efficient markets, and public understanding." In less than 3 years, EIA's information dissemination program has made the transition from an exclusively paper environment of printed reports mailed to customers to a mixed publishing program whose primary focus is electronic information dissemination via the Internet. Our World Wide Web site

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(winner of a Federal Web Showcase Award in August 1996) provides access to virtually every product we publish; Web site use grew from 2,900 unique user sessions in July 1995 to more than 115,000 unique users sessions in April 1998. In contrast, during the 1995-1997 period, annual expenditures for printing reports dropped by more than 50 percent, and the volume of product copies distributed annually fell by almost exactly 50 percent.

4. How did this evolution begin? What caused EIA to move to electronic dissemination? What are some issues involved in this kind of dramatic and rapid change?

Talking to Our Customers

5. Since the agency was activated, EIA has disseminated energy statistics and analyses in a large number of printed publications. In our first 18 years (from 1978 through 1995), EIA published each year, in printed form, an average of 360 issues of 100 titles, with copy distribution exceeding 700,000 pieces.

6. Beginning in the mid-1990's, fundamental shifts in governance and technology led us to change in our thinking about how we do business. First, several new requirements for Government agencies encouraged us to think more about our customers and what they needed.

- The Government Performance and Results Act (GPRA) fundamentally changed the focus of Federal management from a preoccupation with inputs and process to a greater focus on defining outcomes and measuring success in achieving them. The Act required agencies to establish strategic goals and identify the performance measures they would use to assess their progress toward accomplishing the goals.
- The Reinventing Government initiatives championed by Vice President Al Gore and the National Performance Review challenged Federal agencies to do more with less, to put customers first, and to measure our success by customer satisfaction.
- Executive Order 12862 ("Setting Customer Service Standards"), issued by President Bill Clinton in September 1993, instructed Federal agencies to survey customers to identify strengths and areas for improvement.

7. EIA responded to these three initiatives by developing a set of performance measures, the most prominent being customer satisfaction. We knew that the only way to learn for sure what customers think about services is to ask them, and we knew as well that we could no longer rely on assumptions and anecdotes about customer requirements that had guided us in the past. Budget and staffing reductions made it even more crucial for EIA to concentrate on improving efficiency and satisfying the needs of our customers.

8. Responding to this new emphasis on customer service and customer satisfaction, EIA began a systematic process of surveying customers. The first survey, fielded in January 1995, asked nearly 300 telephone customers how satisfied they were with various attributes of our service (courtesy, responsiveness, familiarity with the information) and information products (accuracy, timeliness, relevance). Results showed customer satisfaction was very high in nearly all areas, with more than 90 percent of our customers saying they were satisfied or very satisfied. Among these very positive results, however, was a surprising message: Customers told us loud and clear that they were not nearly as satisfied with the timeliness of our information

(only 75 percent were satisfied or very satisfied with timeliness).

9. Historically EIA's culture had always emphasized exhaustive data releases in massive printed publications. The time required for exhaustiveness and production was, for us, simply one of the costs of doing business. We had never asked our customers whether the delays bothered them; we assumed they were willing to wait as long as necessary for us to compile and print the very best and most complete data. Now our customer surveys were showing us that many of our customers had different preferences, for faster releases, preliminary estimates, short summaries. The clear message was, "I want the information *faster*."

Responding to our Customers with New Services

10. EIA faced some choices. How could we maintain information quality but provide the speedier access that customers were demanding? This is when technology stepped in. Several EIA components had begun to experiment with making EIA publications available on the Internet through a new tool called the World Wide Web. They quickly concluded that Internet/Web access was the best way to address the timeliness issue. EIA's senior leadership gave wholehearted approval to the idea and set up an inter-office team to design and populate a Web site. They also amended EIA's strategic plan, in which the linkage to customer satisfaction had already been established, to call for improvements in the timeliness of EIA products and in design and delivery of products and services "to take full advantage of electronic dissemination of energy information to our customers."

11. The EIA Web site (www.eia.doe.gov) was opened in July 1995, and in less than three years has matured into a sophisticated, robust site visited by over a million of electronic customers each year. Today, EIA data and analysis products are available to the public literally the moment they are approved for release, often in multiple formats (text, pdf, html, spreadsheet, and/or database) to serve the greatest number of customers. Moreover, other electronic products have spun off our Web development effort, including a listserv, providing electronic subscription services for 32 categories of short documents, including weekly summaries and watches and press releases; an interactive query facility (IQ2), a service that allows users to create custom data tables in html or text and generate graphs and spreadsheets; and a quarterly CD-ROM compendium and update of all EIA publications and databases (in pdf, html, and spreadsheet form) with connectivity to the Web site for the most up-to-the-minute information. These value-added services have grown rapidly in popularity and content. In April 1998, the listserv mailed 125,000 documents to 11,000 customers, 40 percent of whom subscribe to EIA press releases; IQ2 provides access more than 20,000 data series; and more than half of all the depository libraries in the US subscribe to the CD-ROM, *Energy InfoDisc*.

What was Shifted?

12. First, through eliminations, consolidations, and shifts to Web-only dissemination, the number of EIA titles printed each year decreased to 51 in 1997. Moreover, for titles still appearing both in print and on the Web, the number of subscribers has decreased, often by as much as 50 percent. (An interesting footnote: The US Government Printing Office recently reduced its standing order for quantities of EIA's printed reports by 25 percent.) Finally, many titles printed today are either slimmer versions of their former selves (as large quantities of tabular material appear only in electronic form) or are analysis products which tend to be shorter than the average data publication. In 1995, EIA printed over 51,000 camera pages of material; in 1997, the number of pages printed decreased to 27,000 pages.

Issues

13. **Protecting traditional customers.** Nevertheless, EIA's policy remains to print all major titles (periodicals, analysis reports and other significant one-time reports, brochures summarizing major topics or products, and specialty materials). We do this because many of our customers still either do not have access to the Web (technology limitations, organization policy, lack of training) or simply prefer to have the printed copy (to read at home, to use on the job, for archives). Over the four-year span of conducting surveys of our telephone customers, a consistent 60+ percent of customers said they still wanted printed reports, even if the information they needed was available electronically. In 1997, a full 75 percent of print subscribers said they still wanted printed reports (and we are resurveying these subscribers in 1998 to validate and expand upon this result). The transition to electronic media has been aggressive at EIA and yet by no means total, as we continue to use resources to serve and protect our traditional print customers. We are on the cusp, actively serving both customer groups. An all-electronic environment is a possibility in the distant future, but likely not in the near term.

14. **Product vs. information allegiance.** Traditionally, EIA information has been organized by product. Even today, analysts continue to think along classic product lines, and, by and large, the current titles and formats of our traditional publications drive both their printed and electronic versions. To be more effective as a mixed publisher, EIA will need to change its thinking from product allegiance to information allegiance. We will need to think "outside the box" to be creative, effective, and responsive designers of new products in both paper and electronic form. The IQ2 system and the brochure program are starts in that direction, but what we most need is a change in our information delivery standards (for example, is the classic "table" still the best vehicle to convey information). We will have to ask our customers if the traditional titles and formats continue to meet their requirements, and, if not, we will have to be prepared to change our most basic approaches to information dissemination.

15. **Keep printing but keep asking.** EIA's current dissemination strategy is to actively expand and improve our Web site and other electronic services to serve our rapidly growing base of electronic customers, while at the same time continue printing to satisfy our traditional customers. Our plan is to continue to ask customers about their electronic capabilities and preferences and continuously redefine the proper balance for our dissemination efforts.

The Census Bureau Experience

Background

16. In 1995, the Census Bureau took the bold step of moving from printed to expanded electronic dissemination of its data products. The Census Bureau made a strategic decision to make the Internet its primary means of disseminating data. Moving from print to primarily electronic dissemination continued a movement that began when the Census Bureau became the first U.S. statistical agency to use CD-ROMs for data dissemination. Now it was moving even further away from the hundreds if not thousands of printed volumes it produced each year from the numerous surveys and censuses it conducts.

17. The shift to electronic dissemination was prompted by several factors. First, our customers had expressed dissatisfaction with the amount of time it took to receive our printed reports. Electronic dissemination afforded an opportunity to shave several weeks, and in some cases, months, from the production cycle. Moving to more electronic dissemination of data also was consistent with Vice President

Gore's National Performance Review directive that government agencies identify ways to be more responsive to their customers by re-engineering work processes. There also were budgetary considerations. The Census Bureau found that its constrained funding forced it to look for an alternative to free up staff for other projects and to identify ways to reduce printing costs.

18. Perhaps the most compelling factor was what our former director, Barbara Everitt Bryant, called the "democratization of data." In 1994, the Census Bureau established its Internet site. The number of people accessing the site for data in 1995 totaled more than 50,000 queries (hits) per day. The Internet seemed the perfect medium to give more people access to census data than ever before.

19. On August 9, 1995, the Census Bureau announced its plans for increased electronic dissemination in a news release. Initial reaction to the announcement was mixed. Many applauded the fact that data would be released substantially faster electronically and that the data would be more accessible. However, a sizeable number were not convinced that electronic dissemination would afford the same ease of use, particularly for researchers. There also was concern that the number of people with access to the Internet was limited and that this decision might exclude from access to our data large segments of the population who were not computer-savvy or who tended to be poor, people of color or elderly. Librarians were vocal in their concern as to how they would handle the multitude of requests they receive for Census Bureau data as not all of them could provide their patrons with unlimited access to the Internet.

What was shifted?

20. The economic side of the Census Bureau took the lead in releasing data electronically, with the Governments Division being the most aggressive Internet disseminator. Initially, the demographic divisions were cautious in deciding which report series they would move to electronic formats. The first data sets identified for this purpose were the population estimates and projections series. For some very popular data series, condensed reports (four to six pages) containing some analyses were created to accompany the larger data sets released on the Internet. As experience with this method of dissemination increased, more and more data sets were released electronically. Today, all Census Bureau data sets are released on the Internet. If the information consists of a report that will be released only on the Internet, all production work for tables, etc. usually is done in the program division. If it is a data set that also will result in a printed publication, the publications staff posts the PDF (portable document format- a format that allows the user to view or print tables as they would appear in a detailed printed report) file to the Internet at the time it is sent to the printer. This results in the Internet version of the tables being available two - three weeks prior to the printed report.

What is CenStats?

21. Almost a year after announcing the move to increased electronic dissemination, the Census Bureau announced its new Internet subscription service called CenStats. CenStats is a fee-based electronic subscription service that provides convenient point-and-click access to several popular Census Bureau databases including some that we sell on CD-ROM.

22. Data currently available on CenStats include: the Annual Survey of Manufacturers; monthly building permits; a census tract street locator; the Consolidated Federal Funds Report; County Business Patterns and Zip Business Patterns; International Trade Data; occupation by race and sex; and USA Counties. While some of these data are available for free elsewhere on our site, CenStats provides the convenience of easy access at one location in addition to access to more detailed data sets.

23. The fee for a three-month subscription to CenStats is \$40.00. An annual subscription is \$125.00. For multiple concurrent users, we offer site licenses ranging from \$750.00 to \$2,500 per year, depending on the number of users. As of the end of March of this year, we had 350 paying subscribers. Since there are few other models currently available, we are not sure whether our pricing is competitive or if the public is ready to pay for data on the Internet. However, we anticipate many more subscriptions as more data are released via DADS -- the Data Access and Dissemination System.

What is DADS?

24. The Census Bureau undertook the development of the Data Access and Dissemination System (DADS) to facilitate the access and dissemination of official demographic and economic information. This interactive system will use the Internet as an access and delivery tool to allow both novices and experts rapid and cost-effective access to data generated by the Census Bureau. The system enables data users to access predefined data products, data documentation, and online help, as well as to build custom data products online and offline. DADS basic functionality is "search and display." That means that the viewer specifies the geographic areas, data sets, commodities, etc., and DADS finds and displays the specified data. As a value-added enhancement, DADS takes advantage of a standard feature of the Internet by providing direct links between multiple databases with common geographies (i.e., counties, ZIP code areas and census tracts.) DADS will be used to disseminate data from the 1997 Economic Census, the 1998 Census 2000 Dress Rehearsal, our new American Community Survey and Census 2000.

25. Using the Internet permits results of the 1997 Economic Census to be released faster than ever. Only highlights from the Economic Census will be published in paper reports. Software on both CD-ROMs and the Internet will allow users to print out any of the detailed data they want. Windows 95 and NT users can obtain easy-to-use software that will enable them to get the answers to simple questions or a complete economic profile for the area of their choice. Users will be able to select, reformat, and rank and then export the data to a spreadsheet or a database for further manipulation. CD-ROMs also will carry data from previous economic censuses. The most widely used numbers will be available for free; more detailed data are part of CenStats. Data will be available in two formats:

- a database format with functions similar to the software on the CD-ROMs, including ASCII, dbf and other output formats,
- viewable formats (primarily PDF) which the user can print on demand.

26. The dissemination plans for Census 2000 are somewhat similar. Information will be available in traditional formats such as CD-ROMs and printed reports. All of the preformatted tables will also be available on the Internet. Through DADS you will be able to search by topic or geography and access the tables, regardless of the format in which they originally appeared. You will also have the capability of accessing databases containing the actual records to create your own data tabulations.

Benefits and Concerns

27. Despite some initial skepticism, the move to electronic dissemination has proved to be a positive step for the Census Bureau. The number of hits on our web page continues to grow astronomically, we currently average almost 4 million hits a week, and many people (particularly reporters) are happy to have access to the data 24 hours a day. Surveys indicate more people are aware of and using our data than when we issued them primarily in printed reports. Following are some issues, however, that I feel the Census Bureau needs to work

on in the coming months to improve the data sets that are available on the Internet.

- (1) Many people complain about our use of the PDF "standard." PDF works well if you want a table to look nice and neat, as it would have looked in print. However, you cannot manipulate the data in PDF tables. If you are doing research with a spreadsheet, etc., you must re-enter the numbers.
- (2) Tables created by some program divisions have a tendency to be larger than most computer screens. If it is a large table, it is often impossible to know the value of the column or row you are viewing without scrolling back to the top.
- (3) If there were errors in printed reports, errata sheets were issued. With Internet tables, staff can quickly change erroneous data, but there is no systematic mechanism for informing users that changes have been made.
- (4) While each data set on the Internet site carries discussions on the limitations of the data, the write-ups generally require the user to proactively click on these technical disclaimers. A new survey (The American Community Survey) has attempted to solve this problem on its recently released CD-ROM by displaying a red dot at the top of each column of data, which a user can click on to obtain the appropriate metadata. The ACS staff is even considering a way to automatically display the metadata so that the user would have to take an action to remove it. It would be interesting to try this technique on our Internet tables.
- (5) There is an issue of archiving the data that are released on the Internet. To make an Internet site user-friendly, older data are removed. What system should be put in place for researchers, librarians and others to retrieve those data.

Conclusion

28. Moving to Internet dissemination of data was a good strategic decision in 1995 for the Census Bureau. What remains is to refine and enhance our offerings.
