

# www.bankofcanada.ca—The Bank on the World Wide Web

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*Brent Eades, Communications Department*

**C**entral bank participation in the World Wide Web has paralleled the evolution of the Web itself: it has been unexpected, unpredictable, and largely unplanned.

The Bank of Canada's experience is no exception.

## Background

The Bank's Web site was launched in 1995 as an additional means of distributing research papers and other documents. At the time, the Bank was already using the Internet for e-mail and for distributing working papers and technical reports; some Bank staff saw the Web as a potentially useful vehicle for the dissemination of a greater variety of material.

The initial version of the site contained research abstracts, speeches, press releases, exchange rate data, and information about the Bank's Currency Museum. The *Monetary Policy Report* and brief articles on the Bank's principal functions were soon added.

At this comparatively early stage in the Web's history, few, if any, central banks saw this new technology as being of great importance. Use of the Internet and the Web was confined largely to academics, engineers, and computer hobbyists.<sup>1</sup> There was little evidence that the Web would become a mainstream medium. Indeed, when the Bank for International Settlements launched its site in September 1996, its list of "Central

Banks on the World Wide Web" contained only 10 names.<sup>2</sup>

Still, it was opportune—if coincidental—that this new technology should arise in the midst of a significant shift among central banks towards increased communication with the markets and the public. Under the rubric of "openness and transparency," central banks in the 1990s began to shed their traditional reserve in favour of a more accountable and open approach. Commenting on this trend in a *Review* article about changes in the central banking world over the past decade, Graydon Paulin observed: "Increased emphasis on communication and transparency is seen as important not only in terms of accountability to the public, but for increasing the effectiveness of policy actions and for reducing economic uncertainty" (Paulin 2000).

In a comparative review of 25 central bank Web sites, London's Lombard Street Research Ltd. expanded on this point, noting that, "Data transparency and accessibility are becoming more important aspects of both central banking and general government administration. The content of central bank websites will begin to reflect the extent of central banks' compliance with these objectives . . . . With increasing amounts of data, more accurate economic analysis becomes possible and markets are more aware of the justifications for current and past monetary policy actions" (Lombard Street Research Ltd. 2000).

The Bank of Canada site fared well in this review, receiving the second-highest rating of the sites evaluated. Lombard Street Research awarded it 89.9 points

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1. In 1995, the Internet was still primarily a tool of the academic community, as it had been since its inception. The first nodes of the nascent Internet — then called ARPAnet—were established in 1969 at four U.S. universities: the University of California at Los Angeles and at Santa Barbara, the University of Utah, and Stanford. The World Wide Web was proposed in 1989 by Tim Berners-Lee, a physicist at the European Organization for Nuclear Research. Berners-Lee envisioned the Web as "a single user-interface to many large classes of stored information such as reports, notes, databases, computer documentation and on-line systems help" (Relihan 1994).

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2. These were Austria, Brazil, Canada, Estonia, Hong Kong, India, Mexico, New Zealand, the United Kingdom, and the United States. By April 2001, this had grown to 123 sites.

out of a possible 100, noting that, “Of the bilingual websites, Canada’s is the most striking . . . [T]he most impressive aspect of this site is its accessible and educational approach. Whenever an economic or financial term is broached, an explanation is given as to its meaning. Also a wide array of links through the site and to other relevant sites makes it easy to navigate . . . [T]his site is impressive in its accessibility and in much of its data.”

In 1995, however, the Bank of Canada certainly did not yet view the World Wide Web as an avenue for policy communication, or as anything more than a mildly interesting new technology. The site “snuck in the back door,” to quote a staff member who was involved in its development. Nevertheless, the site quickly assumed a pivotal role in the Bank’s communications activities. Web usage grew rapidly, and so did the quantity and variety of content and services on the Bank’s site. By December 1998, it was apparent that the site could no longer be operated on an informal basis, and the Bank hired its first full-time Webmaster.

At that time, the site contained about 3,000 static documents and received an average of 20,000 visitors per week. By March 2001, the number of visits had grown to 95,000 a week, and the site offered various interactive calculators and data-search tools, in addition to more than 5,000 static documents that touch on nearly every aspect of the Bank’s operations. The site also plays an important role in staff recruitment. But the site’s main advantage is its ability to convey large amounts of accurate and timely statistical data to various audiences, quickly and inexpensively.

## Financial Statistics and *dataBANK*

From its inception, the most frequently used sections of the site have been those related to financial statistics: particularly foreign exchange rates, the Bank Rate, interest rates, and similar indicators (Table 1). In the first week of March 2001, for example, about 55,000 users consulted exchange rate data on the site. Consequently, considerable effort has been devoted to enhancing the delivery of economic and financial statistics to the public.

By early 1999, it was apparent that our users were not entirely satisfied with the scope and accessibility of

**Table 1**

### Most Popular Sections of Web Site, 1–14 March 2001

Section	Hits per week
Exchange Rates	55,197
Frequently Asked Questions	3,045
Current job opportunities	3,045
Interest rate search	2,765
Government securities information	1,695
Press Releases	1,638
Publications information	1,540
Inflation Calculator	1,355
Summary of Key Monetary Policy Variables	1,251
Bank Rate	1,028
<i>Weekly Financial Statistics</i>	894
Bank Notes	790
<i>A History of the Canadian Dollar</i>	674

the statistical data provided on the Bank’s Web site.<sup>3</sup> Adding more data posed a problem, however. Manual entry would have been too labour intensive and prone to errors, and available software did not meet the Bank’s requirements. Bank staff therefore developed the *dataBANK* search application (see box).

The *dataBANK* feature was launched in September 2000, giving users access to 220 data series that include foreign exchange rates, securities yields, and various interest rates. Users can select the series they want, specify a range of dates, and *dataBANK* then displays the data in either HTML or spreadsheet formats. As well, it can optionally display the high, low, and average values for the selected series.

The service was an immediate success. By January 2001, it had been used to perform over 500,000 searches, with very few reports of technical problems from users. The Bank has continued to add new features and capabilities as users request them. For example, *dataBANK* can now generate GIF-format graphs of

3. Incomplete or inaccessible Web data remains a topical issue in the central banking world. In their recent article, “What’s wrong with central bank websites?” Hanke and Morgenstern (2001) assert that, “there can be no excuse for suppressing central bank data . . . . Dissemination of economic and financial data is not rocket science.” The authors also cite the International Monetary Fund: “The content of disclosure [of information] is critical for the efficient functioning of markets . . . .” (IMF 2000).

## Development of *dataBANK*

The *dataBANK* search application is a custom-built interface to the Bank's FAME economic databases. (FAME is specialized software used by the Bank of Canada and many other central banks to store and manipulate economic time-series data.) While some rudimentary software did exist to extract data from FAME and publish it in Web format, it did not meet the Bank's requirements for ease of use and flexibility of display.

The Bank therefore set out to build its own program, using tools and techniques already available within the organization—and thus *dataBANK* was conceived.

The project was endorsed by the Bank's chief of communications, who was concerned about the growing cost of disseminating the Bank's statistical data through other channels—primarily fax and telephone.

The creation of *dataBANK* was not without problems, though few of those were of a technical nature. For example, to ensure that the statistics published on the site were as timely as possible,

changes were necessary in some of the internal procedures for collecting data and adding them to the FAME databases. With the co-operation of the appropriate economics departments, this was eventually achieved.

From the beginning, the goal was to create a system that, once implemented, could be maintained by any moderately skilled Webmaster or system administrator. The ideal system would also be usable by other central banks—discussions and meetings with central bank Web managers confirmed that the issue of getting data onto the Web was a pressing concern for most.

Thus, a procedure was developed whereby *dataBANK*'s complex technical operations are embedded in computer code that is installed on the Web server only once and need not be subsequently altered. The Webmaster can control the “look and feel” of data-search results with simple templates that contain various *dataBANK* commands and functions. Several other central banks are now evaluating *dataBANK* for possible use on their Web sites.

data and can produce data in the Microsoft Excel spreadsheet format. It has also been adapted to generate many of the “static” pages of statistics on the site that were formerly created by manual processes.

*DataBANK* has proven to be a robust application, and it has contributed to the Bank's efforts to ensure openness and transparency in its monetary policy activities.

## Monetary Policy “On Site”

While much effort has focused on enhancing the distribution of economic and financial statistics, that is by no means the only aspect of the site to be improved over the past couple of years.

To ease navigation for the user, the Bank's home page features key words along the left side that take the user to all the information on that topic. A key area

of interest is monetary policy. A click on that term leads to a section that features the most recent *Monetary Policy Report and Update*. It also contains a graphic module explaining the monetary policy transmission process.

Also featured is the popular “Inflation Calculator.” This interactive service uses long-term data from the consumer price index to demonstrate the effect of inflation on income and prices over time. It is complemented by the “Investment Calculator,” which shows the impact of inflation on investments and savings.

Another recent addition is the section “Summary of Key Monetary Policy Variables.” Based on the *Review* table of the same name, the “Summary” presents five years' worth of key economic and financial data in HTML format and provides links to related definitions, graphs, and articles.

Under the heading “Backgrounders,” users can access brief articles that explain various aspects of monetary policy in terms geared to the general public.<sup>4</sup> For the more academic audience, the heading “Research paper topics” leads to analysis and research by topic, such as “Monetary Policy Framework.” If the material in question does not readily appear, a click on “search for more information on monetary policy” brings up all the material where the phrase “monetary policy” is used—763 at last count.

## Other Developments

The site features a bilingual glossary of central banking terminology, an extensive list of frequently asked questions, and an online version of the popular book *A History of the Canadian Dollar*.

The site also serves as an archive. It currently contains back copies of press releases, working papers, technical reports, *Review* articles, *Annual Reports*, and speeches by the Governor. Also available are conference proceedings, discussion papers, and guidelines.

Under “Bonds and Securities,” users will now find information on the yields of selected government securities and treasury bills as well as various forms, schedules, and guidelines pertaining to the Bank’s auctions of government securities. There are also links to the Canada Investment and Savings site for Canada Savings Bonds, which now has a section for children called “Kids Can Save.”

The Department of Banking Operations (DBO) maintains an extensive section devoted to Canada’s bank notes. This includes illustrations and descriptions of every note issued by the Bank since 1935, detailed information on counterfeiting, and material on currency legislation and collecting. DBO has recently posted two games about currency, which have proven very popular with both students and teachers. Information on the Bank’s Currency Museum is also found in this section of the site.

## Future Directions

It is difficult to develop meaningful long-range strategies for a Web site. The World Wide Web’s technology

4. Among the more popular Backgrounder titles are “What is Money?” “The Exchange Rate,” “Canada’s Money Supply,” and “Benefits of Low Inflation.”

and audiences continue to evolve in unpredictable directions, so it is rarely practical to make firm plans further than a year or two in advance. Nevertheless, the Bank does have several new Web projects planned or underway.

The most ambitious is a substantial expansion of the Bank’s Currency Museum site. The Museum is planning various interactive educational modules and activities. It will also begin the process of making material from its 100,000-item collection accessible through the Web.

As well, the Bank’s human resources team is planning an expanded recruiting site. This will emphasize the quality of work life at the Bank, in order to attract first-class candidates.

The Department of Monetary and Financial Analysis is planning an extensive section on payment, clearing, and settlement systems. The development of this section will help the Bank meet its responsibilities for oversight of these systems under the Payment Clearing and Settlement Act. It will include documents intended for a specialist audience as well as information for the public.

The Bank will also look at the possibility of adding multimedia content to the Web site.

Here at the Bank of Canada, the Web has moved into the “mainstream” of the communications program, and it is clear that it will strongly influence future communications policy. The past few years have been a period of learning and experimentation for most of those who manage central bank Web sites, and the Web has demonstrated the significant role it can play in achieving transparency in a timely and efficient way.<sup>5</sup> The Bank of Canada has surely embraced a philosophy of transparency and will devote increasing effort and resources to ensure that its Web site continues to grow and improve.

5. Lombard Street Research notes, “. . . timely dissemination of reliable information can reduce the frequency of crises and mitigate their consequences. The role of central bank websites in this process is potentially crucial” (Lombard Street Research Ltd. 2000). While this is most relevant for developing countries, the timeliness and ease of access must surely be beneficial in the industrial countries as well.

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