Metadata Initiative Drives Efficiencies at BMO Financial

Enterprisewide information policy produces operational, compliance benefits

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Reinventing its approach to data, BMO Financial Group five years ago launched an ongoing program to ensure that every unit of the firm understands the information it stores, where it is located and how to use it. For many institutions, the project could offer valuable lessons in metadata management.

The initiative was spurred by Toronto-based BMO Financial's board, which issued a policy statement calling for data to be managed as "an integrated enterprise asset, in a disciplined and coordinated manner." The new approach, said the board, will optimize "the value of our investment in information assets and is core to achieving the bank's business strategies and goals."

"The board's decision ensured that the process of data management went from being an afterthought to a critical part of the workload for every bank employee," says Richard Livesley, head of the metadata management program for BMO Financial, whose subsidiaries include brokerage BMO Nesbitt Burns, Bank of Montreal and Chicago's Harris Bank.

Among financial institutions, metadata--or data about data--has increasingly become a priority. Firms must keep track of growing volumes of information on the securities they trade, their counterparties and an array of micro- and macro-economic factors. They also have to know the origins of the information and have data governance and quality control procedures.

At BMO Financial, Livesley is responsible for setting the conglomerate's data governance and quality policies. Along with Ron Klein, metadata development manager, Livesley reports to Sherry Smeaton, VP and technology relationship manager. Smeaton's role was created in 2005 to consolidate the firm's information management initiatives.

While the board's new stance was the catalyst for the metadata project, the seeds were sown in early 2000 by SVP of information technology Kevin Butcher. "We spent the next four years developing our approach to an effective information policy," recalls Livesley, a 30-year veteran of the bank.

Butcher's initial agenda was limited: Create a metadata repository to help business lines understand the information held in ten data centers on the retail lending and financial reporting activities of Bank of Montreal, Nesbitt Burns and Harris Bank. Five years ago, the plan expanded to include an enterprisewide approach, says Klein, who joined the bank in 2004.

The following year was spent on what Livesley and Klein describe as a rationalization process. BMO Financial reviewed the business terms used in all of its data repositories to ensure consistency. "The rationalization reduced the time needed to access information," says Livesley.

Basel II Compliance

The timing was fortuitous. By early 2005, the bank had to prove to Canada's banking regulator that it could set

aside the regulatory capital to offset its credit and operational risk under the Basel II capital accords. However, setting up the appropriate metadata took until the end of 2008 and required the creation of seven data repositories-bringing to 25 the total number under BMO Financial's control. According to Livesley, Harris Bank will take advantage of BMO's metadata work to comply with Basel II in 2010.

"Regulatory audits require the bank to trace the exact path data follows from the source," says Klein. "But different intermediate systems along the way may use different names for the same term, leading to redundancy and inaccuracy in search and retrieval. The management of metadata is key to guaranteeing the lineage of any calculated results the bank's regulators require."

The metadata repository can follow the thread of transformations--up to 12 in some cases--from the source to the final application, says Klein.

Since 2005, Livesley and Klein have moved the metadata repository beyond local business terms to include standardized terminologies. "The project involved revising low-quality definitions and writing additional definitions, creating glossaries of terms and aliases and assembling and standardizing mappings," explains Livesley. The repository is now "the book of reference" for all the firm's data and links to its applications and the business functions they support.

New Frameworks

Expanding the project's scope required technological changes. BMO in 2006 began using IBM Corp.'s Financial Services Data Model, which reduced the time needed to create business terms and their definitions. In mid-2007, the firm also switched from AllFusion Repository for Distributed Systems, a product of Computer Associates--now known as CA--to InfoLibrarian Corp.'s metadata integration framework. "We reached a point where Computer Associates was going to sunset the technology and we believed InfoLibrarian's solution to be more flexible," says Livesley.

Brian Brewer, CTO of Rochester, N.Y.-based InfoLibrarian, points to the platform's ability to do "impact analysis more quickly and to access and publish the metadata faster than with legacy procedures." InfoLibrarian's object-oriented architecture also allows the metadata repository to be programmed more easily for new user requests, adds Brewer. InfoLibrarian users include Standard & Poor's and Citigroup.

The benefits of BMO's metadata project reach beyond a simple return on investment, according to Livesley. "The proliferation of data marts made it difficult to understand the flow of information within the warehouses," he says.

The metadata repository is available to BMO's 200 IT staffers and several-hundred more in marketing, customer services and risk management in Toronto and Chicago. "By indicating where a piece of information--for example, a Social Security number--is found in all systems, an analysis report can help the business group filter information for effective use," says Livesley. "We can increase services for our customers by providing them with important information on new product offerings."

BMO has been leveraging the work not only for Basel II compliance, but also anti-money-laundering (AML) initiatives that will last until next year. "We already spent the time and effort to create an infrastructure for Basel II, which will be useful for AML work," says Klein. The firm is also planning to consolidate multiple repositories into a single data warehouse using information management software from IBM.

And BMO is still working to reduce the terms in the repository to 8,000 from the current 50,000 to 100,00, says Klein. "There is still plenty of duplication and some differences."

In the case of a customer's name, notes Klein, some applications list the last name before the first name, while others reverse the order. "It's really supposed to be classified as last name, first name," he says. "No matter how much efficiency we generate from our metadata program, it's always going to be a work in progress."