WHITE PAPER

Unified Metadata: Key to reliable, consistent information exchange between Banks and Regulators

With the constant introduction of newer and stricter Basel guidelines, the significance of data management has never been higher for banking institutions. As an outcome of the financial crisis, there have been massive changes in the regulatory requirements for compliance, risk management, operating efficiencies and customer relationship management among other areas. Business groups in Banks responsible for these requirements need accurate and quality data for effective decision making and the same data is viewed by different business groups differently. Imperative therefore that certain cardinal rules are observed for all data, i.e. *content and purpose of the data, related business rules, ownership and administration, and location.*

Enterprise data management solutions help bring these dimensions of data under one roof, along with a responsibility to establish standards of conformity, integrity and reliability, thereby increasing efficiency and throughput. Metadata management is one of the key components of such a solution and it captures important information about the data itself, thereby making the decision making process more efficient and effective.

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Quick Primer to Metadata and Related Issues

Depending on the context in which it is being used, there are numerous definitions for metadata. The universal definition of 'high-level data for low-level data' doesn't have much relevance in the world of today. For instance, different sub-functions within IT can have their own unique meaning for metadata. Broadly speaking, metadata can be classified as being technical metadata and metadata for business users. Let's take a look at the typical use cases for technical metadata:

- For a Data Administrator, metadata would include documentation about the logical and physical data models, including the ER diagrams, etc.
- An Application Developer may want the documentation about the processes that access Data via an application to be a part of the metadata. Internal documentation about the pseudo-code and the final program code can also be categorized in the same manner.
- A Data Warehouse front-end manager would document the meaning of data so that users who run a query on the warehouse can interpret the data properly and make decisions.

The above aspects often play against the actual importance of metadata for various business users. These misleading (or worse vague) definitions make it difficult for non-technical managers to decipher. Given these, the Data Warehouse front-end context is clearly the one most referenced by, and important to business users because it helps 'understand' the data.

In data administration and application development context technical metadata is used in planning, design, creation, and maintenance of Data Warehouse. But business users require more descriptive information, which will help translate codified information into the business concepts relevant to their domain. This would include the content and purpose of the data, related business rules, ownership and administration, and location. So, when we talk about metadata for business users, the following definition can be useful to make things clear:

"Business metadata shows non-technical users where to find information in the Data Warehouse, where did it come from and how did it get there, describes its quality, and provides assistance on how to interpret it."

Regards other possible issues with metadata, it can be said that there is a false assumption that it is difficult to quantify the return on investment for a metadata management system because the costs are visible clearly while the increase in revenue or a fall in expenses is not straightaway visible. Also, since the projects are generally controlled by the business side and run on an aggressive schedule, business sponsors generally assign a low priority to metadata even against the advice of the technical staff.

Why is Metadata Important?

It is ideally considered safe to assume that a Data Warehouse is only as good as its metadata. Metadata is critical to the exploitation of a warehouse because it tells users and programmers precisely where to find the data and what is the meaning of the data. Metadata contributes measurable value by:

- Improving decision making accuracy
- Reducing new employee training costs
- Increasing user confidence in the Data Warehouse, which results in higher usage and productivity
- Allowing sophisticated data quality processing and
- Identifying mistakes and problems with source IT systems

Contents of a Typical Metadata

Metadata can contain a lot of information. As mentioned earlier, metadata can be classified according to the intended use i.e. technical metadata (or back-end metadata) and metadata for business users (or front-end metadata). For obvious reasons, there can be an overlap in the front-end and back-end metadata, but it is the front-end metadata that makes the data in the Warehouse really meaningful to business users. Seen below is a list of typically important constituent variables of business metadata.

Common Attributes	Attributes for Categorical Variable	Attributes for Internal Variables
• Variable name, business name • Variable description • Data set name, business name • Update frequency • Special missing values • Tips and clues on usage	• List of valid values and their definitions • Frequency distribution • No. of missing values	• Formula used in calculating the variable • Descriptive statistics including count, mean, standard deviation, number of missing, range, etc.

Data Management Using Unified Metadata in the Context of Banking Regulation

The 2007 financial crisis was caused mainly due to risky loans dispensed and the absence of strong regulations that could have put a check on the huge losses which followed. The crisis was as a wake-up call for both banks and regulators. While banks started screening borrowers more carefully, Regulators began introducing more stringent compliance guidelines. Very quickly financial institutions were challenged with increased compliance and reporting requirements. Basel III focuses on capital and funding by specifying new capital target ratios, quality of tier I capital, leverage ratio, and maintaining mandatory capital conservation buffer and discretionary counter-cyclical capital buffer.

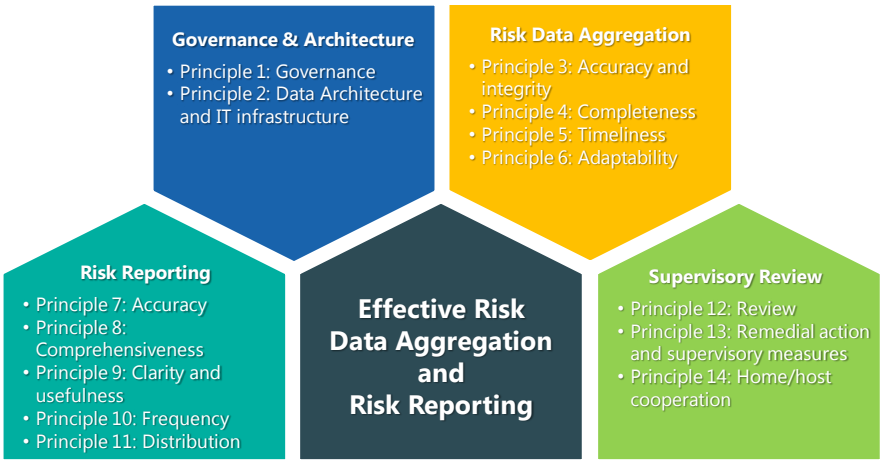
Other important trends in the global banking sector are CRM using Business Intelligence, social media analytics and content tracking, transaction encryption, mobile banking, and personal finance management among others. These trends and requirements call for enterprise data management solutions to address regulatory compliance and risk management, customer relationship management, profitability / performance management, etc.

For all of these requirements, banks face the mammoth task of identifying and evaluating existing processes and data flows in a complex network of disparate legacy systems. Even for banks that already possess Data Warehouses as single data repositories, the absence of unified metadata results in consumption of more manpower and time, inaccurate decision-making, etc. Good metadata makes it easier to use the Data Warehouse by enabling quicker turn-around for information requests. Faster turn-around means higher productivity, and ease-of-use gives users' confidence in the information retrieved. If business users don't have confidence in the data and results they are getting, they will naturally switch to legacy methods. It is vital therefore that users know and trust the lineage of the data and the operations which are run on it.

The 14 Basel Principles for Banks

Besides several other lessons, the 2007 global financial crisis taught us that banks need to radically improve their data capabilities and architecture in the area of risk management to enable all stakeholders to get a clear and comprehensive view of the bank's global risk exposure. The Basel requirements issued in January 2013 stated that 'many banks lacked the

ability to aggregate risk exposures and identify concentrations quickly and accurately at the bank group level, across business lines and between legal entities'. To handle this problem, BCBS has come up with 14 principles for effective risk data aggregation and risk reporting.



The first and last set of principles for data governance, IT architecture and supervisory review insists that all the initiatives should have the commitment from the bank's board and senior management and be regularly reviewed by both the board and the regulators.

The importance of an enterprise-wide unified metadata management model can be clearly gauged from the second and third sets of principles laid out by the Basel committee. In these principles, accuracy and integrity of data are paramount. Completeness of data is the next step to achieve an enterprise-wide view of risk data. The reports generated from this data should be accurate, clear and complete.

Metadata management can play a pivotal role in having banks adhere to these principles and make sure the costs/returns are optimal. While technical metadata can help take care of the accuracy, integrity and completeness, business metadata is useful in making sure the results/reports are clear, thus aiding decision making accuracy.

Importance of Data Management for Regulators: An Introduction to XBRL

Adoption of XBRL (eXtensible Business Reporting Language) in the financial world can be attributed to the changes it brought about in reporting in terms of standardization, accuracy of data, control and monitoring, efficiency improvement and reduction in total cost of ownership. Amongst the many unexplored opportunities banks can leverage XBRL, one is to integrate disparate accounting systems to create seamless XBRL reports, the data from which can be utilized to build analytical, monitoring and auditing applications. The objective of moving towards IFRS-based accounting will be easily accomplished by incorporating XBRL taxonomy.

Besides using XBRL reports for regulatory reporting purposes, leveraging XBRL for internal data management (consolidation of data from various branches, subsidiaries) can help reduce instances of errors and will also compensate for the lack of flexibility in MIS reporting formats.

Banks can implement XBRL using three approaches. The first approach is to adopt XBRL only at the final stage of report generation process, in which the processed data is fed into XBRL output. The second approach is to feed semi-processed data into the final XBRL output while the third approach is to integrate XBRL with accounting systems and other banking source systems. In the third approach, though it involves a high initial setup time, automating the process would save a huge amount of time for risk management which would otherwise be spent on data collation, re-keying data, profiling and sieving the contents. Banks can decide

on the granularity of mapping (i.e. General Ledger, Account, and Transactions) and also extend the existing process to include bank-specific elements. XBRL delivers all the advantages of metadata management and also eases out the process of multi-lingual reporting.

Conclusion

Stakeholders in the banking sector have begun acknowledging the need for unified metadata for consistent and reliable banking regulation. The hurdles associated with adopting unified metadata far outweighs the potential business benefits that span across operations, risk management, sales and marketing to name a few. Banks therefore need to strategize a phase-wise implementation of unified metadata, the success of which largely depends on their readiness and technological maturity.

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About the Author:

Aishwaria Krishnan, Associate Product Manager, Fintellix Solutions.
Aishwaria is a Product Manager at Fintellix Solutions with a specialisation in Analytics and with considerable experience in application development for the Banking & Financial Services domain. She is a Finance & Business Analytics major from Great Lakes Institute of Management and an Electronics & Communication engineer from Amrita School of Engineering.

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(formerly iCreate)

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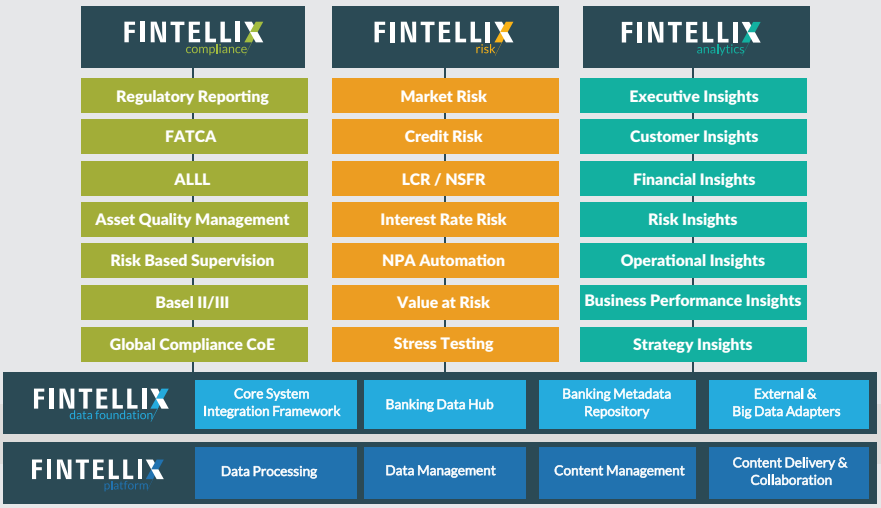
Fintellix Modular CRA Solutions on an Integrated Platform



BANGALORE
#5-10, 17 H Main,
Koramangala 5th Block,
Bangalore - 560 095.

MUMBAI
101 Suraj Prakash,
86 SG Road, Prabhadevi,
Mumbai - 400 025.

NEW YORK
70 East Sunrise Highway,
Suite 522, Valley Stream,
NY 11581.

JOHANNESBURG
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DUBAI
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HANOI
6 Hanoi Press Club,
59A Ly Thai To St.,
Hoan Kiem District.

MANILA
18 Philamlife Tower,
Paseo de Roxas,
Makati City 1226.

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