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Leveraging Big Data for Regulatory Projects

Abstract

This article explores the feasibility of using Big Data Technology in the areas of Banking and Financial regulation. It examines the challenges involved in using Big Data Technology and explores the way forward.

Introduction

CCAR, DODD, BASEL,IFRS etc. are terms which every employee of a Bank is familiar with . Post the financial crisis, regulatory authorities have come up with a set of stringent rules to ensure that banks have adequate capital during times of financial crisis.

Banks and Financial institutions are spending huge amounts of money on regulatory compliance and adding more staff in order to meet regulatory requirements. As per an FT report, in 2013 JPMorgan added 4,000 employees to their compliance team and spent an additional $1 billion on controls. Citigroup reported that of the $3.4 billion in costs that they had saved in the past year through greater efficiency, 59 percent of that was then being consumed by new compliance spending. HSBC expanded its compliance department from 2000 to almost 7000 personnel.

(Reference: www.ft.com)

It is obvious from the above statistics that meeting regulatory requirements is putting a lot of pressure on the financial services sector in terms of costs involved, strain on resources and is impacting the banks' ability to carry out non-regulatory projects which could improve customer service, increase operational efficiency and improve customer response.

Banks are looking at newer methods/technologies which will help rein in the costs while ensuring compliance with the latest regulatory requirements.

Big Data is one of the latest technologies which has been touted as a go to solution to help banks comply with regulatory requirements.

So what is Big Data? Does it live up to the hype surrounding it? Will it help banks meet regulatory challenges and lower costs? These questions require a little more analysis

Similarity between Big Data and Regulatory Data

There is a lot of similarity in the data that financial institutions generate and what is being described as "Big Data".
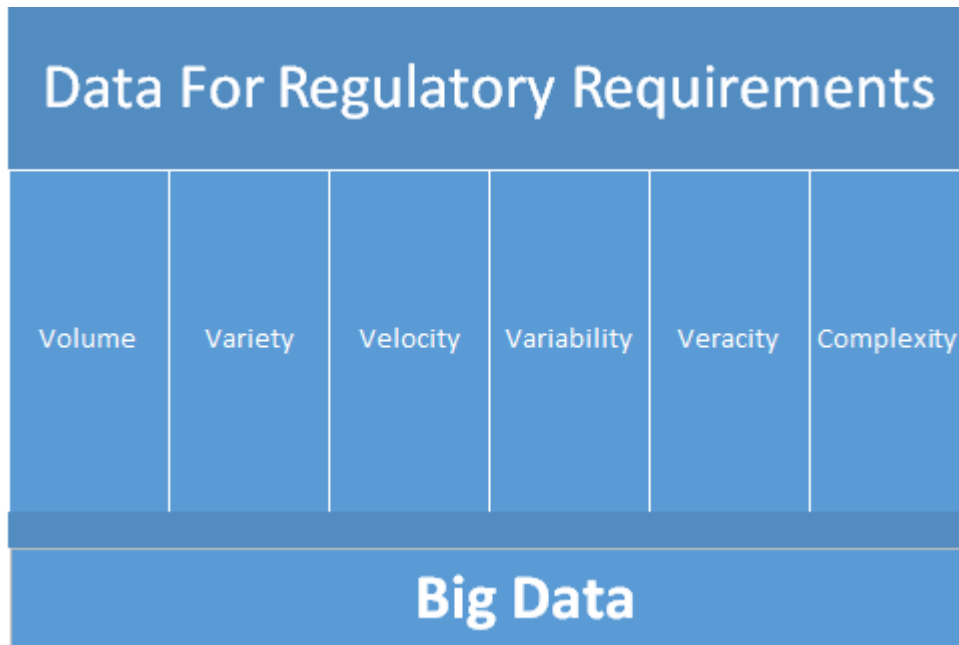
(Fig 1: Similarity between Big Data and Regulatory Data)

Big Data

Big Data deals with very large data sets which are complex to extract, store and utilize. There are multiple applications of Big Data in the field of sports, medicine, retail and of course banking & finance. Big Data is being viewed as the "holy grail" that can help solve a lot of business problems, it helps business detect patterns in data .This could boost sales, pick up the right investment portfolio, help in areas of health care etc.

Below are some of the characteristics of Big Data-

Volume: Refers to the quantity and volume of data being generated. The size of the data determines the value and potential insight- and whether it can actually be considered big data or not.

Variety: Refers to the differences in the type and nature of data.

Velocity: It is the speed at which the data is generated and processed.

Variability: Inconsistency of the data set.

Veracity: The quality of captured data can vary greatly, affecting accurate analysis.

Complexity: Managing data coming from multiple sources can be very challenging. Data must be linked, connected, and correlated so users can query and process it effectively.

Regulatory Data

CCAR, DODD or any other regulatory framework revolves around data, data and more data. Let us understand the characteristics of the data required for regulatory projects and the similarities between regulatory data and Big Data

1. First and foremost the financial and risk data needs to be accurate in keeping with the principle of **veracity.**

2. There are millions of financial transactions taking place on a daily basis and transactional data is generated every day and every hour .Hence the **velocity** at which data is generated is huge.

3. Different types of data are generated for   loans/credit cards/mortgages/options and many other financial instruments which refers to **variety** in data.

4. For GSIBS (Globally Systemically Important Banks) & DSIBS (Domestically Systemically Important Banks) huge **volume** of data are generated on a weekly /monthly and yearly basis indicates **volume** of data.

5. Data is stored in multiple systems and spread across the globe in various systems increasing the **complexity** of data being stored.

The above points show the similarity between the characteristics of the Big Data and regulatory data.

Despite these similarities Big Data is not the go to technology for Banks and Financial Institutions for regulatory projects and there are multiple reasons for this.

Challenges of using Big Data for Regulatory Projects

As per a recent study by Capgemini: *8 out of 10 organizations have Big Data projects underway yet only 27% describe it as successful and 8% as very successful.* (Source: www.informationweek.com).

Keeping this statistic in mind let us examine the barriers to using Big Data Solution for Regulatory Projects.

1. **Legacy Systems**: A regulatory project for a GSIB involves sourcing data from multiple countries for multiple products stored in multiple systems. Many of these systems are legacy systems and it is very difficult to extract data from these. These legacy systems may not be best suited for Big Data Technologies. In fact this is the number one factor which prevents use of Big Data Technology.

2. **Data in Silos**: Another issue is data in silos. There is no uniform view of data and most of the organizations have not integrated disparate data sources. This prevents organizations from quickly implementing cutting edge data technologies as most of the time is spent in understanding the data, the way it is stored etc. Various divisions of the organization have to work together in order to come up with a comprehensive view of the data and this is particularly important for meeting regulatory requirements.

3. **Poor co-ordination:** In order for Big Data project to succeed, the regulatory data to be made available requires inputs from Risk and Finance SME's .They need to identify the data needed for regulatory purposes, perform calculations on the data. The technology team needs to work closely with the Risk and Finance team to further understand the data, set up a process for data cleansing and storage and then work towards a Big Data Architecture. With tight timelines and pressure on adhering to the regulatory timetable the communication between the teams breaks down and this is not conducive to implementing new technology solutions.

4. **Management Buy-In**: In order to successfully leverage Big Data for Regulatory Projects there needs to be a strong buy in from top management. However the top management sometimes invests in Big Data solutions in order not to be left behind rather than having a clear vision on how Big Data will contribute to the strategic golas or they get overwhelmed with the technology rather than thinking in terms of business solutions.

Is Big Data feasible for Regulatory Projects?

Considering the above challenges many banks questions the use of Big Data technology for Regulatory Projects .Let us examine the advantages of using Big Data

Reduced Costs:
Costs of data storage are reducing. Consider Hadoop the poster child of Big Data technology which allows the storage of as much data as required in any form simply by adding more servers to a cluster. This makes data storage far less costly than prior methods of data storage.

Breaking down of Silos:
 The other challenge in responding to regulatory data is the fact that data is stored in silos. Big Data technologies allow all of the data to be stored. Hence storing and accessing historical data and

transactional data generated on a daily basis is becoming easier. Hence data can be accessed easily by all internal teams and also by regulators.

Let us take the example of **PPNR** (Pre Provision of Net Revenue) and the data complexities involved in calculating the same.

With emergence of stress testing, PPNR modeling has gained a lot of significance. It is being seen as a core part of stress testing process and very helpful in financial planning. Getting the PPNR calculation right is a significant step in ensuring robust risk assessment.

However one of the biggest challenges in calculation of PPNR is data availability. Calculation of PPNR is complex and requires ten years of fees and volume data in order to capture the economic and business cycles. Big Data is an excellent technology to use under such circumstances as huge volume & variety of data can be stored at a very granular level.

Comprehensive View:
Another advantage of Big Data is that it provides a comprehensive view of all financial transactions. In the current global economy a Chinese company can borrow from a European Bank and invest in Africa. Regulators would like to understand every step of the transaction .Big Data helps provide a comprehensive view the data transformation and ensures a great level of transparency by helping track all the transactions.

Speed & Accuracy:
Emerging Big Data technologies help retrieve data quickly and accurately. By automating the extraction, storage and retrieval of data, manual intervention is reduced and hence the number of mistakes and inaccuracies are reduced. It makes it easier for the bank to provide the right data in a timely manner to regulators and immediately raise a red flag in case of problems.

Conclusion

The emerging regulatory landscape is putting a lot of pressure on banks and financial institutions in terms of costs and time spent on fulfilling regulatory requirements. Big Data with it powerful analytical capabilities and ability to store and manage large amounts of data is a very good tool to ensure that banks remain compliant with the latest regulatory framework. However in order for it to succeed there needs to be a buy in at the top level and a good risk culture across the organization.