Impact of big data on data management functions

Technology, Information Technology

Running Head: Impact of Big Data on Data Management Impact of Big Data on Data Management Date of Submission

Impact of Big Data on Data Management

Introduction

Big data is a very important development in the realm of information technology. In describing Big Data, it is important to mention that worldwide data storage, management, and transaction rates have increased several times in the last 20 years. Big Data is a novel data management technology that is capable of including very large data sets (Magoulas and Lorica 2009). Big Data can significantly rapidly capture, process, and manage enormous amounts of data having varied complexities and purposes (Snijders, Matzat, and Reips 2012). Thus, it has profound effect on scientific research, business intelligence, weather forecasting, etc.

Characteristics of Big Data

Distinguishing characteristics of Big Data are its capabilities of circumnavigating data utilization and limitation issues. It deploys highly cohesive methods for data nomenclature and architecture. It also deploys dedicated and powerful processors just for data storage and retrieval functions. While normal range of handling data sets varies from megabytes to gigabytes, Big Data can handle data sets varying in the range of terabytes and pentabytes (Magoulas and Lorica 2009). However, functioning of Big Data at such an enormous scale of database management may have some unwanted impact. It often becomes highly difficult to detect privacy violations or flaws in data capturing methods while operating Big Data (Snijders, Matzat, and Reips 2012).

Impact on General Data Management Paradigm

The general paradigm of data management deals with traditionally manageable sizes of mostly similar datasets. For example, DAMA's Data Management Body of Knowledge or DAMA-DMBOK framework serves as a popular functional paradigm for general data management. There are 10 primary functions in DAMA-DMBOK. According to the DAMA-DMBOK Guide (2010), these 10 functions are:

1. Data Architecture Management
2. Data Development
3. Data Operations Management
4. Data Security Management
5. Reference and Master Data Management
6. Data Warehousing and Business Intelligence Management
7. Document and Content Management
8. Meta-data Management
9. Data Quality Management
10. Data Governance

Data Governance serves as the core function, which must be accomplished with the help of the other functions. The framework also explicitly defines all the stakeholders involved in database management and related utilities. (Earley 2011)

Big Data has certain positive impacts on a standard database management framework like DAMA-DMBOK. Firstly, it helps in modifying the framework suitably for handling larger datasets. Secondly, it helps in developing a stakeholder-independent database management framework. Thirdly, it helps

in generating and storing enormous amounts of data for both storage and processing. (Magoulas and Lorica 2009)

However, Big Data is likely to have a negative impact on certain DAMA-DMBOK functions such as Data Security Management and Data Quality Management. The reason is that the hugeness of Big Data may create problems in monitoring and protecting the database. Furthermore, Big Data is so enormous that smaller datasets cannot be optimally managed always (Snijders, Matzat, and Reips 2012).

Conclusion

Rapid scientific process and continuous research are improving Big Data everyday. The sheer need to store and manage huge datasets is increasing with the lapse of time. Therefore, it is very possible that the DAMA-DMBOK functional framework needs to be modified for implementing Big Data in a more generalized way. In future, Big Data is going to have a significant impact on DAMA-DMBOK as a whole.

List of References

Earley, S. (2011), DAMA International’s Data Management Body of Knowledge, Wyoming: DAMA International Foundation

DAMA-DMBOK Guide (2010), New Jersey: Technics Publications

Magoulas, R. and Lorica, B. (2009), Introduction to Big Data, Sebastopol CA: O’Reilly Media

Snijders, C., Matzat, U., and Reips, U.-D. (2012), Big Data: Big gaps of knowledge in the field of Internet, International Journal of Internet Science, 7, pp. 1-5