_____

Analyzing Big Data and Business Intelligence

Aditi Gupta
Astt Prof , Department of CSE,
Amritsar College of Engg and Technology, Amritsar
email id : aditi_gupta_2006@yahoo.com

Abstract: Business intelligence and analytics (BI&A) has come out as a prominent area of study for both practitioners and researchers, reflecting the magnitude and impact of data-related problems to be solved in contemporary business organizations. This introduction to the MIS Quarterly Special Issue on Business Intelligence Research first provides a framework that identifies the evolution, applications, and emerging research areas of BI&A. BI&A 1.0, BI&A 2.0, and BI&A 3.0 are defined and described in terms of their key characteristics and capabilities. Current research in BI&A is analyzed and challenges and opportunities associated with BI&A research and education are identified. This paper also reports a bibliometric study of critical BI&A publications, researchers, and research topics based on more than a decade of related academic and industry publications. Finally, the six articles that comprise this special issue are introduced and characterized in terms of the proposed BI&A research framework.

_____*****_____

I.   Introduction

Business insight and examination (BI&A) and the related field of huge information investigation have turned out to be progressively significant in both the scholarly and the business networks in the course of recent decades. Industry studies have featured this critical advancement. For instance, in light of a review of more than 4,000 data innovation (IT) experts from 93 nations and 25 enterprises, the IBM Tech Trends Report (2011) recognized business investigation as one of the four noteworthy innovation inclines during the 2010s. In a study of the condition of business investigation by Bloomberg BusinessWeek (2011), 97 percent of organizations with incomes surpassing $100 million were found to utilize some type of business examination. A report by the McKinsey Global Institute (Manyika et al. 2011) anticipated that by 2018, the United States alone will confront a deficiency of 140,000 to 190,000 individuals with profound systematic aptitudes, just as a deficit of 1.5 million information insightful administrators with the ability to investigate huge information to settle on compelling choices.

The open doors related with information and investigation in various associations have created huge enthusiasm for BI&A, which is frequently alluded to as the strategies, advancements, frameworks, practices, systems, and applications that dissect basic business information to enable an endeavor to all the more likely comprehend its business and market and settle on convenient business choices. Notwithstanding the basic information handling and logical advancements, BI&A incorporates business-driven practices and procedures that can be connected to different high-sway applications, for example, internet business, showcase knowledge, e-government, medicinal services, and security.

II.   Methodology

Practitioner Interviews The BI Congress and workshops demonstrated practitioner interest in partnering with the academic community around big data concepts. Beginning with sponsors of those workshops and later expanding to a broader community of big data practitioners from university advisory boards and research contacts, conducted semi-structured interviews were conducted to arrive at a generalized big data framework in organizations and to identify research gaps.The meetings with practitioners throughout the research project using both structured written interviews and verbal semi-structured interviews were also held. Organizations that provided interviews and agreed to be named are recognized in the acknowledgements, although some organizations requested anonymity. Interviewees are directly responsible for big data analytics either as implementers in their own organization or as consultants advising another industry. The interviews were conducted in three rounds:

(1) as I was developing and modifying the framework, I asked practitioners to critique it; (2) I circulated the final framework to practitioners for general consensus; and

(3) I conducted interviews to augment practitioner literature on research gaps in big data to identify current thoughts in the field.

I conducted these interviews to determine if emerging academic research is relevant and aligned with industry best practice and to locate areas in big data analytics that need further exploration useful to both academics and practitioners.
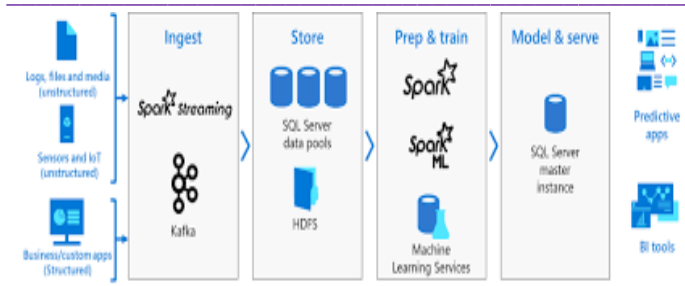
1

_____

Fig 1 : Working of Big data with schematic diagram

Organizational interest in big data is spurred by opportunities to use these new data sources to make faster and better decisions through sophisticated analytics. The writing gives proof of noteworthy enhancements from utilizing enormous information for better client learning, redid and customized effort to clients, and monetary advantage (Davenport and Harris, 2007; Davenport, Harris, and Morison, 2010; McAfee and Brynjolfsson, 2012; Davenport, 2013; Thaler and Tucker, 2013; Roski, Bo-Linn, and Andrews, 2014). Gauges by the McKinsey Global Institute (Manikya et al., 2011) show that numerous administration and mechanical parts in Europe and the US could profit considerably from huge information examination: US medicinal services could understand a productivity and quality estimation of $300 billion, US retailers could build their working edge by up to 60 percent, European governments could spare more than €100 billion in operational effectiveness, and the administrations division utilizing individual area information could recoup $600 billion in purchaser surplus with the utilization of enormous information investigation.

Hence, organizations wind up in a circumstance where opportunity from enormous information exists however diagnostic ability and, somewhat, innovation is slacking. What is additionally slacking is the business astuteness to comprehend what questions can be replied and what issues can be unraveled by examination of enormous information that will bode well now and in future. A major information investigation structure can help the scholarly network in recognizing research openings pertinent to rehearse.

Enormous information adds new measurements to examination. It offers improved open doors for understanding yet additionally requires new human and specialized assets because of its one of a kind attributes. In spite of the fact that experts at times portray enormous information as information that are past the abilities of the association to store or investigate for precise and auspicious basic leadership (Kulkarni, 2013), the term has been described in the writing as having at least one of four measurements: volume, speed, assortment, and veracity (Laney, 2001; IBM, 2014; Goes, 2014). Volume demonstrates the enormous and developing measure of information being produced, with more information frequently at higher granularity. Speed demonstrates the speed at which information are being produced from advanced sources, for example, sensors and electronic correspondence, which offers the potential for constant investigation and nimbleness. Assortment alludes to the variety in sorts of information from interior and outside sources. Veracity is a proportion of precision, constancy, or honesty of information to prepare for the predispositions, clamor, and variations from the norm related with huge information. Albeit different Vs have been recommended, including worth, representation, and instability, I address the four for the most part acknowledged attributes by examining a system for huge information.

III.   Results

Research on data access and usage focuses on post-adoptive behavior of users in actually using the data and information, especially when using BI systems is voluntary. For example, Deng and Chi (2012) examine the problems and causes that deter the use of implemented BI systems by both regular and power users. Li et al. (2013) use motivation theory to predict the impact of rich intrinsic motivation on routine and innovative use of BI systems. Other researchers have prescribed how data modeling and analysis can be integrated into the decision making process with examples of specific applications. For example, van Valkenhoef et al. (2013) suggest a data model, a decision support system, and an analysis technique for conducting clinical trials. Brydon and Gemino (2008) show how data mining can be integrated into the decision making process of selecting which video games to develop based on prior blockbuster performance data.

IV.   Conclusions

The biggest challenge for businesses is to develop a simple big data plan "for how data, analytics, frontline tools, and people come together to create business value" (Biesdorf, Court, & Willmott, 2013). The plan should provide a common language for executives, managers, and data scientists to assess opportunities for business value and identify priorities. A successful plan will focus on three elements: assembling and integrating data with associated governance, developing advanced analytic models, and creating intuitive tools that integrate data insights into business decisions. Big data planning differs from traditional business intelligence plans in integrating data across company divisions and requiring investment in new data architectures and analytics. It is "at least as much a management challenge as a technical one" (Biesdorf et al., 2013), and we need new organizational skills and thought processes for effective implementation. A 50-50 ratio of data and modeling to training is suggested for planning purposes for big data.

_____

References

[1] Agarwal, R., & Dhar, V. (2014). Editorial: Big data, data science, and analytics: The opportunity and challenge for IS resesarch. Information Systems Research, 25(3), 443-448.

[2] Andriole, S. (2012). 2.Communications of the Association for Information Systems, 30, 61-72. Aral, S., Dellarocas, C., & Godes, D. (2013). Introduction to the special issue-social media and business transformation: A framework for research.

[3] Information Systems Research, 24(1), 3-13. Assocation for Information Systems. (2011). Senior Scholars' basket of journals. Retrieved from http://aisnet.org/?SeniorScholarBasket Awadallah A., & Graham, D. (2011). ClouderaHarvard Business Review.

[4] Expanding the frontiers of information systems research: Introduction to the special issue. Journal of the Association for Information Systems, 14(4), i-xvi. Biesdorf, S., Court, D., & Willmott, P. (2013). Big data: What's your plan? McKinsey Quarterly.

[5] J. Andrews, S. Buzzi, W. Choi, S. Hanly, A. Lozano, A. Soong, and J. Zhang, "What will 5G be?" IEEE Journal on Selected Areas in Communications, vol. 32, no. 6, pp. 1065–1082, June 2014.

[6] X. Wang, M. Chen, T. Taleb, A. Ksentini, and V. Leung, "Cache in the Air: Exploiting content caching and delivery techniques for 5G systems," IEEE Communications Magazine, vol. 52, no. 2, pp. 131–139, February 2014.

[7] M. Tao, E. Chen, H. Zhou, and W. Yu, "Content-centric sparse multicast beamforming for cache-enabled cloud RAN," [Online] arXiv: 1512.06938, 2015.

[8] F. Bonomi, R. Milito, J. Zhu, and S. Addepalli, "Fog computing and its role in the internet of things," in Proceedings of the first edition of the MCC workshop on Mobile cloud computing, Helsinki, Finland, August 2012.

[9] N. Farrington and A. Andreyev, "Facebook's data center network architecture," in Proceedings of IEEE Optical Interconnects Conference, CA, USA, May 2013.

[10] O. F. Celebi, E. Zeydan, O. F. Kurt, O. Dedeoglu, O. Ileri, B. A. Sungur, A. Akan, and S. Ergut, "On use of big data for enhancing network coverage analysis," in 20th International Conference on Telecommunications (ICT'13), Casablanca, Morocco, May 2013.

[11] J. Lee, M. Sun, and G. Lebanon, "A comparative study of collaborative filtering algorithms," [Online] arXiv: 1205.3193, 2012.

_____