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Introduction

It has been found that the dynamic global business environment demands that companies induce scrutiny into their information to make their decision-making process stronger. Data warehousing, business intelligence, and data mining are some concepts that have come to the fore to make businesses handle and make strategic decisions far more adeptly and these concepts also update their trends with time. Some of the articles that will be reviewed in the following section will speak of the trends that have made the cut in the current situation as related to data mining, warehousing, and business intelligence.

Literature review

In terms of business intelligence and its utilization Lim and Teoh, (2020), write that due to the advent of big data, business intelligence has come to be recognized as significant in analyzing information and making strategic decisions. As per their study, which specifically targets the public-listed companies of Malaysia, business intelligence can be joined with regular work by bringing big data into the mix and can be used to extract the latter. Business intelligence has also been seen to have dimensions of data integration, a culture of decision-making, and analytical capabilities (Lim and Teoh, 2020). The trend of business intelligence is finding its place in different kinds of companies in the present situation. Many Public Listed companies are also making use of the concept as they struggle with a humongous amount of data. Business sustainability is also a growing concern amongst the current generation of organizations. The sustainability of businesses is often empowered by enterprise reporting, business analysis, performance management, and the like. All of these are catered to by business intelligence sufficiently. But related factors to business intelligence also have to be assessed so that the strategic impact of the concept is truly understood and two of those concepts are data mining and warehousing.

Big data has also been related to the concept of data warehousing. Variety, velocity, and volume are features of big data and they focus on many limitations of the concept of data warehouses. Some of the downsides have been revealed to be costly scalability, a strict model of relativity, inefficient performance, and the like (Costa and Santos, 2018). The trend of data warehouses is, however, gaining a lot of popularity. This is also bringing to the fore newer methods of resolving

issues related to challenges in big data warehouses. According to Costa and Santos, (2018), big data warehouses can be looked at as something that is scalable and flexible and ranks high on the performance spectrum. This concept makes use of various techniques related to big data such as hoc querying, data mining, streaming analysis, and data visualization. All of these support complex and mixed analytical workloads. Here it can be related to the flexibility that business intelligence may offer and the empirical studies that highlight the fact that business intelligence equals business optimization. This is done by the fruitful management of ambiguity and the interests of the stakeholders are hence served. But coming back to big data warehouses, the study by Costa and Santos, (2018) talks about the necessity of identifying the different available design patterns that are trending in relation to the concept. The topic is very much at the embryonic stage and that leaves a little bit of ambiguity behind. But some data modeling methods and streaming techniques are to be considered in this regard.

However, there still are many other trends that are upcoming in the field of data warehousing and business intelligence.

Another study talks about the way in which financial data has been increasing in volume and the trends prove that the development of data management will be significant in the coming years. Financial data is usually the real-time and constant generation of data is a part of it. According to Kunnathuvalappil Hariharan, (2019), a lot of limitations in the field of data warehousing are coming up due to the handling of big financial data. Many storage research and background processing technologies have been used before in the field (Kunnathuvalappil Hariharan, 2019). Some of the techniques suggested by this study are MapReduce processing, NewSQL, and NoSQL storage. It has to be understood here that data warehousing is also seen as a part of business intelligence. Business intelligence has proven to be helpful in enhancing organizational performance economically. It has been seen to have a routine impact on the marketing strategies which eventually boost sales of a company. This is done by looking at trends in sales and monitoring the needs of consumers and their demands to anticipate their response to products. This can lead to the idea of data mining which is also a part of the business intelligence spectrum and hence many studies have also reflected on its trends, limitations, and usability.

A study by Liu et al., (2020) focused on the rise in educational data volumes and how certain institutes are facing issues with regard to the management of it. The large volumes of data

available have an admixture of videos, speeches, images, and texts and hence they also have a variety of them. Cataloging them also becomes a requirement and that is indeed a humongous task. There are applications in Artificial Intelligence related to education and the research invites multimodal machine learning to utilize AI in educational fields and handle the tasks associated with it. This is a trend in data mining strategy and is often referred to as AIED. the study speaks of the concepts of algorithmic assessment, representation learning, personalized feedback, and the like (Liu et al., 2020). Data mining from a business intelligence perspective has proven to be effective in enhancing the performance of businesses and if this study is taken into account, the performance of educational organizations. It can be taken as a strategic impact of the idea. Another study looked at the use of data mining in weather data. The study focused mainly on various stages of data mining namely, data modeling, preparation, and data evaluation (Castillo-Rojas and Hernández, 2021). The results revealed that a more detailed view was available on data modeling as compared with the other two stages. According to Castillo-Rojas and Hernández, (2021), data preparation had the least availability of research on it. Some of the recent trends in data mining like Vector Support machines and Artificial Neural networks were also reviewed in this study. Data mining has many facets like textual, numerical, web, and multimedia mining along with big data mining and sentiment analysis (Gul, Bano and Shah, 2021).

Therefore, it can be said that many kinds of trends are available in data mining, and data warehousing is part and parcel of business intelligence. Coming back to the study by Lim and Teoh, (2020), two other facets must be mentioned and they are the environmental and social impacts of the strategic outcomes of utilizing business intelligence. Social responsibility is a factor that requires analysis deeply and business intelligence tools have proven to be extremely useful in such cases. This eventually benefits stakeholder management and customer appeasement.

Conclusion

This review concludes on various available literature on the concepts of data mining and warehouse and the broad spectrum of business intelligence. Upon further research, it has been understood that many trends have made their way into the market and they aim at various aspects

of data mining, warehousing, and business intelligence. Some limitations have also been identified but that does not nullify the importance that business intelligence holds in modern business and its dynamic market. Overall, despite being a new idea and with dynamic and fast-paced trends, the proper knowledge of it can benefit organizations in enhancing performance and have immense strategic impacts.

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