

Module: Data Handling and Business Intelligence

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Student number : 2024897

Hristina Rageva

Abstract

For businesses to understand their operations and make wise choices, business intelligence is a crucial tool. Real-time data analysis, cloud-based BI solutions, AI and machine learning, self-service BI, and data visualisation technologies are just a few of the new trends and technologies that are developing as the industry continues to change. The relevance of data governance and management, mobile BI, integrated BI, and augmented analytics is also noted in the many sources that emphasise these topics.

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Introduction

New trends are continually developing in the area of business intelligence as a result of shifting corporate requirements and technical developments. Businesses must be able to swiftly analyse and get insights from the growing amount of data in order to make wise choices. Large volumes of data can be processed, stored, and analysed by organisations using cloud-based BI solutions without the need for costly hardware or IT infrastructure. Tools for data visualisation are becoming more and more crucial in BI since they make it possible for users to quickly analyse and share data insights.

Literature review

Source 1

Murugesan and Karthikeyan, (2016) report various BI trends. First, big data and real-time data analysis have raised demand for BI systems. BI solutions help companies transform data into useful insights.

Self-service BI makes data analysis simpler for non-technical consumers. BI tools are becoming used in more areas.

Thirdly, cloud-based BI solutions are growing in popularity since they are scalable, flexible, and cheaper than on-premise systems.

Fourth, BI tools need predictive analytics and AI. These skills enable data-driven decision-making and competitive advantage.

Finally, new competitors and expanded products are making the BI market more competitive. This drives BI solution innovation and differentiation. As firms realise the importance of data-driven decision-making and invest in BI technologies, the BI industry is likely to rise.

Source 2

Business intelligence trends vary, according to Ajah and Nweke, (2019). Real-time data analytics and insights are in demand. Real-time data insights are driving the use of BI solutions.

Second, cloud-based BI solutions are becoming popular. Cloud-based BI solutions are more flexible, scalable, and cost-effective than on-premise systems.

Thirdly, augmented analytics—using machine learning and artificial intelligence to automate data preparation, analysis, and insights—is gaining popularity. As more companies use AI and machine learning to get data insights, this tendency will continue.

Fourthly, self-service BI, which allows non-technical people to access and analyse data, is a trend. Data democratisation and the desire to empower workers with data-driven insights are driving this trend.

Finally, data governance and management are becoming more important in the BI business. To preserve data quality and compliance, organisations must appropriately manage and regulate data as they acquire more and use BI technologies to derive insights.

Source 3

Business intelligence trends vary, according to Divatia et al. (2021). First, organisations are increasingly using data visualisation technologies to simplify difficult data. These technologies provide real-time business performance dashboards and reports.

Second, self-service BI, which lets non-technical people analyse data without IT help, is becoming more important. Due to changing business circumstances, quicker decision-making and agility are driving this trend.

Thirdly, predictive analytics, which utilises statistical algorithms and machine learning to find trends and forecast future events, is gaining popularity. Organizations require data-driven choices to compete.

Fourthly, mobile BI, which lets users access BI tools and insights via mobile devices, is becoming more important. Mobile devices and the requirement for workers to access data and insights on the move are driving this trend.

The paper concludes that cloud-based BI systems provide better flexibility, scalability, and cost reductions than on-premise alternatives.

Source 4

Tripathi and Bagga, (2020) say BI trends are relevant from numerous angles. First, self-service BI solutions, which let non-technical people access and analyse data without IT help, are in

demand. Due to changing business circumstances, quicker decision-making and agility are driving this trend.

Second, cloud-based BI solutions, which are more flexible, scalable, and cost-effective than on-premise systems, are becoming more important. Small and medium-sized businesses utilise cloud-based BI tools the most.

Thirdly, integrated BI—integrating BI features into other business applications—is a trend. The necessity for seamless data and insight access in corporate operations is driving this trend.

Fourth, advanced analytics, which employs machine learning and artificial intelligence to find trends and anticipate outcomes, is becoming more important. Organizations require data-driven choices to compete.

Finally, mobile BI lets consumers' access BI tools and insights from their phones. Mobile devices and the requirement for workers to access data and insights on the move are driving this trend.

Source 5

Ragazou et al. (2022) identified BI trends. First, AI-powered BI solutions, which automate data processing and provide real-time insights, are in demand. Data-driven choices and competitive advantage are driving this trend.

Second, data governance and quality control are becoming more important. Organizations need data governance rules and technologies to assure data correctness and integrity as data volumes grow.

Thirdly, organisations are trying to break down data silos and collaborate across teams and departments. The desire to understand corporate performance and consumer behaviour is driving this trend.

Fourth, cloud-based BI solutions are becoming more important due to their flexibility, scalability, and cost advantages. Small and medium-sized businesses utilise cloud-based BI tools the most.

Finally, BI is becoming more accessible to non-technical consumers without IT help. Due to changing business circumstances, quicker decision-making and agility are driving this trend.

Comparing and Contrasting/Analysis

Current business intelligence industry advances are covered by all five sources. Every item makes notice of the growing importance of real-time data analysis and insights, cloud-based business intelligence tools, and the use of AI and machine learning to predictive analytics. Another common trend is self-service BI, which aims to make it possible for non-technical people to access and interpret data. However, there are also a lot of differences in the publications' findings. For instance, while some publications underline the need of data governance and management, others focus on the usage of data visualisation technologies. Each of the growingly popular BI solution types, such as mobile BI, integrated BI, and augmented analytics, has its own distinct qualities. Together, the papers suggest that new trends and technologies are always emerging in the BI sector in response to altering business requirements and specifications.

Methodology

For the well-liked business intelligence software Microsoft Power BI, a few tendencies are starting to emerge. One development is self-service analytics, which enables end users to create and distribute their own reports and dashboards without the aid of IT personnel. Another trend is the expanding use of AI and machine learning to provide ever-sophisticated predictions and insights (Bayer et al., 2017). The healthcare industry uses business intelligence to study patient data and discover trends and patterns in diseases and treatments. One trend is the use of predictive analytics to forecast future health outcomes and identify those who are at high risk. The integration of business intelligence tools with electronic health records (EHR), which enables more efficient data analysis and decision-making, is another advancement (Minelli et al., 2013). Business intelligence is being used by the automotive industry as well, particularly in the development of autonomous cars. One advancement is the use of big data and machine learning to analyse the massive amounts of data that sensors in self-driving cars have collected. Utilizing this data may improve safety, improve routes, and reduce fuel use.

Analysis and conclusion

My findings are in line with the literature about the developments in self-service analytics, the growing applications of AI and machine learning, and the use of business intelligence in the automobile and healthcare industries. The literature review and my findings all make note of the use of predictive analytics and integration with electronic health records in the healthcare industry, as well as the use of big data and machine learning to analyse data in self-driving cars. There are some differences between the two in terms of the specific patterns found. The literature research emphasises the relevance of data governance and management in addition to the development of mobile BI, integrated BI, and augmented analytics. My findings don't really point out these trends. Overall, my findings complement and expand on the trends identified in the literature research and provide additional details on the particular uses of business intelligence in the healthcare and automotive industries.

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