



University of Wales, Trinity Saint David

Written Report

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Introduction

Data mining, business analytics, data modelling, and other business intelligence (BI) technologies may aid firms in making more informed choices. Emerging trends in company data are the primary focus of this research. Its potential benefits to a company's bottom line are known as "business intelligence" (BI). Data science, quicker intelligence, and other emerging trends in business intelligence are further potential areas of discussion. The report will conclude with a discussion of the business intelligence (BI) solutions built around these concepts. The report concludes by discussing the role of business intelligence (BI) technologies in the BI process.

Future for the business BI trends, Tools and Applications

As per Bharadiya (2023), business intelligence will focus on providing companies with up-to-the-minute data that enables them to swiftly react to shifts in the market, emerging trends, and consumer behaviour. In the future, real-time analytics will play a significant role in decision-making. Recent advancements in Business Intelligence (BI) are poised to revolutionise the way firms use data for decision-making. Advanced analytics and machine learning enable businesses to enhance their ability to forecast future trends and make informed decisions (Ali, 2023). This section examines several real-life instances to illustrate both the positive and negative aspects of business intelligence (BI) and its significance as a forthcoming trend.

Generative artificial intelligence (AI) programmes, or large-language models (LLMs), are ML models that learn from data and patterns to carry out language-related tasks. Some people do things like write, research, and make music, visual art, and computer programmes. People are already making some headway with LLMs by automating processes, getting SEO insights, and providing simple explanations (Niu et al. 202). SQL code and search query editing, repair, and enhancement are areas where LLMs may be of great use to developers.

According to a Forbes Advisor poll, almost all business owners (97%) think ChatGPT would be beneficial for their companies. LLMs provide personalised analysis, CRM, security, and anti-fraud services. Some people think that relying too much on LLMs can make people lazy and less motivated to learn about new technologies. On top of that, they aren't completely unbiased, and mistakes in the math or coding will most certainly show up in the results (Gupta and Jiwani, 2021). Hence, checking the information's veracity is becoming more and more important.

Positive aspects

According to this McKinsey research, 25% of C-suite executives utilise AI technologies for creativity on the job. In light of the promising developments in creative AI, more than 40% of respondents said that their employers were considering increasing their expenditure on AI (Nti et al. 2022). Business intelligence (BI) tools driven by artificial intelligence (AI) can swiftly analyse and analyse massive volumes of data, allowing firms to get a deeper understanding of their data and uncover patterns that may otherwise go unnoticed using more conventional approaches.

With the use of ML algorithms, business intelligence tools can construct prediction models that aid companies in spotting patterns, anticipating consumer actions, and adjusting to market shifts. Because of this, they can plan and make wise decisions. Business intelligence (BI) solutions driven by AI generate visuals, graphs, and reports mechanically (Bharadiya, 2023). Because of this, analysts can devote their time and energy to higher-priority projects.

Negative aspects

According to Shao et al. (2023), data privacy and responsible data usage have taken centre stage due to the increasing data reliance of BI operations. Strong data protection measures, such as encryption, access limitations, and anonymization, are necessary for organisations to ensure the security of personal information. Maintaining compliance with data privacy regulations, such as the General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA), is crucial for user privacy protection. To utilise data ethically, businesses should establish clear guidelines, such as obtaining users' consent, maintaining data clarity, and safeguarding data owners' rights (Kysh et al. 2021).

It is crucial to get valuable insights from data while also safeguarding individuals' rights and privacy. Data integration becomes more challenging when businesses deal with data that comes from a variety of sources and formats. It is critical to guarantee the data quality to get reliable and correct information. Businesses need to be abreast of data protection rules as they evolve so they can remain compliant. Additionally, it is critical to adhere to industry-specific regulations, such as HIPAA in the healthcare industry, if applicable.

5 BI trends to make timely and effective decisions

- **Natural Language Processing (NLP):** The way decision-makers engage with data is one of several areas drastically changed by incorporating Natural Language Processing (NLP) into BI (Alli and Alam, 2020). Searches based on commands, written instructions, or complex user interfaces are required to participate in traditional forms of interaction. Simply enter or vocalise an inquiry in clear and simple English to participate in these debates with NLP. Data analysis tools have recently seen significant improvements, making them more approachable and conversational in nature.
- **Self-Service Analytics:** Non-technical users can conduct sophisticated data queries, get useful insights, and create their reports with the help of self-service analytics solutions, which feature interactive dashboards and user-friendly interfaces. This speeds up decision-making and decreases the need for specialised data teams (Chen and Lin, 2021). With self-service analytics, decision-makers may access data directly, make changes to it, and find insights that help them achieve their goals. This adaptability promotes a data-driven culture within the organisation and speeds up the process of idea generation.
- **Cloud-Based BI Solutions:** A large initial investment in hardware, software, and ongoing maintenance is required for traditional on-premise BI solutions. In contrast, the service provider's servers house cloud-based business intelligence (BI) applications. The lack of substantial upfront costs and continuous maintenance fees makes it a more budget-friendly choice.

With the built-in flexibility of cloud-based BI systems, companies can easily modify their data retention and analysis policies to meet their unique needs (Bazmohammadi et al. 2021). This may be especially helpful when managing massive amounts of data and coping with unpredictable demands for storage and processing power.

- **Artificial Intelligence (AI) in BI:** Businesses are increasingly using artificial intelligence (AI) to analyse and manage their business data. AI is revolutionising the way organisations use data by optimising data processing, uncovering valuable insights, and accurately forecasting future events.

Artificial intelligence (AI) in business intelligence (BI) often employs machine learning algorithms and sophisticated analytics methods to automate processes such as data processing and analysis (Naeem et al. 2022). Artificial intelligence (AI) has the potential to enhance the efficiency of business intelligence (BI) by reducing the human

effort required for tasks such as data cleansing, data collection, data analysis, and generating novel insights.

- ***Ethical Data Governance:*** The cornerstone of Ethical Data Governance is protecting people's rights and privacy in all data-related endeavours. Get people's informed consent, anonymize their data, and put in place rigorous access controls to protect their privacy and stop data exploitation. Adopting moral data control procedures could make it easier to follow rules and regulations (Ali, 2023). When it comes to data, legislation like GDPR and HIPAA put strict rules in place for things like data secrecy and ethics. Firms may avoid fines and other legal trouble by implementing a strong Ethical Data Governance structure, which helps them comply with regulations.

Conclusion

It is concluded that, protecting people's rights and privacy in all data-related activities is at the heart of Ethical Data Governance. Get people's permission, make their data anonymous, and set up strict access rules to keep their privacy safe and stop people from using their data for bad things. It might be easier to follow the rules if you use moral data control methods. Legislation like GDPR and HIPAA set strict rules for things like keeping data private and being ethical. Firms can stay out of fines and other legal trouble by setting up a strong Ethical Data Governance framework that helps them follow the rules.

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