

IMPLEMENTING BUSINESS INTELLIGENCE TO IMPROVE BUSINESS PERFORMANCE

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Abstract

Business Intelligence (BI) has grown rapidly in recent years and has become one of the key components in business strategies to improve operational efficiency, support data-driven decision-making, and strengthen corporate competitiveness. Business Intelligence enables organizations to collect and integrate data from various sources, then analyze the data to provide deeper insights. This article aims to explore the application of Business Intelligence, its benefits, challenges faced, and practical solutions that can be implemented to maximize the potential of Business Intelligence in improving business performance. This research utilizes a systematic literature review method that covers recent studies between 2019 and 2024. The results show that the implementation of Business Intelligence can increase a company's operational efficiency, improve risk management, and enhance strategic decision-making. However, Business Intelligence implementations also face a number of challenges, such as data quality issues, as well as high initial implementation costs. The article also offers practical solutions to overcome these obstacles, including data infrastructure development, employee training, and a phased implementation approach.

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INTRODUCTION

Rapid digital transformation is changing the way companies operate and interact with markets and customers. Enterprises today are faced with an ever-increasing volume of data, which includes both structured and unstructured data from multiple sources. This creates challenges for companies in managing this data so that it can be used to support strategic decisions based on accurate and timely information. Business Intelligence comes as a solution to overcome this challenge. Business Intelligence enables companies to effectively collect, analyze, and visualize data to provide insights that are useful for decision-making.

In the context of increasingly fierce business competition and growing globalization, the use of Business Intelligence is very important. According to research conducted by [Abyan et al., \(2024\)](#) the integration of big data and Business Intelligence can increase the productivity and effectiveness of decision making at various levels of the organization and the use of Business Intelligence can be a competitive advantage by providing the necessary information in a structured manner to support decision making ([Rudiawan, 2021](#)).

Along with the development of Business Intelligence, companies can leverage the latest technologies such as predictive analytics and machine learning to forecast market trends, analyze consumer behavior, and improve customer experience ([Firmansyah, 2024](#)). Although the benefits of Business Intelligence are considerable, the implementation of this technology is not free from various challenges, such as data quality issues, high implementation costs. Therefore, this article aims to explore the application of Business Intelligence in various sectors, the challenges faced, and solutions to improve the success of Business Intelligence implementation in organizations.

LITERATURE REVIEW

Definition and Elements of Business Intelligence

Business Intelligence (BI) consists of a number of technologies and processes used to collect, process, and analyze business data. Business Intelligence according to [Williams & Williams \(2007\)](#) is a series of business information that will be used by a company to analyze business processes and aims for decision making to increase the information assets owned by the company in business processes in order to achieve company performance in line with company goals. [Fatha et al., \(2023\)](#) also states that Business Intelligence is a process that enables companies to access and analyze operational data to support faster and better decision making. Business Intelligence helps companies transform data into useful insights to improve efficiency, productivity, and profits. Some of the key components of Business Intelligence include:

1. Data Warehouse: A centralized data storage system that integrates data from multiple sources, enabling more efficient data analysis.
2. Predictive Analytics: Using statistical models and algorithms to predict future outcomes or trends, helping companies better plan strategies.
3. Data Visualization: Presentation of analysis results in the form of easy-to-understand graphs, dashboards, and maps to facilitate decision-making.

Definition of Business Performance

Business performance refers to the extent to which a company is able to achieve its strategic and operational objectives. In general, business performance measures the effectiveness and efficiency of the various activities carried out by the company, including operations, finance, marketing, and customer service. Business performance does not only focus on financial aspects such as profit or revenue, but also includes non-financial factors such as customer satisfaction, sustainability, and product innovation. According to [\(Kaplan & Norton, 1996\)](#) the concept of business performance can be measured using the various perspectives in the Balanced Scorecard, which includes four main dimensions:

1. Financial - Includes aspects such as revenue, costs, profit margin, and return on investment (ROI).
2. Customer - Covers customer satisfaction, customer retention, and loyalty.
3. Internal Processes - Measures the efficiency and effectiveness of internal business processes.
4. Learning and Growth - Involves aspects of innovation, employee development, and resource management.

Business Performance Indicators

Business performance indicators are metrics or measures used to assess the extent to which a company is achieving its goals. Some of the most commonly used performance indicators in the context of Business Intelligence include:

1. Return on Investment (ROI): Measures the profit generated relative to the investment made, reflecting the success of the business strategy in creating value.

2. Revenue and Net Profit: Assesses the company's success in generating revenue and profitability
3. Operational Efficiency: Measures the extent to which the company can reduce costs and increase productivity by optimally utilizing resources.
4. Customer Satisfaction and Loyalty: Can be measured using surveys or customer satisfaction scores (Customer Satisfaction Score) and Net Promoter Score (NPS).
5. Market Share: Measures the company's market share in a particular sector or industry, reflecting the competitiveness and growth of the company.
6. Product Innovation: Measures the company's ability to develop new products or improve existing products, which can be seen from the number of patents or spending on research and development.

Benefits of Business Intelligence in Business

The implementation of Business Intelligence offers a number of benefits that can provide a competitive advantage for companies. Based on research conducted by [Subroto & Endaryati \(2021\)](#). Business intelligence can help companies to make better management decisions based on data at this time or data in the past period in the context of its business. An analyst can utilize business intelligence to provide performance and competitor benchmarks to make the company run smoother and more efficiently. Analysts can also more easily spot market trends to increase the company's sales or revenue. The benefits of business intelligence for companies are as follows:

1. Identifying ways to increase profits;
2. Analyzing consumer behavior;
3. Comparing data with competitors;
4. Track performance;
5. Optimize the company's operational processes;
6. Predict company success;
7. View market trends;
8. Find issues or problems.

[Nuryati et al., \(2023\)](#) states that the benefits of a Business Intelligence system are to help businesses increase value-added risks, decide costs, and improve customer and supplier relationships. Without a Business Intelligence system, a lot of company data becomes illogical and ultimately hinders the organization's business processes.

RESEARCH METHOD

This research utilizes the systematic literature review method, which aims to explore the benefits, challenges, and solutions related to the implementation of Business Intelligence in the financial, retail, and manufacturing sectors. This method was chosen as it allowed the authors to summarize the findings of previous relevant research and provide a clearer picture of the development of Business Intelligence applications in recent years.

The research data was obtained from articles published between 2019 and 2024 in highly reputable international and national journals. The article selection process was conducted in three stages:

1. Initial Search: Keywords such as "business intelligence," "data analytics," "operational efficiency," and "decision making" were used to search for relevant articles.
2. Article Selection: Articles were screened based on their relevance, methodological quality, and contribution to the research topic.
3. Thematic Analysis: The selected articles were analyzed in depth to identify the benefits, challenges, and solutions of Business Intelligence implementation.

RESEARCH RESULTS

Impact of BI Implementation on Business Performance

Proper implementation of Business Intelligence can result in significant positive impacts, such as:

1. Business Intelligence (BI) is an essential tool for effective management, transforming constantly growing data into information that can be utilized for strategic decision making. Business Intelligence supports executives in database analysis and evaluation, improving business processes, enhancing relationships with customers and partners, and reducing costs and risks ([Rudiawan, 2021](#)).
2. AI can be considered an excellent market predictor and contributes to market stability by minimizing information asymmetry and volatility; this results in a profitable investment system and accurate performance evaluation ([Bahoo et al., 2024](#)).
3. Business Intelligence can be used by management in seeing the development of profits and sales that occur every year, so that management can analyze the delivery of information that has been presented in the form of a graph or dashboard ([Subuh et al., 2019](#)).

The application of Business Intelligence has proven to have a significant impact in improving the company's business performance in various sectors:

1. Financial Sector: Business Intelligence helps predict bankruptcy and credit risk prediction in both companies and financial institutions; Fraud detection and early warning models monitor the entire financial system and raise expectations for future artificial market surveillance. This suggests that a global financial crisis or unexpected financial turmoil is likely to be anticipated and prevented ([Bahoo et al., 2024](#)).
2. Retail Sector: The application of Business Intelligence in processing data helps companies to get more mature data so that it can help the marketing team in terms of improving marketing strategies needed as a reference in making decisions ([Sulistyoningsih et al., 2023](#)).
3. Manufacturing Sector: According to [Hermanto et al., \(2023\)](#), the use of Business Intelligence in the sales sector aims to maximize revenue and achieve company profit targets. In addition, Business Intelligence plays an important role in supporting accurate business decision making and ensuring company sustainability by utilizing relevant data ([Fauzi et al., 2023](#)).

Challenges of Business Intelligence Implementation

Despite its great benefits, BI implementation is not free from challenges, including:

1. Data Quality: According to [Fatha et al., \(2023\)](#), the main challenges in implementing Business Intelligence include managing large volumes of data as well as maintaining data quality in order to support smarter decision making. [Hermanto et al. \(2023\)](#) also added that the integration of data from diverse sources as well as limited technical skills among company staff are other obstacles that need to be overcome.
2. Cost of Implementation: According to [Hermanto et al., \(2023\)](#), procuring Business Intelligence infrastructure and software requires a large initial investment. Companies must also consider the operational and maintenance costs of the Business Intelligence system to keep its performance optimized.
3. Organizational Resistance: the unwillingness to abandon old habits associated with familiar software. These habits make people reluctant to learn new technologies, so the benefits of using new technologies will be felt after some time ([Soszka, 2019](#)).

Solutions to Overcome Challenges

To overcome these challenges, companies can do:

1. Data Quality Improvement: By conducting regular data validation and cleansing using Business Intelligence tools and machine learning technology.

2. Employee Training and Education: Training programs to improve understanding and skills in using Business Intelligence, as well as providing support for employees in the technology transition.
3. Phased Implementation: Companies can start the implementation of Business Intelligence from small units first, then expand the use gradually after evaluation of the results achieved.

CONCLUSION

The application of Business Intelligence has great potential to improve business performance in significant ways, from operational efficiency, to better decision-making, to increased competitiveness. By using Business Intelligence, companies can gain better and faster insights into their operations, customer behavior, and market conditions, which support faster and more informed decisions. However, to maximize the potential of Business Intelligence, companies must overcome challenges. Through investment in the right technology infrastructure, employee skills development, and a phased implementation approach, companies can optimize the benefits of Business Intelligence to support their business transformation.

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