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BUSINESS INTELLIGENCE STRATEGY TO SUPPORT BUSINESS DECISIONS

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Abstract

The rapid advancement of information technology has significantly increased the importance of Business Intelligence (BI) systems in supporting more accurate and effective business decision-making processes. This paper aims to examine the role and strategies of BI in enhancing the quality of business decisions, focusing on the application of BI in processing large data sets to generate relevant insights. Using a descriptive analysis approach, this paper explores key components of BI strategies, including data warehousing, data analysis, and real-time reporting accessible to managers and decision-makers. The study also discusses challenges faced by companies in implementing BI, such as data integration issues, costs, and the need for adequate technical skills. Furthermore, the paper highlights the long-term benefits of using BI, including improved operational efficiency, reduced risks, and enhanced competitiveness. In conclusion, an effective BI strategy can provide companies with a significant competitive advantage by supporting data-driven decisions that are more accurate and relevant.
Keywords: *Business Intelligence, decision-making, operational efficiency.*

Abstrak

Perkembangan teknologi informasi telah mendorong pentingnya penggunaan sistem Business Intelligence (BI) dalam mendukung proses pengambilan keputusan bisnis yang lebih tepat dan efektif. Artikel ini bertujuan untuk mengkaji peran dan strategi BI dalam meningkatkan kualitas keputusan bisnis, dengan fokus pada penerapan BI dalam mengolah data besar untuk menghasilkan informasi yang relevan. Melalui pendekatan analisis deskriptif, artikel ini mengeksplorasi berbagai komponen utama dalam strategi BI, seperti data warehousing, analisis data, dan laporan yang dapat diakses secara real-time oleh manajer dan pengambil keputusan. Penelitian ini juga membahas tantangan yang dihadapi perusahaan dalam mengimplementasikan BI, termasuk masalah integrasi data, biaya, serta kebutuhan untuk keterampilan teknis yang memadai. Selain itu, artikel ini menyoroti manfaat jangka panjang dari penggunaan BI, seperti peningkatan efisiensi operasional, pengurangan risiko, dan peningkatan daya saing. Sebagai kesimpulan, strategi BI yang efektif dapat memberikan perusahaan keunggulan kompetitif yang signifikan dengan mendukung keputusan berbasis data yang lebih akurat dan relevan.
Kata kunci: Business Intelligence, pengambilan keputusan, efisiensi operasional.

I. INTRODUCTION

In the era of globalization and digitalization, business dynamics are increasingly complex and require companies to be able to compete in the midst of increasingly fierce market competition. One of the key factors to achieve a competitive advantage is the company's ability to manage, analyze, and utilize data as the basis for decision-making. Data, which is now one of the strategic assets, provides a great opportunity for companies to understand customer behavior, improve operational efficiency, and design innovative business strategies. However, the main challenge faced is how to process large, diverse, and ever-evolving data into relevant and valuable information. It is in this context that Business Intelligence (BI) plays a very important role. Business intelligence is a set of processes, technologies, and analytical tools used to transform raw data into information that can be used to support better business decisions. BI includes data collection from various sources, data processing using analytics technology, and presenting analysis results in the form of visualizations that are easy for decision-makers to understand. By leveraging BI, companies can identify new opportunities, analyze market trends, optimize resources, and respond to changes in the business environment more quickly and appropriately.

The implementation of BI strategies is becoming increasingly relevant amid the exponential growth in data volume, known as big data. BI technology is now not only used for descriptive reporting and analysis, but also includes predictive and prescriptive analytics capabilities that help companies predict future trends and design proactive strategic moves. In addition, technological advancements such as cloud computing, artificial intelligence, and machine learning have strengthened BI's ability to generate more in-depth and accurate insights. Although the benefits of BI have been widely recognized, its implementation is inseparable from various challenges. Technological complexity, limited competent human resources, and resistance to changes in the organization are often obstacles that hinder the effectiveness of BI implementation. Therefore, it is important for companies to design a comprehensive BI strategy, which involves careful planning, stakeholder engagement.

This paper aims to examine in depth the Business Intelligence strategy in supporting business decision-making. This study includes an analysis of the key components in BI implementation, the benefits that can be obtained, and the challenges faced. By understanding the strategic approach in the implementation of BI, it is hoped that companies can optimize the potential of data as a strategic resource that supports the achievement of long-term business goals. The research also provides practical recommendations for organizations that

want to integrate BI in their framework to improve business competitiveness and sustainability.

II. THEORETICAL STUDIES

2.1 Definition of Business Intelligence (BI)

Darudiato, S., et al. (2020), BI is defined as the process of collecting, integrating, analyzing, and presenting data that aims to support strategic decisions. Its main components include data warehousing, data mining, data visualization, as well as the use of artificial intelligence (AI) algorithms to identify relevant patterns or trends. BI is often applied with a project lifecycle approach such as the "BI Roadmap" which includes the stages of justification, planning, development, implementation, and monitoring.

Henderson, J. C., & Venkatraman, N. (1999), Studies show the importance of aligning BI strategies with business objectives using models such as the Strategic Alignment Model (SAM). This alignment is achieved by ensuring that BI's development not only meets technical needs but also supports the company's strategic objectives. Suparto Darudiato et al. (2020) in "Business Intelligence: Concepts and Methods," mentioned that the integration of modern technologies such as AI and IoT in BI helps companies improve operational efficiency, innovation, and adaptation to market dynamics. Darudiato et al. (2020) state that visualization supports better data analysis through various technologies such as graphical representations, animations, and interactive user interfaces. This helps users explore data independently and intuitively.

Yeoh and Koronios (2010) highlight that factors such as organizational readiness, technological change, and the ability to identify specific business needs are the main challenges that must be overcome for the successful implementation of BI. Business Intelligence (BI) is a set of technologies, processes, and tools used to transform raw data into meaningful information that can be used to support business decision-making. Gartner (2020) de-defines BI as a technology-based process that analyzes historical and real-time data to provide deep insights to organizations. The main components of BI include data collection, data management, data analysis, and presentation of results in the form of visualizations such as dashboards or interactive reports.

1.2 Components and Technologies in Business Intelligence

The main components in Business Intelligence (BI) include data collection, data processing, data storage, data analysis, as well as the presentation of relevant information and supporting decision-making. The technology used in BI is growing rapidly by utilizing tools such as data mining, machine learning, artificial intelligence (AI), as well as data

visualization platforms such as dashboards and interactive reports. These technologies allow companies to identify-pattern in big data, forecast market trends, and make faster, data-driven decisions (Gartner, 2020; Yeoh & Koronios, 2010).

1.3 Key Components of BI

Data Warehouse: A centralized data repository designed to support analysis and reporting. ETL (Extract, Transform, Load): The process of extracting data from various sources, converting it into an appropriate format, and loading it into a data warehouse. OLAP (Online Analytical Processing): Technology for rapidly analyzing multidimensional data. Data Visualization Tools: Tools such as Tableau, Power BI, or QlikView that are used to present data interactively.

2.2 Business Intelligence Implementation Strategy

The implementation of Business Intelligence (BI) in companies requires a mature strategy to maximize the use of existing data. This strategy includes the selection of the right BI technology, the formation of a competent team, and clear planning related to the business objectives to be achieved. According to Turban et al. (2020), the success of BI implementation is highly dependent on a deep understanding of business needs and the selection of appropriate BI tools. With effective BI, companies can improve decision-making, operational efficiency, and competitiveness in the market (Sharma, 2019). BI implementation requires a mature strategy in order to provide maximum results. Some important strategies include:

1. Identify Business Needs: Define BI's key goals and priority areas in accordance with the organization's vision.
2. Selecting the Right Technology: Tailoring BI solutions to the needs of the organization, whether on-premise or cloud-based.
3. Cross-Department Collaboration: Improve the engagement of all parties, including IT, management, and end-users.
4. Effective Data Management: Ensuring the quality, security, and integrity of the data used.
5. Training and Change Management: Improve the workforce skills in using BI tools and integrate them into business processes.

2.4 Challenges in Business Intelligence Implementation

The application of Business Intelligence (BI) in organizations faces various challenges that can hinder its success. Some of the key challenges include difficulties in integrating data from multiple sources, lack of technical skills within the team, and the inability to manage large volumes of data. According to Hagerty et al. (2021), another major problem is

resistance to organizational culture changes, where employees and managers may be reluctant to adopt the new BI system. To address these challenges, companies need to have a comprehensive implementation plan, proper training, and support from top management (Chaudhuri et al., 2020). Although BI has many benefits, its implementation often faces several obstacles, including: Inadequate Data Quality: Inaccurate or incomplete data can hinder analysis. Lack of Management Support: BI implementation requires commitment from top management to succeed.

2.5 The Role of Business Intelligence in Decision Making

Business Intelligence (BI) has a very important role in the decision-making process in organizations. BI enables real-time data collection, analysis, and presentation, which allows managers to make faster, data-driven decisions. According to Turban et al. (2020), BI converts raw data into valuable information, which can improve the accuracy and effectiveness of business decisions. In addition, BI helps in identifying market trends and consumer patterns that can influence the company's strategic decisions (Laudon & Laudon, 2018).

Business Intelligence serves as a link between raw data and strategic decisions. Some of BI's important roles in decision-making include:

1. Improved Decision Accuracy: BI provides structured, fact-based data to support better decisions.
2. Predict Future Trends: With predictive analytics, organizations can identify opportunities and threats before they happen.
3. Business Process Optimization: BI helps organizations find more efficient ways to achieve business goals.
4. Customer Service Personalization: BI enables customer behavior analysis to improve user experience.

Literature Study on BI Implementation

Previous research has shown that organizations that successfully implement BI tend to experience increased efficiency and competitiveness. Here are some key findings: Research by Smith et al. (2020) shows that cloud-based BI reduces implementation costs by up to 30%. According to Johnson and Brown (2019), the integration of BI with AI increases the accuracy of market predictions by 25%. A study by Lee (2021) reveals that user training and engagement are key factors for successful BI implementation.

III. RESEARCH METHODS

This study uses a descriptive-qualitative approach to explore the implementation strategy of Business Intelligence (BI) in supporting business decision-making. This approach was chosen because it allows for an in-depth analysis of BI strategies, challenges, and benefits based on data from case studies, interviews, and literature. This study uses two main data sources: Primary Data:

1. In-Depth Interviews: Conducted with BI practitioners, including IT managers, data analysts, and decision-makers from organizations that have implemented BI.
2. Observation: Observe firsthand how BI systems are used in the decision-making process.

Secondary Data:

1. Literature from scientific journals, books, and industry reports related to BI implementation.
2. Case studies of companies that have successfully adopted BI to improve business performance.

3.2.2 Data Processing Techniques

The data collected will be analyzed through:

1. Content Analysis: To identify relevant themes, patterns, and strategies from qualitative data.
2. Data Triangulation: Comparing data from different sources to improve the validity and reliability of findings.

3.3 Location and Research Object

This research was conducted on organizations that have implemented BI, focusing on specific industry sectors, such as banking, manufacturing, or retail. The selection of sectors is based on BI's high adoption rate in these sectors.

3.4 Research Stages

The research is carried out through the following stages: Problem Identification:

Identify the main challenges and organizational needs related to BI implementation. Data Collection:

1. Conduct interviews with BI experts and BI system users in selected organizations.
2. Analyze the literature to understand trends and best practices in BI implementation.

Analyze the collected data to find successful strategies, challenges faced, and the impact of BI implementation on decision-making.

Preparation of Findings:

Integrate the results of the analysis into conclusions that answer the research questions.

3.5 Conceptual Framework

The conceptual framework of this research is based on the relationship between BI's implementation strategy, challenges in implementation, and its impact on decision-making.

Conceptual Framework Diagram:

Input:

1. Business needs.
2. Technology and infrastructure.

Process:

1. BI implementation strategy (identification of needs, selection of technology, data management, training).
2. Challenge solving (data quality, integration, user resistance).

Output:

1. Improved decision-making quality.
2. Optimization of operational efficiency.
3. Competitive Advantage.

3.6 Research Limitations

This research has several limitations, including:

1. Limited Data Access: Not all organizations are willing to provide complete data related to their BI implementation.
2. Respondent Bias: Respondents' perceptions of BI's effectiveness can vary depending on their position and experience.
3. Generalisasi Temuan: Hasil penelitian mungkin tidak sepenuhnya berlaku untuk semua sektor industri karena fokus penelitian hanya pada sektor tertentu.

IV. RESEARCH RESULTS

The results show that an effective Business Intelligence (BI) implementation strategy depends on several key steps, namely:

4.1.1 Identifikasi Kebutuhan Bisnis

1. Organisasi perlu memahami kebutuhan spesifik bisnis sebelum memilih solusi BI.
2. Studi kasus pada sektor perbankan menunjukkan bahwa identifikasi kebutuhan utama seperti analisis risiko dan optimalisasi layanan pelanggan membantu memilih modul BI yang relevan.

4.1.2 Choosing the Right Technology

1. Successful BI implementation is heavily influenced by the selection of technology that suits the needs and scale of the organization.
2. Example: Small companies tend to choose cloud-based BI solutions because they are more flexible and cost-effective than on-premises BI.

Efficient Data Management

1. Integrated, quality, and easily accessible data is the main foundation of BI.
2. Studies show that organizations that use the ETL (Extract, Transform, Load) approach have a higher success rate in managing data.

4.1.4 Training and Change Management

1. BI implementations often face resistance from end-users.
2. The results of the interviews show that intensive training and clear communication about the benefits of BI can increase adoption by employees.

4.2 Challenges in Business Intelligence Implementation

While BI offers a wide range of benefits, this study found some key challenges that organizations often face:

4.2.1 Low Data Quality

1. Inconsistent or incomplete data often hinders analysis.
2. Example: In the retail sector, unstructured customer transaction data reduces BI's effectiveness in analyzing purchasing patterns.

1. Integration of Data from Multiple Sources Organisasi sering kali menggunakan various systems that are not integrated with each other, making it difficult to implement BI.
2. Successful solutions involve the adoption of middleware technology to integrate data sources.

Resistance to Change

3. The results of the interviews showed that 60% of respondents admitted that there was resistance from users to new technologies.

4.2.4 Solution: Effective communication strategies and early user engagement can reduce this resistance.Biaya Implementasi yang Tinggi

1. Spending on software, hardware, and training is often a constraint for small and medium-sized organizations.
2. Case studies show that cloud-based BI solutions can reduce costs by up to 30%.

4.3 The Impact of Business Intelligence on Business Decision Making

This study shows that the implementation of BI has a significant impact on business decision-making. Here are some key findings:

4.3.1 Increased decision-making speed

1. With BI, decision-makers can access data in real-time through an interactive dashboard.
2. Example: In the manufacturing sector, BI allows process monitoring production directly so that it accelerates response to problems.

More Accurate Predictions

1. Predictive analytics generated by BI help organizations prepare for risks and opportunities.
2. Example: In the financial sector, BI is used to predict potential customer defaults, thereby helping risk management.

Business Process Optimization

1. BI helps identify areas that can be optimized to improve efficiency.
2. Case studies in the logistics sector show that BI can reduce delivery times by analyzing route and traffic data.

Increased Customer Satisfaction

1. BI enables personalization of services based on customer behavior analysis.
2. Example: In the retail sector, the use of BI helps understand customer preferences to provide more relevant offerings.

4.4 Case Study of Business Intelligence Implementation

This study studied the implementation of BI in several organizations with the following findings:

Case Study 1: Retail Company

- Issue: Inability to analyze fragmented customer data.
- Solution: Cloud-based BI implementation with a focus on customer data analytics.
- Result: A 15% increase in sales through more targeted promotions.

Case Study 2: Manufacturing Company Issue: Delay in detecting problems on production lines.

- Solution: Use BI to monitor production data in real-time.

Result: Reduced production downtime by up to 20%.

- Case Study 3: Banking Companies Problem: High Customer Default Rate.
- Solution: Integration of BI with predictive analytics models to assess creditworthiness.

Result: A 25% reduction in the default rate.

4.5 Research Findings

Based on the analysis, this study found that the success of BI implementation is highly dependent on:

1. Top management support to ensure BI's strategic priorities.

2. Flexible technology selection that suits the needs of the organization.
3. Good data management to ensure the data used is accurate and relevant.
4. User training and engagement to increase system adoption.

V. CONCLUSION

This research has analyzed the implementation strategy of Business Intelligence (BI), the challenges faced by organizations, and its impact on business decision-making. Based on the results of the analysis, some of the main conclusions that can be drawn are as follows: Strategi Implementasi BI yang EfektifThe success of BI implementation is highly dependent on a clear understanding of business needs and the selection of the right technology. Organizations should choose a BI system that fits the size and complexity of their operations, and ensure that the data used in the analysis process is accurate and easily accessible. In addition, adequate training for users and strong managerial support are decisive factors in the successful implementation of BI.

Challenges in BI Implementation Some of the main challenges faced in BI implementation include poor data quality, difficulties in integrating various data systems, and resistance to changes from employees. Solutions to address these challenges include improving data quality through effective ETL (Extract, Transform, Load) processes, selecting the right integration technologies, and good change management through clear training and communication.

BI's Impact on Decision Making BI Implementation has been proven to have a positive impact on business decision-making. BI improves the speed and accuracy of decisions by providing relevant real-time data, as well as assisting organizations in predicting future trends and risks. In addition, BI also assists organizations in improving operational efficiency and improving customer experience through more in-depth data analysis. BI Implementation Case Studies Through case studies in the retail, manufacturing, and banking sectors, this study shows that BI implementation has succeeded in increasing operational efficiency, increasing revenue, and reducing risk. Each sector faces different challenges, but with the right strategy, BI's benefits can be felt in various industry sectors.

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