

From Data to Decisions: The Role of Business Intelligence in Developing Effective Marketing Strategies

Adinda Jennifer Pardede

Universitas 17 Agustus 1945 Surabaya, Indonesia

Email: nadiva.marsa@gmail.com

Abstract. This article aims to explain the role of BI in developing effective marketing strategies. This article will discuss how BI can be used to analyze markets, identify potential target markets, develop products and services that suit customer needs, optimize pricing strategies, increase the effectiveness of promotions and advertising, and better manage customer relationships. Apart from that, this article will also analyze the application of BI in various marketing case studies. The scope of this article covers various aspects of BI relevant to marketing, including the definition and main components of BI, the ETL (Extract, Transform, Load) process, BI tools and technologies, data-driven market analysis, data-driven product and service development, optimizing pricing strategies with BI, increasing the effectiveness of promotions and advertising with BI, and BI in customer relationship management (CRM). The result of this research is that by using BI, marketers can collect and analyze data from various sources, such as sales transaction data, demographic data, online behavior data, and customer feedback data. This information can be used to identify different market segments, develop products and services tailored to market needs, set optimal prices, plan more effective promotional campaigns, and better manage customer relationships.

Keywords: *Business Intelligence, Marketing Strategy, Effectiveness and Customer Behavior.*

INTRODUCTION

1. Background

Business Intelligence (BI) has become an important foundation for companies that want to excel in a competitive business environment. BI helps companies make faster and more precise decisions based on existing data [1]. In the world of marketing, where consumer trends are constantly changing and competition is increasing, the ability to analyze data effectively is key to designing successful strategies. Modern marketing requires in-depth data analysis to design effective strategies [2]. By leveraging BI, companies can gain valuable insights into customer behavior, market trends, and marketing campaign performance, allowing them to make more informational and strategic decisions. BI plays an important role in processing data into useful information for business development and sales strategies [3].

Marketing has rapidly evolved from traditional methods that relied on intuition and experience to a more data-driven approach. In this digital era, the amount of data available to marketers is enormous, ranging from sales transaction data to social media interaction data. However, this raw data has no value if it is not processed and

analyzed properly. This is where the role of BI becomes very important. BI provides tools and techniques to collect, clean, analyze and visualize data, so marketers can identify relevant patterns, trends and insights. With these insights, marketers can make more informed decisions about market segmentation, targeting, positioning, product development, pricing, promotions, and customer relationship management.

Apart from that, BI also helps companies to monitor and measure their marketing performance in real-time. Using BI dashboards and reports, marketers can track key metrics such as conversion rate, cost per acquisition, and customer lifetime value. This information allows them to identify areas for improvement and make necessary adjustments to optimize marketing performance. Thus, BI is not only an analysis tool, but also an important management tool for modern marketers.

2. Research purposes

This article aims to explain the role of BI in developing effective marketing strategies [1], [2]. This article will discuss how BI can be used to analyze markets, identify potential target markets, develop products and services that suit customer

needs, optimize pricing strategies, increase the effectiveness of promotions and advertising, and better manage customer relationships. Apart from that, this article will also analyze the application of BI in various marketing case studies [1]. This case study will provide concrete examples of how companies have successfully used BI to improve their marketing performance.

3. Benefits of research

In the marketing context, data is a valuable asset for the company and must be handled well (Yunistira, 2020), [2]. Data can provide deep insights into customer behavior, preferences, and needs, allowing companies to design more effective and relevant marketing strategies. Data analysis can reveal critical insights that support data-based decision making [1]. For example, by analyzing sales data, companies can identify which products are most popular among specific customers, which marketing channels are most effective in reaching target markets, and which promotional campaigns generate the highest conversion rates. This information can be used to optimize marketing strategies, increase sales, and build customer loyalty. Therefore, companies must prioritize data collection, management, and analysis as an integral part of their marketing strategy. This involves investing in the right BI infrastructure, training employees in data analysis, and developing effective processes for collecting customer feedback. By making data the basis for marketing decisions, companies can increase the effectiveness of their campaigns, increase customer satisfaction, and achieve competitive advantage.

LIBRARY STUDY

1. Business Intelligence (BI)

Business Intelligence (BI) is a technology consisting of theory, methodology, architecture and processes for managing data into information that has business value (Ramadhani, 2024). BI includes a variety of tools, techniques, and

applications designed to help companies collect, analyze, and visualize data to make better decisions. The main components of BI include data collection, data analysis, data visualization, and reporting [1], [4]. Data collection involves collecting data from various sources, both internal and external. Data analysis involves the use of statistical and modeling techniques to identify relevant patterns, trends and insights. Data visualization involves using graphs, charts, and dashboards to present data in a visual and easy-to-understand manner. Reporting involves creating a report that summarizes analysis findings and provides recommendations for action.

2. Optimizing Pricing Strategy with BI

An effective pricing strategy is critical to increasing sales and profits. BI allows price elasticity analysis to understand how price changes affect demand [1]. In addition to analyzing price elasticity, companies also need to consider their competitors' prices when determining product prices. BI helps in determining competitive prices based on analysis of competitor prices and production costs (Subroto, 2021).

Discounts and promotions are effective tools for increasing sales and attracting new customers. BI allows more effective planning of discount and promotion strategies based on analysis of sales data and customer behavior (Yunistira, 2020).

3. Effectiveness of Promotions and Advertising

To ensure that marketing investments provide maximum results, companies need to analyze the effectiveness of their marketing campaigns. BI enables analysis of the effectiveness of marketing campaigns based on sales data, web traffic and social media interactions (Yunistira, 2020).

Marketing message personalization is a strategy for tailoring marketing messages to individual customer needs and preferences. BI enables the personalization of marketing messages based on demographic data, behavior and customer preferences (Setyawan, 2024).

4. Customer Relationship Management (CRM)

Customer Relationship Management (CRM) is a strategy for building and maintaining strong relationships with customers. BI enables customer behavior analysis to understand how customers interact with a company and its products (Setyawan, 2024).

RESEARCH METHOD

This research uses a systematic literature study approach (*systematic literature review*) as the main method. This approach is used to review various previous research relevant to the use of blockchain technology in the context of career development strategies in modern organizations. The literature study was chosen because it is able to thoroughly explore theoretical understanding, research trends, and gaps (*research gap*) which is still open to further research (Snyder, 2019). The literature study process is carried out through several main stages, namely:

a. Formulation of Research Focus and Key Questions

This research is directed by the main question: "What is the Role of Business Intelligence in Developing Effective Marketing Strategies?"

b. Literature Search Strategy

Scientific articles and related documents are collected from leading databases such as Google Scholar, Science Direct, Scopus, and ResearchGate. Keywords used in the search include: "*blockchain*", "*career development*", "*human resource management*", "*employee growth*", "*HR digitization*", And "*organizational transformation*".

c. Inclusion criteria included articles:

1. Published in the period 2018–2025
2. Directly related to the application of blockchain in the field of human resources
3. Focus on career development, career paths, performance management, or digital training Meanwhile, articles that only discussed blockchain in a general context, with no explicit link to HR or

career development, were excluded from the analysis.

RESULTS AND DISCUSSION

a. Application of BI in Vending Machine Sales

One example of applying BI in marketing is vending machine sales. Tableau is effective in identifying and analyzing vending machine sales data in Central New Jersey, USA [1]. In this case study, sales data from a number of vending machines spread across various locations in Central New Jersey was analyzed using Tableau. Data visualization helps reveal critical insights such as the highest selling products and strategic locations [1]. These findings provide concrete recommendations for vending machine managers to improve sales strategies [1].

The analysis results show that the products with the highest sales are soft drinks and snacks. Apart from that, the analysis also shows that strategic locations for placing vending machines are near areas with high traffic, such as train stations, shopping centers and university campuses. Based on these findings, vending machine managers can improve their sales strategies by placing vending machines in strategic locations, offering the most popular products, and adjusting product prices to the local market.

b. Application of BI in New Student Admissions

The application of BI can also be seen in the admission of new students to universities. Business intelligence can be used to analyze PT's marketing strategy. XYZ (Rahmansyah, 2023). Analysis of new student admissions data can increase the marketing potential of universities[5]. Information on the distribution of the student's city and province of origin, the student's chosen faculty study program can help marketing policies [5]. By using BI, universities can collect and analyze data about prospective new students from various sources, such as application data, demographic data, and academic data.

By analyzing this data, universities can identify potential target markets, develop more effective marketing strategies, and increase enrollment rates. For example, universities can target prospective new students from specific geographic areas, offer study programs that match their interests, and award scholarships to high-achieving students.

c. Application of BI in Retail Companies

Retail companies can also leverage BI to improve their marketing strategies. The business intelligence model can be applied to retail companies to improve marketing strategies [2]. BI dashboards can support decision making in retail companies [2]. The research results provide information needed for decision-making process improvement [2]vc. By using BI, retail companies can collect and analyze data about their customers, their products, and their sales.

By analyzing this data, retail companies can identify which products are most popular among certain customers, which marketing channels are most effective in reaching certain customers, and which promotional campaigns generate the highest conversion rates among certain customers. This information can be used to optimize marketing strategies, increase sales, and build customer loyalty.

CONCLUSION

BI plays an important role in developing effective marketing strategies through data analysis, market segmentation, product development, price optimization, and increasing promotional effectiveness [1], [3]. BI implementation helps companies make faster and more precise data-based decisions [1]. The application of BI provides significant added value in decision making and can be adapted for various types of business [1]. In this digital era, where data is available in unprecedented amounts, BI is becoming an indispensable tool for marketers who want to understand their customers, optimize their campaigns, and achieve competitive advantage.

By using BI, marketers can collect and analyze data from various sources, such as sales

transaction data, demographic data, online behavior data, and customer feedback data. This information can be used to identify different market segments, develop products and services tailored to market needs, set optimal prices, plan more effective promotional campaigns, and better manage customer relationships.

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