Electronic, Business, Management and Technology Journal
Vol. 1 No. 2, December 2023, 122 – 128
E ISSN: 3025-8707, DOI:10.55208/ebmtj

A Microanalysis of Employee Retention Strategies: The Case of Selected Convenience Stores and Their Practices

Ramadhan[1], Cahyo Hermanto[2], En Tay[3], Mohammad Hamdani[4]
STMIK Mardira Indonesia, Bandung[1,2,3,4]
Email: ramadanhamdan98@gmail.com[1], cahyo@stmik-mi.ac.id[2], entay@stmik-mi.ac.id[3], hamdani@stmik-mi.ac.id[4]

ABSTRACT

The study examines the complexities of data management in a Bandung-based garment industry, where each division analyzes transactional flow data using Google Spreadsheets. Nevertheless, the precision of the transactional flow data throughout the organization is compromised due to inconsistencies emerging from uncorrected modifications in controlled data. In order to resolve this problem, it is essential to construct a data warehouse system along with visually attractive data visualization using Tableau dashboards. Integrating these systems aims to provide users with the relevant information required for efficient decision-making. The project aims to enhance business intelligence operations within the garment firm by creating a sophisticated information system that combines inventory accuracy, data warehousing, and visualization approaches. The project aims to improve data accuracy, simplify data management processes, and provide stakeholders with complete insights into corporate operations through carefully examining and applying these systems. The study's primary objective is to provide significant insights that can enhance the optimization of inventory information systems and business intelligence techniques in the garment industry. This condition will ultimately lead to improved efficiency and strategic decision-making abilities.
Keywords: Data warehouse, Business Intelligence, Data Visualization

INTRODUCTION

The rapid technological and information advancement rate is propelled by the increasing human demands for advanced technologies to fulfill their information needs. The advent of this technology and the influx of information have profoundly impacted human life, significantly altering several aspects of human activities, especially in the reception and retrieval of information. Furthermore, incorporating information technology into business operations inside a company has become an essential requirement. This integration will facilitate the analysis, resolution, and strategic decision-making process. (Al-Okaily, Al-Okaily, Teoh & Al-Debei, 2023; Abu-AlSondos, 2023)

As a company expands, the volume of transactions it handles also escalates. The proliferation of data arises from the multitude of everyday transactions, leading to an

exponential growth of the recorded data in the company's database. The data in the company's database is not immediately applicable for facilitating decision-making. Hence, it is necessary to analyze this data using Online Analytical Processing (OLAP). (Qin, Luo, Tang & Li, 2020; Alsahfi, Almotairi & Elmasri, 2020)

Within the commercial realm, particularly in product sales, such as in an Apparel Goods Company located in Bandung, every department is closely engaged in overseeing and supervising daily inventory data reports. This condition encompasses visualizing the movement of goods, comparing the inflow and outflow of products, and comprehending the precision among various products. Every division must analyze the internal relationship between processed and inventory data to make decisions and evaluate performance growth. (Golfarelli & Rizzi, 2020; Mei, Guan, Xin, Wen & Chen, 2020)

Regarding handling product data, each division has distinct requirements for data reporting. Furthermore, the numerous supplementary requests for features in Online Transaction Processing (OLTP) that pertain to Business Intelligence take center stage and require attention. However, this can hinder or decelerate the data-presenting process for management decision-making. Therefore, every department uses Google Spreadsheets in a tabular format to analyze and report product data. The data for analysis must be extracted from the operational OLTP system and loaded into Google Spreadsheet for analysis. The constrained data storage capacity in Google Spreadsheet hinders the presentation of an extensive quantity of product data, restricting the study's extent. An additional problem develops when the absence of changes to the sales data processed in Google Spreadsheet leads to inaccurate company product data. This condition can have negative repercussions, including the presence of unreliable data and compromised accuracy in decision-making. (Gupta & Jiwani, 2021; Hamad, Al-Aamr, Jabbar & Fakhuri, 2021)

A data warehouse is a static analytical database that is the basis for decision support systems. Its primary purpose is facilitating querying and analyzing data rather than handling transactional operations. Typically, it stores historical data from transaction processes and may include data from other sources. Raw data is unprocessed information that needs more significant meaning or insights. Information is processed data that can be used as a foundation for making well-informed judgments. Inventory is the term used to describe the stock of goods available at a particular moment, represented by a comprehensive list of the items currently in stock or the specific amount of goods that an organization possesses at a specific point in time. The primary purpose of inventory is to fulfill client demands while keeping stock levels to a minimum. (Vugec, Vukšić, Bach, Jaklič & Štemberger, 2020; Kumar, Dube & Aithal, 2020)

A Data Warehouse is a technological advancement derived from conventional computer-based database management systems. The system can utilize a data warehouse to extract, clean, and adapt data. This data is then sent back to the dimensional storage medium, which is utilized to support database queries and analyze it for various reasons, such as decision-making. (Johnson, Jain, Brennan-Tonetta, Swartz, Silver, Paolini & Hill, 2021; Persaud, 2021; Lee, Cai, DeFranco & Lee, 2020)

Hence, creating a data warehouse is crucial in supporting Business Intelligence by facilitating data reporting and enabling speedier decision-making processes for management. Consistently updating product data ensures the accuracy and consistency of the information. Dashboard visualization facilitates expedited decision-making by users through the examination of pertinent facts. Moreover, using software like Tableau Desktop or Tableau Online for data management is influenced by other benefits, such as the ability to customize interactive graphics. Consequently, any department within the organization has the ability to retrieve precise sales data and provide enhanced reports.

Electronic, Business, Management and Technology Journal
Vol. 1 No. 2, December 2023, 122 – 128
E ISSN: 3025-8707, DOI:10.55208/ebmtj

METHOD

This study aims to develop an Inventory Information System that utilizes Data Warehouse and Data Visualization techniques to enhance data accuracy and facilitate Business Intelligence in a clothing company located in Bandung. The research process encompasses a series of methodical stages.

The study will examine the company's requirements for inventory information systems and data visualization necessary for business objectives. This condition encompasses conducting interviews with relevant individuals, making observations, and thoroughly examining documents. The research will additionally include a literature analysis to collect the most up-to-date information on the design of inventory information systems, data warehouses, and data visualization for business requirements.

In the subsequent phase, the conceptual design will involve proposing a model for an inventory information system that relies on a data warehouse. This condition encompasses the database's architecture, the business's logical operations, and the incorporation of the software with pre-existing systems. Furthermore, the creation of dashboards and data visualizations will be tailored to meet the specific requirements of users and management.

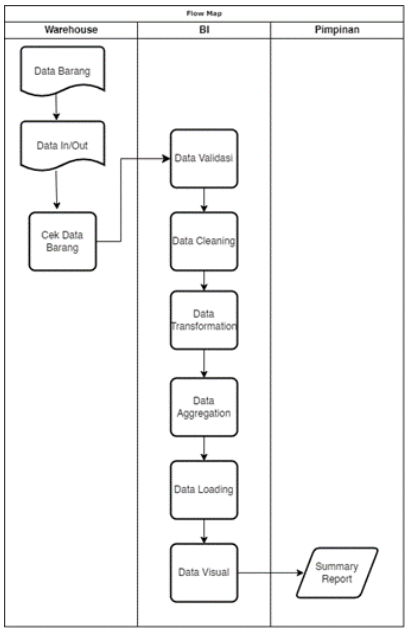
An initial version of the system will be created to evaluate the suggested ideas. This prototype's evaluation entails assessing its performance and correctness by both users and company management.

Following that, a comprehensive examination of the outcomes will be carried out to assess the effectiveness of the implementation, pinpoint possible enhancements, and guarantee that the system attains the intended goals.

RESULTS AND DISCUSSION

System Analysis and Design

1. Business Process Analysis
   The subsequent sequence outlines the business procedures at an Apparel Goods Company in Bandung, commencing with the warehouse administrator inputting data.
2. Flowmap



Electronic, Business, Management and Technology Journal
Vol. 1 No. 2, December 2023, 122 – 128
E ISSN: 3025-8707, DOI:10.55208/ebmtj

Figure 1. Flowmap

3. System Usecase

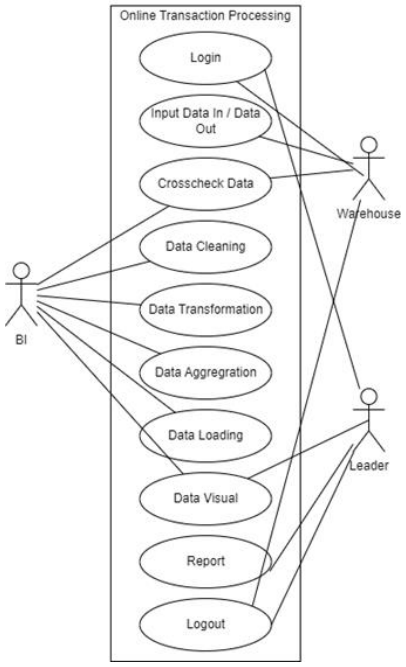


Figure 2. System Usecase

4. Activity Diagram

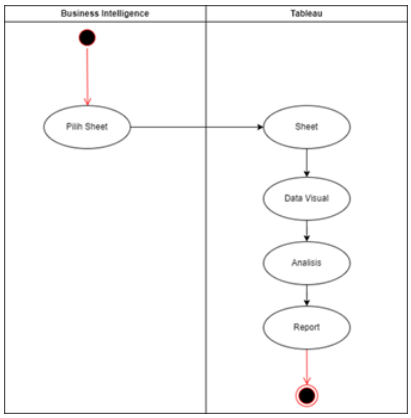
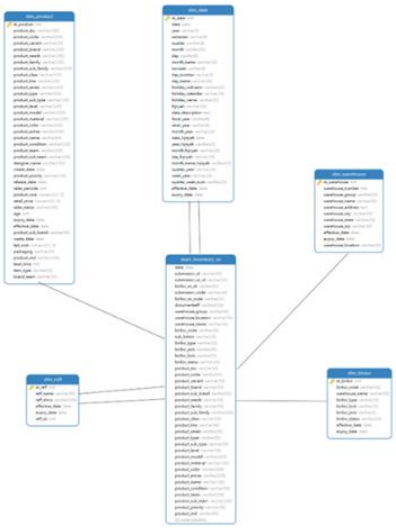


Figure 3. Activity Diagram

5. Database Design



Electronic, Business, Management and Technology Journal
Vol. 1 No. 2, December 2023, 122 – 128
E ISSN: 3025-8707, DOI:10.55208/ebmtj

Figure 4. Database Design

6. Interface Design

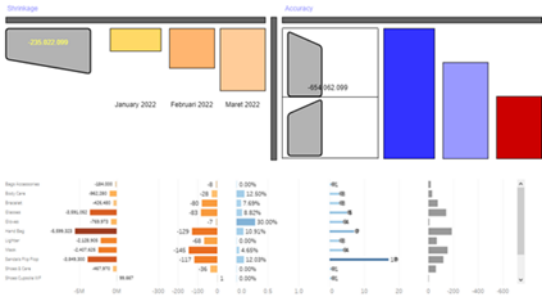


Figure 5. Interface Design

System Implementation

The database is physically prepared for the data warehouse during the implementation step. The following command utilizes the Navicat Premium tool to construct a table in the PostgreSQL language, adhering to the specified design.

1. Login View

Figure 6. Login

2. Page View / Dashboard

Figure 7. Page / Dashboard

CONCLUSION AND RECOMMENDATION

The conclusion drawn from this research is that the data warehouse design can assist the Business Intelligence division in accommodating and presenting the necessary data for management. The data warehouse design enhances data accuracy through adjustments and updates to sales transaction data. The transaction flow dashboard effectively meets user needs, communicating information quickly, clearly, and efficiently.

Based on the research findings, the author suggests further studies related to dashboard creation and the utilization of columns and other features that can aid management in decision-making. Additionally, there are recommendations for the utilization of data literacy. It is advised that every organization possesses a good understanding of data and can interpret graphics to facilitate data engineers and data visualization specialists to present the required information to users. Accuracy is crucial, and every team involved, including business analysts, data engineers, and users, should have a comprehensive understanding of business processes, modeling, and calculations to ensure data accuracy. Regarding timeliness, the author suggests reporting data at least H-1 or, at maximum, near real-time to minimize costs. Also, using extract connections in Tableau applications is recommended to optimize dashboard performance.

REFERENCES

Abu-AlSondos, I. (2023). The impact of business intelligence system (BIS) on quality of strategic decision-making. *International Journal of Data and Network Science, 7*(4), 1901-1912.

Al-Okaily, A., Al-Okaily, M., Teoh, A. P., & Al-Debei, M. M. (2023). An empirical study on data warehouse systems effectiveness: the case of Jordanian banks in the business intelligence era. *EuroMed Journal of Business*, *18*(4), 489-510.

Alsahfi, T., Almotairi, M., & Elmasri, R. (2020). A survey on trajectory data warehouse. *Spatial Information Research*, *28*, 53-66.

Golfarelli, M., & Rizzi, S. (2020). A model-driven approach to automate data visualization in big data analytics. *Information Visualization*, *19*(1), 24-47.

Gupta, K., & Jiwani, N. (2021). A systematic Overview of Fundamentals and Methods of Business Intelligence. *International Journal of Sustainable Development in Computing Science*, *3*(3), 31-46.

Hamad, F., Al-Aamr, R., Jabbar, S. A., & Fakhuri, H. (2021). Business intelligence in academic libraries in Jordan: Opportunities and challenges. *IFLA journal*, *47*(1), 37-50.

Johnson, M., Jain, R., Brennan-Tonetta, P., Swartz, E., Silver, D., Paolini, J., ... & Hill, C. (2021). Impact of big data and artificial intelligence on industry: developing a workforce roadmap for a data driven economy. *Global Journal of Flexible Systems Management*, *22*(3), 197-217.

Kumar, S., Dube, D., & Aithal, P. S. (2020). Emerging concept of tech-business-analytics an intersection of IoT & data analytics and its applications on predictive business decisions. *International Journal of Applied Engineering and Management Letters (IJAEML),(2020)*, *4*(2), 200-210.

Lee, M., Cai, Y. M., DeFranco, A., & Lee, J. (2020). Exploring influential factors affecting guest satisfaction: Big data and business analytics in consumer-generated reviews. *Journal of Hospitality and Tourism Technology*, *11*(1), 137-153.

Mei, H., Guan, H., Xin, C., Wen, X., & Chen, W. (2020). Datav: Data visualization on large high-resolution displays. *Visual Informatics*, *4*(3), 12-23.

Persaud, A. (2021). Key competencies for big data analytics professions: A multimethod study. *Information Technology & People*, *34*(1), 178-203.

Qin, X., Luo, Y., Tang, N., & Li, G. (2020). Making data visualization more efficient and effective: a survey. *The VLDB Journal*, *29*, 93-117.

Vugec, D. S., Vukšić, V. B., Bach, M. P., Jaklič, J., & Štemberger, M. I. (2020). Business intelligence and organizational performance. *Business process management journal*, *26*(6), 1709-1730.