

Power BI and SQL Server Dashboard Data for Monitor Transportation Presence Employees at PT PON Gresik

Angga Debby Frayudha, Hamzah Agung

Abstract— Employee presence is a crucial aspect in office management. It reflects the way employees work in a company and can impact their productivity. A high level of productivity can indicate achievement of company targets. However, this attendance data is often large and has not been processed. To turn it into valuable information, Business Intelligence (BI) software is needed that is able to visualize employee attendance and transportation data. This research aims to create a dashboard that shows employee attendance data, including entry hours and attendance status, as well as transportation data such as expenditure for each type of vehicle and travel destination code. Microsoft Power BI was used for data visualization, while Microsoft SQL Server Management Studio was used to create the database. Data is collected and processed so that it can become a source of information. The research results include a daily attendance dashboard with peak attendance at 08.00 and 21.00. The trip dashboard shows the highest fare with travel code "7AA0112" exceeding Rp. 12,000,000.00 from PT. PON Gresik. Travel information shows transportation use in Jakarta, Bandung and Surabaya with the largest total fare in Jakarta reaching Rp. 97,761,000.00.

Index Terms— database; business intelligence; Microsoft Power BI; SQL Server Management Studio; visualization.

I. INTRODUCTION

Absent or presence employee is very urgent aspect operate activity operational office. Recording presence No only simply take notes time employee enter and return, but also deliver description pattern work that can be done reflect level productivity and performance employees at a company. Moment this, various office has switch to use of special websites where possible employee for with easy enter attendance data they. This No only give comfort for employee but also makes it easier task Department Source Power Human (HRD) in monitor and manage working hours employee in a way effective [1].

Manuscript received November 11, 2023. This work was supported in part Department of Indonesian Cement Polytechnic, Gresik, East Java.

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Besides that, is, productivity Work is greatly influenced by attendance and absenteeism employee. Production Work defined as ability for utilise existing facilities and infrastructure with the best for produce optimal output [2]. Productivity level tall No only indicated that employee capable achieve company targets, but also deliver description about efficiency operations and quality Work [3].

In manage attendance and productivity data employees, often company faced with challenges in processing large and complex data. For overcome matter this is necessary more approach _ systematic and efficient. One of solution is use System Database Management (SMBD) for organizing and grouping data structured. SMBD helps company in utilize data with faster and more efficient, sure completeness and consistency of data [4].

Whereas study from Kadek Anom [5] Information presented from the sales data warehouse can used for help owner shop in the evaluation, planning and marketing processes things that sell sold. Also, helpful shop in Pay attention to trends in items that are in demand consumer every month or the year Can useful for the shop.

Temporary that, company like PT. PON Gresik which has use the website for record and process absenteeism employee can face constraint in utilise fully the potential of the data that has been collected. There is need for optimizing data usage, esp in illustrate pattern time Work employees and expenses transportation. For complete this is necessary application of Business Intelligence (BI) that can help in data collection, processing and analysis comprehensive.

Power BI does not only give outlook deep regarding attendance data, but also helpful company in take more decisions Good. Use of Microsoft Power BI as service cloud- based data analysis can visualize data from various source with easy way understood. BI helps company for identify trending, optimizing operational, reduce costs, and improve satisfaction client [6].

Study results This in line with Fadil Muhammad Putra [7], who stated that Power BI solution with dashboards and reports can become tool effective visualization for monitor and create decision based on information required by the company. Success Power BI implementation, as found in study this, covers enhancement efficiency operational, improvement

profit, reduction cost, increase productivity employees, and improvements satisfaction customer. With Thus, management presence employee No only involve recording time enter and return, but also involve in -depth analysis to the data for optimizing productivity and efficiency operational. Combining SMBD and BI helps company make more decisions _ good and reach superiority competitive in an increasingly market complex [8].

II. EXPERIMENT

Month February 2023, carried out data collection at PT PON Gresik with focus on the attendance data obtained through database integration from the jasar.com website and Power Apps. Software such as Microsoft SQL Server Management Studio and Microsoft Power BI are used For processing data.

Steps _ experiment is as following:

1. Combining attendance and transportation data from harir.com with database.
2. Integrated attendance and transportation data _ with the database used as data source for Microsoft Power BI.
3. Attendance data and transportation data processed in Microsoft SQL Server Management Studio.
4. Collected data Then made become reports in Power BI.

Report already _ made can grouped in accordance need. The " User Role Settings " button makes it possible leader only see related information _ with his employees without see information from other divisions.

III. RESULTS AND DISCUSSION

Microsoft Power BI implementation process for monitor attendance and transportation data employee done through steps following :

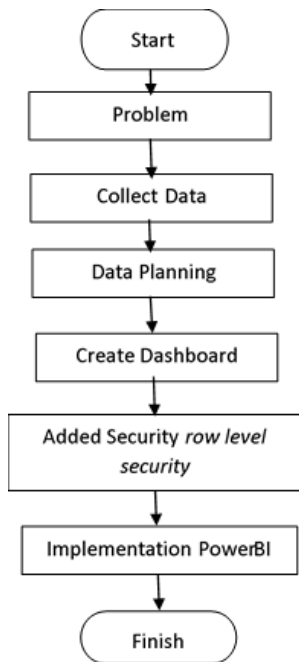


Fig.1. Power BI Dashboard Implementation Flow Diagram

Analysis of the Data Used

In step this, done evaluation and selection of data and information. Analyzed data originate from the PT database. PON Gresik, with focus on information related presence and use transportation employee. Source of this database using SQL Server. Data and information selection process involve evaluate staffing data, attendance data, and usage data available transportation. _

1. Table Staffing

Table 1. Table Staffing

No	Column Name	Data Type	Information
1	Code	VAR	Foreign keys Number Employee
2	Position	VAR	Position Employees

2. Attendance Data Table

Table 2. Attendance Data Table

No	Column Name	Data Type	Information
1	Employee's ID	VARCHAR	Foreign keys Number Employee
2	Clock In	DATETIME	O'clock enter Work employee
3	Clock Out	DATETIME	O'clock enter Work employee
4	Status	VARCHAR	Status presence employee

3. Transportation Data Table

Table 3. Transportation Data Table

No	Column Name	Data Type	Information
1	Employees Code	VARCHAR	Foreign keys
2	Vehicles Type	VARCHAR	Number Employee Type vehicle used _
3	Fare	FLOAT	Cost
4	Pick Up	VARCHAR	Place Pickup
5	Drop Off	VARCHAR	Place destination
6	Date	DATETIME	Date Implementation
7	Ride Distance	REAL	Distance destination
8	Payment Method	VARCHAR	Type Payment
9	Vendors	VARCHAR	Vendors

No	Column Name	Data Type	Information
10	City	VARCHAR	City use
11	Trip Code	VARCHAR	Trip code
12	Tolls	FLOAT	Cost enter toll

Design Storyboarding

The components that will used in Dashboard creation is simplified for users can with easy design it. By general, the dashboard consists of from a number of components , namely :

1. Dimensions, describes a table of dimensions that users can select and filter. The visual filter that will be used is slicer.
2. object will display the core data of each dashboard. This information will be presented in the form of bar charts, line charts, and donut charts.
3. objects will display data that supports the main information, such as matrix tables, maps, and cards.

Making Reports in Power BI

After preparation and data import completed, step next is make report for makes it easier analysis. There is a number of step in data processing that has been done imported to Microsoft Power BI, including:

1. Start by opening Microsoft Power BI.
2. Select the Get Data option to retrieve the data to be processed.

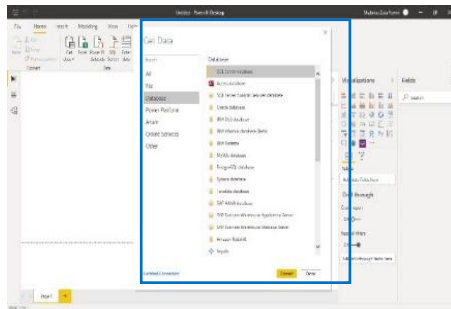


Fig.2. Appearance choose data

3. Select the data type to be processed; In this case, the author chose to use a database . Enter the database URL to the server and specify the Data Connectivity Mode.

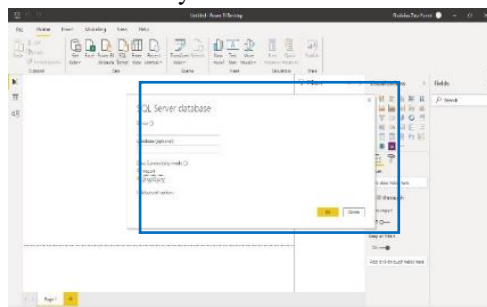


Fig.3. Appearance m connect data

4. After the data you want to display appears, click the Load button.
5. Select the graph or diagram that will be used to create a picture or visualization of data via the Visualization option on the menu.

When compared with findings study previously by Putra & Sari [7], visualization on the dashboard at the moment That describe sales data. Temporary in study This is a benefit from the dashboard more focuses on monitoring presence employee and transportation data , which has objective For measure productivity employee

1. Reports for data presence
 - a. Dashboards Daily Attendance

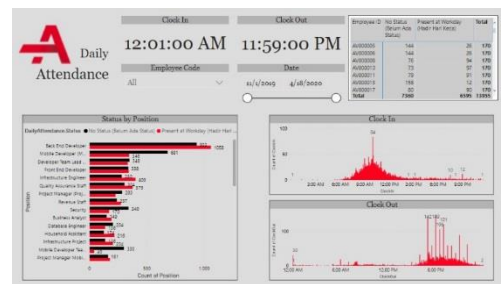


Fig.4. Appearance Dashboards Daily Attendance

On the dashboard Daily Attendance, information presented _ involve data range from November 2019 to April 2020. With The dashboard design is available diverse menus and purposeful visualizations support analysis of the data that has been done accessed .

In status graph based position , exists information that the Back End Developer division dominates with highest number of states , p This caused by quantity the most employees in the division . Temporary in Clock In graph , visible that PT employees . PON Gresik tends present evenly over the range time between 9.00 and 11.00, with peak presence occurred at 10.00 with total attendance _ reached 84 times. Whereas in Clock Out graph , attendance the average employee looks at the range time between 17.00 (5.00 PM) and 19.00 (7.00 PM), with peak presence occurred at 18.00 (6.00 PM) with total attendance reached 149 times.

Explanation number of employee ID status can served through visualization matrix . Visualization This possible For detail data display with choose date certain . With present data in form card , Department Source Power Man can see information regarding entry times Work earliest and return time Work final . List of existing Employee IDs in this menu possible user For select Employee ID specific and displays the current data searching for . There is an employee ID list option menu make it easier Department Source Power Man in access the required data with more efficient . Select menu Dates are also provided as a filter for the Department Source Power Man can focus on displaying relevant data on the date certain .

1. Reports For data transportation

a. Dashboards Trip

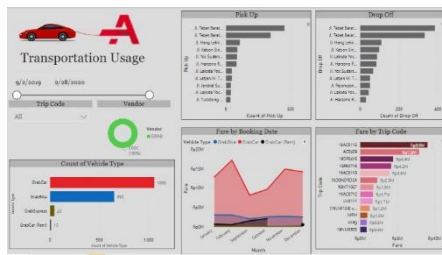


Fig.5. Appearance Dashboards Trip

In the Trip Dashboard, information is presented involve data range from September 2019 to February 2020. With The dashboard design is available diverse menus and purposeful visualizations help analysis of the data that has been done accessed .

In the code list travel, user can choose one _ For displays current data searching for . With exists option code list selection travel, HRD can with more easy access the necessary data. Option election date works as a filter for possible Department Source Power Man more focus displays relevant data on the date certain . If analyzed more detailed, on each line diagram view moon, visible that tariff use transportation experience fluctuation . From the graph on the dashboard, you can taken information that location pick-up the most located on Jl. West Tebet , which is address from PT office . PON Gresik, with total orders more from 700.

From the visualization on the dashboard, it is revealed that location delivery the most is on Jl. West Tebet , which is address PT office . PON Gresik, with total orders reach more from 700. Based on chart there is _ information that code journey with the total rate highest is "197AA0112," with the total rate exceeds Rp. 9,000,000.00. Besides that , based on visualization graph , known that type most frequent vehicle ordered is car (GrabCar) with amount booking reached 1,060. Information from the graph also shows that company dominant transportation _ used is GRAB, reach percentage by 100%.

b. Dashboards Trip Information



Fig.6. Appearance Dashboards Trip Information

In The dashboard design is available various menus and various visualizations For support analysis of the data used .

Use transportation seen via the bubble icon showing location . If the mouse pointer is hovered to on location , total rate used in the city the will displayed . As seen in the picture , use transportation happened in three cities , namely Jakarta, Bandung and Surabaya, with total rates highest available in Jakarta, reaching Rp. 99,552,000.

Explanation use transportation with employee ID can is displayed through visualization matrix . On the Average of Ride Distance card , it is visible that the average distance journey is 10.46 km, and on the Max of Ride Distance card , it shows that distance furthest reached _ is 73.76 km. For detail data view , user can choose desired date _ seen .

Power BI has layer security known additions _ as Row-Level Security. Function This can used For limit data access for user certain in One or more dataset table . Row-Level Security can also be done set on the dataset that uses DirectQuery , like SQL Server, as explained by Marco Russo [6].

Next , will discussed about implementing row level security in Power BI Desktop. User own ability For determine appropriate roles and rules . _ There is a number of necessary steps _ followed in determine role security (Row-level security (RLS) with Power BI [9].

1. Import data into reports in Power BI Desktop or configure a DirectQuery connection .
2. Open the Modeling tab , then select Manager Roles .
3. Select Create and specify a name for the created role.
4. Select the table to which the DAX function will be applied.
5. Insert a DAX expression, for example: [Entity ID] = " Value s ", where EntityID is the Position column , and Value is the name of each position.
 - a. *The position of Developer Lead is {"Developer Team Lead", "Developer Lead"}.*
 - b. *{" Back End Developer", "Developer Team Lead"} is the position of Developer Team Lead .*
 - c. *Manager of HR and GA [Post] IN {" Manager of HR and GA, " HRD Staff"}..*
 - d. *The roles of the Infrastructure Lead is {"Infrastructure Lead , " Infrastructure Project Manager"}...*
 - e. *Mobile Developer Lead [Post] IN {"Mobile Project Manager , " Mobile Developer Team Lead , " Mobile Developer Lead"}.*
 - f. *Leads for Mobile Developer Teams [Post] IN {" Lead for Mobile Developer Teams , " Mobile Developer"}..*
 - g. *TeamLead _for Mobile Products Developers [Post] IN {" Mobile Product Developer", " Mobile Product Developer Team Lead"}..*
 - h. *Office Manager [Post] IN { Accounting Staff , Household Assistant , Security , Office Manager }..*
 - i. *The position of " Product Developer Team Lead " is held by " Product Developer , " " Product Business Analyst , " and " Product Developer ."*
 - j. *Products Manager [Role] IN {" Product Manager , " Product Developer Team Lead"}.*

- k. *Project Lead [Post] IN {" Lead Quality Assurance Lead ,"Project Lead ,"Project Manager Lead "}*..
- l. *Lead Project Manager [Post] IN {" Manager "," Lead Project Manager ,"Business Analyst "}*..
- m. *Leads for Quality Assurance [Post] IN {" Lead for Quality Assurance"," Quality Assurance Staff "}*..
- n. *[Post] Researcher IN {"AR/VR Developer"," Researcher "}*..
- o. *Revenue Lead [Post] IN {" Account Manager ,"" Revenue Staff," Revenue Lead "}*..
- p. *Senior Front End Developer [Job Title] IN {" Job Title ", {Front End Developer"}*..
- q. *Leads Users Experience Designer i. [Post] IN {"UX Designer ","UX Designer Leads "}*

After make DAX expression , user can marking option tick located above __ box and choose save .

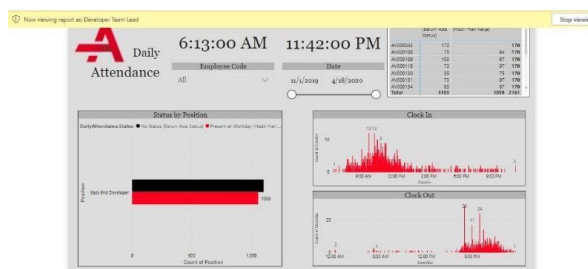


Fig.7. Data display after RLS is used

Figure 7 show that moderate role _ used is the Developer Team Lead, so dashboard only displays related data role that is, namely information about employee from the Back-End Developer and Developer Team Lead Alone. After application security, leader from this division No can access data from other divisions. Previously, in research by Putra & Sari [7], researchers only limit on stage dashboard presentation, meanwhile in study this, covers implementation of Row Level Security.

IV. CONCLUSION

From the results discussion, yes concluded that Power BI can used for present data and information about presence as well as use transportation. Data obtained from source can made base in create a dashboard for attendance and transportation data. Information available in the dataset can analyzed, so company can obtain useful insight related presence and use transportation employee. Contribution main from study This is two type report, that is report attendance which includes an attendance dashboard daily, and reports transportation that includes a travel dashboard and information journey. Findings main involves an attendance dashboard daily shows _ peak attendance at 08.00 and 21.00. Next, the travel dashboard highlights the total fare biggest with code trip "7AA0112," exceeding Rp. 31,220,100.00, and information dashboard journey describe use transportation in three city, esp with the total rate the

highest in Jakarta reached Rp. 97,761,000. With use security line level , the report has been made can accessed via Power BI Desktop or Service. This possible leader only see information about team they without can access information from other divisions.

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