



Human Resource Information System of Monitoring Employee Attendance Using Microsoft Power BI at Catholic University of De La Salle Manado

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ABSTRACT

The purpose of this research is to determine the level of usage of attendance devices to further perform the descriptive result and give recommendations to the organization or management on how to improve human resource data. This research was carried out using Microsoft Excel software to collect and process data and then will be analyzed using Microsoft Power BI to visualize the data. Data was collected from Biro Pengembangan Sumber Daya Manusia (BPSDM) at the Catholic University of De La Salle Manado. Employee awareness of using the attendance device at the Catholic University of De La Salle Manado in the mean is significantly low. Based on the data provided, the low level of the mean does not represent personal awareness, considering the maximum attendance personally is 100% and the minimum attendance is 0%. This range could impact the mean significantly, so, the result in this research is the mean of all employees, not personally. Based on the result of this research, it is recommended for the management of the Catholic University of De La Salle Manado to perform a seminar or focus group discussion to explain the importance of using attendance devices, not only for personal financial benefit, but also for human resource management purposes, so employee will use it regardless of any personal financial benefit.

Keywords: Attendance; Human Resource; Human Resource Information System

1. INTRODUCTION

Work productivity and employee efficiency is one of the key factors for companies to continue to evolve and be better than their competitors or rivals, so every company must continue to innovate. Therefore, in an organization, it is very important to give good

and proper attention to its employees in order to create a mutually beneficial reciprocity between the company and the employees (Laksono & Putri, 2021). Human resource (HR) management activities at the executive, manager, and employee levels have been transformed by the widespread adoption of technology (Ndegerege & Wanyoike, 2024). For effective organization of human resources, it requires all kinds of advanced technologies of the present era, which are connected with it (Dhal et al., 2020). One of the innovations that can be done is to improve employee attendance management, which aims to increase productivity and develop employees to be more effective but still efficient. Attendance, or commonly referred to as presence, is a data collection activity used to determine the number of people attending an event. Any activity that requires information about attendees will certainly take attendance.

Human Resource Information System (HRIS) is a systematic way of storing data and information about each individual employee to aid planning, decision making and submission of returns and reports to external agencies. In short, HRIS can be defined as integrated systems used to collect, store and analyze information about an organization's human resources (Jahan, 2014). The information in question now serves as a primary determinant of decision-making processes within the organization, as it facilitates the generation of knowledge. This, in turn, is crucial for the sustained operational viability of the company (Ben Moussa & El Arbi, 2020).

The design of human resources information systems enables the measurement of human resources value from a fiscal perspective, facilitating the planning of these resources within the economic unit (Al-Omari, 2012). Nowadays, there is a lot of organization use their own system of attendance management, at Catholic University of De La Salle Manado (UKDLSM), attendance system used is fingerprint attendance system. In order to improve employee performance, there are several benefits given to employee with certain level of attendance. High and low levels of absenteeism affect the work productivity of employees; the higher the absenteeism rate, the lower the work productivity; and the lower the absenteeism rate, the higher the work productivity of employees. Employees who are always present on time according to the company's working day, with high motivation and work ability, and supported by adequate working facilities and infrastructure, will give birth to high productivity, and vice versa. A good data management could lead to better judgement, and then ultimately lead to organizational performance. The purpose of this research is to find the best solution as a reference for Human Resource Department in order to improve employee performance based on the attendance level.

In fulfilling organizational needs to improve human resource quality, the organization needs to apply Business Intelligence (BI), which is an activity that support extract-transform-load (ETL) process to analyze organizational data provided by the organization or even data from third parties. In the end, the purpose of using this is to produce information in the decision-making process, as well as to analyze and prepare strategic planning.

Information is data that has been processed in a way that makes it more meaningful and beneficial to humans (Andriansyah & Nulhakim, 2020). Information is data that is enhanced, processed, organized, and summarized. The quality of information is of the

utmost importance for personnel to be used in the compilation of company activities. The company's ability to obtain, store, maintain, and utilize personnel information is a critical factor in human resource management (Panjaitan, 2023).

Akbar et al., (2017) explained that there are four basics components of business intelligence, which are:

- **Data Warehouse.** Data warehouse acts as a source of data from business intelligence. A data warehouse is a collection of data that is subject-oriented, does not change, and has a wide enough time span those functions in management decision making.
- **Business Analytics.** In short business analytics are a collection of tools used to manipulate, mine, and analyze data contained in a data warehouse.
- **Report and Queries.** This includes all forms of reporting either statically (unchanged) or dynamically in accordance with data changes and any kinds of existing queries such as drill down, multidimensional, view, grouping, and others.
- **Data.** Text and web mining as well as top-level mathematical and statistical tools.

The purpose of this research is to determine the level of usage of attendance device to further perform the descriptive result and give recommendation to the organization or management in how to improve human resource data. This research uses business intelligence (BI) tools which is Microsoft Power BI, a comprehensive and sleek-looking program to provide a better visualization for better descriptive result. Business intelligence enables organizations to leverage information to gain a competitive edge over their rivals (Sousa & Dias, 2020). This research is considered the first-step in better understanding of use of human resource information system, regardless of the system used, and its uses in organization or company. HRIS supports activities such as identifying potential employees, maintaining a comprehensive database of all current employees, and developing modules to enhance employee skills, talents, and competencies (Kalwala & Sekhar, 2019).

There is a lot of human resource information system used in many organizations or company, but there is so little research or use of these information. This research provides first insight on a way to use human resource information system for managerial decision-making, and aligning human resource (HR) strategies with organizational strategies. HRIS contributes to the modernization and development of the HR function by having the most advanced technological equipment and systems (Satispi et al., 2023). It is hoped that this research will be the stepping stone for private universities, especially Catholic University of De La Salle Manado (UKDLSM), to use data from HRIS to improve the work quality of their employees, and using those data to align the activities in supporting the organization strategies.

2. LITERATURE REVIEW

2.1. Attendance

Attendance is a measure of employees' daily presence in the workplace (Amrillah et al., 2022). According to Zain et al., (2022), attendance is a data collection of attendance, part of reporting the activities of an institution, or a component of the institution itself

that contains attendance data that is compiled and arranged in such a way that it is easy to find and use by interested parties.

Employee absence or attendance is an important thing in office operations. Attendance can indirectly describe the work patterns of employees in the company (Yumni & Widowati, 2021). Attendance is the presence of employees in relation to their duties and obligations. In general, agencies or institutions always make sure that their employees come and go on time so that work is not delayed. An employee's absence affects the productivity of the work, so that the company or organization cannot achieve its objectives in the best possible way

2.2. Human Resources Information System (HRIS)

Human resource information system (HRIS) is a computerized system used to gather, store, analyze, and retrieve data, to provide timely and accurate reports on the management of people in organizations (Stone et al., 2004). Human Resource Information System is a form of meeting between the fields of Human Resource Management and Information Technology. HRIS plays a pivotal role in the overall business process, as it provides invaluable support at every stage (Dhal et al., 2020). HRIS can be briefly defined as integrated systems used to collect, store, and analyze information about an organization's human resources (Gupta, 2013).

A Human Resource Information System is an integrated component for collecting, processing, storing, and disseminating information to support decision making, coordination, control, analysis, and visualization of an organization's human resource management activities (Sullivan, 2012). HRIS refers to the integration of information technology and human resources to streamline and automate HR processes such as recruitment, training, performance management, payroll, and benefits administration (Baakeel, 2020).

The amount of information that needs to be managed related to human resources raises the problem of a high level of complexity. These problems are difficult to solve with traditional HR information systems (Sipahutar & Widyaningsih, 2023). HRIS has come a long way, and many executives now consider it as valuable as other functional information systems (Permata, 2019).

3. RESEARCH METHOD

This research design is descriptive quantitative research. Quantitative descriptive design use data to describe, explain, predict or control the phenomena studied in this research in terms of statistical or numerical data (Purba, 2021). This research was carried out using Microsoft Excel software to collect and process data and then will be analyzed using Microsoft Power BI to visualize the data. Data collected from database of Biro Pengembangan Sumber Daya Manusia (BPSDM) at Catholic University of De La Salle Manado. Data provided by BPSDM is the data from 2023, ranging from February, include the two days in January, to December of 2023. The result of this research is a daily attendance dashboard with a clock in chart showing employee attendance.

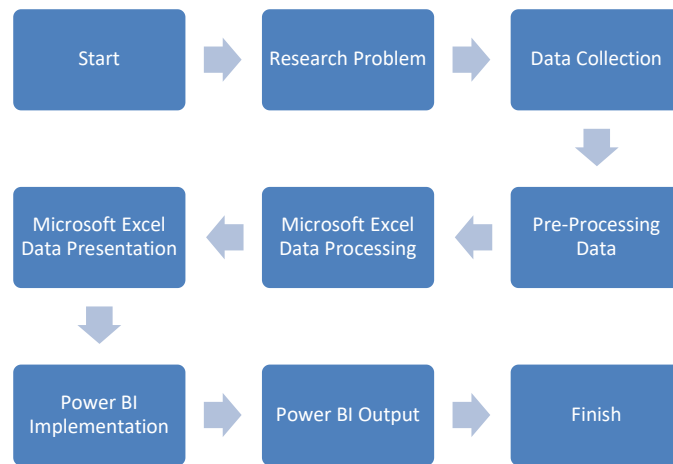


Figure 1. Flowchart

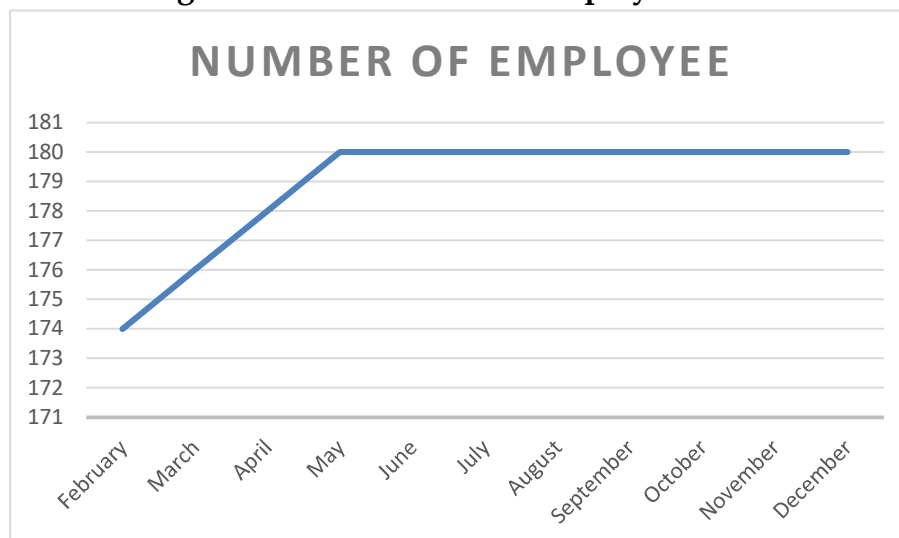
The flowchart above represents the activities conducted by researcher to process data provided using Microsoft Excel and conclude the result of data processing using Microsoft Power BI.

4. RESULTS AND DISCUSSION

4.1. Analisa Data

The first result of this result is determining the information and data needed to conduct the research. Data related to attendance collected from Biro Pengembangan Sumber Daya Manusia (BPSDM) at Catholic University of De La Salle Manado. Data collected start from February 2023 up to December 2023, with the number of employees start from 174 at the start and total of 180 start from May. There are several tables provided below to explain every data collected to provide comprehensive insight to the reader.

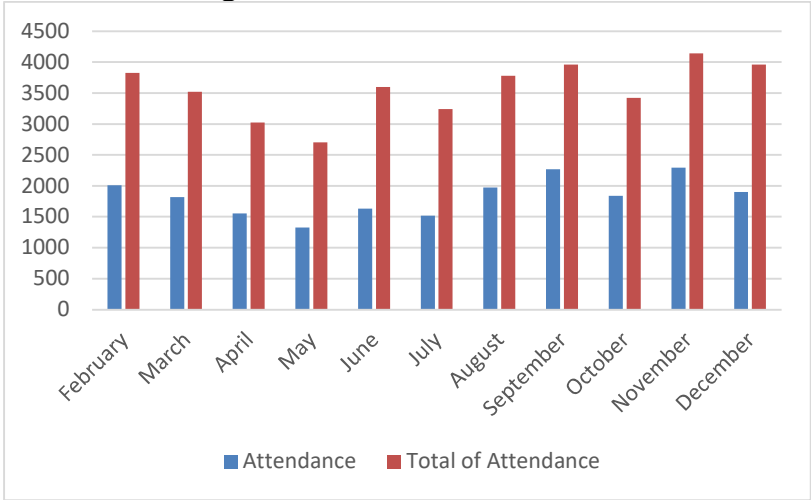
Figure 2. Total Number of Employees



Source: Data Processed, 2024

The data provided above showed that at the start of the year 2023, the total employees start at 174 employees, and increasing as the time, top at the total 180 employees from May to December.

Figure 3. Mean of Attendance



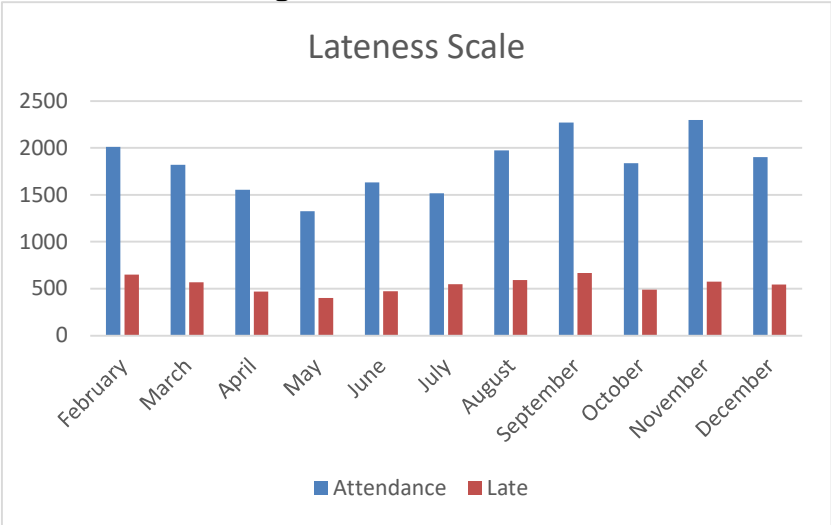
Source: Data Processed, 2024

Figure provided above showed the total expected attendance which is the total employee times total work days for every month, and the total attendance of employee. Based on the figure above, we can conclude that attendance level is almost half the total expected attendance per month. We can conclude that the attendance level is low, but this does not mean that it is bad because this data is the mean of attendance. The lowest number of attendances occurred in May, because the number of working days in May is the lowest caused by the national holiday at that time is up to nine days.

The limitation provided from the object is that the personal attendance cannot be put in this research, so researcher only put the total and the mean. This means, the maximum total attendance of employee in person could be 100% or 0%. One thing that we can conclude that the awareness of using attendance system is still not optimal.

There are several other data provided, such as lateness, outstation, sick leave, etc. The lateness scale will be provided below:

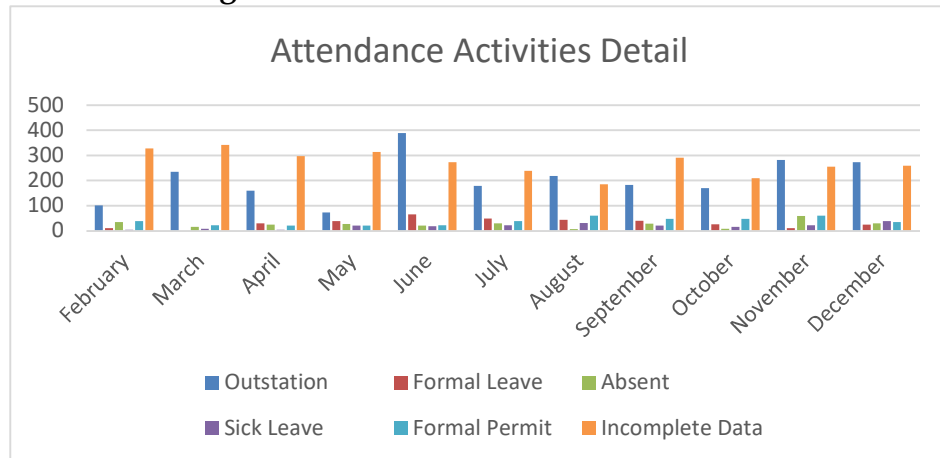
Figure 4. Lateness Scale



Source: Data Processed, 2024

We can see from the figure above; that the lateness level is considerably a quarter of the total attendance. This could mean there is a lateness in some places, but in general the employee work on time. The last figure of this part is the miscellaneous data below.

Figure 5. Miscellaneous Data

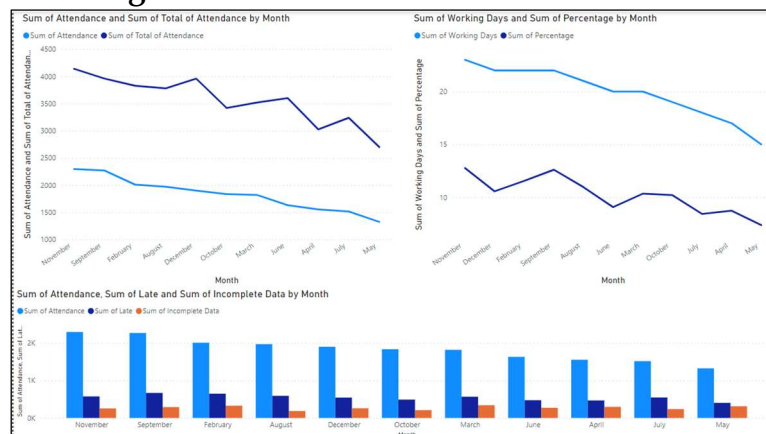


Source: Data Processed, 2024

Figure 5 above is the miscellaneous data provided related to the attendance of employee at the Catholic University of De La Salle Manado. We can see that the green bar holds a significant amount of data. ‘Data Tidak Lengkap’ is the data in which the employee uses the attendance device only once, whether only when the employee come to the office or only when they left. This data was used to determine which employee could get certain amount of support money when they come on-time to the office and left the office on-time also. This data means that the awareness to use attendance device is very low.

The usage of attendance device is to help company keeping track on employee activities, whether the employee late or maybe go home early, everything is in company’s or management’s watch. Based on researcher’s observation, employee could only use the attendance device once, in which they supposed to use it twice (when they come to the office and when they left the office) because of the money provided. If employee come to the office on-time, and use attendance device, then left the office on-time, and use attendance device again, they could get that certain financial support from the company. This policy drives employee not to care about attendance if they did not fulfill the requirements explained.

Figure 6. Microsoft Power BI Dashboard



Source: Data Processed, 2024

Using Power BI, the general idea of activities and data could be seen in a bigger picture. The figure above showed that the usage of attendance device is still significantly below the expectation. Many reasons could cause this, whether it is personal financial decision, work performance, or else.

Based on the observation and literature review, there is a regulation closely related to this topic, which is Peraturan Perusahaan Karyawan Yayasan Perguruan Tinggi Universitas De La Salle Manado Chapter VIII, Article 36, No. 2. E., the consequences of not using the finger scan in certain period is a low-to-middle level violation. Low-to-middle level violation will lead to punishment which is start with oral disciplinary up to Warning Letter level 1 (Surat Peringatan 1). Oral disciplinary will be conducted by the head of department proved by the Record of Activity and Commitment Letter.

Based on this regulation, the usage of finger scan as attendance device is almost significantly affected employee performance, and could lead to organizational performance in general. In overall, this research is the first research to use this platform and the first to descript and explain the condition in this organization so future research regarding these subjects of research is hopefully to cover more areas and cover more management regulation.

5. CONCLUSION

5.1. Conclusion

Employee awareness of using the attendance device at Catholic University of De La Salle Manado in mean is significantly low. Based on the data provided, the low level of mean does not represent the personal awareness, considering the maximum of attendance personally is 100% and the minimum of attendance is 0%. This range could impact the mean significantly, and so, the result in this research is the mean of all employees, not personally.

5.2. Limitation and Recommendation

This research is limited to private organization, especially high education institution, considering the object of this research is a private university. Another limitation in this research is the data of human resource information system is only the attendance data. This caused by the data provided by Biro Pengembangan Sumber Daya Manusia (BPSDM) at Catholic University of De La Salle Manado is only the attendance data based on finger print system provided, so the other attendance system might not be used the same way as this research.

Based on the result of this research, it is recommended for the management of Catholic University of De La Salle Manado to perform a seminar or focus group discussion to explain the importance of using finger scan as attendance device, not only for personal financial benefit, but also for human resource management purposes, so employee will use it regardless of any personal financial benefit. This will make the information system more useful and reducing the number of 'Data Tidak Lengkap' data in attendance. The implementation of this seminar or focus group discussion could clarify

employee's obligation regarding of attendance, and finally could create awareness of using the finger scan as attendance device.

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