

Designing Employee Performance Monitoring Dashboard Using Key Performance Indicator (KPI)

Yance Gusnadi¹⁾, Aditiya Hermawan^{2)*}

¹⁾²⁾*Buddhi Dharma University
Jalan Imam Bonjol No.41 Karawaci Illir, Tangerang Indonesia*

²⁾*aditiya.hermawan@ubd.ac.id*

Article history:

Received January 4, 2020;
Revised January 15, 2020;
Accepted January 22, 2020;
Available online January 30, 2020

Keywords:

Dashboard
Key Performance Indicator
Monitoring

Abstract

Institutions or companies must indirectly be ready to face the era of digitalization in presenting company information, especially to see employee performance. Many companies have not used an application that can help in the process of monitoring employees so far. The problem that occurs is that the company has been monitoring the process using a Spreadsheet which consists of inputting employee performance and reporting employee performance results with a predetermined target. In the process it takes a long time and tools to assist in monitoring and measuring employee performance. Dashboard monitoring is designed using the Key Performance Indicator (KPI) method that will help management and then focus on performance aspects that are used as a measure of company performance, which in turn the dashboard application with KPI will facilitate division heads and managers in conducting the analysis process, monitoring and evaluation. From the results of this research, the use of dashboard monitoring can facilitate the user in monitoring and measuring the KPI of each employee.

I. INTRODUCTION

In the changing era of digitalization that is so fast from year to year in every agency or company must indirectly be ready to face this digitalization era, because if every agency or company is not ready to follow the changes, then the company will be difficult to be able to compete with companies that follow digitalization era. HR becomes one of the determining factors in a company's success, so companies must find various ways to get quality HR so that company goals can be achieved, and HR is also a central factor in every company. Each company must have a vision and mission that must be achieved, in every implementation is managed and managed by humans. One important problem that needs to be fixed is the quality of human resources (HR). Therefore, HR is the key that determines the development of the company.

To improve the competitiveness of the company, each leader sets targets for each employee. In order to achieve the specified target, monitoring is needed. Monitoring is an activity carried out by a leader both director and manager to see, monitor the course of the organization during the activity, and assess the achievement of objectives and then be able to see the supporting factors and obstacles to the implementation of the program [1]. In monitoring the data collected and then conducted an analysis then the results of the analysis are presented as input for the leadership so that goals can be achieved as effectively and efficiently as possible.

One way that can be done to interpret information clearly and efficiently to users is to use data visualization techniques, using data visualization can make it easier for users to capture concepts because it is basically easier to understand an image than reading text [2]. One form of data visualization is to use the Dashboard. Dashboard is a display that can display a graph of a company which is an important measure needed to make decisions [9]. Dashboard also provides an interface display with various forms such as diagrams, reports and visual indicators that can be easily understood, and easy to explore [3].

Key Performance Indicators (KPI) are a series of important performance indicators that are measurable and can provide information on the extent to which the company's strategic objectives have been successfully achieved [10,]. KPIs can also be used for measurements that assess how an organization executes its strategic vision. The intended strategic vision refers to how the organizational strategy is interactively integrated in the overall organizational strategy [4]. In its development process, financial companies need a system that can present information related to activities and developments that occur in the field, especially in monitoring employees so they can know the processes that are running [3]. Dashboard with KPI in it can provide convenience in analyzing, monitoring and

evaluating company activities [12]. Thus the need for an information system through a dashboard that can monitor employee performance in order to provide information that is needed by the company so that they make the right decisions quickly.

II. RELATED WORKS/LITERATURE REVIEW

Key Performance Indicator (KPI)

KPIs are measurement tools that help management understand what the company will do to achieve its goals. KPI must be effective when followed up and easily communicated to all companies [5]. KPI can be made as indicators that focus on certain aspects of performance in an organization that are used as a measure of organizational performance that is most important for achieving current and future targets [11].

Monitoring

Monitoring is an activity observing developments in implementing development plans that identify and anticipate problems that arise or that will arise with the aim of taking an action as quickly as possible to fix it.

The monitoring principles are as follows [7]:

- a. Monitoring must be carried out continuously.
- b. Clarity of objectives and results obtained.
- c. Implementation is carried out objectively.
- d. Proactively involve various parties deemed necessary and interested.
- e.

Monitoring is also a very useful tool for [8]:

- a. Help identify problems and their causes.
- b. Give the best advice about the most possible solution to the problem at hand.
- c. Encourage users to reflect where they are going and how to get to their destination.
- d. Giving information and ideas.
- e. Encourage users to follow up on information and ideas.
- f. Increases the likelihood that users will make positive changes.

Dashboard

Dashboard is a component that generally has Performance Management Systems, Performance Measurement Systems, BPM Suites, and BI Platforms. The dashboard also provides a visual display and conveys information that is put together and arranged in a single screen so that information can be understood with just one look and is easy to explore [3].

Dashboard is a display that can display a graph as a KPI (Key Performance Indicator) of an organization or company which is an important measure needed to make a decision [9].

There are some characteristics of a dashboard if designed properly as follows [3]:

- a. Dashboard displays a dynamic and tangible display of data that is updated regularly.
- b. Dashboards allow users to stay up to date about any changes in the business.
- c. Dashboards require slight changes to program code to be sent, implemented, and maintained.
- d. Dashboards use visual components to outline at a glance, data and exceptions that require action.
- e. Dashboards are transparent to users, which means users need quite a bit of training and it's easy to use the dashboard
- f. Dashboard combines data from various data sources into a business display that is concise and combined into one.
- g. Dashboards allow you to search for existing data sources or reports and provide context that can be compared and evaluated in more detail.

III. METHODS



Fig. 1. System Life Cycle [6]

A. Planning Phase

At this stage is the process of making a development plan of the system that will be created to assist in monitoring employee performance to help the development of the company by identifying and measuring the health potential of a company, which at this stage the authors identify the problems that occur so as to get the background of the problem, identify problems, formulate problems and look for goals and benefits in the new system.

B. Analysis Phase

At this stage the factors that are problematic and the factors that serve as the reference for achieving a target in the company or organization are also identified and also analyze the ongoing workflow of management using the Key Performance Indicator.

C. Design Phase

Creating a system model using the Use Case to describe the system and dashboard design that was created as well as making a database design to enter the KPI parameter data created. The final stage in planning is to make a screen plan and determine the graph created in monitoring employee performance.

D. Implementation Phase

At this stage the program starts to make the implementation of system requirements that have been made previously into a web display and also created a database to store data that will be used as a place to store monitoring data. After completing the test will be done and if an error occurs or get debugging.

E. Use Phase

At this stage the dashboard system has been used and then assessed using a questionnaire to the user whether it is in accordance with the plans made to support existing operations.

IV. RESULTS AND DISCUSSION

KPI Results

The results of the analysis of variable data used as indicators or references determine performance based on KPI calculations (Example of KPIs for financial companies). The results of these KPIs are used as benchmarks in the achievement of work from each division. The following indicators are used as benchmarks for the Micro Team and Credit Analysis.

Mikro Team (MT)

Table 1 KPI Mikro Team

No	KPI	Elements of Assessment	Skor				
			Excellent	Good	Fair	Poor	Very Poor
			110%	105%	100%	95%	90%
1	Periodic visits	$ACH = \frac{A}{T}$	$ACH \geq 105\%$	$100\% < ACH < 105\%$	$ACH = 100\%$	$95\% \leq ACH < 100\%$	$ACH < 95\%$
2	Acquisition	$ACH = \frac{A}{T}$	$ACH \geq 60\%$	$60\% \leq ACH \leq 55\%$	$55\% \leq ACH \leq 50\%$	$50\% \leq ACH \leq 45\%$	$ACH \leq 45\%$

T : The total target given to each employee

A : Targets that have been achieved during the given time period.

ACH : The total target achieved divided by the target given then becomes a percentage

Credit Analysis

Table 2 KPI Credit Analysis

No.	KPI	Elemen Penilaian	Skor				
			Excellent	Good	Fair	Poor	Very Poor
			110%	105%	100%	95%	90%
1	Acquisition Analysis	A	$A \leq 1$	$1 \leq A \leq 1.5$	$1.5 \leq A \leq 2$	$2 \leq A \leq 2.5$	$A \geq 2.5$
2	Committee	A	$A \leq 1$	$1 \leq A \leq 1.5$	$1.5 \leq A \leq 2$	$2 \leq A \leq 2.5$	$A \geq 2.5$
3	Monitoring	A	$A \geq 4$	$A = 4$	$A = 3$	$A = 2$	$A \leq 1$
4	Timely Retention	A	$A \geq -6$	$-6 \leq A \leq -5$	$-4 \leq A \leq -3$	$+1 \leq A \leq +2$	$A \geq +3$

A = Average customer processing process.

System Design

Use case and Activity Diagram

1. Head of subdivisions

The head of the first subdivision logs in and then the head of the subdivision inputs the Key Performance Indicator (KPI) in accordance with the KPI targets of each division, the input is a process of ongoing work activities.

2. Manager & Division Head

The head of the division or manager first steps to login then the manager or head of the division performs input parameters, this input parameter will display a bar graph where the graph displays information from work process input that has been done by the sub-division head called actual and then This is actually compared to the targets set by the directors.

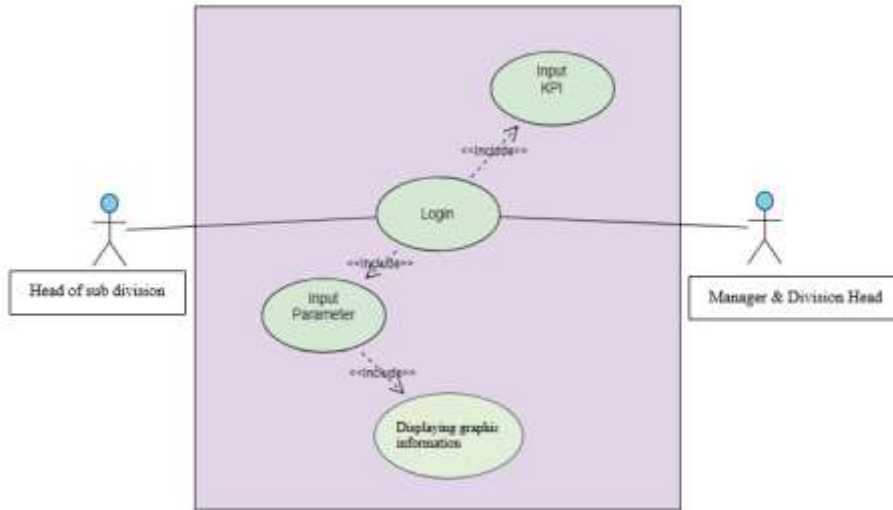


Fig. 2 Use Case Dashboard Monitoring

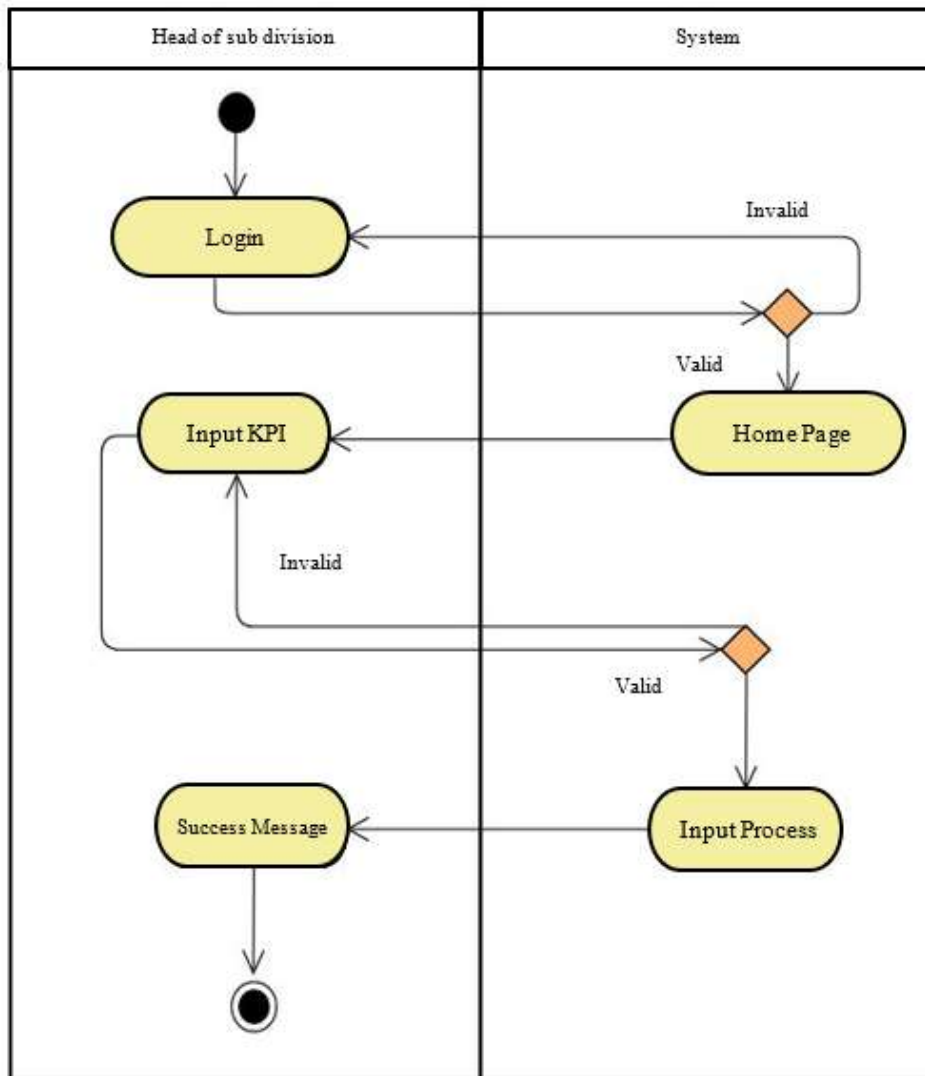


Fig. 3 Activity Diagram of Head of Subdivision

The head of the subdivision makes a login if it is successful it will display the main page view otherwise it will remain on the login page then if it succeeds in logging on the main page the head of the subdivision inputs the KPI (Key Performance Indicator) if it does not meet the requirements will appear incomplete data description and if successful meal information will appear successfully input.

Design Dashboard Interface

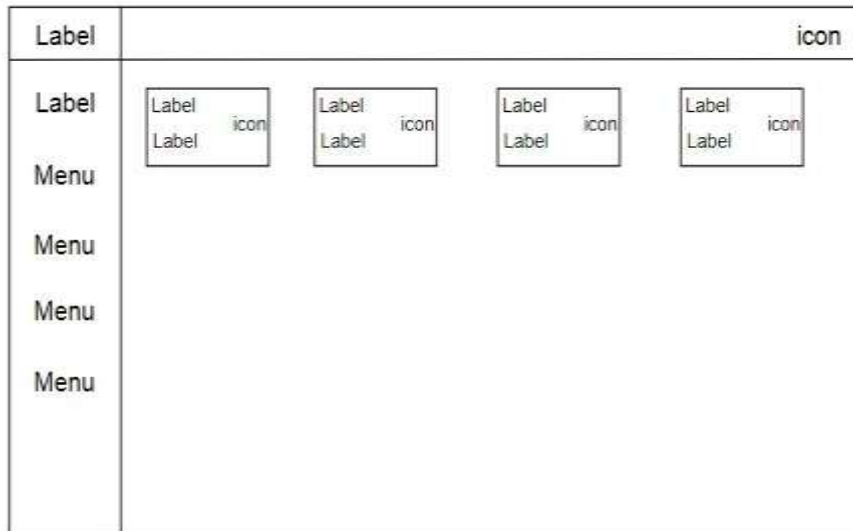


Fig. 4 Dashboard Display Design

The dashboard display design which is a data display used as indicators in the KPI (Key Performance Indicator). This page is also used as a reference for monitoring employee performance.

Database Design

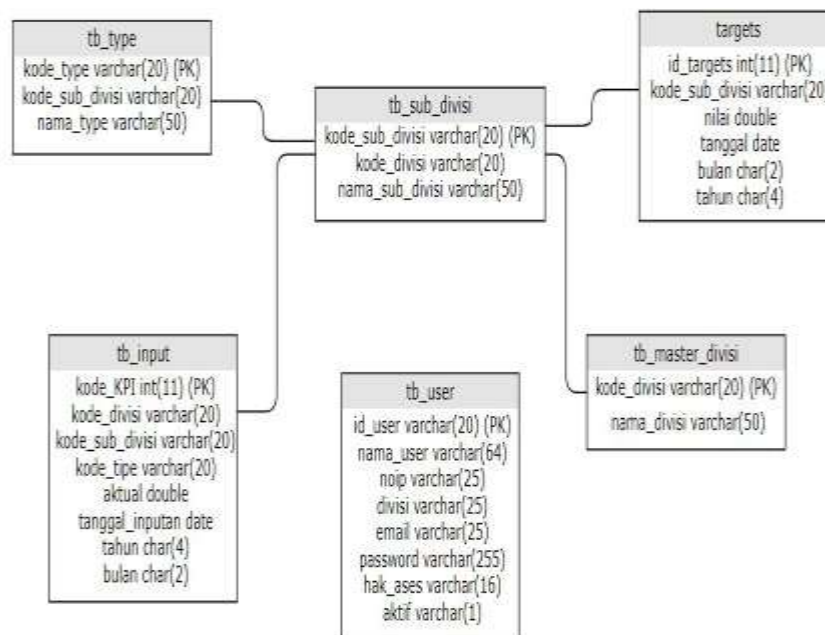


Fig. 5 Database Dashboard Monitoring

Application Interface



The screenshot shows a web form titled "FORM INPUT KPI". It includes the following fields: "Divisi" (a dropdown menu with "Marketing" selected), "Sub Divisi" (a dropdown menu with "IT" selected), "Type" (a dropdown menu with "All Target" selected), "Aktual" (a text input field), and "Tanggal" (a date input field showing "06/10/2019"). A blue "Submit" button is located at the bottom of the form.

Fig. 6 Form Input KPI

This page is used to input the KPI (Key Performance Indicator) targets that have been determined in each division where the input is done by the head of the subdivision. There is a dropdown in the type because there is more than one KPI target in each division that can be chosen and actually the work process of the KPI target.



The screenshot shows a web form titled "FORM PARAMETER". It includes the following fields: "Divisi" (a dropdown menu with "Marketing" selected), "Sub Divisi" (a dropdown menu with "IT" selected), "Type" (a dropdown menu with "All Target" selected), "Target" (a text input field), "Satuan" (a text input field), "Tanggal Awal" (a date input field showing "06/10/2019"), and "Tanggal Akhir" (a date input field showing "06/10/2019"). A blue "Submit" button is located at the bottom of the form.

Fig. 7 Input Parameters KPI

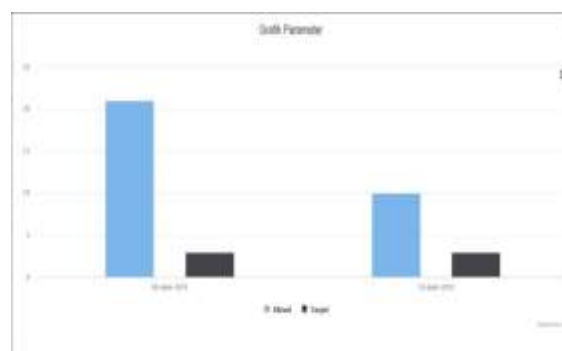


Fig. 8 Chart Parameters

Table 3 Element Rating System

No	Elements of Assessment
1.	This application can help in the decision making process.
2.	This application can make it easier to monitor employee performance.
3.	This application can provide information in assessing KPI (Key Performance Indicator) up or down.
4.	This application can help provide information at the right time so as to prevent repeated mistakes.
5.	This application can compare employee performance results with given targets.
6.	This application can assist Division Heads and Managers in controlling their respective divisions.
7.	This application can display graphs that are easily understood by users.
8.	This application can respond well in making graphics.

The calculation of the percentage of all answers to the questionnaire is $(30/35) * 100 = 85\%$. It can be concluded that from the percentage of all answers, the level of user satisfaction with the application that has been made is 85% of the expected 100%.

V. CONCLUSIONS

Monitoring Dashboard helps to get information about the achievement of performance, whether in accordance with the target or not. The results of the information display will appear in the form of a bar graph comparing the target with the actual, with the information in the form of this graph is easy to see the target achieved. Monitoring Dashboard makes it easy for users to see and control the performance of employees in a company. One way is to set targets that are shared in each division to assist leaders in seeing and monitoring employee performance. If the manager or division head wants to check the results or progress of the employee's achievements, it can easily enter the required data. That way what is felt to be lacking or not achieving the target can be immediately easily known by superiors.

REFERENCES

- [1] M. "Teknik Monitoring Dan Evaluasi (Monev) Dalam Rangka Memperoleh Informasi Untuk Pengambilan Keputusan Manajemen," pp. 2-4, 2009.
- [2] C. Lee, Yuk, *Optimalkan Visualisasi data dengan Charts & Infografis*, Jakarta: PT Elex Media Komputindo, 2014.
- [3] R. Sharda, D. Delen and E. Turban, *Decision Support and Business Intelligence Systems*, New Jersey: Pearson, 2011.
- [4] Warren, *Key performance indicators (KPI) – definition and action : Integrating KPIs into your company's strategy*, London: ATI, 2011.
- [5] A. Budiarto, *KPI; Key Performance Indicator*, Depok: Huta Publisher, 2017.
- [6] R. Mcleod, Jr. and G. P. Schell, *Sistem Informasi Manajemen*, Jakarta: Salemba Empat, 2008.
- [7] M. Yumari, *Strategi Monitoring Dan Evaluasi Pelaksanaan Anggaran*, Yogyakarta: Deepublish, 2017.
- [8] A. Nasir, W. Zakiyah and U. T. Winarso, *Panduan Penerapan Sistem Informasi Desa (SID) dan Monitoring Partisipatif*, Yogyakarta: Merapi Recovery Response, 2013.
- [9] K. C. Laudon and J. P. Laudon, *Management Information Systems - Managing The Digital Firm 13th Edition*, Harlow: Pearson Education, 2014.
- [10] A. T. Soemohadiwidjojo, *Key Performance Indicator Untuk Perusahaan Jasa*, Jakarta: Raih Asa Sukses, 2017.
- [11] D. Parmenter, *KEY PERFORMANCE INDICATORS Developing, Implementing, and Using Winning KPIs 2nd Ed*, Canada: Wiley, 2010.
- [12] A. Hermawan, Y. Kurnia, N. Destiandi and D. Kurnaedi, "Modeling Data Mart Using ETL (Extract, Transform, Load) Webservice Concept On Feeder With A Dashboard," *International Journal Of Engineering & Technology*, pp. 6057-6059, 2018.
- [13] N. Destiandi and A. Hermawan, "Business Intelligent Method For Academic Dashboard," *Bit-Tech*, pp. 2-5, 2018.