

# Information Technology Unit Performance Assessment in The Readiness of Electronic Medical Record With Balance Scorecard at PKU Muhammadiyah Karanganyar Hospital

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**ABSTRACT:** PKU Muhammadiyah Karanganyar Hospital is one of several hospitals in Karanganyar Regency. With its existence among several existing hospitals, PKU Muhammadiyah Karanganyar Hospital must show maximum performance and be able to provide the best service so that it can become the public's preferred hospital. In addition to providing healthcare, hospitals are also required to always maintain their existence including all existing units to develop optimally. PKU Muhammadiyah Karanganyar Hospital utilizes a performance measurement system using the balance scorecard method in order to improve hospital performance sustainably so that it can provide services needed by the public quickly, effectively, integrated and professionally. The perspectives used in this research include 4 perspectives, namely customers, learning and growth, internal business processes and finance. From these four perspectives, it is then developed into performance indicators that can be measured to determine the level of achievement of hospital performance. With the Minister of Health Regulation (PMK) number 24 of 2022 concerning Medical Records, healthcare facilities are required to implement a patient medical history recording system electronically. The transition process will be carried out no later than December 31, 2023. The implementation of electronic medical records is highly dependent on the ability and readiness of the information technology unit so it is deemed necessary to evaluate the performance of the information technology unit to be able to determine the extent of the capability and readiness of the information technology unit to implement electronic medical records.

**Keywords :** Medical Records, Performance Assessment, Balance Scorecard

## I. Introduction

Management and evaluation are important functions that enable an organization's work plan to be implemented properly with the ultimate goal of an organization be achieved. A good performance management system is necessary for proper control and evaluation functions. A good performance management system must be able to describe the business processes that take place throughout a hospital.

A performance management system can also be measured using the Key Performance Indicator (KPI) so that it can be a good measurement of success. The performance management system contains KPIs or key performance indicators that represent the performance of all parts of an organization and the interrelationships between all parts.

Many corporations already have a performance management system though only provide a "list of KPIs" and ignore the relationship between metrics.

Performance appraisal is very important for a corporation. This is done so that a corporation can survive and be competitive. Today, performance measurement from the financial aspect is insufficient to reflect the actual performance of business units. Non-financial performance measurements such as customer satisfaction, growth and learning, and internal business processes must also be measured to determine business unit performance.

Situations like this prompted Kaplan and Norton, 2000 to create a performance measurement model that does not only focus on financial aspects which was the balance scorecard. In the balance scorecard performance evaluation is

reviewed from four perspectives, namely the customer perspective, growth and learning perspective, internal business perspective, and financial perspective.

In addition to performance measurement tools, the balance scorecard is also used as a strategic management system to manage a corporation's strategy in the long term (Yuwono, 2007).

PKU Muhammadiyah Karanganyar Hospital is one of several hospitals in Karanganyar Regency. With its presence among several existing hospitals, PKU Muhammadiyah Karanganyar Hospital must show maximum performance and be able to provide the best service so that it can become the public's preferred hospital. In addition to providing healthcare, hospitals are also required to always maintain their existence including all existing units to develop optimally. PKU Muhammadiyah Karanganyar Hospital utilizes a performance measurement system using the balance scorecard method in order to improve hospital performance sustainably so that it can provide services needed by the public quickly, effectively, integrated, and professionally.

With the Minister of Health Regulation (PMK) number 24 of 2022 concerning Medical Records, Healthcare facilities are required to implement a patient medical history recording system electronically. The transition process will be carried out no later than December 31, 2023. In practice, electronic medical records are highly dependent on the ability and readiness of the information technology unit that it is deemed necessary to evaluate the performance of the information technology unit to be able to determine the extent of the capability and readiness of the information technology unit to implement electronic medical records. So far, the information technology unit at PKU Muhammadiyah Karanganyar Hospital has administered the Hospital Management Information System (SIMRS) which is an integrated system of various units in the hospital which is the process of outpatient registration, inpatient registration, Emergency Installation, Specialist Polyclinic, pharmacy, Laboratory, Radiology, Physiotherapy to the inpatient ward. The essence of the Management Information System (SIMARS) is medical and financial record reporting. This research was conducted to assess how the information technology unit's performance was in administering SIMRS from January to September 2022. With the results of this assessment, it can be concluded that the readiness of the information technology unit in running an electronic medical record system.

## **II. Method**

The process of measuring the performance of the information technology unit using a balanced scorecard uses a quantitative method, namely by collecting, analyzing and displaying data based on:

### **1. Customer's Perspective**

In the perspective of the customer balance scorecard, a corporation needs to first determine the target market segments and customers. Managers must determine the best measurement tool to measure the performance of each operating unit in an effort to achieve financial targets.

If a corporation wants to achieve great financial performance in the long term, it must create and provide a new product or service that is of better value to customers.

Customer benchmarks are divided into two groups, namely the core measurement group and the customer value proposition (support group). The core group or core measurement consists of:

- market share
- customer acquisition
- customer retention.
- customer satisfaction
- customer profitability

While this support group is divided into three groups, namely:

- Product attributes (price, quality, function)
- Customer relations
- Image and reputation

### **2. Growth and learning perspective**

The Balanced Scorecard perspective provides the infrastructure for achieving the other three perspectives as well as for producing long-term growth and improvement.

It is important for a corporation to invest not only in equipment to produce products or services but also investing in infrastructure, namely human resources, systems, and procedures.

Benchmarking the performance of financial, customer, and internal business processes can trigger large gaps between the existing capabilities of people, systems, and procedures.

To reduce this gap, a corporation must invest in reskilling employees, namely increasing system capabilities and information technology, and rearranging existing procedures.

### **3. Internal business process perspective**

The internal business process perspective displays critical processes that enable corporations to provide value propositions that are able to attract and retain customers in the desired market segments and satisfy shareholders.

Each corporation has unique processes and values for its customers. In general, this is divided into 3 basic principles from an internal business process perspective, namely:

- Innovation Process**

The innovation process is the most important part of the entire production process. Though there are also corporations that place innovation outside the production process.

The innovation process itself consists of two components, namely: identifying customer desires and carrying out the product design process according to customer wishes.

If the innovation results from the corporation not in accordance with the wishes of the customer, then the product will not receive a positive feedback from the customer. This does not provide additional income for the company.

The point is the innovation process must be able to provide the value that consumers want.

- Operation Process**

Operations process is an activity carried out by a corporation. The operational process is seen from planning, formation of raw materials to finished products, marketing processes, to transaction processes between corporations and buyers.

The operational process emphasizes the delivery of products to customers in an efficient and timely manner.

This process, based on facts, is the main focus of the performance measurement system in most organizations.

- After-sales service**

After-sales service is a service provided by a corporation to consumers as a guarantee for the quality of products purchased by consumers.

There are many after-sales services such as consulting services, repairs, maintenance to warranty.

### **4. Financial perspective**

In the balance scorecard, the financial perspective is a perspective that cannot be ignored.

The measurement of financial performance shows whether the planning, implementation, and execution as well as strategies provide fundamental improvements.

These improvements can be in the form of gross operating income, return on investment or economic value added. The Balance Scorecard can further explain the achievement of the vision that plays a role in realizing the increase in wealth as follows:

- Increased customer satisfaction through increased revenue.
- Increased productivity and employee commitment through cost effectiveness resulting in increased profits
- Increasing a corporation's ability to generate financial returns by reducing the capital used or investing in projects that generate high returns.

The principle of the balance scorecard must have a balance between a financial perspective and a non-financial perspective

The steps taken are as follows:

- a) The establishing of indicators from the four perspectives in the balance scorecard.
- b) The establishing of Operational Definitions
- c) The establishing of Numerator and Denumerator.
- d) Collection and measurement of indicators from the four perspectives in the balance scorecard

### **III. Results and Discussion**

- a) Indicator Establishment

Key Performance Indicators (KPI) is a measuring tool that describes the effectiveness of a corporation in achieving business objectives.

Put simply, Key Performance Indicators (KPI) is a term used to refer to key performance indicators that need to be implemented by various organizations.

Corporations that use KPIs have objectives to measure their success in achieving their objectives.

The definition of Key Performance Indicators has been defined by researchers as follows:

1. Veta (2012)

KPI is a quantitative and a step-by-step indicator of a corporation with different perspectives and is based on concrete data which is formulated as a starting point for setting objectives with organizational strategy.

2. Warren (2011)

KPI is an indicator of how an organization implements its strategic vision. The intended strategic vision refers to how an organizational strategy is interactively integrated with the overall strategy of an organization.

3. Parmenter (2007)

Defines KPIs as those that are most important to an organization's success in its current and future situations

4. Banarjee dan Biotik (2012)

KPI is measurable, quantitative indicators that are used to assess an organization's performance in achieving its objectives. KPI is also used to identify measurable objectives, and refer to support for trends and decisions.

In a broad definition, Key Performance Indicators can be defined as a decision-making tool that is useful because it helps organizations or corporations measure individual performance and assess the performance of the organization itself to achieve its objectives within the range of vision and strategy.

In practice, KPI has the following characteristics:

- Regular Measurements
- Non-Financial Measurements
- Measurements known by management
- All parties in an organization already know and understand KPIs
- Responsibility towards teams and individuals
- Has a very significant and comprehensive effect
- Has a more positive effect.

The following is the establishing of indicators in evaluating the performance of information technology units in e-medical record readiness:

1. Customer's Perspective

Customer's Perspective in this case assesses the performance of the information technology unit in order to prepare for the implementation of the electronic medical record system by making an assessment based on the extent of the response of the information technology unit in handling various complaints from users of the Hospital Management Information System (SIMRS). It is illustrated as how the performance of the Information Technology Unit is in handling user complaints. The indicator from the Customer's Perspective is determined to optimize the empowerment of information technology units in handling SIMRS user complaints.

2. Growth and Learning Perspective

The Growth and Learning Perspective in this case assesses the readiness of the information technology unit in implementing the electronic medical record system by evaluating an accurate system or module. This can be seen from the results of the output of the system or module that are correct. The indicator set from the Growth and Learning Perspective is optimizing the empowerment of information technology units based on accurate systems or modules.

3. Internal Business Process Perspective

The internal business perspective in this case assesses the readiness of the information technology unit in implementing the electronic medical record system by making an assessment based on the extent to which the information technology unit has successfully completed the system or module that should be completed by the third trimester of a given year. The indicator set from an internal business perspective is optimizing the empowerment of information technology units based on the system or module that has been made.

**4. Financial Perspective**

The financial perspective in this case assesses the readiness of the information technology unit in implementing the electronic medical record system, by evaluating the realization of the budget that has been set. So that the indicator set from a financial perspective is the optimization of the empowerment of information technology units based on the realization of a predetermined budget.

b) Operational Definition Establishment

Setting the operational definition is a target that must be achieved by each indicator so that the objectives of each indicator can be achieved.

**1. Customer's Perspective**

Assessment of the performance of the information technology unit based on the handling of user complaints is  $\geq 80\%$

**2. Growth and Learning Perspective**

Assessment of the performance of information technology units based on accurate modules is  $\geq 80\%$

**3. Internal Business Process Perspective**

Assessment of the performance of the information technology unit based on the system or module that has been made is  $\geq 80\%$

**4. Financial Perspective**

Assessment of the performance of the information technology unit based on the realization of a predetermined budget is  $\geq 80\%$ .

c) The Establishing of Numerator and Denominator

The Numerator is a group in a population that has certain characteristics and the Denominator is a certain population.

In assessing the performance of the information technology unit in e-medical record readiness, the numerator and denominator for each indicator are determined as follows:

1. Customer's Perspective

Numerator :Successful handling of user complaints

Denominator : Total complaints in a month

2. Growth and Learning Perspective

Numerator : Output system or accurate model

Denominator : Total Output or system

3. Internal Business Process Perspective

Numerator : System or model that has been created

Denominator : Total system module that should be created

4. Financial Perspective

Numerator :Realization of the budget that was set

Denominator : Total Budget

d) Collection and Measurement of Data

In principle, data collection activities are activities that use predetermined methods and instruments. In simple terms, data collection is defined as a process or activity carried out by researchers to reveal information or situations in accordance with the scope of research. In assessing the performance of the information technology unit in e-medical record readiness, data collection was carried out using a quantitative research approach.

The evaluating of the performance of the information technology unit in e-medical record readiness used data from January to September 2022, with the following results:

1. Customer's Perspective

Data	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
Complaint handling success	43	57	66	59	71	53	84	59	46
Total complaint	45	63	71	61	77	58	84	63	49
Percentage	96%	90%	93%	97%	92%	91%	100%	94%	94%

From the data above, the average Complaint handling success was 94%, while the target was  $\geq 80\%$ . This meant that the technology and information unit was successful in handling user complaints.

## 2. Growth and Learning Perspective

Data	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
Output system or accurate module	100	100	100	100	100	100	100	100	100
Total system or module	100	100	100	100	100	100	100	100	100
Percentage	100%	100%	100%	100%	100%	100%	100%	100%	100%

From the data above, the average output of an accurate system or module was 100%, while the target was  $\geq 80\%$ . This meant that the technology and information units were able to produce accurate systems or modules in each system or module creation.

## 3. Internal Business Process Perspective

Data	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
System or module created	8	4	4	5	4	5	4	6	6
Total system or module that should be made	8	4	4	5	4	6	6	6	7
Percentage	100%	100%	100%	100%	100%	83%	67%	100%	86%

From the data above, the average system or module made was 93%, while the target was  $\geq 80\%$ . This meant that the information technology unit was able to make the system or module that should be made.

## 4. Financial Perspective

Data	Realization of the budget that was set (Rp)	Total Budget (Rp)
Jan	47.290.000	66.666.667
Feb	23.070.000	66.666.667
Mar	32.825.000	66.666.667
Apr	30.695.000	66.666.667
May	77.170.000	66.666.667
June	21.499.000	66.666.667
July	18.105.000	66.666.667
Aug	31.090.000	66.666.667
Sept	15.205.000	66.666.667
Total	295.154.000	600.000.000
Achievement	49%	

From the data above, the realization of the budget that was set was 49%, while the target was  $\geq 80\%$ , this meant that the realization of the budget that was set has not been achieved as expected.

#### **IV. Conclusion**

Of the four indicators above, three from a customer perspective, Growth and Learning Perspective, and Internal Business Process Perspective achieved  $\geq 80\%$ , while the Financial Perspective only achieved 49% which was below the target that should have been  $\geq 80\%$ .

Meanwhile, in the balance scorecard principle, there must be a balance between the Financial Perspective and the non-financial perspective.

In this case, the technology and information unit must make improvements to the Financial Perspective in the next 3 months until the end of the 2022 fiscal year in order for the information technology unit to be truly ready for the implementation of e-medical records which is targeted to run in December 2023.

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