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Zoo Keeper Key Performance Indicator (KPI) Model Development at Maharani Zoo Conservation Institute

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Abstract: Performance measurement has been used to determine the achievements of the company goals. Business performance evaluated from goals achievements comparing result and the goal strategies that had been set. Maharani Zoo and Conservation Institutions were organized activities on the main function as the last resort in the breeding of extinct or endangered fauna in the wild. The aimed of this study to explore implementation and development the key performance indicators on the conservation institute. Qualitative method using case study implemented on this study. Data acquired by in-depth Interview and observation method and involved informants in many structural levels to triangulation confirmation. The data was analyzed using the Interactive Analysis Method according to Miles and Hubberman and combined with Spradley Qualitative Data Analysis, Domain Analysis and Taxonomy. The results of the study showed that Zoo Keepers was showed good in performance daily works based on their experienced and high passion motivated, even there was no Key Performance Indicators conducted at Maharani Zoo's. The impact of this study that management was developed Key Perfomance Indicators for Zookeepers towards improving the Zookeepers' performance and institution and animal sustainability.

Keywords: Conservation Institution; Indicator Models; Key Performance; Performance Measurement

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1. Introduction

Modern zoos have developed beyond recreational functions and increasingly contribute to ex situ conservation, education, research, and biodiversity protection (Miranda et al., 2023; Mooney et al., 2020). In Indonesia, zoo management is likewise closely associated with animal welfare and conservation practices, requiring appropriate management of both animals and personnel (Arba et al., 2023). Consequently, organizational effectiveness in conservation institutions depends not only on animal-care standards but also on the capacity of employees to consistently perform responsibilities aligned with institutional objectives.

Maharani Zoo, as an ex situ conservation institution, performs an important role in maintaining and breeding wildlife outside natural habitats. Based on the conditions observed at the institution, animal welfare practices and animal development have received considerable attention. However, a management gap remains in human-resource development, particularly in the consistency, structure, and objectivity of employee performance assessment. Performance indicators have also not yet been positioned as an integrated instrument for evaluating zookeepers' contribution to institutional objectives. Similar attention to human-resource planning, job responsibilities, and performance assessment has been identified as an important component of zoo management in other Indonesian zoo settings (Lahagu & Pranoto, 2024).

Objective performance measurement requires indicators that translate organizational objectives into observable and measurable achievements. Recent studies emphasize that Key Performance Indicators

(KPIs) can provide a structured basis for performance monitoring, evaluation, and managerial decision-making (Pramita et al., 2025; Uzule et al., 2024). KPI-based systems have also been applied to employee appraisal and performance monitoring by combining measurable indicators, weighting, and systematic evaluation (Aisah & Hastasari, 2025; Nadas et al., 2024).

The use of measurable indicators is particularly relevant where employee responsibilities are directly connected to organizational objectives. Previous studies have demonstrated the application of KPI-based performance systems to establish clearer performance targets, monitor achievement, and support more objective evaluation (Nageotte et al., 2024; Oey et al., 2022). KPI frameworks have also been integrated with Balanced Scorecard and other performance-management approaches to connect operational indicators with broader organizational strategies (Kumar et al., 2024; Setiawan & Fauziah, 2020).

Within zoo management, however, the literature has predominantly addressed conservation outcomes, animal welfare, visitor engagement, and institutional functions (Fourage et al., 2023; Mooney et al., 2020; O'Brien & Cronin, 2023). Animal welfare itself requires systematic and evidence-based assessment using appropriate indicators, while zoo personnel play an important role in implementing husbandry and welfare practices (Ward et al., 2024). These studies establish the importance of measurable management and welfare outcomes, but they do not directly address a KPI model specifically designed to translate zookeeper responsibilities and conservation objectives into an integrated employee-performance assessment system. This constitutes the contextual gap addressed by the present study.

Accordingly, this study aims to develop a Key Performance Indicator (KPI) model as an objective and measurable performance assessment instrument for zookeepers at Maharani Zoo. Specifically, the study seeks to: (1) assess the extent to which zookeepers understand and apply KPIs in achieving their daily work targets; (2) formulate strategic goals for zookeepers as guidelines for achieving their work objectives; and (3) develop a KPI model that translates these strategic goals into objective and measurable performance indicators for zookeeper performance assessment.

2. Basic Concepts

1. Performance. Employee performance refers to the achievement of work results in relation to predetermined targets and responsibilities. Performance assessment is therefore used to evaluate the extent to which employees accomplish their assigned duties within a specified period (Cushway, 2002; Nur'aini, 2017).
2. Performance Measurement. Performance measurement is a systematic process for assessing individual contributions to organizational objectives. It provides a basis for evaluating whether activities and outcomes are consistent with predetermined organizational expectations (Bernardin & Russell, 1993).
3. Strategic Goals. Strategic goals represent statements concerning the outputs, outcomes, processes, or inputs that an organization seeks to achieve. They provide the direction for translating organizational strategy into measurable performance expectations (Moeheriono, 2012).
4. Key Performance Indicators (KPIs). KPIs are measurable indicators used to evaluate the extent to which organizational or individual targets are achieved. In this study, KPI development follows the SMART principle, namely Specific, Measurable, Achievable, Result-oriented, and Time-based, to ensure that performance indicators can be assessed objectively and consistently.

3. Materials and Methods

This research is qualitative descriptive. The primary data sources were obtained from the informants using the Depth Interview method, while the Data Analysis used the Interactive Analysis Method according to Miles and Hubberman and combined with Spradley Qualitative Data Analysis, namely Domain Analysis and Taxonomy.

4. Results and Discussion

4.1. Zookeeper's Job Descriptions

To ensure that all Zookeepers carry out their duties properly, Job Description has been prepared as follows.

Job Objectives:

a. To achieve animals' health and welfare through conditioning a clean and healthy enclosure

Duties and responsibilities

- Preparing, serving, and feeding the animals.
- Clean the enclosure area, including the pool if there is a pool in the cage.
- Ensure that animals live as close to their natural habitat as possible.
- Check signs of illness and report to Captain or Veterinarian
- Periodically check the feasibility of a cage, wall, fence whether there are signs of wear or damage.
- Monitor enclosure environmental conditions, such as temperature, humidity, enclosure ventilation.
- Keep a daily log for each animal.
- Ensure that the animals are safe from natural predators and are not threatening visitors and the Zookeepers.
- Provide education to visitors about animals that are under their responsibility.

4.2. Informant Interview Questions

To get the Primary Data, the author conducted a Depth Interview with Informants. The informants are: Animal & Conservation Department Head, Captain Area (3 people) and Zookeepers (3 people). To each informant given 8 open questions to be answered completely, freely and clearly.

1. What do you know about Performance Indicators/ Measures for an employee?
2. What are the main tasks of a Zookeeper?
3. Whatever are the Key Performance Indicators (KPI) for Zookeepers to achieve the goal in carrying out the duties?
4. How should a Zookeeper serve the animal food so that he is considered successful in his work ?
5. What is the condition of the animals so that the Zookeeper is considered successful in his work?
6. What is the condition of the cage so that the Zookeeper is considered successful in his work?
7. What knowledge is needed to improve the performance of the Zookeepers?
8. What training is needed to improve performance of the Zookeepers?

Of the eight questions are divided into two types, namely: main questions number 1 and 3 and supplementary questions number 2, 4, 5, 6, 7 and number 8.

4.3. Variants of Informant Answers

The main question for revealing informants' knowledge and understanding of performance indicators and key performance indicators. As for additional questions to complete the knowledge and understanding of the informants on daily activities. Here additional questions also have important functions, especially for completing data and information when analyzing the data and formulating key performance indicator models.

From the depth interview the main questions are obtained by variations of the Informant's answers as follows:

1. Department Head’s answers toward What do you know about Performance Indicators/ Measures for an employee ?
   - Compliance toward company regulations
   - Compliance toward the job descriptions
   - Employees are able to carry out their duties as well as possible
2. Area Captain’s answers toward What do you know about Performance Indicators/ Measures for an employee ?
   - Captain 1: Discipline, following the rules, not breaking the rules, having innovation, because if workers work monotonously, the company will not develop
   - Captain 2: Judging from employee’s work skills, discipline
   - Captain 3: Work plenty, talk less
3. Zookeeper answers toward What do you know about Performance Indicators/ Measures for an employee ?
   - Zookeeper 1: Cooperation, solidarity, disciplined, obeying regulations, stand by in front of the cage after cleaning up.
   - Zookeeper 2: Disciplined, polite, responsible, honest, and loyal employees because they are in the service sector.

- Zookeeper 3: Employees work hard, are resilient, are responsible for their work

4. Department Head's answers toward Whatever are the Key Performance Indicators (KPI) for Zookeepers to achieve the goal in carrying out the duties?
   - Achievements in carrying out tasks can be seen from indicators such as: cage conditions.
   - Animal conditions.
   - Death records and birth records.
   - And the existence of two-way communication between keepers and doctors, and keepers with paramedics.
5. Area Captain's answers toward Whatever are the Key Performance Indicators (KPI) for Zookeepers to achieve the goal in carrying out the duties?
   - Captain 1: Animals are healthy, breed and behave normally, Zookeepers know animals deeply because they interact with animals more intensely
   - Captain 2: Animals are prosperous and breed, Zookeepers bond with the animals and continue to skill-up
   - Captain 3: Animals can breed, animals don't get sick, animal acts as if in their habitats, grow normally, provided with good meal
6. Zookeeper answers toward Whatever are the Key Performance Indicators (KPI) for Zookeepers to achieve the goal in carrying out the duties?
   - Zookeeper 1: Animal offsprings born often; if there are animals that cannot mingle, efforts for interactions with other animals should be made.
   - Zookeeper 2: Animals are prosperous and safe, can breed, not stressed, behave normally.
   - Zoo Keeper 3: Animals grow and are comfortable, easily approached for interaction, and can be tamed.

Based on the informant's answers above, it shows that the same questions to different informants will produce varied answers. The number 1 main question about Employee Performance Indicators getting 28 variations of answers, and the number 3 main question about the Key Performance Indicator (KPI) for Zookeeper getting 32 variations of answers, so the total variation of answers of the main questions was 60 variations of answers.

From these varied answers, classification was then made. The method for preparing the classification are:

1. Deepening each answer.
2. Find similarities on each answer.
3. Find relationships with each other.
4. Find independent answer.
5. Find not similar answer.

The similar answers, relationships with one another are then combine into the same classification. Based on 60 variations of these answers, the authors found:

1. *Similar answers*; are answers that have similarities and relationships between answers to one another: 47 (78%).
2. *Independent answers*; that is a independent answers, not related to other answers, but has a meaning that refers to certain conditions or indicators: 2 (4%).
3. And *answers that were not similar*; are general answers, or answers that do not match the questions asked: 11 (18%).

The following is a variation table of the informants' answers.

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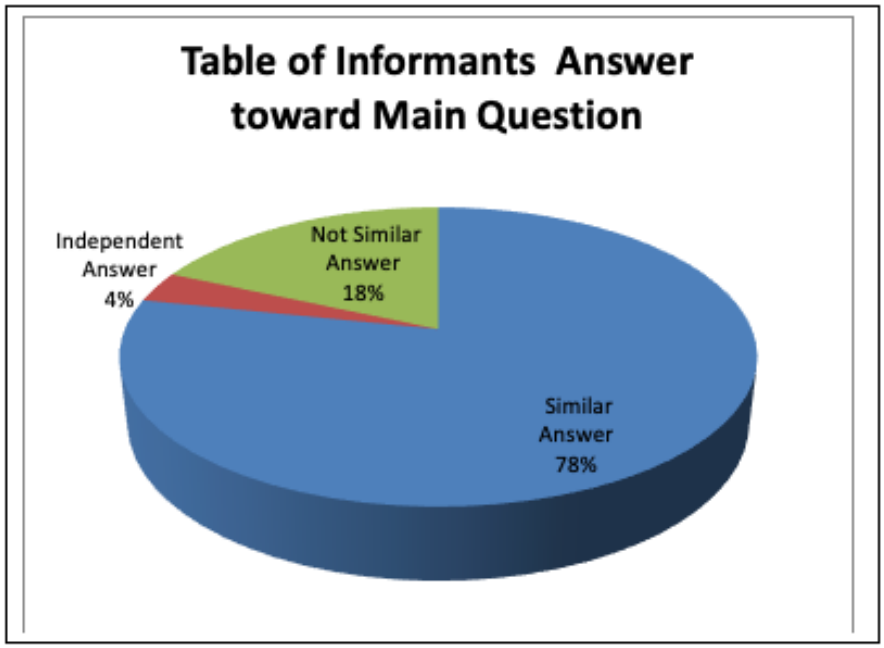


Figure 1. Table of Informants Answer

4.4. Zookeeper Strategic Goals

As explained above, 47 similar answers and 2 independent answers were combine into 9 classifications, which describe certain attitudes, behaviors or conditions. The intended classification is:

1. Discipline
2. Competent and hard working
3. A work attitude with integrity
4. Animals breeding
5. Animal health
6. Animal welfare
7. Interaction with animals/getting to know animals more
8. Services toward visitors
9. Feeding animals

After conducting an in-depth study of the 9 classifications, then linked to Zookeeper's Standard Operating Procedure, Zookeeper's Job Description and in-depth interviews with leaders of conservation organizations, the following are recommendations for Zookeeper's Strategic Goals. As is known, the strategic goals is an objective guide that must be achieved by Zookeeper in carrying out daily tasks.

1. Discipline
2. Animal Health
3. Animal Welfare
4. Animal Breeding
5. Animal Recognition
6. Cage Cleanliness
7. Animal feed adequacy and
8. Services toward Visitors.

4.5. Zookeepers Key Performance Indicator

Based on the identification of the 8 Strategic Goals, Key Performance Indicators can be established which number 26 indicators. The Model Key Performance Indicator is as follows:

Table 1. Strategic Goal and Key Performance Indicator for Zookeepers

No	Strategic Goal	Key Performance Indicator
1	Disciplinary	1. Reprimand counts

		2. Employee Warning Letter counts
		3. Late attendance in one month counts
2	Animal Health	1. Percentage of sick animals
		2. Percentage of animal mortality
		3. Percentage of underweight animals
		4. Percentage of overweight animals
		5. Percentage of animal with old age
3	Animal Welfare	1. Percentage of animals with normal activities
		2. Percentage of animals with abnormal or passive activities
		3. Animal enrichment counts inside the cages
4	Animal Breeding	1. Percentage of female animals giving birth
		2. Percentage of animal offsprings that born alive
		3. Percentage of animal offsprings that born death
		4. Percentage of female animals that aren't giving birth
5	Animal Recognation	1. Average time of the Zookeeper' interactions with the animals
		2. The number of the animal characteristics that the Zookeeper is familiar with
6	Cage Hygiene	1. Cage cleaning frequency in a day
		2. Customer complaint counts regarding the cage hygiene
		3. Customer appreciation counts regarding the cage hygiene
		4. Estimated time to clean the cage
7	Animal Ration Adequacy	1. Animal feeding frequency in a day
		2. Percentage of animal feed leftovers
8	Services Toward Visitors	1. Customer satisfaction toward the Zookeeper's services counts
		2. Customer complaints toward the Zookeeper's services counts
		3. Zookeeper's average customer service duration time

5. Conclusions

Based on the results of the analysis and discussion, it can be concluded as follows:

1. Based on the research, it produced: 8 strategic objectives, then from the strategic objectives it was translated into 26 Key Performance Indicators. This is to recommends as the Model Development of Key Performance Indicator (KPI) for Zookeeper.
2. The Zookeepers have had the comprehension toward the Key Performance Indicators at the operational level, even though they have never received Key Performance Indicators training. The training obtained by Zookeeper is about daily routine tasks.
3. To improve performance, Maharani Zoo gradually needs to implement performance appraisals where the KPI is one of its instruments, starting from the Zookeepers and then to other work units.

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