DEVELOPMENT OF MANAGEMENT INFORMATION SYSTEM HUMAN RESOURCES IN PT. SINKONA INDONESIA LESTARI

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ABSTRACT

Sinkona Indonesia Lestari PT is a company which produce quinine salts and derivatives to be supplied to many industries around the world, especially the pharmaceutical, beverage and chemical industries. Sinkona Indonesia Lestari PT was established in 1986, October 25th located in Ciater District Subang, West Java.

Based on interview with Mr. Dani Santika as Assistant Manager of HRD at PT Sinkona Indonesia Lestari stated that in recruitment process, those are many obstacles occur in decision-making of new employee due selection tests which takes a long time by the assessment team within the company and third partnership. The effect there is empty position in operational activities on the decreasing level of performance with the consequence of worker become increasing. Otherside, on the performance appraisal that is still doubtful because attandance, nothing employee performance appraisal standard that consider other criteria, consequently the process that occurs will be hamper the evaluation of employee performance appraisal. The method will be used to determine the performance in this case is Analytical Hierarchy Process.

Based on results of blackbox and beta testing can be concluded that the system can assist Supervisor Department and other relevant parties to support in handling recruitment, decision making in conducting employee performance appraisal.

Keywords : *Analytical Hierarchy Process, Management information system, human resources.*

1. INTRODUCTION

Sinkona Indonesia Lestari PT is a company which produce quinine salts and derivatives to be supplied to many industries around the world, especially the pharmaceutical, beverage and chemical industries. Sinkona Indonesia Lestari PT was established in 1986, October 25th located in Ciater District Subang, West Java.

Based on interview with Mr. Dani Santika as Assistant Manager of HRD at PT Sinkona Indonesia Lestari stated that there are still obstacles in the selection of new special labor that will be accepted because the process of receiving the required employee candidates will be selected first from the administrative phase, written test, interview, psychological test and health test. The screening stage in employee recruitment requires an appraisal team from within the company and a third party to determine appropriate or not with the criteria that the company. This resulted in the HRD requires quite a long time in deciding the outcome of the decision of the new employees who have the special personnel to fill the vacancy required positions. In addition, the delay in the process of receiving employees experienced operational losses on the decline in the level of performance with the consequences of the burden of technical personnel work to be increased.

Another problem is Mr. Dani Santika as Assistant Manager at PT. Sinkona Indonesia Lestari is related to performance appraisal. Performance appraisal is conducted to motivate the performance of each employee in the determination of annual bonus. In addition, the performance appraisal will be a reference for permanent employee appointment and promotion determination. Current performance assessment conducted by the Department Supervisor stated that there is no standard of

employee performance appraisal based on the assessment that considers other criteria, then consequently the employee is only the end result that is not in accordance with the results of its performance without knowing what criteria are assessed.

The purpose of this study, to build the information system of human resources management at PT. Sinkona Indonesia Lestari. While the purpose of the research is as follows:

1. *Assist in planning and decisions making on the acceptance of employees in accordance with the criteria of the company so that no vacancy in office for a long time.*
2. *Assist Supervisor Department in conducting employee performance assessment of decision making in accordance with the criteria, to motivate employees in the improvement of the performance accomplishments will be a reference for recruitment and determination promotion.*

2. RESEARCH CONTENTS

2.1. Management Information Systems

Management information system can be defined as a set of subsystems that are interconnected, gather together and form a unity, interact and cooperate between parts with each other in certain ways to perform data processing functions, receive input (input) data, then process it, and produce the output (output) in the form of information as a basis for making decisions that are useful and have real value that can be felt as a result either at that time or in the future, support operational activities, managerial, and strategic organization , by utilizing the various resources available and available for the function to achieve the goal.[1]

2.2 POAC (Planning Organizing Actuating Controlling)

Management is the achievement of predetermined objectives by using the activities of others consisting of planning, organizing, actuating, and controlling [2]. The POAC Management function is as follows:

a. *Planning (Planning) Is an activity related to the selection of alternatives - alternatives, policies - procedures, and programs - programs as a form of business to achieve goals to be achieved. Four basic skill levels in planning activities:*
    1. *Insight: the ability to gather facts by conducting an inquiry into matters relating to the planned problem.*
    2. *Forsight: ability to project or illustrate the way or means to be taken, to estimate the circumstances that may arise as a result of the activities performed.*
    3. *Explorative study: the ability to see everything in its entirety, to obtain an integral picture of the existing conditions.*
    4. *Doorsight: the ability to know every way that can disguise the view, making it possible to make decisions.*
b. *Organizing Is an action or activity incorporating all the potential that exists from all parts of a group of persons or bodies or organizations to work together in order to achieve mutually determined goals, whether for personal or group and organizational purposes. In the organization known KISS terms (coordination, integration, simplification, and synchronization) in order to create harmony in organizational activitiesi.*
c. *Actuating is an implementation of planning and organizing, where all components that are in one system and one organization work together in accordance with their respective fields to be able to realize the goal.*
d. *Controlling s the control of all activities of the planning, organizing and implementation process, whether all activities provide effective and efficient results.*

2.3 The Method Of Analytical Hierarchy Process (AHP)

The main equipment of AHP is a functional hierarchy with the main input of human perception. The existence of a hierarchy allows the breaking up of complex problems or unstructured in sub-sub problem, then organize them into a hierarchy. AHP has a lot of advantages in explaining the decision-making process. One of them is can be described graphically so that it is easily understood by all parties involved in decision making. In resolving the problems of AHP there are some principles that must be understood, including the : [3]

1. ***Create a hierarchy***

Complex systems can be understood with the break it down into the supporting elements,

composing elements in the hierarchy, and combine them or synthesize them.

2. *Assessment criteria and alternatives*

Criteria and alternatives are done by pairwise comparisons. According to Saaty (1988), for various issues, a scale 1 to 9 is the best scale for expressing opinions. The value and definition of qualitative opinion from the comparison scale of Saaty can be measured using the analytical table as below :

Table 1. Scale Of Assessment Of Comparative Pairs

The Intensity Of Interest	***Description***
1	*Kedua elemen sama pentingnya*
3	*Elemen yang satu sedikit lebih penting daripada elemen yang lainnya*
5	*Elemen yang satu lebih penting daripada elemen lainnya*
7	*Satu elemen jelas lebih mutlak penting daripada elemen lainnya*
9	*Satu elemen mutlak penting daripada elemen lainnya*
2,4,6,8	*Nilai-nilai antara dua nilai pertimbangan yang berdekatan*
Kebalikan	*Jika aktivitas I mendapat satu angka dibandingkan dengan aktivitas j, maka j memiliki nilai kebalikannya dibandingkan dengan i*

3. *Synthesis of priority (Determine Priority)*

For each criteria and alternatives, paired comparisons need to be made (pairwise comparisons). Comparison of the relative values of the entire alternative criteria can be adjusted with the judgment that has been determined to make weight and priority. Weight and priority calculated by manipulating the matrix or through the completion of a mathematical equation. Considerations against the paired comparisons in order to obtain an overall synthesis of priorities. The things done in this step are :

a. *Sums up the values of each column in the matrix.*
b. *Divide each value from the column with the total column in question to obtain the normalization of the matrix.*
c. *Add up the values of each row and divide it by the number of elements to get the average value.*

4. *Logical Consistency*

Konsistensi memiliki dua makna. Pertama, objek-Consistency has two meanings. First, the objects that are similar can be grouped in accordance with the uniformity and relevance. Second, regarding the level of antarobjek relations that are based on certain criteria. In making the decision, it is important to know how well the consistency that exists because we do not want decisions based on considerations with low consistency. Things to do in this step is :

a. *Multiply each value in the first column with priority relative the first element, the value in the second column with the relative priority of the second element, and so on.*
b. *Total each row*
c. *The result of the sum of the line divided by the corresponding element of relative priorities.*
d. *Total the quotient above with many existing elements, the result is called the Max.*

Here are the steps to calculate a ratio consistency :

1. *Calculate the Consistency Index (CI) with the formula:*
   $\boldsymbol{CI = (\lambda\, maks - n)/n}$
   Where n = the number of elements
2. *Calculate The Ratio/Consistency Ratio (CR) with the formula:*
   CR = CI/RC
   Where: CR = Consistency Ratio
   CI = Consistency Index
   IR = Indeks Random Consistency
3. *Check the consistency of the hierarchy. If the value is more than 10%, then the data assessment judgment must be repaired. But if the ratio of consistency (CI/IR) less or equal to 0,1, then the calculation result can be declared properly.*
   List of Random Consistency Index (IR) can be seen in the table below :

Table 2. List Of Random Consistency Index

The Size Of The Matrix	***The Value Of R***
1,2	*0,00*
3	*0.58*
4	*0.90*
5	*1.12*
6	*1.24*
7	*1.32*
8	*1.41*
9	*1.45*
10	*1.49*
11	*1.51*
12	*1.48*

The Size Of The Matrix	The Value Of R
13	1.56
14	1.57
15	1.59

2.4 Analysis of planning the amount of labor and Employee Criteria based on Vacancy

1. Planning

Stages of Planning is the planning phase of the human resource needs by determining the number of employees needed to know the criteria to fill the post on an empty Department.

Table 3. The determination of the conditions of Production and Processing Section Staff Alkaloids

The Office of the	Terms Of Position
Staff Production processing and Alkaloids	1. Minimal education SMK Chemical Analyst
	2. Work experience (0-1)
	3. Minimum age 18 years
	4. Expertise on the handling of chemicals, packaging materials and Goods.

2. Organizing

Stages of organizing the planning needs of the amount and the criteria is in compliance with the procedure Sinkona Lestari, PT Indonesia done to request approval of the open job postings to the Board of Directors to do or not from the stage of Planning that was made.

3. Actuating

Stages of implementation, where Assistant Manager of HRD will open up new jobs by way of berkordinasi to the institution, disnaker, labour market or labor from outside the company to need manpower at the Department of Production part of implementing processing and alkaloids, by specifying the amount and the criteria for the job.

4. Controlling

Stage to conduct surveillance against a process that has been conducted in the previous stage. This stage can also make changes to planning submissions, if there are still deficiencies in determining the amount of the proposed criteria or the Department concerned.

2.5 Analysis of Acceptance and selection of Employees

1. Planning

The planning stages of acceptance and selection of employees is done due to a vacancy or a need for additional manpower at the Ministry of production. At the stage of acceptance and selection of employees is going to do the determination of criteria with does it weigh to suit the needs of the company.

2. Organizing

Stage pengorganisiran the criteria already made tailored to the stage of planning. This stage checks whether prospective employees have already qualified and that is not the criteria required.

3. Actuating

Table 4. The Examination Of The Suitability Of The Prospective Employee Data

Name	Education	The age of	Special Abilities	Work Experience	Description
Arief Fadillah	SMK	21	Analis Kimia	0	Sesuai
Fatimah Sri M	SMK	20	Analis Kimia	1	Sesuai
Fauzan Khoeruman	SMK	22	Analis Kimia	1	Sesuai
Vikri Ardiansyah	SMK	19	Analis Kimia	1	Sesuai
Firman M Azis	SMK	18	Analis Kimia	0	Sesuai
Herman Hermawan	Sarjana	25	Analis Kimia	2	Sesuai

Table 5. The Assessment Of The Written Test Selection

No	Name	The Value Of The General (PG)	Rating (PG) Skill + Values Essay	The Total Value Of
1	Arief Fadillah	6.00	15.40	21.40
2	Fatimah Sri M	4.80	12.60	17.40
3	**Fauzan Khoeruman**	8.40	64.40	**72.80**
4	Vikri Ardiansyah	6.00	18.67	24.67
5	**Firman M Aziz**	12.00	17.73	**29.73**
6	**Herman Hermawan**	10.80	24.27	**35.07**

Table 6. The Assessment Of The Selection Tests Interview

The Names Of Prospective Employees	HRD Manager	Related Department Manager	The Total Number Of
Fauzan Khoeruman	31	33	32
Firman M	23	21	22

The Names Of Prospective Employees	HRD Manager	Related Department Manager	The Total Number Of
Azis			
Herman Hermawan	33	33	33

Table 7. Assessment of Psychotest Test Selection

The Names Of Prospective Employees	The Average Value Of Psychological Test
Fauzan Khoeruman	31
Firman M Azis	28
Herman Hermawan	31

4. *Controlling*

The stage of the examination of the results of the selection of prospective employees who will be the best option and received by the company.

Table 8. The Overall Results Of Test

The Names Of Prospective Employees	The Value Of The End Of Test	The Average Value Of The Interview	The Average Value Of Psychological Test	Health Test Results
Fauzan Khoeruman	**73**	**32**	**31**	**FIT**
Firman M Azis	30	22	28	FIT
Herman Hermawan	**35**	**33**	**31**	**FIT**

2.6 Analysis Of The Adoption Contract Employees To Remain

1. *Planning*

The planning phase is done by HRD to specify which contract employees will be appointed employees remain at the company's compliance.

Table 9. Rules for Contract Appointment

Contract	Time	Status			Description
		Contract	Extend	Exit	
Kontrak Pertama	2Tahun	2 Tahun			Evaluasi Bagus
Kontrak Kedua	1Tahun		1 Tahun		Evaluasi Bagus
Kontrak Ketiga	2Tahun		2 Tahun		Evaluasi Bagus

2. *Organizing*

Pengorganisiran stage of recruitment contracts to keep does meet the criteria requirements in accordance with the rules of the company in accordance with the stage of Planning.

3. *Actuating*

TThe implementation phase, where the process of recruitment of contract to remain committed by HRD Manager section with the approval of the Board of Directors.

4. *Controlling*

The evaluation stage of recruitment that has been undertaken by HRD Manager, whether employees will be appointed as a permanent employee is in compliance or not with the business rules of the company. During her first contract period, the second and third officer did not resign with the results of the performance evaluation is nice then has the right to be appointed clerk in PT Sinkona Lestari Indonesia by doing the labor deal signing as an employee remains, back again with company policies.

2.7 Analysis Of Implementing Parts Of The Performance Assessment Using The Method Of AHP

1. *Planning*

Manufacturing planning stage performance assessment of officers by doing the determination of criteria and subkriteria. Assessment of the performance of the contract employees and employees remain to the implementing level assessment is done every month.

Table 10. The Evaluation Of Employee Performance Appraisal Remains

No	Ranking	Description
1	1	Getting 2x bonus salary and Promotion Recommendations
2	2 – 5	Getting 1x bonus salary and Promotion Recommendations
3	6 – 10	Getting bonus 1 x salary
n-10 – n	n-10 – 214	Following Training and Supervision

Table 11. Performance assessment criteria and Subkriteria

No	Criteria	Subcriteria	Code
1	Technical Skills	Maturity in duty	KT1
		Task completion speed	KT2
		Craft	KT3
2	Communication In Teams	Teamwork	KDT1
		Communications Team	KDT2
		Team work attitude	KDT3
3	Personality	The Desire Of Top Achievers	K1

No	Criteria	Subcriteria	Code
		Discipline	K2
		Health	K3
		Presence	K4

Table 12. The Weighting Of The Assessment Criteria

Weight assessments of criteria and subcriteria	
Value	**Description**
1	Not Satisfactory
2	Less Satisfying
3	Was Satisfactory
4	Satisfactory
5	Very Satisfying

Table 13. Weights Subkriteria Assessment Of Attendance

Weighting of assessment for subkriteria attendance		
Value	**Description**	
1	60-65	If an employee is not present > 4 times
2	66-70	If an employee is not present 3 times
3	71-80	If an employee was absent 2 times
4	81-90	If an employee is not present 1 time
5	91-100	If an employee is always present

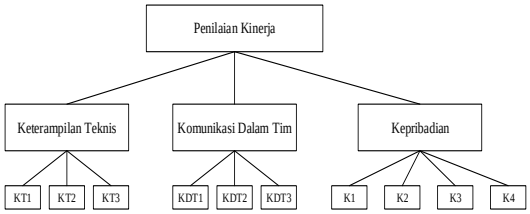


Figure 1. Hierarchy Of Criteria

2. *Organizing*

Stages of organizing the results of determination of the priority of each criterion and the subkriterianya has been performed on the stages of Planning.

Table 14. Priority Value

No	Criteria	Code	Priority Value
1	Technical Skills	KT1	6.00
		KT2	2.20
		KT3	0.22
2	Communication In Teams	KDT1	0.28
		KDT2	6.30
		KDT3	1.39
3	Personality	K1	7.95
		K2	2.89
		K3	0.71
		K4	0.24

3. *Actuating*

Stage of implementation of the implementing parts of the performance assessment conducted by the Supervisor of the Department related to submitted to HRD, assessment is carried out once a month.

Table 15. Employee Performance Appraisal Results

Criteria	Sekar Harum	Aripin	Yadi Tomo	Jaja
Technical Skills				
KT1	18.00	18.00	18.00	18.00
KT2	4.4	4.4	6.6	8.8
KT3	0.88	0.66	0.66	0.66
Communication In Teams				
KDT1	1.12	0.84	0.84	0.56
KDT2	18.9	25.2	12.6	12.6
KDT3	4.17	4.17	2.78	4.17
Personality				
K1	23.85	23.85	23.85	23.85
K2	8.67	5.78	8.67	8.67
K3	2.13	2.84	2.84	2.13
K4	0.96	0.72	0.96	0.72
Nilai Akhir	83.08	86.46	77.8	80.16

4. *Controlling*

The stage of the examination of whether the results of performance appraisal is done already in accordance with what is expected of a company. This inspection is carried out by means of checking the results of the assessment of the performance of each employee. The taking of final value based on the value of the employee multiplied by the value of the priority.

Table 16. Employee Performance Appraisal Results

No	The Name Of The Employee	Final Value	Ranking
1	Sekar Harum	83.08	II
2	Aripin	86.46	I
3	Yadi Tomo	77.8	IV
4	Jaja	80.16	III

2.8 Analysis Of The Promotion

1. *Planning*

The planning phase is done by HRD in order to determine which ones will keep employees promoted to fill a particular vacancy according the rules across the enterprise.

2. *Organizing*

Pengorganisiran stage in the promotion of employees, whether already meet the requirements in accordance with the rules of the company. The Board of Directors will decide which employees are eligible to fill the vacancy of a particular position, but not regardless of the outcome of the meeting with related Department Manager and Manager of HRD as a team of assessors.

3. *Actuating*

Stage of implementation, in which the process is done in stages of the promotion of employees conducted by the section Manager of HRD and the Manager of the Department related to the results of the decision will to a point with the Board of Directors.

4. *Controlling*

The evaluation phase of the promotion process that has been undertaken by HRD, best employee which will be selected to fill the vacancy in the Department by looking at the history of performance appraisal and results at this stage of the interview.

2.9 Analysis Of Filing A Furlough Employees

1. *Planning*

The planning stages carried out by the HRD to determine the rules on leave at the company. These rules can be seen in the table below :

Table 17. Types and Rules on leave

The name of the leave	*Leave of absence code*	*Time*	*Description*
annual leave	*CT*	*12 days*	*Every year employees will get as many as 12 furlough days rations, can take on average 2 times or 3 times the maximum in a month. If within one year of leave not taken, it can still be taken in the next year for has not yet reached the expiration date. For contract employees could not file an annual leave.*
Sabbatical	*CP*	*30 days*	*30-day sabbatical with the provisions of the employees who have worked a minimum of 6 years.*
Maternity Leave	*CM*	*3 months*	*Can be taken when the age of the content it's been over 6 months, typically leave in take 1 month before delivery and 2 months after the maternity.*
leave death (sorrow)	*CMK*	*2 days*	*Can be taken if there is a family who died.*

2. *Organizing*

Stages of organizing petition for leave of absence, would control the proposed furlough employees already eligible leave of absence. Aisiten HRD Manager will approve the filing of leave an employee is concerned but not apart from the related Department Manager responsible for the process of determining whether a filing of a leave of absence is approved or not.

3. *Actuating*

Stage of implementation, where employees can take time off. Employees who will be filing a furlough would choose in advance which kind of leave of absence will be taken. Assistant HRD Manager will look at the filing of the leave and will approve it based on rules that are already set. Then the related Department Manager will check if it is not in accordance with the rules then the filing of a leave of absence will not be accepted.

4. *Controlling*

Manager related Departments will see how many employees who file a leave of absence, and how much filing a leave of absence approved. So with the monitoring, the number of employees who took a leave of absence can be seen.

2.10 Analysis Of The Employee Retirement

1. *Planning*

The stages in which the Assistant Manager of HRD will provide retirement against employees who have already reached the limit age 56 years. HRD will give severance of the employee in accordance with the employee's work period. Granting severance as determined by the company, can be seen in the table below.

Table 18. Retirement severance

Working Period	***Severance***
< 1 tahun	*Severance can not*
1,00 – 2,00	*1 x salary*
2,01 – 4,00	*2 x salary*
4,01 – 6,00	*3 x salary*
6,01 – 8,00	*4 x salary*
8,01 – 10,00	*5 x salary*
10,01 – 12,00	*6 x salary*
12,01 – 14,00	*7 x salary*
14,01 – 16,00	*8 x salary*
16,01 – 18,00	*9 x salary*
18,01 – 20,00	*10 x salary*
20,01 – 22,00	*11 x salary*
22,01 – 24,00	*12 x salary*
24,01 – 26,00	*13 x salary*
26,01 – 28,00	*14 x salary*
28,01 – 30,00	*15 x salary*
> 30.00	*16 x salary*

2. *Organizing*

Stage pengorganisiran long is the work of employees who already meet the rule awarding a pension with the expiration of work since age has reached 56 years. The Board of Directors will look at existing pensions and awarding will be approved based on rules that are already set by the company. Assistant Manager HR monitoring 6 months before the concerned employees will retire, so that planning can be made to do a new employee reception.

3. *Actuating*

Stages of the implementation of the granting of employee pensions, where an employee who has reached the age of 56 years will be given a letter of Retirement Preparation Period 6 months before the work ends by Assistant Manager of HRD.

4. *Controlling*

The evaluation phase of the pension, whether the Pension Preparation Letter that has been given to the employee is appropriate or not, and HRD will be responsible at this stage for the monitoring of the number of employees who retired by the end of their work.

2.11 Analisi Kebutuhan Non – Fungsional

Non-functional requirements made a priority of a design because when mistakes preparing the non-functional requirements will cause a variety of errors in software development. The integration of non-functional requirements should be done at an early stage of modeling software so that needs can be well was defined.

2.12 Functional Needs Analysis

Functional needs analysis is an analysis that describes the flow of data, information and processes to describe, plan, organize from several separate elements into a single entity that serves to define software development to be built.

2.12.1 Diagram Konteks

Context diagram of human resource management information system can be seen in the picture below.

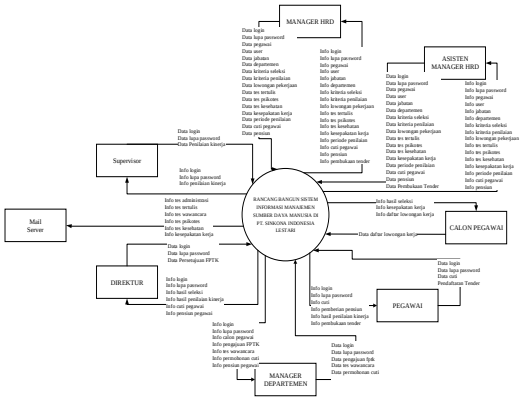


Figure 2. A Context Diagram

2.12.2 DFD Level 1

DFD Level 1 Management Information System at PT. Sinkona Indonesia Lestari, can be seen in the picture below.

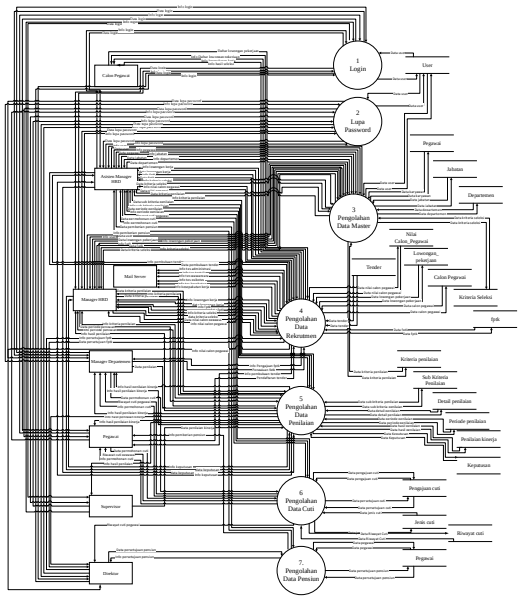


Figure 3. DFD Level 1

2.13 Implementation and Testing

The implementation aims to confirm the design of modules so that the system users can provide inputs towards the development of the system. Testing the system aims to find out any errors or omissions in the Information System of human resource management at PT. Sinkona Lestari Indonesia tested.

2.13.1 Balck Box Testing

Black box testing is focused on the functional requirements of the software being built.

2.13.2 Beta Testing

Tests based on answers from users of human resource management information systems regarding system testing :

1. *Information system of human resources management has been quite helpful Assistant Manager of HRD manage data employees and prospective employees who applied for the data.*
2. *The system had enough help in conducting the recruitment and selection of employees.*
3. *Information system of human resources management has been quite helpful to the Supervisor of the Department in conducting performance assessment.*
4. *Information system of human resources management has been able to assist the Department Manager in controlling company employees on leave.*
5. *Information system of human resources management has been able to assist the Assistant Manager of HRD in the granting of pensions against employees.*
6. *Management information system of human resources is helpful in doing the leave application.*

3 CONCLUSION

In this section, describes the conclusions contains the results obtained after the research is done. The result is not a thing that is raw but made a reference and a reference in the future system improvements.

3.1 Conclusion

Based on the analysis and discussion of description of testing has been done, then it can be taken a conclusion against the management information system of human resources in Indonesia, PT Sinkona Lestari as follows :

1. *Assist in planning and decisions making on the acceptance of employees in accordance with the criteria of the company so that no vacancy in office for a long time.*
2. *Assist Supervisor Department in conducting employee performance assessment of decision making in accordance with the criteria, to motivate employees in the improvement of the performance accomplishments will be a reference for recruitment and determination promotion.*

3.2 Recommendation

Based on the conclusions outlined above, the expected thing going forward is the management information system of human resources at PT Sinkona Lestari Indonesia this could be developed more broadly that can cover other areas so that produce better results in managing his company.

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