

## DEVELOPMENT OF THE ODOO SYSTEM FOR THE EMPLOYEE PERFORMANCE APPRAISAL SYSTEM IN HRM MODULE

Reizki Jihan Melani<sup>1\*</sup>; Dina Anggraini<sup>2</sup>; Widiastuti<sup>3</sup>

Program Studi Sistem Informasi Bisnis<sup>1, 2, 3</sup>  
Universitas Gunadarma, Jakarta, Indonesia<sup>1, 2, 3</sup>

<https://gunadarma.ac.id/><sup>1, 2, 3</sup>

[jihanmelani216@gmail.com](mailto:jihanmelani216@gmail.com)<sup>1\*</sup>, [dina\\_anggraini@staff.gunadarma.ac.id](mailto:dina_anggraini@staff.gunadarma.ac.id)<sup>2</sup>, [widiastuti@staff.gunadarma.ac.id](mailto:widiastuti@staff.gunadarma.ac.id)<sup>3</sup>

(\*) Corresponding Author



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**Abstract**— In organizations, such as companies, performance evaluation aims to assess, motivate, and improve employee performance. Human resource development is achieved by recognizing employees' potential. At PT.HM, there is currently no system for employee performance evaluation. The process is done manually by distributing Excel files for self-assessment, which are then forwarded for further evaluation. Performance evaluations are critical for measuring individual performance, serving as a basis for rewards and career paths. This research aims to develop an appraisal system in the Odoo HRM module using the NineBox Matrix, as PT.HM requires employee mapping across nine categories. The research includes four stages: problem identification, data collection, data analysis, and system design. The performance appraisal system will be integrated into the Odoo system already in use at the company for HRM. Data collection was done through direct observation at PT.HM. The system's development benefits HR Managers, Personal Managers, and employees by automating performance and competency assessments. It calculates scores based on predefined weights configured by HR Managers and provides a career path for employee promotions. The system is tested through black-box testing, yielding a 100% success rate, and User Acceptance Testing (UAT), also achieving a 100% success rate, as expected.

**Keywords:** HRM, Odoo, Performance Appraisal System, Talent Management.

**Intisari**— Dalam organisasi, seperti perusahaan, evaluasi kinerja bertujuan untuk menilai, memotivasi, dan meningkatkan kinerja karyawan. Pengembangan sumber daya manusia dicapai dengan mengenali potensi karyawan. Di PT.HM, saat ini belum ada sistem untuk evaluasi kinerja karyawan. Proses evaluasi dilakukan secara manual dengan membagikan file Excel untuk penilaian diri,

yang kemudian diteruskan untuk evaluasi lebih lanjut. Evaluasi kinerja sangat penting untuk mengukur kinerja individu, yang akan dijadikan dasar untuk penghargaan dan jalur karier. Penelitian ini bertujuan untuk mengembangkan sistem penilaian dalam modul HRM Odoo menggunakan NineBox Matrix, karena PT.HM membutuhkan pemetaan karyawan dalam sembilan kategori. Penelitian ini terdiri dari empat tahap: identifikasi masalah, pengumpulan data, analisis data, dan perancangan sistem. Sistem penilaian kinerja akan diintegrasikan ke dalam sistem Odoo yang sudah digunakan oleh perusahaan untuk HRM. Pengumpulan data dilakukan melalui observasi langsung di PT.HM. Pengembangan sistem ini memberikan manfaat bagi HR Manager, Personal Manager, dan karyawan dengan mengotomatiskan penilaian kinerja dan kompetensi. Sistem ini menghitung nilai berdasarkan bobot yang telah ditentukan oleh HR Manager dan menyediakan jalur karier untuk promosi karyawan. Sistem ini diuji menggunakan uji black-box, dengan tingkat keberhasilan 100%, dan UAT (User Acceptance Testing) juga mencapai tingkat keberhasilan 100%, seperti yang diharapkan.

**Kata Kunci:** HRM, Odoo, Sistem Penilaian Kinerja, Talent Management.

### INTRODUCTION

Human Resource Management (HRM) is a science or method of organizing the relationships and roles of resources (labor) possessed by individuals efficiently and effectively and can be utilized maximally to achieve the common goals of the company, employees, and society (Irmayani, 2021). Human resources become one of the important components, even indispensable, of an organization, whether it be an institution or a

company. Human resources are also the key determinants of a company's development and serve to achieve its goals and objectives through the efforts of a group of people within the organization (Siregar & Kartika, 2020). Developing human resources in a company requires evaluating employees to measure the performance of each employee, one way to measure assessment is through a performance appraisal system (Wahyuni & Irawan Yuda, 2021).

At PT. HM, there is currently no system in place to evaluate employee performance. Employee performance evaluation serves to measure the performance of each employee, which will later serve as a parameter to determine rewards such as bonuses, salary increases, promotions, or career paths for each employee. This employee evaluation is beneficial for both the employees and the company. The Talent Management System is part of the execution process and organizational strategy evaluation to assess the performance of employees (Akhmad Fauzi & Rusdi Hidayat Nugroho A, 2020). It is not only used to assess the extent of each employee's performance but also for talent management and self-development for each employee.

At PT. HM, the HRM module of Odoo is used for resource management. This Talent Management is integrated with the Odoo system. The Odoo system that has been used is only limited to attendance data, sales data, employee data, and leave data. Therefore, the Talent Management System needs to be implemented by this company to ensure that the performance evaluation process becomes more efficient and effective.

Odoo is one of the open-source Enterprise Resource Planning (ERP) platforms designed to assist companies in efficiently managing various operational aspects (Onesinus Saut Parulian, 2023). Odoo provides various business modules such as HR, Accounting, Sales, and Manufacturing (Hasibun et al., 2020). The Human Resource Management (HRM) module facilitates HR departments in companies to streamline processes from attendance tracking, and permissions, to payroll processing for employees.

Talent management describes the systematic attraction, identification, development, engagement, retention and deployment of those individuals who are of value to an organization, either in view of their 'high potential' for the future or because they are fulfilling business/operation-critical roles (Purnandika & Fazri, 2023). In the previous study titled "Pengembangan Technology ERP Untuk Modul Human Resource Management Studi Kasus PT Raja Digital Media" (Susanti & Slamet Riyadi, 2020) focusing on the HRM of the company Online News, the study discusses the

implementation of human resource management business processes using ERP software, namely Odoo. The research was conducted by analyzing existing business processes, then designing an integrated system proposal, and implementing it in Odoo. The conclusion of this study is that the designed system helps to facilitate faster access to employee information.

Performance evaluation systems have been conducted in previous studies using the Simple Additive Weighting method (Mujiastuti et al., 2020), which has the advantage of being easy to understand and suitable for multi-criteria decision-making but is prone to subjective weighting and less effective if variables interact. The Simple Regression Analysis method or Moderated Regression Analysis (MRA) (Harahap & Perdana, 2021) is also utilized for predicting linear relationships, though it is limited to linear relationships and susceptible to outliers. In the Nine box model for talent management (Pratama, 2022) as applied in the research titled "Pengukuran Kinerja Penyedia Menggunakan 9Box Matrix by McKinsey," the aim is to measure the performance of suppliers to ensure the procurement process within regional ministries is carried out optimally.

The Nine Box Matrix is a performance appraisal tool widely used for talent management. It is a 3x3 grid that helps organizations evaluate employees based on two main factors: performance and potential (Reni et al., 2022). This Nine Box Matrix method involves 21 measurements of potential and performance, which are mapped within the performance matrix (K, 2022). Each axis (performance and potential) is typically divided into three levels: low, medium and high, creating nine distinct categories. Employees are plotted within this grid based on their current performance and future growth potential, making it an effective tool for identifying leaders, planning for succession and designing development program (Radianti et al., 2023).

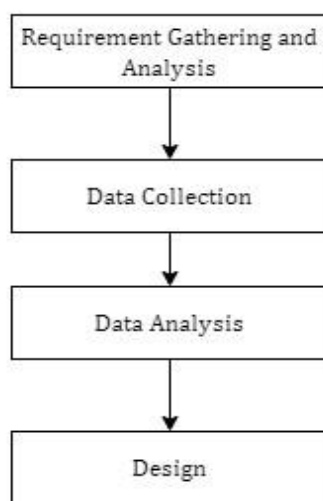
Employees who are qualified and highly skilled are selected and included in a talent development program (talent pool) using the Nine Box Matrix. This Nine Box Matrix is a strategic tool that offers a systematic approach for multi-business companies to prioritize their investments (Dellyana et al., 2021). In the company, it can identify who the talents are in the categories of "High Potential" to "Under Potential". Not only do employees categorized as "High Potential" receive further action, but also those categorized as "Under Potential" can be directed to participate in development planning such as training, seminars, or coaching Employee.

The objective of this research is to develop the Odoo system for the performance evaluation

system at PT. HM using the Nine Box Matrix method, which is expected to help make the employee performance evaluation process more effective, efficient and there is a need for employee mapping with nine categories who helps the planning for succession and designing development program it was decided to use the Nine Box model in Talent Management.

## MATERIALS AND METHODS

In this research stage, there are 4 research stages: Requirement Gathering and Analysis, Data Collection, Data Analysis, and Design. The research stages can be seen in Figure 1.



Source: (Research Results, 2024)

Figure 1. Research Stages

### Requirement Gathering and Analysis

In this stage, problems are identified where there is a need for an integrated employee performance evaluation system with the Odoo system to facilitate categorizing employee performance evaluations using the Nine Box Grid as a parameter to determine talent development and potential, facilitate identifying employee career paths, and providing appropriate rewards and punishments.

### Data Collection

The data collection technique was conducted through direct observation at PT. HM, which utilizes an employee performance evaluation system with Odoo implementation in the ERP company. The obtained data includes Employee Lists, Employee Contracts, Disciplinary History, Attendance Data, and Employee Evaluation Templates. The data obtained is in Excel format.

### Data Analysis

In the assessment of KPIs and Competencies, each type of KPI and Competency has different weights. Therefore, the following assessment formulas are needed:

#### 1. Evaluation Planning

When an assessment or assessment process is carried out on employees, the HR Manager creates an Evaluation Plan which is useful for determining when the assessment can be carried out. Apart from that, there are types of assessments, and they can be carried out for any employee which is usually limited to each job position. In planning this evaluation, the HR Manager also determines the components and weights of the assessment that can be carried out. At PT. HM there are 2 components type: Performance and Competencies which have a weightage of 75 and 25 respectively. Planning Evaluation can be seen in Table 1.

Table 1. Evaluation Planning

Component	Weightage
Performance	75
Competencies	25
Total	100

Source: (Research Results, 2024)

#### 2. Performances

This type of assessment requires definite and real values to measure employee performance. Each employee in the same job position has the same KPIs and targets with the same weights, but it does not rule out the possibility that employees in different job positions have the same KPIs with different targets and weights. Performance calculations can be seen in Table 2.

Table 2. Performances

KPI	TS	SA	W	PS	WS
Prod Dev	100	100	75	95	71.25
Bug Fixing	100	90	25	90	22.5
FS KPI			93.75		

Source: (Research Results, 2024)

To get the Weighted Score and KPI follow Equation 1.

$$FS\ KPI = \sum(PS \div TS \times W) \quad (1)$$

Description:

SA (Self Assessment), WS (Weightage Score), PS (PM Score), TS (Target Score), W (Weightage), FS (Final Score).

At PT. HM, it is possible to have more than one KPI, where the total weightage will amount to 100. In Table 2, it can be seen that there are two type of KPIs with different weightage. The table also includes columns for employees to fill in their self-

assessment as well as the manager’s assessment. From this table, it can be concluded that the final KPI score is calculated using this formula; the sum of the PM Score divided by the Target Score and then multiplied by the weightage.

### 3. Competencies

Just like the performance assessment, this assessment also has targets and weights for each Job Position. One job position has more than one competency which is used as a parameter to measure employee performance. Competencies calculations can be seen in Table 3.

Table 3. Competencies

CA	TL	SA	W	PS	CM (%)	CG	WS
Com. Skill	4	4	25	3	75	1	18.75
An. Skill	5	3	25	2	40	2	10
Report. Skill	4	3	15	2	50	2	7.5
Prob. Solving	5	4	35	5	100	0	35
FSC					71.25		

Source: (Research Results, 2024)

To get the competency match and Competency Gap, it can be seen in Equation 2.

$$CG = (TL - PS) \quad (2)$$

Description:

CA (Competencies Area), TL (Target Level), SA (Self Assessment), W (Weightage), PS (PM Score), CM (%) (Competencies Match), CG (Competencies Gap), WS (Weightage Score), FS Competencies (Final Score Competencies).

In the competencies assesment, it can be concluded that to calculate the competency gap, the target level is subtracted by the personal manager’s score.

### 4. Overall Score

During the assessment process, the HR Manager sends an Excel template containing a list of KPIs and Competencies that have been created for each employee. This template is grouped by each job position having the same assessment template. From the assessment template, an assessment formula is needed to determine the overall score or final value of the assessment. At the beginning of the assessment process, the HR Manager determines the components of the assessment to be carried out, whether they include KPIs and Competencies or just one of them, and the HR Manager also determines how much weight each component of the assessment will carry. The Overall Score assessment can be seen in Table 4.

Table 4. Overall Score

Component	W	S	FS
Performances	75	93.75	70.31
Competencies	25	71.25	17.81
Overall Score	100	100	88.12

Source: (Research Results, 2024)

To get the Overall Score, the formula can be seen in Table 4.

$$Overall\ Score = W \times S / 100 \quad (3)$$

Description:

W = Weightage

S = Score

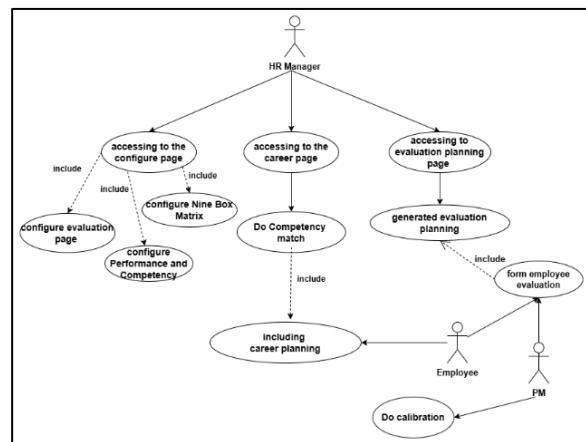
To calculate the Overall Score, multiply the weightage by the score and divide by 100.

### Design

In developing this system, the SDLC system development method was used. This stage is the stage where we discuss how to carry out design and analysis such as use case diagrams, class diagrams, activity diagrams, database design, and user interface design.

#### 1. Usecase Diagram of Appraisal System

This Usecase Diagram has 3 actors, namely; HR Manager, employees, and Personal Manager. HR Managers can access the configuration page in which they can set the evaluation period, nine-box matrix, performance, and competency. Employees can enter career planning and enter a self-assessment on the evaluation page. The Personal Manager can enter the final score and calibrate the evaluation results. This Usecase Diagram can be seen in Figure 2.



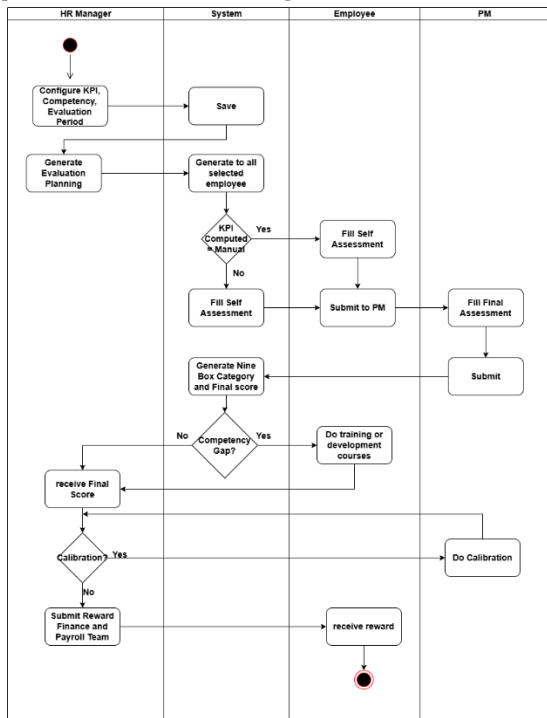
Source: (Research Results, 2024)

Figure 2. Usecase Diagram of Performance Appraisal Systems



2. Activity Diagram of Appraisal System

This Activity Diagram will illustrate the workflow of various user activities with the system in the Appraisal process or employee performance assessment. The users in question are HR Managers, employees, and Personal Managers (PM). The manager will calibrate the employee. If not, the HR Manager will submit the final reward to the finance and payroll department. The final stage ends with the employee receiving a reward from the appraisal results. The Activity Diagram for this appraisal process can be seen in Figure 4.

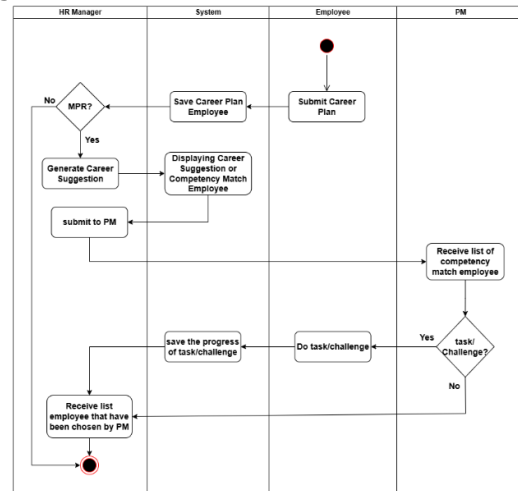


Source: (Research Results, 2024)  
 Figure 3. Activity Diagram Appraisal System

3. Activity Diagram of Career Path

This Activity Diagram will illustrate the workflow of various user activities with the system in the employee career path process. The users in question are HR Managers, employees, and Personal Managers (PM). Starting with the employee who submits his career plan and the system will store this data. If the company feels it needs talent or employees to fill a job position, the HR Manager will generate a Career Suggestion and the system will display the Career Suggestion along with the employee's competency match at the last evaluation and the HR Manager will submit the data to the personal Manager in the relevant job position for sorting. , the Personal Manager who receives the data will select selected employees and the Personal Manager has the right to give tasks/challenges to the selected employees and submit them to the HR

Manager for further processing. The Activity Diagram for employee career paths can be seen in Figure 4.



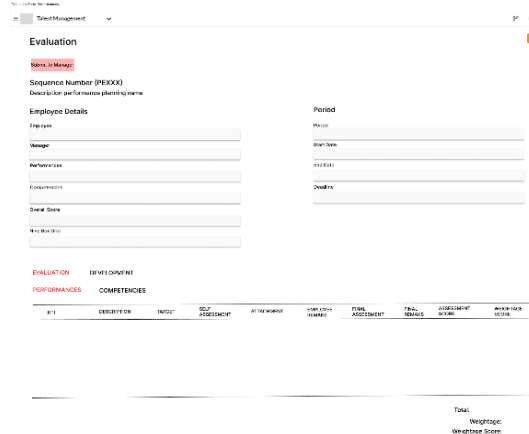
Source: (Research Results, 2024)  
 Figure 4. Activity Diagram of Career Path

4. Class Diagram Appraisal System

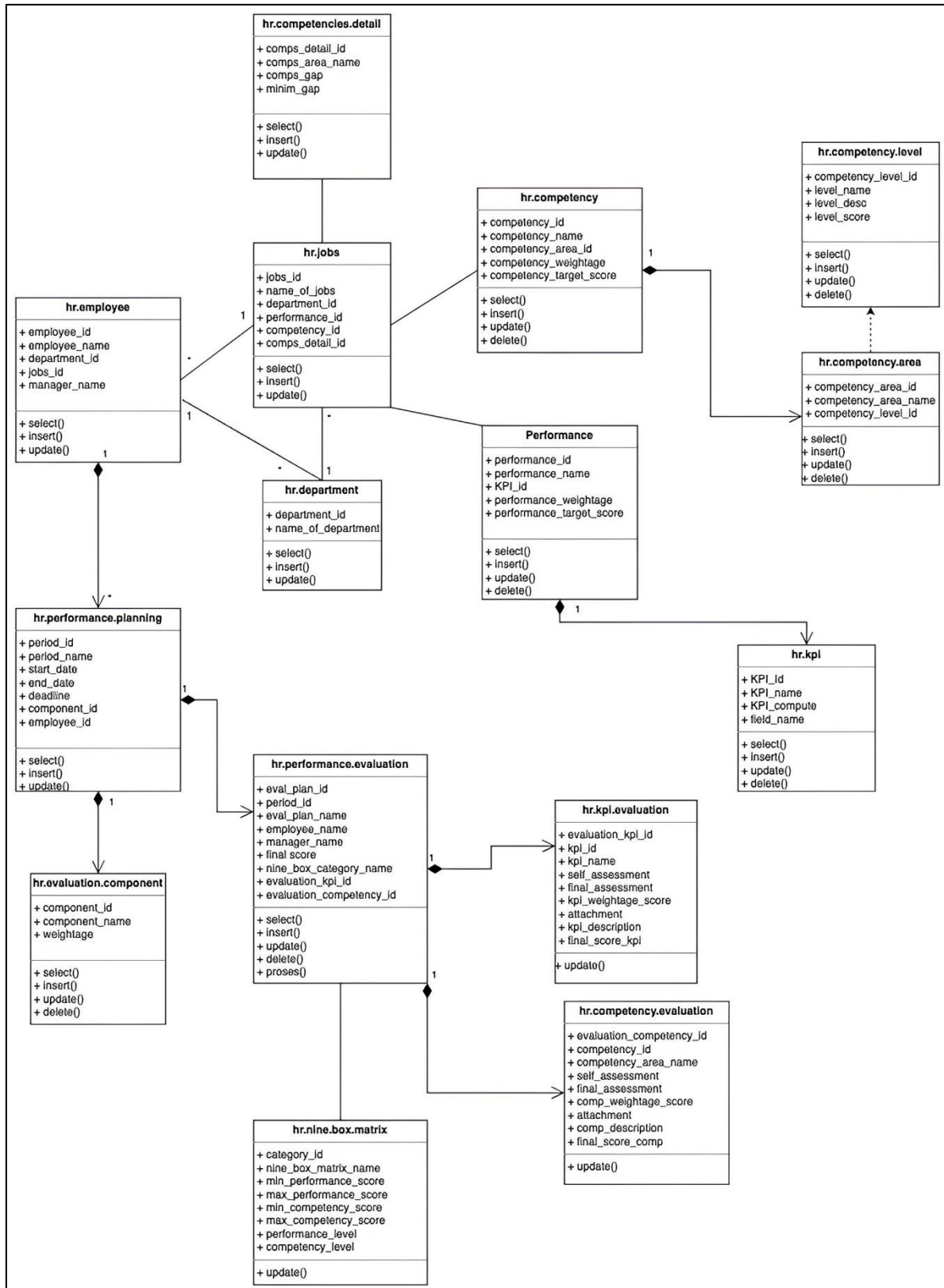
Class Diagram is a diagram used in software modeling to describe the static structure of object-based systems. There are 15 classes in this modeling, consisting of tables employee, job position, department, competency, competency level, competency area, performance, KPI, performance planning, an evaluation component, performance evaluation, KPI evaluation, competency evaluation, nine box matrix, detailed competencies. This class diagram can be seen in Figure 5.

5. Design of Evaluation Page

In this evaluation page design, it is used for the performance appraisal process, employees and Personal Managers can enter scores on this page. The design of the Evaluation Page can be seen in Figure 6.



Source: (Research Results, 2024)  
 Figure 6. Design of Evaluation Page

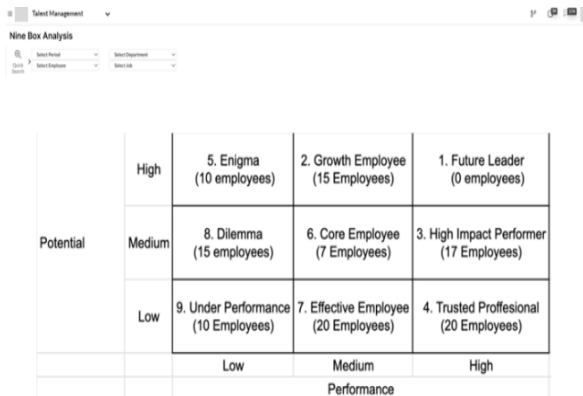


Source: (Research Results, 2024)

Figure 5. Class Diagram Appraisal System

6. Design of Ninebox Analysis Page  
In designing the nine box analysis page, it is used for final reporting of the employee

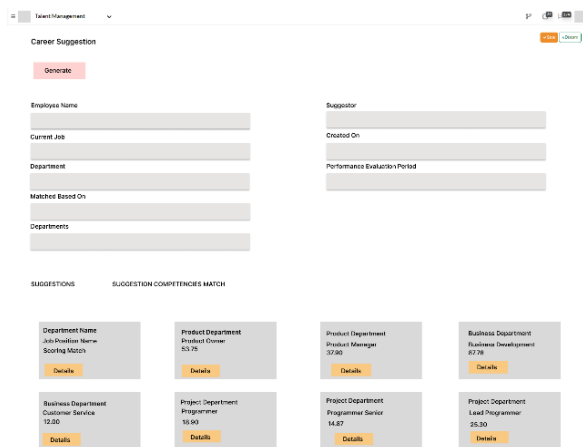
performance assessment process. The design of the Ninebox Analysis page can be seen in Figure 7.



Source: (Research Results, 2024)  
 Figure 7. Design of Ninebox Analysis Page

### 7. Design of Career Path Page

This page is used for the HR Manager to view job suggestions for each employee. After the HR Manager generates the system, it will display job suggestions with their respective competency matches. The Career Path page can be seen in Figure 8.



Source: (Research Results, 2024)  
 Figure 8. Design of Career Path Page

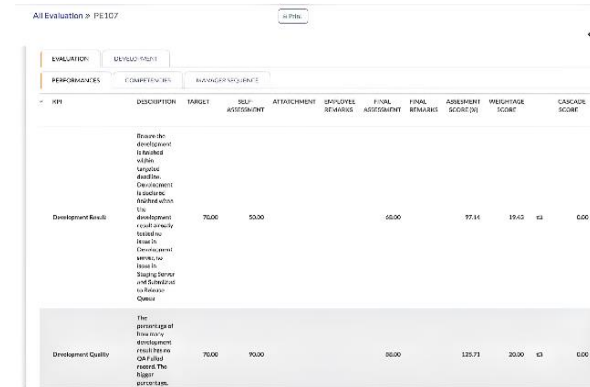
## RESULTS AND DISCUSSION

The results of this research are an employee performance assessment application at one of the ERP system provider companies, which aims to process the performance assessment and categorize the results of the assessment into a Nine Box Grid which is used as a parameter to determine the development of employees' talents and potential and make it easier to identify careers employee path.

### Evaluation Page

On this page are the results of the form that the HR Manager has generated for employees and the Personal Manager enters the values. There are

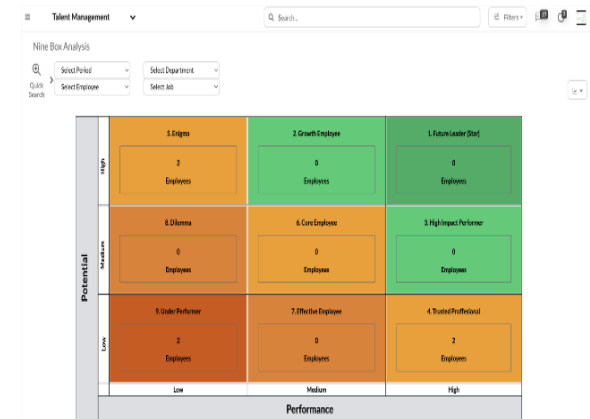
employee details which include employee name, manager, performances, competencies, overall score, nine box grid, and also an assessment period. Apart from that, three buttons function to refresh, send to the manager and submit. On the Evaluation page, it can be seen in Figure 9.



Source: (Research Results, 2024)  
 Figure 9. Evaluation Page

### Ninebox Analysis Page

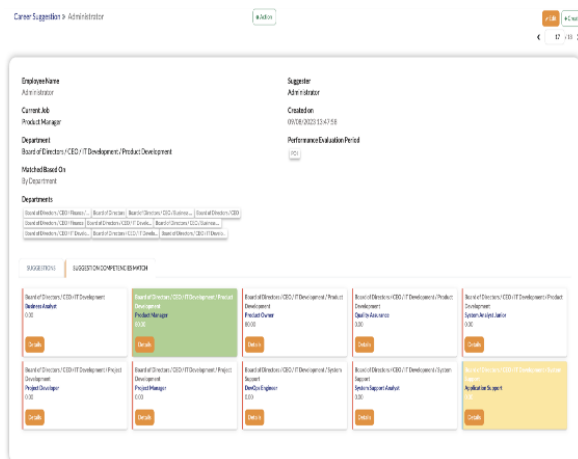
This page is a form of final reporting in the employee performance assessment process. There are 9 boxes, each of which has its own performance and competency value limits. The Ninebox Analysis page can be seen in Figure 10.



Source: (Research Results, 2024)  
 Figure 10. Ninebox Analysis Page

### Career Path Page

This page is used for HR Managers to see job suggestions for each employee, there is an employee name, current job, and department, matched based on. In this field, there are 2 types By Department and By Job Position, and there is a performance evaluation period. After the HR Manager generates the system, he can display job suggestions with their respective competency matches. The Career Path page can be seen in Figure 11.



Source: (Research Results, 2024)  
 Figure 11. Career Path Page

**User Acceptance Testing (UAT)**

This UAT testing was carried out by HR Managers, Personal Managers, Employees (staff), and Quality Assurance (QA). This testing was carried out with 14 scenarios and the test results obtained very satisfying results with a presentation of 100% as expected. User Acceptance Testing can be seen in Table 5.

Table 5. User Acceptance Testing

N	Scenario	Expected Result	Result
1	Input KPI	saved to the hr.kpi table	Successfully saved to hr.kpi table
2	Input Competencies level	Saved to the hr.competencies.level table	Successfully saved to hr.competencies.level table
3	Input Competencies area	Saved to the hr.competencies.area	Successfully saved to the hr.competencies.area
4	Input performance	Saved to the hr.performance table	Successfully saved to the hr.performance table
5	Input performance and competencies on the job position page	Saved to the hr.job table	Successfully saved to the hr.job table
6	Input evaluation period	Saved to the hr.evaluation.period table	Successfully saved to the hr.evaluation.period table
7	Input nine box matrix	Saved to the hr.nine.box.matrix table	Successfully saved to the hr.nine.box.matrix table
8	Generate evaluation planning	Employees will get the evaluation form	Employees successfully got the evaluation form

N	Scenario	Expected Result	Result
0			
9	Input score and final score on the evaluation page	Saved on the hr.evaluation table	Successfully saved on the hr.evaluation table
10	Click button "Done" on the evaluation page	Not able to edit and will generate nine box categories	Successfully
11	Click button "done" on evaluation page and there is an employee who is has competency gap	Will be showing training and development plan	Successfully got the training and development plan
12	Input career interest	Saved on the hr.career.interest table	Successfully saved on the hr.career.interest table
13	Generate career suggestion	Saved on the hr.career.suggestion and showing the list of the employees	Successfully saved on the hr.career.suggestion and showing the list of the employees
14	Input development method	Saved on the hr.development.method table	Successfully saved on the hr.development.method table

Source: (Research Results, 2024)

**Blackbox Testing**

At the evaluation stage, apart from UAT (User Acceptance Testing) testing, Blackbox Testing is also carried out which focuses on the functional requirements of an application. This Blackbox Testing will be tested based on 3 types of users; HR Manager, Personal Manager, and Employee. The results of this test obtained very satisfying results with a presentation of 100% as expected. Blackbox Testing by HR Manager can be seen in Table 6, Blackbox Testing by Personal Manager can be seen in Table 7 and Blackbox Testing by Employee can be seen in Table 8.

Table 6. Blackbox Testing by HR Manager

Feature	Scenario	Expected Result	Result
Job position	Click on job position menu	Able to display a list of job positions	Successfully display a list of job positions
Performance	Click on performance menu	Able to display a list of performances	Successfully display a list of performances



Feature	Scenario	Expected Result	Result
Competencies	Input competencies on this menu	Data successfully saved and display selected performances	Successfully saved the data and display selected performances
Evaluation	Input start date and end date on this menu	Data successfully saved	Successfully saved the data
Evaluation planning	Click button "Generate"	Able to distribute evaluation form to each employee	Employees successfully got the evaluation form
Nine box matrix analysis	Click nine box analysis	Able to display report from nine box	Successfully display the report

Source: (Research Results, 2024)

Table 7. Blackbox Testing by Personal Manager

Feature	Scenario	Expected Result	Result
Evaluation form	Input Final assessment	Saved the data	Successfully saved the data
Career suggestion	Click menu "Career Suggestion"	Able to display career suggestion employee	Successfully display career suggestion employee
Nine box analysis	Click menu "Nine Box Analysis"	Able to display reporting from nine box grid	Successfully display the nine box grid

Source: (Research Results, 2024)

Table 8. Blackbox Testing by Employee

Feature	Scenario	Expected Result	Result
Evaluation Form	Input Self-Assessment	Data successfully saved	Successfully saved the data
My Career Interest	Input career interest	Data successfully saved	Successfully saved the data
Training plan	click menu on development plan	Able to display list of training plan employee	Successfully display the data
Development plan	Click menu on development plan	Able to display list of development plan	Successfully display the data

Source: (Research Results, 2024)

## CONCLUSION

The employee performance appraisal system at PT. HM was created successfully. This performance appraisal system is based on the Odoo system which the company has used as HRM. The development of this performance appraisal system

makes things easier for many parties such as HR Managers, Personal Managers, and the employees involved. The development of this performance appraisal system has a Performances and Competency assessment feature where the system can calculate automatically according to the weights that have been previously configured by the HR Manager, the system can also provide a career path feature which can simplify the employee promotion and transfer process and the system will display the Competency match from each job position. After the performance assessment process stage, the system can also categorize employees into the Nine Box Matrix and recommend training and development plans that employees will conduct if necessary. This Performance Assessment System was tested using the black box testing method with a success percentage of 100% and UAT with a success percentage of 100% as expected.

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