

# Analysis Of The e-Plantation System On Employee Performance Through Job Satisfaction at PT. Source Of Palm Mahardika

Original Article

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## Abstract

This study aims to analyze the influence of the e-Plantation system on employee performance through job satisfaction at PT. Source of Palm Mahardika. In particular, this study examines three main aspects: (1) the effect of the e-Plantation system on job satisfaction, (2) the effect of job satisfaction on employee performance, and (3) the effect of the e-Plantation system on employee performance through job satisfaction. The population in this study is all employees of PT. Sumber Mahardika Sawit, which totals 45 people, with a working period of more than one year. Due to the limited population number, this study used a census method, in which the entire population was sampled. The data was analyzed using the Partial Least Squares (PLS) approach with the help of Smart PLS 3.0 software. The results of the study show that the e-Plantation system has a significant influence on employee job satisfaction, which in turn has a positive impact on employee performance. In addition, job satisfaction has been proven to be a mediating variable that strengthens the relationship between the e-Plantation system and employee performance. Thus, the optimal implementation of the e-Plantation system can increase job satisfaction, which will further contribute to improving overall employee performance.

**Keywords:** e-Plantation, job satisfaction, employee performance

## 1. Introduction

Palm oil is a leading commodity in the plantation sector in Indonesia, which has a strategic role in the national economy. Oil palm plantations are not only a source of income for millions of farming families, but also contribute greatly to the country's foreign exchange earnings, job creation, and the development of the palm oil-based industrial sector. (Subagja et al., 2025) Along with the increasing demand for palm oil in the global market, the area of oil palm plantations in Indonesia continues to increase from year to year. In the development of this industry, private companies play a very important role, not only as plantation managers but also as innovators in the modernization of agricultural systems. (Pardamean, 2024) In addition, oil palm plantations proved to be an alternative to the capitalist and socialist systems, especially when Indonesia faced an economic crisis at the end of the last decade. This industry has been able to survive and even continue to grow in the midst of economic challenges that have hit various other sectors (Kotimah et al., 2023). This is also supported by the presence of large companies such as First Resources Group (FRG), one of the fastest-growing palm oil producers in the Asia-Pacific region. The role of large companies in this industry is not only limited to plantation management, but also in the application of modern



innovations and technologies that aim to improve the performance and sustainability of the palm oil industry in Indonesia.

To meet this challenge, E plantation, a digital solution designed to support the transformation and modernization of the palm oil industry. E plantation is an information technology-based system that integrates various aspects of plantation management, ranging from crop yield recording, land monitoring, labor management, to logistics management (Haryanti et al., 2021). The system leverages advanced technologies such as the Internet of Things (IoT) and real-time data analytics to monitor and manage various aspects of operations more accurately and efficiently. With E plantation, companies can record and manage data automatically, reduce the risk of human error, and accelerate more accurate strategic decision-making. (Silviani & Jaya, 2022). PT. Sumber Mahardika Sawit is one of the companies that has implemented the E plantation system in its plantation operations. The application of this technology is expected to improve work efficiency and optimize employee performance. However, in the implementation process, there are still several problems that need to be considered, especially related to how this system is received and used by employees in the field. Some of the obstacles that often arise in the implementation of digital-based systems in the plantation industry include a lack of understanding and technological skills, rejection of change, infrastructure and connectivity constraints, and increased workload at the beginning of implementation.

Based on the background of the problems described above, the formulation of the problem in this study is:

- a) Does the e plantation system affect the job satisfaction of PT. The Source of Palm Springs?
- b) Does job satisfaction affect the performance of employees of PT. The Source of Palm Springs?
- c) Does the e plantation system affect employee performance through job satisfaction of PT. The Source of the Poison Ivy Poison?

## 2. Literature Review

### 2.1. Job Satisfaction

Job satisfaction is a form of a person's feelings towards their work, work situation and relationship with colleagues; thus job satisfaction is something important for an employee to have, where they can interact with their work environment so that work can be carried out properly and in accordance with organizational goals. (Ayunasrah et al., 2022). For organizations, a discussion about Job Satisfaction will involve efforts to increase organizational effectiveness by making employee behavior effective at work. Employee behavior that supports the achievement of organizational goals is another aspect that must be considered, in addition to the use of modern machines as a result of advances in the field of technology. Employee dissatisfaction at work will result in an unfavorable situation both organizationally and individually. Dissatisfaction at work will lead to aggressive behavior, or on the contrary, it will show withdrawal from contact with the social environment. For example, by taking a stance of quitting the company, like as skipping school, and other behaviors that tend to avoid organizational activities. Forms of aggressive behavior, such as sabotage, deliberately making mistakes at work, opposing superiors, or up in the activity of 13 strikes. From the description above, employee job satisfaction is an important issue that is considered in relation to employee performance, and dissatisfaction is often associated with

high levels of job demands and complaints. Workers with high levels of dissatisfaction are more likely to commit passive sabotage and aggression.

## **2.2. Performance**

Performance is generally defined as the relationship between output (goods or services) and inputs (labor, materials, money). A comparison between output and input. Inputs are often limited to labor, while output is measured in physical units, shapes, and values. Tohardi quoted by Wahyuningsih, (2019) stated Performance as follows: Performance is a mental attitude. A mental attitude that always seeks improvement in what already exists. A belief that a person can do a better job today than yesterday and that tomorrow is better than today. This opinion is supported by Raviyanto, who was quoted by Wahyuningsih, (2019), saying that: Performance basically includes a mental attitude that always has the view that today's life must be better than yesterday and tomorrow must be better than today. Such an attitude will encourage a person not to be satisfied quickly, but must develop themselves and improve their work skills by always looking for improvements and improvements. The definition of Performance, according to (Soetrisno, 2018) emphasizes that "Performance is the ratio of the results of work to the time needed to produce products from a workforce". Based on these definitions, it can be concluded that Performance is related to the mind and human disposition, which from time to time, makes efforts to improve everything it does through the evaluation of activities carried out previously so that it can be known how to be better in the future by applying it seriously.

## **2.3. E planting**

E-plantation is a technology-based information system specifically designed to help manage plantations digitally. This system aims to improve operational efficiency, data transparency, and performance in plantation management, especially in the palm oil sector. By utilizing modern technology, E plantation enables real-time monitoring of field conditions, more optimal resource management, and in-depth data analysis to support more accurate and faster decision-making. E plantation serves as a digital platform that covers various aspects of plantation management, including planning, operations, finance, distribution, and human resources. With this system, plantation owners and managers can more easily control various operational activities remotely through web-based devices or mobile applications. One of the main advantages of E plantation is its ability to provide integrated and accurate data, thus assisting management in conducting a comprehensive analysis of plantation performance. Some of the main features contained in the E plantation system include Workflow, Reporting, Finance, Distribution, Payroll, Farm Operations, and Factory Operations. With these features, the work process becomes more systematic, transparent, and efficient. With the integration of this technology, E plantation helps optimize the use of resources such as labor, fertilizers, pesticides, and water, so that plantation performance can increase without having to add large operational costs. This system also makes it easier to supervise and control the entire plantation process, from the planting stage to harvesting and distribution of produce.

## **2.4. The Influence of the E-Plantation System on Job Satisfaction**

E-plantation is an information technology-based system designed to manage various operational aspects in the plantation industry. This system includes land, labor, production, distribution, and finance management aimed at improving operational efficiency and effectiveness. In addition to benefits for companies, the implementation of E plantation can

also have a positive impact on employee job satisfaction by creating a more structured, comfortable, and productive work environment. One of the main benefits of E plantation to job satisfaction is increased efficiency and reduced workload. Administrative processes and data logging that were previously done manually can now be managed automatically, so employees don't have to spend a lot of time on repetitive tasks. With a reduced administrative workload, employees can focus more on strategic and value-added work, which ultimately increases their job satisfaction. In addition, E plantation also contributes to improving accuracy and reducing errors in data recording. Inaccuracies in the manual system often lead to problems, such as miscalculations of salaries or incentives, which can lower employee motivation. With an automated and integrated system, the recording of employee production, attendance, and performance data becomes more accurate and transparent, so they feel more valued and fairly compensated. Overall, the implementation of E plantation has a positive impact on employee job satisfaction by increasing efficiency, reducing administrative burden, ensuring transparency in performance management, and creating a more conducive work environment. With a better system, employees feel more valued, more productive, and more motivated in carrying out their duties.

## **2.5. The Effect of Employee Job Satisfaction on Employee Performance**

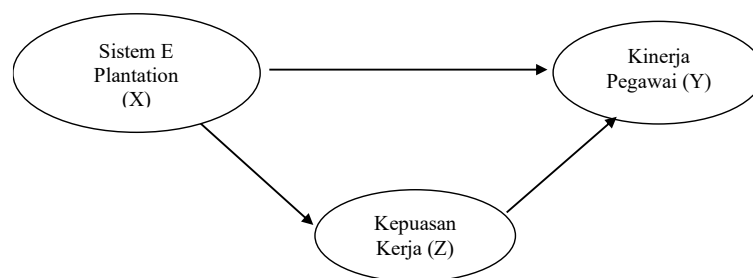
The increase in job satisfaction in employees certainly has an impact on the performance they show. Dessler in Handoko (2015) stated that there is a difference between employees who have job satisfaction and those who do not. Employees who feel satisfaction in their jobs tend to have a better record of attendance and adherence to regulations, but are less actively participating in union activities. These employees also usually perform better compared to employees who do not have satisfaction in their jobs. Based on this, it can be concluded that job satisfaction has an important meaning for employees and the company, especially for the sake of creating a positive situation in the work environment. Robbins (2016) also stated the impact of job satisfaction on employee performance. Employees who feel satisfied with their work are more likely to talk positively about their organization, help others, and perform their jobs beyond normal expectations. (Indrawati, 2013) This research supports and strengthens the theory and some of the results of previous research. The results of the research of Parwanto and Wahyudin (2018), examined the influence of job satisfaction factors on employee performance. The study found that work satisfaction factors, including salary, e-plantation system, and the attitude of colleagues, have a significant influence on employee performance. In this study, it was also obtained that the attitude of colleagues is a dominant factor on employee performance. Another study that obtained similar results to this study was conducted by Devi (2019). The results of the research obtained are that job satisfaction has a significant positive effect on employee performance. So the more satisfied the employee is, the more the employee will show his best performance. On the other hand, if employees do not feel satisfied at work, then a sense of laziness will arise in them, so that it will have an impact on decreased performance.

## **2.6. The Influence of the e-plantation system on satisfaction through employee performance**

E-plantation is an information technology-based system designed to manage various operational aspects in the plantation industry, ranging from land management, labor, production, to finance. The implementation of E plantation not only increases efficiency and effectiveness in business management, but also has a significant impact on employee job satisfaction. Ultimately, increased job satisfaction will contribute to improved individual

performance, as well as that of the organization as a whole. Job satisfaction is an important factor that affects employee performance. With the existence of E plantation, various operational tasks can be carried out more easily and efficiently, thereby reducing unnecessary workload. The system also ensures that the required information is available accurately and on time, assisting employees in completing their tasks better. When employees feel their work is more organized and supported by a reliable system, they will be more satisfied with their work and motivated to work more optimally. In addition, E plantation increases transparency and fairness in the employee management system. With data-based performance recording, work appraisals become more objective and accurate. This has an impact on increasing employees' trust in the company, as they feel that their efforts and contributions are being fairly recognized. The satisfaction gained from this more transparent reward system will encourage them to improve the quality and performance of their work.

## 2.7. Conceptual Framework and Hypothesis



**Figure 1. Conceptual Framework**

A hypothesis is a temporary conjecture whose truth still needs to be tested. This hypothesis is intended to provide direction for research analysis. The hypothesis in this study is:

- It is suspected that the e plantation system affects the job satisfaction of PT. Source of Palm Tree
- It is suspected that job satisfaction affects the performance of employees of PT. Source of Palm Tree
- It is suspected that the e plantation system affects employee performance through the job satisfaction of PT. Source of Palm Tree

## 3. Methods

This study uses a quantitative approach with a survey research method, which is a study that takes samples from a population and uses questionnaires as the main data collection tool. Meanwhile, the measurement scale used in this study uses the Likert Scale. This scale is used to measure awareness, impression of quality, and loyalty of a person or group about social events or symptoms. Analysis is carried out by asking respondents to answer or give an assessment of a certain concept or object. The data scale used is nominal 1 to 5 categories of answers. The population in this study is employees at PT. Source: Mahardika Sawit, as many as 45 employees of PT. Source of Palm Springs. In this study, because the population is small (limited) so it is not possible to use samples, so the researcher took the same number of samples as the population, or called the census, which is as many as 45 employees of PT. Sumber Mahardika Sawit, with the criteria of more than one year of working at PT. Source of Palm Springs. The data used in this study was analyzed using the Partial Least Square (PLS) approach with the help of the PLS 3.0 smart analysis tool.

## 4. Results and Discussion

Table 1. Characteristics of Respondents by Age

Gender	Sum	Percentage (%)
Man	21	47
Woman	24	53
Total	45	100,00%

Source: Data processed, 2025

It is known that around 21 respondents are male and about 24 respondents are female. This shows that employees at PT. Source Mahardika Sawit, between the male and female sexes does not have a much different difference..

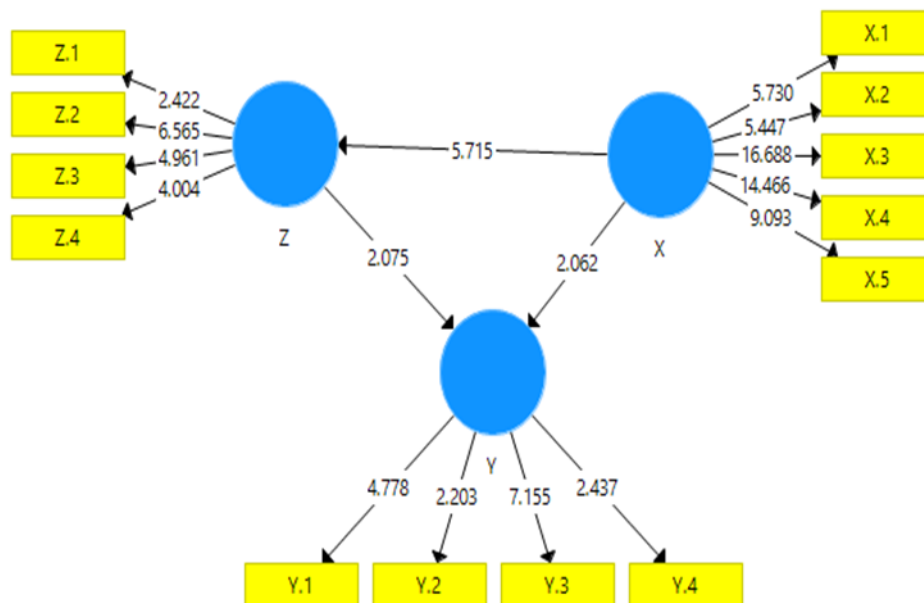


Figure 2. Measurement Models

From the PLS output image above, it can be seen that the value of the load factor of each indicator is located above the arrow between the variables and indicators, it can also be seen the magnitude of the path coefficients (path coefficients) that are above the arrow line between the exogenous variables, namely the employee performance variable, while the mediating variable in this study is Job Satisfaction as well as the endogenous variable, namely the e plantation system.

Table 2. Validity Test (Outer Model)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
X.1 <- X	0,650	0,639	0,113	5,730	0,000
X.2 <- X	0,750	0,725	0,138	5,447	0,000
X.3 <- X	0,871	0,862	0,052	16,688	0,000
X.4 <- X	0,823	0,818	0,057	14,466	0,000
X.5 <- X	0,728	0,720	0,080	9,093	0,000
Y.1 <- Y	0,726	0,707	0,152	4,778	0,000
Y.2 <- Y	0,537	0,522	0,244	2,203	0,028
Y.3 <- Y	0,805	0,786	0,112	7,155	0,000
Y.4 <- Y	0,538	0,497	0,221	2,437	0,015
Z.1 <- Z	0,501	0,512	0,207	2,422	0,016
Z.2 <- Z	0,775	0,757	0,118	6,565	0,000
Z.3 <- Z	0,753	0,723	0,152	4,961	0,000
Z.4 <- Z	0,710	0,688	0,177	4,004	0,000

Source: Data processed

The estimated results from the Outer Loading Table show that all indicators have met good validity because they have a loading factor of 0.50 and/or more than 0.50. Since the validity test with outer loadings has been met, the measurement model has the potential to be further tested.

Table 3. Structural Model Testing (Inner Model)

	R Square
Employee Performance (Y)	0,819
Job Satisfaction (Z)	0,666

R2 value = 0.819. This can be interpreted as the model is able to explain the phenomenon/problem of Employee Performance by 81.9%. While the rest (18.1%) is explained by other variables (other than the e plantation system and job satisfaction) that have not been included in the model, and errors. This means that Employee Performance is influenced by the e plantation system and Job Satisfaction by 81.9%, while by 18.1% it is influenced by other variables of the e plantation system and Job Satisfaction value R2 = 0.666. This can be interpreted as the model is able to explain the phenomenon/problem of Job Satisfaction by 66.6%. While the rest (33.4%) is explained by other variables (other than the e plantation system) that have not been included in the model and errors. This means that Job Satisfaction is influenced by the e plantation system by 66.6%, while 33.4% is influenced by other variables of the e plantation system.

#### 4.1. The Influence of the E Plantation System on Job Satisfaction

The results of this study show that employee job satisfaction increases along with the implementation of an effective e-Plantation system. This can be explained through several key factors. First, this system helps create a more efficient and structured work environment, so employees feel more comfortable in carrying out their duties. Second, digitalization in data management and administration can reduce the administrative workload that was previously done manually, so that employees can focus more on strategic tasks. Third, this system allows

for better communication between employees and management, increases information disclosure, and accelerates decision-making, which has an impact on increasing employee motivation and engagement in their work. In addition, the implementation of the e-Plantation system also contributes to increasing employees' sense of ownership and appreciation for their work. With a transparent and accurate system, employees can see how their contribution to the company's performance is recognized and rewarded. This has an impact on increasing employee loyalty and reducing the level of stress caused by uncertainty in the manual work system.

#### **4.2. The Effect of Job Satisfaction on Employee Performance**

Based on the results of the research that has been carried out, the results that Job Satisfaction has a positive effect on Employee Performance are acceptable. This proves that employees who are satisfied with their work tend to have higher motivation to complete their tasks well. This motivation can come from a variety of factors, including fair appreciation, a conducive work environment, and good relationships with colleagues and superiors. When employees feel satisfied with their work, they tend to be more enthusiastic and more initiative in carrying out their duties. This has a direct impact on improving employee performance. The relationship between job satisfaction and employee performance can also be seen in the context of employee retention. Employees who are satisfied with their jobs tend to be more loyal to the organization and have lower absenteeism rates. This means that organizations can reduce the costs associated with recruiting and training new employees, as well as retaining existing knowledge and skills within the organization. Thus, job satisfaction not only has a positive impact on individual performance but also on the overall performance of the organization. The results of the study are in accordance with the research conducted by Parwanto and Wahyudin (2018), which examined the influence of job satisfaction factors on employee performance. The study found that work satisfaction factors, including salary, e-plantation system, and co-worker attitudes, have a significant influence on employee performance. In this study, it was also obtained that the attitude of colleagues is a dominant factor in employee performance. Another study that obtained similar results to this study was conducted by Devi (2019). The results of the research obtained are that job satisfaction has a significant positive effect on employee performance.

#### **4.3. The Effect of E Plantation Systems on Performance Through Job Satisfaction**

Based on the results of the research that has been conducted, it was found that the e plantation system has a significant influence on employee performance through job satisfaction. These results show that the implementation of the e-Plantation system not only impacts operational efficiency in the plantation sector but also contributes to increasing employee job satisfaction, which ultimately impacts improving their overall performance. The e-Plantation system is a digital platform designed to manage various operational aspects within the plantation industry, including production data logging, workforce monitoring, resource management, and technology-based reporting. With this system, employees can work more structured, have faster access to information, and reduce the burden of manual administration that is often an obstacle in daily work. The results of this study show that job satisfaction is a mediating variable between the use of the e-Plantation system and employee performance. This means that this system is able to improve employee performance indirectly by increasing their job satisfaction first. Some of the factors that contribute to increased job satisfaction include ease of access to information, increased transparency in management, reduced administrative workload, and increased effectiveness in decision-making.

## 5. Conclusion

Based on the results of the test using PLS analysis, to test the influence of several variables on Employee Performance, the following conclusions can be drawn:

- a) The e plantation system has a significant effect on the Job Satisfaction of PT. Source of Palm Tree
- b) Job Satisfaction has a significant effect on the Performance of PT. Source of Palm Tree
- c) The e plantation system has a significant effect on Employee Performance through Employee Job Satisfaction of PT. Source of Palm Tree

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