p–ISSN: 2723 - 6609 e-ISSN: 2745-5254
Vol. 6, No.1, January 2025 http://jist.publikasiindonesia.id/

Factor Analysis of The Digital Transformation Challenges at PT Dharma Agung Wijaya

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Keywords: Digital Transformation; Palm Oil; Operational Efficiency; Digital Data; Technology Adoption; Digital Culture; Factor Analysis; Digital Capability.

ABSTRACT

Digital transformation is a significant phenomenon across industries, including the oil palm plantation sector. PT Dharma Agung Wijaya is undergoing a digitalization process to improve operational efficiency and effectiveness. However, this process encounters challenges that must be identified and addressed to achieve optimal results. This study analyzes the challenges in implementing digital transformation at PT Dharma Agung Wijaya, identifying its current status, determining key obstacles, and offering recommendations for corrective actions. The research contributes theoretically to digital transformation studies and provides practical benefits for optimizing the company's digitalization efforts. Adopting a quantitative approach with stratified random sampling, the study involves a population of 478 individuals directly engaged in the digital transformation process, with 379 selected as samples. These participants are distributed across four major digital platforms: OWL Plantation System, Budget Control System, DAW Plantation Mobile, and Weightbridge Ramp System. Data were collected via online questionnaires and validated through reliability tests using SPSS. The findings reveal six main factors that challenge the digital transformation process: digital culture, digitalization, digital technology, digital leadership, digital disruption, and digital skills. Among these, digital culture and digitalization were identified as having the most significant impact on the success of the transformation. This study provides valuable insights for PT Dharma Agung Wijaya and similar organizations to navigate and optimize their digital transformation journey effectively.

Introduction

The oil palm plantation sector in Indonesia is one of the important agricultural commodities. In 2021, the total oil palm production reached 45.12 million tons, while the total area of oil palm plantations reached 16.83 million hectares (Direktorat Jenderal Perkebunan, 2020). In terms of vegetable oil production, oil palm is the world's leading crop, surpassing soybean, rapeseed and sunflower. Global vegetable oil consumption is projected to continue rising to reach 180 million tons by 2050, largely driven by demand for palm oil (Purba, 2019).

To maintain its status as the world's largest palm oil producer, Indonesia must increase its production. The main strategy currently used to increase palm oil production in Indonesia is land expansion or extensification. Data shows a significant growth in oil palm land area from 2011 to 2021, from 8.99 million hectares to 16.83 million hectares, an increase of 87% (Directorate General of Plantations, 2022). Current conditions make expanding production very challenging due to government regulations. These regulations include a ban on palm oil expansion, increasingly stringent certification standards for palm oil, and other additional restrictions. One of the strategies used to achieve the desired increase in production is digitalization.

Most plantation companies in Indonesia still use conventional approaches, especially when it comes to data collection. In contrast, many plantations in Indonesia are now adopting digitalization by integrating the *Internet of Things* (IoT) into their operational procedures. This is so that the collected data can be stored centrally, forming a collection of big data. Big data has great potential to be used in various activities, one of which is analyzing and creating predictive models. The goal is to produce more accurate decisions to improve the efficiency and productivity of plantation businesses (Syarovy et al., 2023).

The use of digital technology in plantations for accounting and other purposes greatly helps speed up the data collection process and improve its accuracy. The use of *mobile harvesting systems* to record harvest density figures, yields being harvested and replication tools to connect and communicate with ERP *systems*. Overall, the application of digital technology in plantation management is a very important part. It can optimize the utilization of Human Resources (HR) and other resources effectively, efficiently, and accurately, thus benefiting businesses and managers (Nasution, 2022).

Research conducted by Alanizan (2023) shows that employees are better able to adapt to the digital revolution when organizations apply digital transformation as a different operating paradigm, which in turn improves results and performance. Khin and Ho (2019) emphasized the importance of digital capabilities in improving the digital orientation of companies. Only companies equipped with the necessary skills will be ready to adopt new technologies. In addition, firms must demonstrate their readiness to transform technology into innovative products. Similarly, for firms to thrive in the digital landscape, they must demonstrate readiness to embrace new technologies by developing innovative products that provide a competitive advantage.

Based on the key focus reported in the 2023 President Letter of PT Dharma Agung Wijaya on August 19, 2022, it was stated that “DAW Group needs to continue to increase productivity with technology enhancement and also take corporate action to acquire oil palm plantations in East Kalimantan and also mainly in Jambi, besides that DAW Group must have an organization that is agile in adapting”. One of the steps taken is with digital transformation. Through digital transformation, it is expected that all activities can create efficiency. It was also mentioned that digital transformation needs to be improved in order to streamline operational business processes and administration in the field to work faster / more efficiently and reduce human error.

Digital transformation is the result of various digital innovations implemented by various stakeholders, including individuals and groups, in addition to existing structures, practices, values, and beliefs. This transformation can modify, jeopardize, replace, or improve existing regulations within a particular organization, ecosystem, industry, or domain (Hinings et al., 2018, p. 53). Daunt (2018) defines digital transformation as the application of technology to substantially improve an organization's performance or reach. In a digitally transformed business, digital technology enables better processes, more optimized talent engagement, and new business models. Overall, digital transformation can be defined as a change in business processes due to the use of technology.

DAW has been conducting oil palm plantation activities since 2005. During 2005 - 2017, employees carried out operational activities manually so that they had difficulty in analyzing the obstacles that occurred in the field because there was no system that monitored in real time. The digital transformation carried out by the company is called Digital Technology Enchancement where DAW carries out digital transformation of its business processes so that they can be monitored in real time. There are 4 platforms in Digital Technology Enchancement including OWL Plantation System (OWL), Budget Control System (BCS), DAW Plantation Mobile (DPM) and Weight Bridge Ramp System (WBS).

In 2017, PT Dharma Agung Wijaya (DAW) began its digital transformation by implementing OWL Plantation System, a specialized ERP system for oil palm plantations. This step was followed by the implementation of the Budget Control System (BCS) in 2019. Prior to the implementation of OWL and BCS, manual processes caused data to be scattered across various individual laptops, vulnerable to loss, and difficult to access. The Zahir software used previously was not integrated, hampering cost control and data monitoring. In 2021, DAW continued its digital transformation by implementing DAW Plantation Mobile (DPM). This system helped reduce cases of fruit loss due to theft and data manipulation. Barcode technology enables accurate data tracking, improves operational efficiency, and supports business process changes towards digitalization. Furthermore, in 2023, DAW implemented WBS with the aim of minimizing input errors (Human Error) when weighing Fresh Fruit Bunches (FFB) and Crude Palm Oil (CPO).

Digital transformation that includes the application of new technology that has never been used before, the company's preparation is very important. This process is in line with the concept of change management proposed by Kurt Lewin, who recognized three main stages in managing organizational change. The initial stage, called “unfreezing,” highlights the need to explain in detail the reasons behind the change and reduce resistance to the change. Next, the “moving” stage involves implementing and accepting the new technology, which can include training, intensive communication, and overall change management. In the final stage, “refreezing,” the focus is on consolidating the change, establishing a supportive corporate culture, and ensuring that new practices are sustainably integrated within the organization (Wirotama, 2023). Therefore,

understanding and applying the principles of change management as described by Lewin's theory is key to ensuring success in digital transformation.

When companies carry out digital transformation, they will face many challenges. These challenges must be overcome so that the company can become a modern company that utilizes digital technology to improve all aspects of its business. More than just using digital technology, companies should aim for strategic change by implementing cultural and organizational transformation that is digital in nature. According to Brunetti et al. (2020), digital transformation is the use of digital technology that involves cultural change, which changes business processes from traditional to digital ways. They also highlighted several challenges in the digitalization process, such as the lack of development and updating of digital skills of the actors, as well as the low level of adaptation to new technologies, especially in terms of infrastructure.

The purpose of this study is to understand the current state of digital transformation at PT Dharma Agung Wijaya, identify factors that pose challenges in the company's digital transformation process, and provide recommendations for corrective actions that can be implemented to overcome these challenges.

Method

Type of Research

This research includes applied research that aims to obtain information to solve problems, especially the challenge factors in digital transformation at PT Dharma Agung Wijaya, and provide recommendations for corrective action. The approach used is a survey, which collects and analyzes data from a sample of the population to identify the distribution and relationship of variables.

Based on the level of explanation, this research is descriptive, which describes the value of variables without comparing or correlating between variables. The type of data and analysis is quantitative, involving 478 employees as digital platform users, using primary and secondary data without researcher intervention. This research is cross-sectional, with data collected in one specific period, namely 2024.

Measurement Scale

This research uses an ordinal scale to express rank between levels, with a Likert scale as a means of measuring individual attitudes, views and perceptions of social phenomena. Questionnaire answers are given in gradations from very positive to very negative, without the “Undecided” option so that respondents are more likely to express their opinions clearly, so that the data obtained is more informative and not centered in the middle.

Populasi dan Sampel

The population in this study are all employees of PT Dharma Agung Wijaya who use digital platforms in their daily activities. Samples were taken using *probability sampling* techniques, with a *stratified random sampling* method based on the group of digital platforms used: OWL Plantation System (OWL), Budget Control System (BCS), DAW Plantation Mobile (DPM), Weight Bridge Ramp System (WBS), and DAW Absensi Mobile (APK). The number of samples taken from the total population of 478

people is 377 people, according to the proportion of each digital platform, as shown in the following table:

Table 1. Total of Samples used

No.	Platform Digital	Population	Sample
1	*OWL Plantation System* (OWL)	141 people	103 people
2	*Budget Control System* (BCS)	127 people	92 people
3	DAW *Plantation Mobile* (DPM)	113 people	86 people
4	*Weight Bridge Ramp System* (WBS)	50 people	44 people
5	DAW Absence *Mobile* (APK)	60 people	52 people
	Total	478 people	377 people

Data Collection and Data Sources

The data in this study were collected from primary and secondary sources through the following methods: Literature Study; Conducted to find relevant information and theories from books, journals, previous research, and web sources (Hamdi & Bahruddin, 2015). Questionnaire; Primary data collection was carried out by distributing online questionnaires via Google Form to respondents who became the sample. This questionnaire was distributed through WhatsApp groups and direct meetings in the field..

Validity and Reliability Test

A valid research instrument is able to measure exactly what is intended, while a reliable instrument provides consistent results when used repeatedly (Sugiyono, 2019). Valid and reliable instruments are important requirements for obtaining accurate research results.

1. Validity Test

Validity was tested using construction validity through product moment correlation (r) with SPSS, correlating the score of each item with the total score. The instrument is considered valid if the correlation coefficient value is ≥ 0.361. The test was conducted on 30 respondents using the results of the questionnaire.

2. Uji Reliabilitas

Reliability was tested using the internal consistency method with Cronbach's Alpha. If the alpha value is> 0.800, the instrument is considered highly reliable. In this study, the Cronbach's Alpha result of 0.964 indicates that the instrument has a very strong reliability and is suitable for further research.

Data Analysis Techniques: Factor Analysis

Factor analysis is used to reduce variables into smaller factors without losing important information (Trianasari, 2024). This study uses Exploratory Factor Analysis (EFA) to identify the structure between latent variables with possible overlap between indicators.

The EFA process is carried out using SPSS with stages:

1. KMO and Bartlett's Test: Assess sample adequacy (KMO > 0.5) and inter item correlation (sig. < 0.05).
2. Communalities**:** Measures the contribution of each item to the factor.
3. Total Variance Explained: Determines the number of factors based on eigenvalues (>1).
4. Rotated Component Matrix: Identifies loading factors to ensure items are only associated with the appropriate factors

5. Factor Labeling: Giving factor names based on the items that compose them according to the results of eigenvalues.

This analysis assumes a linear relationship between variables with significant correlations and ensures each factor is able to explain the relevant variance.

Results and Discussion

Factor Analysis Test

Barlett Test and Measure of Sampling Adequacy

Tabel 1. KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.973
Bartlett's Test of Sphericity	Approx. Chi-Square	12812.691
	df	861
	Sig.	.000

Source: Author's calculation (2024)

Based on Table 1, the KMO and Bartlett test results show a significance value of 0.000 <0.05, which indicates a significant correlation between variables. Furthermore, the results of the Kaiser Meyer Olkin and Measure of Sampling Adequacy (KMO MSA) test show a value of 0.973> 0.5, which indicates a significant correlation between variables, so the research can proceed to the next testing stage. Further testing was carried out by reviewing the value of the Anti Image Matrix.

In the Anti Image Correlation table, there is an MSA (Measure of Sampling Adequacy) value for each variable studied. If the MSA value> 0.5, this indicates that the variable has an influence on the variable being studied. Conversely, if the MSA value is <0.5, the variable is considered to have no effect on the research variable. In the case of variables with an MSA value of less than 0.5, a reduction step of retesting is required for variables that have no effect. The following table shows the MSA value for each statement item.

Table 2. MSA Results for Each Question Item

Indicator	Anti-Image Correlation	MSA Value
Item1	0.977	Fulfilled
Item2	0.979	Fulfilled
Item3	0.982	Fulfilled
Item4	0.977	Fulfilled
Item5	0.976	Fulfilled
Item6	0.975	Fulfilled
Item7	0.978	Fulfilled
Item8	0.972	Fulfilled
Item9	0.978	Fulfilled
Item10	0.981	Fulfilled
Item11	0.980	Fulfilled
Item12	0.974	Fulfilled
Item13	0.967	Fulfilled
Item14	0.969	Fulfilled

Indicator	Anti-Image Correlation	MSA Value
Item15	0.969	Fulfilled
Item16	0.971	Fulfilled
Item17	0.945	Fulfilled
Item18	0.959	Fulfilled
Item19	0.944	Fulfilled
Item20	0.952	Fulfilled
Item21	0.950	Fulfilled
Item22	0.964	Fulfilled
Item23	0.962	Fulfilled
Item24	0.953	Fulfilled
Item25	0.971	Fulfilled
Item26	0.970	Fulfilled
Item27	0.977	Fulfilled
Item28	0.974	Fulfilled
Item29	0.973	Fulfilled
Item30	0.981	Fulfilled
Item31	0.969	Fulfilled
Item32	0.972	Fulfilled
Item33	0.981	Fulfilled
Item34	0.980	Fulfilled
Item35	0.970	Fulfilled
Item36	0.977	Fulfilled
Item37	0.980	Fulfilled
Item38	0.974	Fulfilled
Item39	0.983	Fulfilled
Item40	0.982	Fulfilled
Item41	0.979	Fulfilled
Item42	0.985	Fulfilled

Source: Processed by the author (2024)

Based on the MSA data in the study, all questionnaire items met the value> 0.5. This means that the *Anti Image Correlation* value has met the requirements and can continue to be analyzed. The research does not need to be repeated because all items in the questionnaire have met the requirements and can be used as answers to the research being conducted.

Factoring Process in Confirmatory Factor Analysis

Table 3. Total Variance Explained Table

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	21.587	51.398	51.398	21.587	51.398	51.398
2	2.002	4.767	56.166	2.002	4.767	56.166
3	1.705	4.060	60.226	1.705	4.060	60.226
4	1.344	3.200	63.425	1.344	3.200	63.425

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
5	1.163	2.769	66.194	1.163	2.769	66.194
6	1.057	2.517	68.711	1.057	2.517	68.711
7	.905	2.156	70.867	.905	2.156	70.867
8	.801	1.908	72.774			
9	.661	1.573	74.347			
10	.604	1.437	75.785			
11	.573	1.365	77.150			
12	.535	1.273	78.423			
13	.520	1.237	79.660			
14	.484	1.153	80.813			
15	.466	1.111	81.923			
16	.433	1.031	82.954			
17	.422	1.005	83.959			
18	.402	.958	84.917			
19	.389	.926	85.843			
20	.369	.880	86.723			
21	.362	.862	87.585			
22	.357	.850	88.435			
23	.346	.824	89.259			
24	.335	.798	90.057			
25	.322	.766	90.823			
26	.312	.744	91.567			
27	.297	.708	92.275			
28	.290	.690	92.965			
29	.274	.653	93.618			
30	.258	.615	94.233			
31	.253	.603	94.836			
32	.244	.581	95.417			
33	.237	.565	95.982			
34	.224	.533	96.516			
35	.216	.515	97.031			
36	.204	.487	97.518			
37	.198	.471	97.988			
38	.188	.448	98.437			
39	.184	.439	98.876			
40	.172	.410	99.286			
41	.154	.366	99.652			
42	.146	.348	100.000			

Source: Processed by the author (2024)

Based on the table above, the following summary is obtained; ;

a. If at the beginning of the extraction it is determined that there are 7 factors formed, then the factors with eigenvalue> 1 are only 6 (six factors).
b. For 6 factors that have an Eigen value> 1, a cumulative total variance of 68.711 has been generated, which means that the 6 factors can already represent all indicators: factors that can affect digital transformation challenges by 68.711%)

In addition, the number of factors can also be seen from the scree plot diagram formed the scree plot explains the relationship between the number of factors formed in the form of a graph shown in Figure 1.

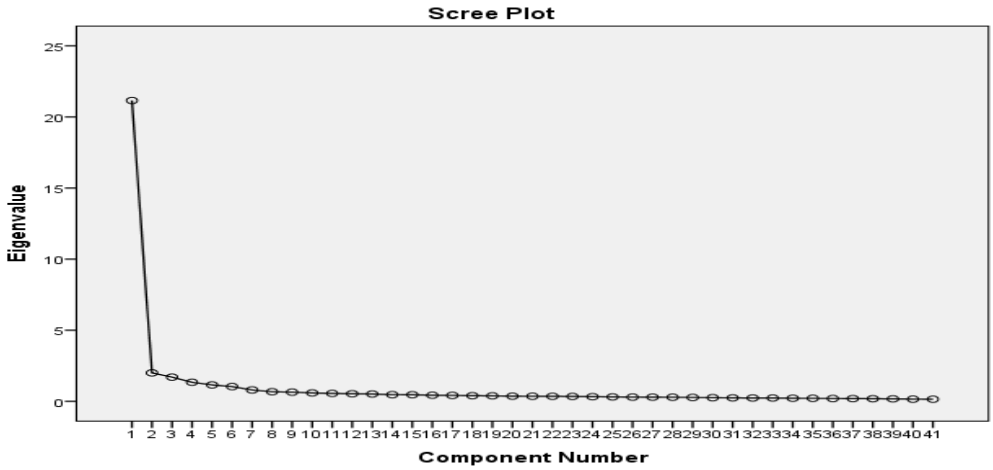

Figure 1. Scree Plot

Figure 1 shows the clustering results based on the new eigenvalue. The higher the eigenvalue of a factor, the higher its placement, where there are 6 factors that have eigenvalues above 1.0, while items along the descending line are items that have eigenvalues below 1.0.

Rotation Process in Factor Analysis

The rotation process is carried out to assist the author in forming factors from factor analysis more easily understood. Rotation was carried out on 42 questionnaire items that had passed the MSA test. This process is carried out because of the 6 factors that have been formed, but it is not yet known what factors are in it. A criterion is needed to determine the position of variables, which refers to the significance of factor loading variables in a factor.

Table 4. Reference Factor Loading

Factor Loading	Total of Samples
0.30	350
0.35	250
0.40	200
0.45	150
0.50	120
0.55	100

0.60	85
0.65	70
0.70	60
0.75	50

Source: Hair et.al. (2010)

In the research conducted involving 379 respondents, the factor loading result was 0.277. Furthermore, the research was carried out with a set on rotation run by a statistical data tool using the SPSS 26 program to find which questionnaire items were still hidden or called "*suppress small coefficient*" (set at 0.277) to make it easier to read able and group the questionnaire items according to *factor loading*.

Table 5. *Rotated Component Matrix* Results

Rotated Component Matrix[a]						
	Component					
	1	2	3	4	5	6
Item1	.679					
Item2	.678					
Item3	.662	.320				
Item4	.639					
Item5	.618	.323				
Item6	.633	.315				
Item7	.665	.288				
Item8	.575		.287		.344	
Item9	.610	.306				
Item10	.591			.326		
Item11	.676	.298				
Item12	.614					
Item13					.659	
Item14	.304				.717	
Item15	.310	.287			.608	.284
Item16	.294	.284			.649	
Item17						.697
Item18			.338		.283	.611
Item19			.297			.703
Item21	.347	.282				.600
Item22			.749			
Item23			.748			
Item24			.793			
Item25			.731			
Item26			.779			
Item27	.335	.281		.635		
Item28		.302		.620		
Item29	.320		.286	.642		
Item30	.297	.354	.279	.597		
Item31	.348	.359		.600		
Item32		.347		.677		
Item33		.714				
Item34		.679				

Rotated Component Matrix[a]						
	Component					
	1	2	3	4	5	6
Item35	.278	.719				
Item36	.305	.686				
Item37	.317	.688				
Item38		.700				
Item39	.283	.696				
Item40	.304	.672				
Item41	.320	.717				
Item42	.278	.677				

Source: Author's Process (2024)

The next result to be seen is the *rotated component matrix*. Table 5 shows the factor level on each factor. Good items are items that have *factor loadings* above 0.5 (Comrey in Saeed et al. (2021) and also have higher values on the factors measured by them alone (Field, 2018). The author has repeated the process once by deleting 1 item that has a factor load below 0.5. Iteration was carried out by deleting item 20. Therefore, it is necessary to do the 2nd iteration as a form of confirmation of the 6 factors that have been formed. The 2nd iteration was carried out by reducing or removing the 1 item

Factor Clustering and Naming Process

Table 6. *Factor Loading* Grouping

	Component					
	1	2	3	4	5	6
Item1	.679					
Item2	.678					
Item3	.662					
Item4	.639					
Item5	.618					
Item6	.633					
Item7	.665					
Item8	.575					
Item9	.610					
Item10	.591					
Item11	.676					
Item12	.614					
Item13					.659	
Item14					.717	
Item15					.608	
Item16					.649	
Item17						.697
Item18						.611
Item19						.703
Item21						.600
Item22			.749			
Item23			.748			
Item24			.793			

	Component					
	1	2	3	4	5	6
Item25			.731			
Item26			.779			
Item27				.635		
Item28				.620		
Item29				.642		
Item30				.597		
Item31				.600		
Item32				.677		
Item33		.714				
Item34		.679				
Item35		.719				
Item36		.686				
Item37		.688				
Item38		.700				
Item39		.696				
Item40		.672				
Item41		.717				
Item42		.677				

Source: Author's Report (2024)

Table 7. Grouping Statement Items in Order of Factor Loading

Factor	Item	Statement
1	Item1	I have made procedures for using digital platforms.
	Item2	The procedure has been socialized to me as a user of digital platform technology.
	Item3	I feel interested in using digital platforms.
	Item4	I have the initiative to innovate from the process that has not been good in the use of digital platforms.
	Item5	I shared and discussed with colleagues regarding the use of digital platforms.
	Item6	I feel that the budget for the procurement and maintenance of digital platform devices is adequate.
	Item7	I feel that the implementation of digital technology makes work easier.
	Item8	I feel that field practice training or through digital technology simulators is sufficient.
	Item9	I feel that in-class training related to how to use digital technology is sufficient.
	Item10	I have received socialization on the use of digital platforms to create a digital culture (habit).
	Item11	I want to be consistent in the use of digital platforms.
	Item12	I feel that all the policies in the procedure have been implemented.
5	Item13	I feel that the existence of digital platforms can change old habits (manual) to new habits (digital).
	Item14	I feel that my boss always asks about the progress of using digital technology.
	Item15	I feel that my boss provides solutions to all obstacles in the use of digital technology.
	Item16	I feel that all digitization devices are installed well.
	Item17	With the help of IT, I can more easily implement digital technology.

Factor	Item	Statement
6	Item18	I feel that digital platforms can provide accurate data.
	Item19	I feel that my boss can use digital platform data to increase production and reduce operational costs.
	Item21	I easily understand the usability of the features in the digital platform
3	Item22	My boss gave me clear instructions regarding the need to use digital platforms.
	Item23	My boss told me about the targets that will be achieved when digital technology is used.
	Item24	I feel that my boss has the ability to utilize digital data to improve operational performance.
	Item25	I feel that my boss has innovations to improve the process that is not good in the use of digital technology.
	Item26	My boss was able to influence me so that I was interested in using digital technology.
4	Item27	I feel that the existence of digital platforms has changed the workflow that was previously done.
	Item28	Quick follow-up from a technician when I encountered difficulties in using the digital platform.
	Item29	I feel that all digitization tools are complete, both hardware and software.
	Item30	I know the company's key focus on the use of digital technology.
	Item31	With digital platforms being the focus of the company, it can encourage me in the use of digital technology.
	Item32	I want to know and understand digital platforms in more depth
2	Item33	I feel that the IT team can solve the technical constraints of digital technology systems and devices.
	Item34	I feel that the digital platform in the operational process can be well connected.
	Item35	I feel that the budget for digital platforms is adequate.
	Item36	I feel that the production and support teams have communicated well to solve obstacles in the field.
	Item37	I coordinate with my superiors if I find obstacles in using digital platforms.
	Item38	I feel that digital platforms can provide data quickly on the fly or in real time.
	Item39	I rarely find technical obstacles in the use of digital technology.
	Item40	I feel that the data generated from digital platforms is needed for operations.
	Item41	The digital platform is easy for me to use (user friendly).
	Item42	I feel that the application of digital technology is not hampered by external factors such as environment, health, safety, and corporate policies

Source: Prepared by the Author (2024)

Based on the grouping of statement items above, the author then names the factors by identifying each statement item and the relationship of each item in one factor. The following is the naming starting from factor 1 to factor 6:

1. Factor 1: Digital Culture. Factor 1 consists of 12 statement item items. The author named it "Digital Culture" because the name represents all the statement items in factor 1. Because the items that focus more on digital transformation are very closely related to the decision-making process in the company and the impact of digital adaptation on the effectiveness of work carried out by employees who have good technology adaptation and digital skills. Employees will further improve the quality and effectiveness of work through technological

adaptation. This allows employees to manage integrated information and support the speed of communication so that it has an impact on the achievement of the company's given targets.

2. Factor 2: Digitalization. Factor 2 consists of 10 statement items. The author named it "digitalization" because the name represents all the statement items in factor 2. This factor emphasizes the importance of adapting to digital culture. The items in this factor suggest that the change from the old to the new one not only needs to be done technically but also must be culturally adopted. This factor indicates that individuals in the organization feel the positive changes resulting from the use of digital technology.
3. Factor 3: Digital Technology. Factor 3 consists of 5 statement items. Digital technology is "the process by which individuals and organizations adapt to information technology to achieve competitive advantage and innovation. Individuals and organizations manage changes in the use and development of information technology to meet their business and social goals". In the Digital Era, the ability to adapt to technology is something that is being sought, especially in the business world which currently has forced the adaptation of jobs that involve technology and transformation.
4. Factor 4: Digital Leadership. Factor 4 consists of 6 statement items. The author named it "digital leadership" because the name represents all the statement items on factor 4. This factor focuses on the leader's ability and initiative to facilitate digital transformation. The items included in this factor reflect how digital leadership can impact work culture, communication, and digital skills within a team. A high loading factor on these items indicates that respondents feel that good leadership and a strong digital culture are essential for the success of digitalization in the company.
5. Factor 5: Digital Disruption. Factor 5 consists of 4 statement items. The author named it "Digital Disruption and Innovation" because the name represents all statement items in factor 5. This factor illustrates how the disruption brought by digital technology encourages innovation in the work process. The items in this factor show that the existence of digital technology not only improves operations but also changes the way of working to be more efficient. The high loading on these items shows an awareness of the importance of adaptation and innovation needed to overcome digital challenges.
6. Factor 6: Digital Skills. Based on the items formed in factor 6, this challenge is called the 'digital skills' factor because the items focus more on information technology that is urgently needed for the company to support operations and management as well as disseminate information to employees more easily. To be able to compete with competitors in the digital era, companies must be able to continue to create new digital business opportunities and be sensitive to the issues of people's needs. Information technology that occurs within the company and changes that are directly felt by the company's stakeholders. In the current digital era, the ability to adapt information technology is something that is being sought, especially in the business world which currently has forced the adaptation of jobs involving technology and transformation.

Discussion of Research Results

The following is a discussion of each factor:

- Digital Culture, along with supporting part of the digital transformation, the company implements a new policy that must be all digital. Employees will further improve the

quality and effectiveness of work through technological adaptation. This allows employees to manage integrated information and support the speed of communication so that it has an impact on achieving the targets given by the company. Companies or organizations that do not have a solid transformation culture will find it difficult to adopt and adjust to a digital culture. This highest factor is in line with the results of a direct interview with Mr. Rahadhiono Adi Setyanto as OSM Department Head in November 2024, who said that to remain competitive in the digital era, companies must continue to create new digital business opportunities and be sensitive to changing community needs. PT DAW continues to strive to adopt a digital culture in its various lines of business. In the midst of this digital era, the ability to adapt to technology is an important factor, especially in the oil palm plantation industry which increasingly requires technology-based job transformation. Based on the opinion of Rudito (2017, p. 98), a corporate digital culture is a culture that supports the process of adopting and developing digital technology, which in turn can improve business performance and achieve sustainable success.

- Digitalization, the change from old habits to new habits not only needs to be done technically but also must be adopted culturally. this factor shows that individuals in the organization feel the positive changes resulting from the use of digital technology. According to Schwertner cited in Purbaya and Noviaristanti's research (2022), in digital transformation, the company's strategy must be flexible and have a clear vision for growth, supported by broad technological potential in accordance with the chosen strategy. Schwertner emphasizes that a strong strategy and effective leadership play an important role in the success of digital business transformation. Through digital transformation, organizations can help employees improve their digital skills, which in turn improves performance through faster communication. This allows companies to have a more integrated business model. Enterprise digitalization also focuses on efficiency by streamlining company operations, strengthening relationships between divisions, speeding up the flow of information to clients, and driving innovation through evaluation..
- Digital Technology, the ability to adapt technology is something that is being pursued, especially in the business world which currently forces the adaptation of work involving technology and transformation. The concept of digital technology adaptation continues to develop along with the advancement of technology itself. Dwivedi et al. (2022) state that technological adaptation is “the process by which individuals and organizations adjust to information technology to achieve competitive advantage and innovation.” Meanwhile, according to Te’Eni et al. (2023), digital technology adaptation is “a dynamic process in which individuals and organizations manage changes in the use and development of information technology to achieve their business and social goals”.
- Digital Leadership, digital leadership can influence work culture, communication, and digital skills within the team. Good leadership and a strong digital culture are essential for successful digitalization in the company. According to research

conducted by Cahyarini (2021), digital leadership encourages the maximum utilization of information technology, which results in improved technology-based public services. Many achievements have been made as a result of the implementation of digital leadership. To achieve organizational goals in today's digital era, many things must be done, one of which is the leadership element that uses digital thinking. The success of an organization is not only measured by the performance of employees; more importantly, the ability of the organization's leaders is a more important factor. According to Kazim (2019), a new leadership style that has entrepreneurial skills is needed; in fact, to drive digital transformation, dynamic digital leadership traits are required (Oberer & Erkollar, 2018). Therefore, looking at the weight of the statements that appear, naming the digital leadership factor is very appropriate because one of the company's management functions is to influence, direct, and motivate with the aim of achieving company goals. The digital leadership factor is very relevant to the current situation in the company.

- Digital Disruption, the existence of digital technology not only improves operations but also changes the way of working to be more efficient. Awareness of the importance of adaptation and innovation needed to overcome digital challenges. Digital disruption is in line with the thoughts of Udayana (2020), which states that digital disruption is a phenomenon that changes the conventional understanding of society, with all its activities switching to digital systems. According to Hadiyat (2019), disruption is a big leap from old systems to new ways. Digital disruption refers to a major change that marks the transition from the offline era to the online era, which is a challenge for the tourism industry. Literally, disruption means disrupter or disturber. In the digital context, disruption refers to things that emerge after the digital era and destabilize businesses that have not utilized the internet and digital technology as an added value. An innovation replaces an old system with a new one.
- Digital Skills, Information technology that occurs within the company and changes that are directly felt by company stakeholders. The current condition of the company shows that employees who have more skills or abilities in the digital field are very beneficial, because they can adapt quickly to the changes that occur in the company. Therefore, this challenge is still called 'digital skills' because it is a factor that is the main challenge in the company's digital transformation. In the 4.0 era, companies are paying close attention to employees, especially those with technology skills, to increase company productivity. This is in line with research by Motyl et al. (2017), which states that digital skills include all technological skills, ranging from basic skills or digital literacy, which are generally required by all workers, to specialized skills required by ICT professionals.

Recommended Corrective Actions to Overcome Challenges

The following are corrective actions based on the results of data processing that describe the factors of digitization challenges faced by the company. Each factor is accompanied by relevant corrective actions based on the discussion result:

Table 8. Corrective Action

No	Challenge Factors	Corrective Action
1	Digital Culture	● Conduct regular training programs and workshops to improve employees' understanding and skills in using digital technology in their daily work. ● Periodic Monitoring and Evaluation: Monitoring and evaluating the implementation of digital culture with feedback from employees to ensure consistency and relevance of the strategies implemented.
2	Digitization	● Monitoring and evaluating the implementation of digital technology on a regular basis, and conducting feedback sessions with employees to find out the challenges faced in the implementation of digitalization.
3	Digital Technology as a Business Model	● Conduct a needs analysis to determine the technology that best fits the company's business model. May involve consulting with third parties or technology vendors to select the right solution.
4	Digital Leadership	● Conduct training for leaders in the company to understand their critical role in driving digital transformation. ● Implement a mentoring program that engages experienced leaders to guide other leaders in understanding and implementing digital technologies.
5	Digital Disruption	● Developing a culture of innovation that allows the company to be more adaptive to digital disruptions that occur in the industry. This is supported by one of the points in the *President Letter 2025* which reads "*Noble Leaders* must continue to consistently run and oversee their respective teams to make *continuous improvement*. In order for DAW Group to grow sustainably, we must ensure that this improvement management gradually but surely becomes a culture within DAW Group."
6	Digital Skills	● Provide comprehensive digital training for all employees, both with regard to basic technology and specific technical skills that support their work.

Conclusion

Based on the results of research using questionnaires and data analysis with SPSS 26, it was found that six main factors emerged as significant challenges in the digital transformation process at PT Dharma Agung Wijaya. Among these, digital culture was identified as the most influential factor, with respondents consistently agreeing that it represents a major challenge in the organization's efforts toward digital transformation. Digitalization was found to be another significant factor, almost equally impactful, as it highlights the importance of shifting from traditional practices to digital approaches. Digital technology also emerged as an important factor,

reflecting its critical role in supporting operational efficiency and innovation. Digital leadership was identified as a significant challenge, emphasizing the importance of strong leadership in driving and sustaining the digital transformation process. Digital disruption further proved to have a notable impact, signifying the changes and innovations required to adapt to evolving technological landscapes. Finally, digital skills were highlighted as a relevant challenge, underlining the need for employees to possess adequate technical abilities to support the organization's transformation initiatives. These findings underscore the substantial contribution of these six factors in shaping the company's digital transformation challenges and provide a foundation for addressing them effectively.

This research shows that PT Dharma Agung Wijaya has managed to overcome the challenges of digital transformation well. However, to further improve readiness, some suggestions are given: Digital Culture: Strengthen employee awareness and skills through regular training and periodic evaluation. Digitalization: Improve efficiency by accelerating operational digitization and regular technology evaluations. Digital Technology: Invest in technology relevant to the business model to support efficiency and competitiveness. Digital Leadership: Provide training and mentoring for leaders to drive transformation across the organization. Digital Disruption: Develop a culture of innovation that is responsive to digital change and continuously drives continuous improvement. Digital Skills: Provide comprehensive training to enhance employees' technical skills.

Bibliography

Alanizan, S. (2023). How Does Employee Satisfaction and Motivation Affect Productivity? *International Journal of Business and Management*, *18*(2), 55. https://doi.org/10.5539/ijbm.v18n2p55

Brunetti, F., Matt, D. T., Bonfanti, A., De Longhi, A., Pedrini, G., & Orzes, G. (2020). Digital transformation challenges: strategies emerging from a multi-stakeholder approach. *The TQM Journal*, *32*(4), 697–724. https://doi.org/10.1108/TQM-12-2019-0309

Cahyarini, F. D. (2021). Implementasi Digital Leadership dalam Pengembangan Kompetensi Digital pada Pelayanan Publik. *Jurnal Studi Komunikasi Dan Media*, *25*(1), 47. https://doi.org/10.31445/jskm.2021.3780

Daunt, V. (2018, January 29). *Digital Enablement: Turning your transformation into a successful journey*. Deloitte. https://www.deloitte.com/ie/en/Industries/technology/research/digital-enablement.html?utm_source=chatgpt.com

Direktorat Jenderal Perkebunan. (2020). *Statistik Perkebunan Unggulan Nasional 2021—2023. Sekretariat Dirjend Perkebunan Kementerian Pertanian 2019-2021*. Sekretariat Direktorat Jenderal Perkebunan Direktorat Jenderal Perkebunan Kementerian Pertanian Republik Indonesia.

Dwivedi, Y. K., Hughes, L., Kar, A. K., Baabdullah, A. M., Grover, P., Abbas, R., Andreini, D., Abumoghli, I., Barlette, Y., Bunker, D., Chandra Kruse, L., Constantiou, I., Davison, R. M., De', R., Dubey, R., Fenby-Taylor, H., Gupta, B., He, W., Kodama, M., … Wade, M. (2022). Climate change and COP26: Are digital technologies and information management part of the problem or the solution? An editorial reflection and call to action. *International Journal of Information Management*, *63*, 102456. https://doi.org/10.1016/j.ijinfomgt.2021.102456

Field, A. P. (2018). *Discovering Statistics Using IBM SPSS Statistics* (5th Edition). Sage Publishing.

Hamdi, A. S., & Bahruddin, E. (2015). *Metode penelitian kuantitatif aplikasi dalam pendidikan*. Deepublish.

Hidayat, A., Hadi, S., & Marlin, S. (2021). Strategi Pendidikan Islam di Era Disrupsi. *Misykat Al- Anwar: Jurnal Kajian Islam Dan Masyarakat*, *4*(2), 215–233. https://jurnal.umj.ac.id/index.php/MaA16/index

Hinings, B., Gegenhuber, T., & Greenwood, R. (2018). Digital Innovation and Transformation: an Institutional Perspective. *Information and Organization*, *28*(1), 52–61. https://doi.org/10.1016/j.infoandorg.2018.02.004

Kazim, F. A. (2019). Digital Transformation and Leadership Style: a Multiple Case Study. *The ISM Journal of International Business*, *3*(1), 24–33.

Khin, S., & Ho, T. C. (2019). Digital technology, digital capability and organizational performance. *International Journal of Innovation Science*, *11*(2), 177–195. https://doi.org/10.1108/IJIS-08-2018-0083

Motyl, B., Baronio, G., Uberti, S., Speranza, D., & Filippi, S. (2017). How will Change the Future Engineers' Skills in the Industry 4.0 Framework? A Questionnaire Survey. *Procedia Manufacturing*, *11*, 1501–1509. https://doi.org/10.1016/j.promfg.2017.07.282

Nasution, M. I. (2022). Digital Accounting Application in Oil Palm Plantation in Indonesia. *International Journal of Social Science Research and Review*, *5*(6), 74–79. https://doi.org/10.47814/ijssrr.v5i6.320

Noviaristanti, S., & Hanifan, H. A. (2022). Factor Analysis of Learning Management System Acceptance. *Proceedings of the International Conference on Industrial Engineering and Operations Management*, 2393–2403. https://doi.org/10.46254/EU05.20220464

Oberer, B., & Erkollar, A. (2018). Leadership 4.0: Digital leaders in the age of industry 4.0. *International Journal of Organizational Leadership*.

Purba, J. H. V. (2019). *Industri Sawit Indonesia dalam Perspektif Minyak Nabati Global*. Kesatuan Press.

Rudito, P., & Sinaga, M. (2017). *Digital Mastery membangun kepemimpinan digital untuk memenangkan era disrupsi*. Gramedia Pustaka Utama.

Saeed, B., Tasmin, R., Mahmood, A., & Hafeez, A. (2021). Development of a multi-item Operational Excellence scale: Exploratory and confirmatory factor analysis. *The TQM Journal*. https://doi.org/10.1108/TQM-10-2020-0227

Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R & D*. Alfabeta.

Syarovy, M., Nugroho, A. P., & Sutiarso, L. (2023). Pemanfaatan Model Neural Network dalam Generasi Baru Pertanian Presisi di Perkebunan Kelapa Sawit. *WARTA Pusat Penelitian Kelapa Sawit*, *28*(1), 39–54. https://doi.org/10.22302/iopri.war.warta.v28i1.97

Te'Eni, D., Avital, M., Böhmann, T., Coleman, E., & Tarafdar, M. (2023). The Role of Academic Associations in Promoting Social Action. *Communications of the Association for Information Systems*, *53*(1), 938–949. https://doi.org/10.17705/1CAIS.05339

Trianasari, N. (2024). *Kuliah Umum Metode Penelitian 2 Mei 2024 [Slide Powerpoint], Bandung: Telkom University*.

Udayana, A. (2020). Disrupsi teknologi digital: tumbuh kembangnya industri kreatif berbasis budaya. *Seminar Nasional Envisi*, 1–16.

Wirotama, S. (2023). *Teori Change Management*. Shamahita Wirotama. https://samahitawirotama.com/teori-change-management