

Analysis Of Human Resource Competence And Digital Literacy On Digital Transformation Readiness In The Industry 5.0 Era

Sri Ramlah^{1*}, Siti Barokah²

Science and Humanities, Muhammadiyah University of Gombong
sriamlah@unimugo.ac.id^{1*}

Received 17 August 2026 | Accepted 28 August 2026 | Published 25 September 2026

* Correspondence Author

Abstract

Digital transformation in the era of Industry 5.0 requires human resources to possess adequate competencies and digital literacy in order to adapt to technological changes and job demands. This study aims to analyze the influence of Human Resource Competence and Digital Literacy on Digital Transformation Readiness in the Era of Industry 5.0. The research uses a quantitative approach with an explanatory research type. The research sample consisted of 50 respondents, and the sampling technique used was purposive sampling, selected based on criteria that align with the research objectives. Data were collected through questionnaires using a Likert scale and analyzed using multiple linear regression, which included validity tests, reliability tests, classical assumption tests, t-tests, F-tests, and the coefficient of determination. The research results show that HR Competence and Digital Literacy have a positive impact on Digital Transformation Readiness in the 5.0 Industrial Era, both partially and simultaneously. The findings indicate that the enhancement of competencies and digital literacy is an important factor in preparing human resources to face technological changes and an increasingly digitized work environment. This research provides implications for organizations to strengthen competency development programs, digital training, and the enhancement of HR adaptation capabilities to effectively meet the demands of Industry 5.0. This research contributes to supporting the Fourth Asta Cita (development of superior and competitive human resources) and the Fifth Asta Cita (strengthening industrial transformation and competitiveness).

Keywords: HR Competence; Digital Literacy; Digital Transformation Readiness; Industry 5.0.

INTRODUCTION

Digital transformation marked by the integration of smart technologies, the Internet of Things (IoT), (Satiti, 2025), automation, big data, and artificial intelligence has changed the structure of jobs and the patterns of competency needs worldwide. (Anita Fauzi, 2025). World Economic Forum (2020) emphasizes that more than 50% of jobs will undergo significant changes due to the advancement of digital technology, while 40% of the global workforce requires rapid upskilling (reskilling). (World Economic Forum 2022). Organizations must adapt quickly to remain relevant, competitive, and increasingly competitive. Thus, HR competencies in the industrial digital era must be fundamentally considered so that organizations can remain competitive and survive in this increasingly dynamic market. (Kuswinarno, et al., 2024) The challenges of HR competency in the industrial digital era are also becoming increasingly complex and

diverse. Many human resources lack sufficient digital skills, such as data processing abilities, project management, and proficiency in certain software (Naila Dzakiya Rahmayani, et al., 2025). Tasks that were usually performed manually have now been automated or done with the help of technology (Surbakti and Sinurat 2025). Therefore, human resources need to learn how to work with new technology and adjust their tasks and roles. Additionally, the development of new technology can also replace some human tasks, so human resources need to learn new skills to remain relevant in an increasingly competitive job market (Damingun 2017).

The problem formulation in this research is whether Human Resource Competence affects Digital Transformation Readiness, whether Digital Literacy affects Digital Transformation Readiness, and whether Human Resource Competence and Digital Literacy together significantly affect Digital

Transformation Readiness in the 5.0 Industrial Era. The purpose of this research is to analyze and understand the impact of Human Resource Competence and Digital Literacy on Digital Transformation Readiness in the 5.0 Industrial Era.

The research gap with my study differs from previous research, which shows that human resource competence and digital literacy are important factors in facing technological developments and digital transformation. However, some studies still focus on digital competence, work readiness, organizational performance, or human resource development in the context of the 4.0 Industrial Revolution. Meanwhile, my research specifically examines the impact of Human Resource Competence and Digital Literacy on Digital Transformation Readiness in the 5.0 Industrial Era, which is still relatively limited. Furthermore, previous research conducted by (Alam & Purwanto et al., 2025) has focused more on the conceptual discussion of digital skills needs or through

literature reviews, thus empirical evidence regarding the influence of these two factors on digital transformation readiness still needs to be strengthened. because Industry 5.0 places humans at the center of transformation, so readiness to face technology is not only determined by technical skills but also by competencies, digital literacy, adaptability, and effective use of technology.

Based on this phenomenon, there is a research gap regarding the need for empirical testing on the extent to which HR Competence and Digital Literacy can enhance Digital Transformation Readiness in the Industry 5.0 era. This research aims to fill that gap by analyzing the influence of HR Competence and Digital Literacy, both partially and simultaneously, on Digital Transformation Readiness, while also providing an overview of the competency aspects that need to be strengthened to meet the demands of Industry 5.0.

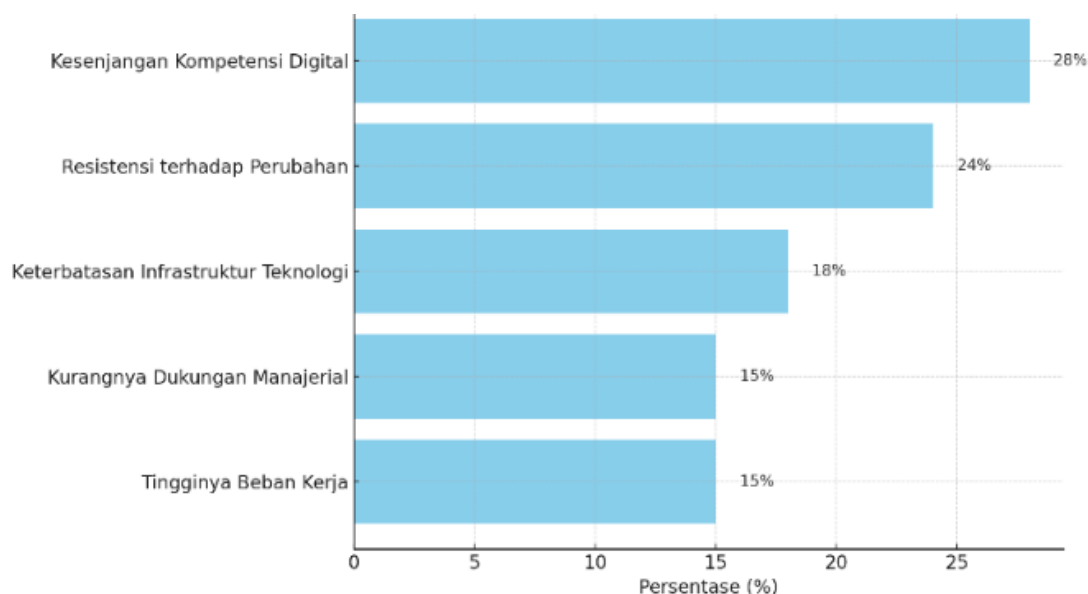


Figure.1 Diagram of the challenges of HR transformation in the era of Industry 5.0

Source: data processed by the researcher (2026)

Figure 1 explains that the digital competency gap is the most dominant challenge faced in the HR transformation process in the 5.0 Industrial era, with a share of 28%. This indicates that many employees still lack the ability or readiness to adopt new technologies, especially those from previous generations or those not yet accustomed to digital technology. This challenge becomes even more complex due to resistance to change (24%), which

indicates psychological barriers and a work culture that is not ready to accept transformation. These two challenges are closely related, as a lack of understanding of technology tends to trigger resistance to the changes offered by the new system.

Meanwhile, three other challenges such as limited technological infrastructure (18%), lack of managerial support (15%), and high workload during the transformation process

(15%) also cannot be overlooked. All three indicate that obstacles in HR transformation do not only stem from individual employees but also from the organizational system as a whole. The unavailability of tools, lack of direction from leadership, and uneven distribution of workload during the transition period create additional pressure that hinders the success of the change. HR transformation in the era of Industry 5.0 requires a comprehensive approach that not only focuses on technology but also considers competency readiness, change management, managerial support, and humane work design. Without structured and sustainable interventions in these five areas, the transformation process risks causing resistance, fatigue, and even failure in the organization's overall adaptation.

METHOD

Research Design

The research uses a quantitative approach with an explanatory research type. The research sample consisted of 50 respondents selected based on criteria that align with the research objectives. Data were collected through questionnaires using a Likert scale and analyzed using multiple linear regression, which included validity tests, reliability tests, classical assumption tests, t-tests, F-tests, and the coefficient of determination.

Research Site and Period

This research was conducted over a period of 6 months, which included the stages of preparation and instrument development, literature review, data collection, data processing and analysis, result interpretation, as well as the preparation of the final report and scientific articles. The duration is considered sufficient to obtain relevant data and produce a systematic analysis of the human resource competency gap in facing digital transformation in the era of Industry 5.0.

Population and sample

The sample in this study consists of 50 respondents selected based on specific criteria in accordance with the research objectives. The research location is at Universitas Muhammadiyah Gombong. The sampling technique used is purposive sampling. The

criteria for respondents in this study include lecturers, educational staff, IT staff, and financial staff who have worked for at least one year, use technology or digital systems in their work, and have experience or involvement in the digital transformation process. The establishment of these criteria aims to ensure that respondents have adequate experience to provide assessments regarding HR Competence, Digital Literacy, and Digital Transformation Readiness in the 5.0 Industrial Era.

Data Types and Sources

The type of data used in this research is quantitative data. Quantitative data is obtained thru the distribution of questionnaires using the Likert scale. This research also uses primary data, which is data collected directly from respondents thru research instruments, as well as secondary data in the form of literature.

Table 1. Instrument Measurement

Respondent's answer	Answer score
Very much agree (SS)	5
Agree (S)	4
Neutral (N)	3
Disagree (TS)	2
Strongly Disagree (STS)	1

Source: Sugiyono (2019).

Data Analysis Techniques

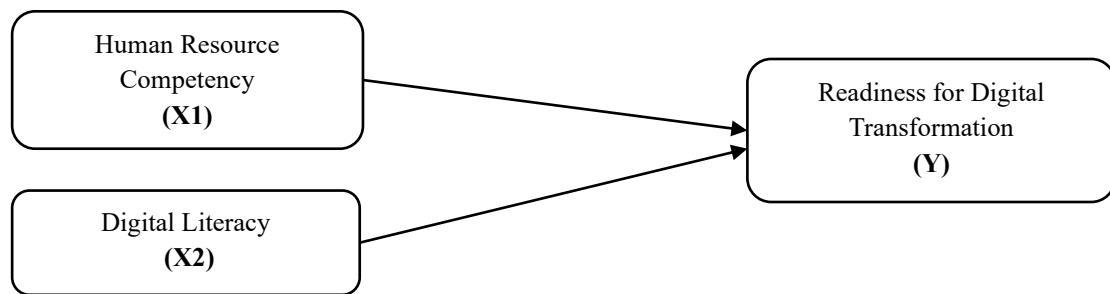
Next, the data is processed using the IBM SPSS Statistics software. The analysis process was conducted thru descriptive analysis, data quality tests, classical assumption tests, multiple linear regression analysis, partial significance tests, model feasibility tests, and the coefficient of determination. The criteria for decision-making in the reliability test are as follows:

1. If the Cronbach's Alpha value is greater than 0.70, then the variable is declared reliable.
2. If the Cronbach's Alpha value is less than or equal to 0.70, then the variable is declared not reliable.

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + e$$

The criteria for decision-making in the normality test are as follows:

1. If the significance value is greater than 0.05, the residuals are stated to be normally distributed.
2. If the significance value is less than or equal to 0.05, the residuals are stated to be not normally distributed.

**Figure 1. Two Research Conceptual Framework***Source: data processed by the researcher (2026)*

RESULTS and DISCUSSION

Result

Table 2. Respondent's Work Unit

Position	Amount	Percentage
Lecture	35	70%
Educational Teenager	5	10%
teenage Information Technology	5	10%
financial personnel	3	10%
Total	50	100%

Source: Processed primary data, 2026

Based on the characteristics of the respondents by work unit, out of a total of 50 respondents, the majority are lecturers, totaling 35 people (70%). Next, respondents from the educational staff group (tendik) amount to 5 people (10%), IT 5 people (10%), and finance 5 people (10%). The composition indicates that the research data is dominated by lecturer respondents, so the perceptions and experiences of lecturers have the largest contribution in illustrating the gap in human resource competencies in facing digital transformation in the era of Industry 5.0.

Reliability Test

Ghozali (2018) explains that the reliability test is used to determine the level of consistency of respondents' answers to the statement items used to measure a variable. A reliable instrument indicates that the items within it have adequate internal consistency. In this study, reliability testing was conducted using Cronbach's Alpha value. A variable is considered reliable if it has a Cronbach's Alpha value greater than 0.70. The results of the reliability test for each variable are presented in Table 3.

Table 3. Reliability Test Results

Variabel	Cronbach's Alpha	Boundary Value	Explanation
Human Resource Competency (X1)	0,776	0,7	Reliable
Digital Literacy (X2)	0,854	0,7	Reliable
Readiness for Digital Transformation (Y)	0,802	0,7	Reliable

Source: Primary data processed using IBM SPSS Statistics, 2026

Based on Table 3, the results of the reliability test show that the variable Human Resource Competence (X1) obtained a Cronbach's Alpha value of 0.776, Digital Literacy (X2) obtained a Cronbach's Alpha value of 0.854, while the Digital Transformation Readiness variable (Y) obtained a value of 0.802. All three values are greater than the minimum threshold of 0.70, thus all research instruments are declared reliable. Thus, the statement items in both

variables have good internal consistency and are suitable for the data collection process of the research. The highest Cronbach's Alpha value is found in the Digital Literacy variable (X2) at 0.854, while the lowest value is in the Human Resource Competence variable (X) at 0.776. Nevertheless, all variables have exceeded the reliability threshold. Thus, the statement items on those variables are declared reliable. The results indicate that the research instrument has

adequate internal consistency and can be used in data analysis at the subsequent stage.

Table 4. Results of Multiple Linear Regression Analysis

Variable	Unstandardized Coefficient B	Std. Error	Standardized Beta	t	Sig.
Konstanta	8,303	1,404	–	3.064	0,003
Human Resource Competence	0,683	0,064	0,550	5,544	0
Digital Literacy	0,210	0,059	0,282	3,545	0,001

Source: Primary data processed using IBM SPSS Statistics, 2026

Regression Equation:

$$Y = 8.303 + 0.683X_1 + 0.210X_2$$

Based on the results of the Multiple Linear Regression Analysis, Human Resource Competence (X1) and Digital Literacy (X2) have a positive and significant impact on Digital Transformation Readiness in the 5.0 Industrial Era (Y). This is indicated by a regression coefficient value of 0.683, which means that

every increase in HR competence will enhance readiness to face digital transformation by 0.683 units. The t-value of 5.544 and Sig. 0.000 < 0.05 indicate that the influence is significant. Thus, H_0 is rejected and H_1 is accepted. This means that the higher the HR competency, the higher the HR readiness in facing digital transformation in the Industry 5.0 era.

Table 5. Results of Partial Significance Test

Hypothesis	Relationship of Variables	Coefficient B	t Count	t Table	Sig.	Explanation
H1	HR Competence → Readiness for Digital Transformation	0,354	5.544	1,98	0	Accepted
H2	Digital Literacy → Readiness for Digital Transformation	0,210	3,545	1,98	0,001	Accepted

Source: Primary data processed using IBM SPSS Statistics, 2026

Table 6 Model feasibility test results

Modelo	Count	F Tabel	Sign.ificance	Explanation
Regression	20,72	2,68	0,000	Model worthy

Source: Primary data processed using IBM SPSS Statistics, 2026

Based on Table 6, the calculated F value is 20.72, which is greater than the table F value of 2.68. The obtained significance value is 0.000 or less than 0.05. Thus, the regression model consisting of Human Resource Competence and Digital Literacy is deemed

suitable for explaining the Digital Transformation Readiness study at Universitas Muhammadiyah Gombong. The results also indicate that both independent variables together have a significant relationship with Digital Transformation Readiness.

Table 7. Determination Coefficient Results

R	R Square	Adjusted R Square	Std. Error of the Estimate
0,591	0,349	0,333	3.07314

Source: Primary data processed using IBM SPSS Statistics, 2026

Berdasarkan Tabel 7, diperoleh nilai Adjusted R Square sebesar 0,333. Hasil tersebut menunjukkan bahwa variabel Kompetensi Sumberdaya Manusia, dan Literasi Digital mampu menjelaskan variasi Kesiapan Transformasi Digital sebesar 33,3 persen. Sementara itu, sisanya sebesar 77,7 persen dijelaskan oleh variabel lain di luar model penelitian.

Nilai R sebesar 0,591 menunjukkan adanya hubungan antara seluruh variabel independen dengan Kesiapan Transformasi Digital. Adapun nilai R Square sebesar 0,349 menunjukkan kemampuan awal model dalam menjelaskan variasi Kesiapan Transformasi Digital sebesar 33,3 persen. Namun, nilai yang digunakan sebagai dasar utama adalah Adjusted R Square sebesar 33,3 persen karena telah

disesuaikan dengan jumlah variabel independen dan jumlah sampel penelitian.

Nilai Standard Error of the Estimate sebesar 3.07314 menunjukkan tingkat kesalahan prediksi model regresi terhadap skor Kesiapan Transformasi Digital. Semakin kecil nilai tersebut, semakin dekat nilai hasil prediksi model dengan data yang sebenarnya.

Discussion

Based on the results of simple linear regression analysis, the relationship between Human Resource Competence (X) and Readiness to Face Digital Transformation in the 5.0 Industrial Era (Y) can be formulated in the hypothesis as follows:

- H1: Human Resource Competence significantly affects Digital Transformation Readiness in the Era of Industry 5.0.
- H2: Digital Literacy has a significant impact on Digital Transformation Readiness in the Era of Industry 5.0.
- H3: Human Resource Competence and digital literacy have a positive and significant impact on Digital Transformation Readiness in the 5.0 Industrial Era.

The test results show a t-value of 5.544 with a significance value of $0.000 < 0.05$. Because the significance value is less than 0.05, H_0 is rejected and H_1 is accepted. This means that there is a positive and significant relationship and influence between Human Resource Competence and Digital Transformation Readiness in the 5.0 Industrial Era.

The regression coefficient value of 0.683 indicates a positive relationship. Thus, the higher the HR competency, the higher the HR readiness in facing digital transformation. Conversely, low HR competency has the potential to increase the competency gap and reduce readiness in facing the demands of Industry 5.0.

The research results show that Human Resource Competence (X) has a positive and significant effect on Digital Transformation Readiness in the 5.0 Industrial Era (Y). This is evidenced by a regression coefficient value of 0.683, a t-value of 5.544, and a significance value of $0.000 < 0.05$. Thus, H_0 is rejected and H_1 is accepted, indicating that the increase in HR competency is significantly followed by an increase in readiness to face digital transformation. Theoretically, these findings align with the perspective of Human Capital

Theory, which views knowledge, skills, and individual abilities as important assets that can enhance an individual's capacity and effectiveness in performing their work. In the context of Industry 5.0, human resource competencies are not only related to technical skills but also to adaptability, critical thinking, communication, continuous learning, and collaboration with technology. Nugroho and Tambunan's research also shows that digital transformation demands both technical and adaptive competencies, such as digital literacy, data management, critical thinking, virtual communication, self-directed learning, and digital ethics.

The results of this study are also supported by Dermawan et al., who, thru a systematic review, found that the era of the Industrial Revolution 4.0 and 5.0 increases the demand for digital skills and the adaptive readiness of human resources. Additionally, the study by Capolupo, Maione, and Supino on HRM 5.0 emphasizes the importance of workforce skill development in response to technological, organizational, and value changes in the Industrial 5.0 environment.

The findings are increasingly relevant with recent research showing that digital transformation can enhance employee competencies and encourage adaptability to job changes. An empirical study in 2026 also found that organizational digital transformation can improve employee competencies, learning motivation, and adaptability, which ultimately supports employee performance.

Thus, the results of this study reinforce previous theories and research that human resource competence is an important factor in building readiness to face digital transformation. The positive coefficient value of 0.683 indicates that the higher the human resource competence, the higher the readiness to meet the demands of Industry 5.0. Therefore, organizations need to map competency gaps, provide digital training, reskilling and upskilling, as well as continuously develop adaptive capabilities so that human resources can keep up with technological advancements and continue to play an optimal role in an increasingly digitalized work environment.

CONCLUSION

Based on the research results, it can be concluded that Human Resource Competence and Digital Literacy have a positive and

significant impact on Digital Transformation Readiness in the 5.0 Industrial Era. The test results show a t-value of 5.544 with a significance value of $0.000 < 0.05$, thus H1 is accepted and H0 is rejected. The regression coefficient of 0.683 indicates that an increase in HR competency will be followed by an increase in readiness to face digital transformation. Thus, enhancing digital competency, adaptability, innovation, and continuous learning becomes crucial to reducing competency gaps and improving HR readiness to meet the demands of Industry 5.0. These findings suggest that the competency gap in HR needs to be addressed by organizations. Consequently, organizations should conduct competency mapping, enhance digital literacy and skills, and implement continuous upskilling and reskilling programs so that HR can adapt to technological developments, increase productivity, and optimally meet the work demands of the Industry 5.0 era. Future researchers are advised to expand the number and characteristics of the sample and to include variables such as digital literacy, technology adaptation skills, and organizational culture. The research can also use mixed methods to obtain more in-depth results regarding the competency gaps of human resources in facing digital transformation in the era of Industry 5.0.

BIBLIOGRAPHY

- Alves, J., Lima, T. M., & Gaspar, P. D. (2023). Is Industry 5.0 a human-centred approach? A systematic review. *Processes*, 11(1), 193.
- Aji, M. Q., & Wulandari, S. (2023). Digital transformation and human resource competencies in the Industry 5.0 era. *Journal of Management and Business Review*, 20(2), 123–135.
- Capolupo, N., Maione, G., & Supino, S. (2025). The anatomy of human resource management (HRM) 5.0: A bibliometric review of practices and workforce skills. *The TQM Journal*. <https://doi.org/10.1108/TQM-07-2025-0402>
- Dessler, G. (2020). *Human Resource Management* (16th ed.). Pearson.
- Kurniawan, R., & Sari, D. P. (2023). Human resource competency development in the digital transformation era. *International Journal of Business and Management Studies*, 5(1), 45–55.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate Data Analysis* (8th ed.). Cengage.
- Purnantara, I. M. H., Darma, G., & Maradona, A. (2026). Talent management as a critical component of human resource development in the era of Society 5.0. *Jurnal Riset Bisnis dan Manajemen*, 19(1). <https://doi.org/10.23969/jrbm.v19i1.27598>
- Redesigning HRM for the digital era: Evidence from a systematic literature review. (2026). *Procedia Computer Science*, 277, 1610–1620. <https://doi.org/10.1016/j.procs.2026.02.199>
- Schwab, K. (2016). *The Fourth Industrial Revolution*. World Economic Forum.
- Sugiyono. (2022). *Metode Penelitian Kuantitatif*. Alfabeta.
- Sutrisno, E. (2019). *Manajemen Sumber Daya Manusia*. Kencana.
- World Economic Forum. (2023). *The Future of Jobs Report 2023*. World Economic Forum.
- Veeramani, R., & Arunkumar, V. (2026). The intersection of Human Resource Management and Industry 5.0: A bibliometric review of trends, themes, and future directions. *Future Business Journal*, 12, 104.
- Wesnawa, IGA (2022). Rural Tourism Development in Bali: Integration of Potential, Local Wisdom, and the Creative Economy. *Journal of Social Sciences and Humanities*, 11 (1), 149–160. <https://doi.org/10.23887/jish.v11i1.44184>