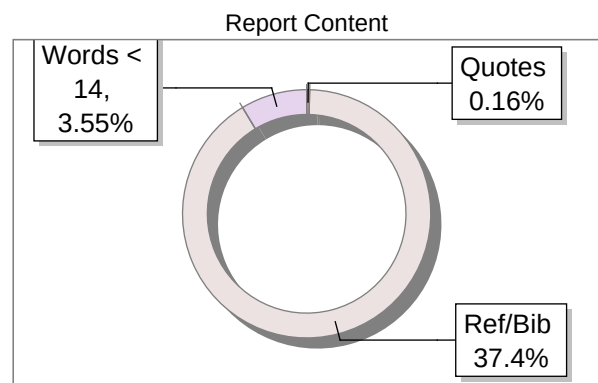
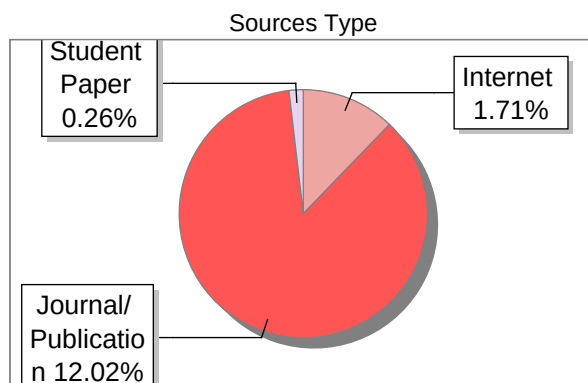


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Digital Transformation and Competency as Drivers of Employee Performance: Evidence from Batik SMEs in Pekalongan, Indonesia

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Abstract: - This research article examines competency development and digital transformation, human resource creativity, and employee performance in Batik small and medium entrepreneurs (SMEs). Batik SMEs in Pekalongan, Central Java Province, Indonesia were chosen as subjects. Total 1823 Batik SMEs. A sample of 95 Batik SMEs was taken randomly, 95 questionnaires were distributed, and all were collected. This study concludes that: there is an important role for competency development and digital transformation in increasing human resource creativity, and human resource creativity has a positive effect on employee performance; Human resource creativity plays a mediating role in the influence of competency development and digital transformation on employee performance in UKM Batik Pekalongan, Indonesia. The research findings provide Batik SMEs in Pekalongan, Indonesia with a clear understanding of the relationship between employee performance, human resource creativity, and competency development in the context of digital transformation. This understanding enables the development of strategies and plans aimed at enhancing employee performance.

Key-Words: - Batik, competency, creativity, digital, employee, human resource, performance.

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1 Introduction

The development of digital technology has brought revolutionary changes to the business sector. Internet of Things (IoT), automation, big data analysis, and artificial intelligence (AI) are digital technologies as characteristics of Industry 4.0, [1]. This condition requires organizations to change in their operational activities, especially when communicating with consumers, [2], [3], [4]. This development is a challenge for Batik small and medium enterprises (SMEs) in Pekalongan as they seek to make changes towards business digitalization.

The implementation of digital transformation cannot be separated from employee competence. Therefore, developing human resource competencies for Batik small and medium enterprises (SMEs) is important and an urgent need in order to penetrate a wider market and increase efficiency [4]. Digital technology requires the right Workforce competencies. Small and medium enterprises (SMEs) need imagination to produce goods that have characteristics and are attractive to customers. Innovative creations that produce unique Batik motifs that follow current trends are needed to face increasingly competitive market competition. Related to this, Batik SMEs

To increase the competitiveness of the Batik industry, Batik SMEs must carry out competency development, digital transformation, and increase resource creativity to foster innovation to improve employee performance, [5], [6]. Batik SME players must understand this, it is important as a relevant solution to support the success of Batik SMEs in navigating rapidly developing markets and technological advances, [7]. Therefore, the integration of digital transformation into company operations is very important for Batik SMEs.

Adopting digital technology in the right way can increase production efficiency, gain market share, and increase customer contact through social media and digital platforms. However, a lack of understanding of the benefits of digital transformation, and concerns about the dangers that exist are obstacles for many batik SMEs in Pekalongan to transform using digital technology. In fact, developing resource competencies is an important component in achieving a successful digital transition, as stated by [8].

Employees who have the knowledge, abilities, and skills needed in the industrial era 4.0 will be better prepared to face competitive technological advances. Therefore, to increase the sustainable competitiveness of Batik SMEs in the midst of the rapidly developing digital era, it is important to determine the skilled resources needed by providing the necessary training to their employees, as stated by [9], [10] so that performance employees increase.

Developing the creative potential of human resources is also essential in the face of escalating competition. Diverse consumer demands and ever-changing tastes require SMEs to create innovative and attractive batik designs. Therefore, stimulating employee creativity and providing space for the exploration of new ideas is important to produce unique and competitive batik products, [7].

The novelty of this research is the effort to combine two main concepts, namely digital transformation and competency development, which is an innovative step. Digital transformation is a major trend in today's business world, while employee competency development is an important factor in improving the performance of small and medium businesses, [11]. Examining how digital transformation and competency development are related and influence each other

creativity is a step forward that can provide new insights.

2 Problem Formulation

The application of digital technology to significantly enhance and meet anticipated business performance and objectives is known as "digital transformation", [12]. Another way to think about digital transformation is as a process that uses information, computer, communication, and connection Technologies to significantly alter an entity's attributes in an effort to better it, [13], [14].

Moreover, customer experience, operational procedures, and business models are the three primary areas of the firm that are impacted by digital transformation, [4], [15].

According to the several definitions given above, "digital transformation" means incorporating digital technology into an organization's whole operating framework and business plan. It involves the use of information and communications technology to change the way organizations operate, communicate, and interact with customers and business partners. The use of several technologies, such as cloud computing, big data, artificial intelligence, Internet of Things (IoT), and other digital platforms, is referred to as "digital transformation", [16].

The benefits of digital transformation in Batik SMEs are how the adoption of digital technology can provide significant benefits for these businesses. Some of the benefits of digital transformation include increasing operational efficiency, reducing costs, improving the quality and innovation of batik products, reaching a wider market through e-commerce platforms and digital marketing, as well as increasing customer interaction and engagement through social media and digital-based applications, [17], [18], [19]. The big benefit of digital transformation is generating new ideas in the digital field due to increased competition, easier and cheaper services, and inclusiveness or a wide range of services, [17], [20]. Another benefit is very important for building competitive advantage and maintaining market competitiveness, both locally and internationally, [16].

In the current decade, the world has faced the digital era of "industrial revolution 4.0", namely a period of creation of digital technology that is all-sophisticated and continues to develop and is continuously updated. At this time, humans are presented with very sophisticated digital technology facilities complete with automation in their daily lives, such as robots, artificial

Order Thinking Skills to adapt to new problems. By possessing a high degree of mental capacity, adaptability, and methodicalness, and the ability to apply contemporary science (robots, artificial intelligence, and the internet of things), [28]. Readiness to develop human resource (HR) creativity is very necessary to face challenges in the era of disruption 4.0 in order to improve

intelligence, the internet of things, and so on to facilitate daily activities, [1]. Human resources (HRM) has the main goal of securing the competencies needed for organizations to provide the expected services by mastering digital technology. In this industrial era 4.0, competency has become a key factor in human resource management theory, [21], [22], [23], [24]. The desire for a sense of efficacy and competence in one's use of digital technology at work, as well as personal development and difficulties pertaining to one's knowledge and talents, are all directly tied to competency development, [25], [26]. Workers who are highly motivated and perform effectively as workers will be found in environments where they may work as efficiently and as joyfully as possible. Thus, one of the main competitive advantages of the quality improvement approach that many small and medium-sized businesses (SMEs) employ is its emphasis on learning and competency development. The primary instrument for establishing learning objectives and helping staff members retain and advance their proficiency with digital technology is the competency development plan. Prioritize competency development in small and medium enterprises (SMEs). Means theoretical input, practical work training, and experience with colleagues in the team. Consequently, competency development may improve staff members' sense of collaboration.

Developing creativity and innovation in human resources (HRM) in the context of SMEs batik. This involves understanding how organizations can create an environment that supports innovation, provides space for employees to be creative, and stimulates their creative abilities in producing innovative and attractive batik designs, [15], [27]. It is anticipated that the evolution of human resource creativity will be able to adjust to the industrial revolution paradigm. Human resources are given top priority in the industrial age 4.0 so they may use their High

sustainable SME performance, [29], [30].

Job satisfaction, digital transformation, and organizational commitment are used as a theoretical basis to explain the relationship between digital transformation, employee competency, creative development of human resources (HR), and employee performance in batik SMEs in Pekalongan, [31], [32] as a basis for preparing the following hypothesis.

H1: Digital transformation has the effect of increasing the development of human resource creativity.

H2: Competency development has a positive effect on the development of human resource creativity.

H3: Developing human resource creativity has an impact on improving employee performance.

H4: Digital transformation has the effect of improving employee performance through developing human resource creativity.

H5: Competency development has an effect on improving employee performance through developing human resource creativity.

3. Problem Solution

This research uses quantitative methods with a population of Batik SMEs in Pekalongan, Indonesia. As explained by [33] in quantitative research the sample is a selected group of people from the population whose information is extracted.

Quantitative research according to [34] is a scientific investigation that measures data to investigate problems using population samples.

In this research, quantitative methods are used to measure the influence of competency and digital transformation on the development of human resource creativity and its influence on employee performance in Batik SMEs in Pekalongan, Indonesia. To explain the relationship between the variables investigated, namely competency and

digital transformation, the development of human resource creativity and employee performance was carried out using a qualitative descriptive design.

The 1823 SMEs in Pekalongan that are involved in the batik industry make up the research population. The Slovin method [34] was used to calculate the number of study samples: $n = N / (1 + Ne^2)$, $n = 1823 / (1 + 1823 * (0.1)^2) = 94,80$, rounded up to 95 SMEs. In the meanwhile, the sampling method makes use of purposive sampling, [35]. The degree to which each variable is perceived by the responder is gauged using the Likert scale. Meanwhile, data analysis uses regression with the following formulation:

$$DHC = a_{11} + b_{11}DT + b_{12}CD + e_{11} \quad (1)$$

variables can be used as measuring tools and are not influenced by other factors.

4.2 Regression Test Results

The results of regression testing are presented in Table 3 (Appendix) and Table 5.

Based on Table 3 (Appendix), it can be seen that the standardized regression equation formed is:

$$EP = 0.415TD + 0.411CD + e \quad (3)$$

Based on the calculation results of the multiple linear regression equation above, it shows that the digital transformation (DT) regression coefficient is positive = 0.415. Thus, if digital

$$EP = a22 + b21DHC + e22 \quad (2)$$

Where DHC is the development of human resource creativity, DT is digital transformation, DC is competency development, and EP is employee performance.

Testing the strength of the relationship between DT and DH, CD and DHC, and DHC and EP used the Chi-square test [36], while mediation testing used the Sobel test, [37].

4 Results and Discussion

4.1 Validity and Reliability Test

The purpose of this test is to evaluate how well measuring devices capture the idea of the event being measured. Factor analysis is used in validity testing to ascertain whether the questions used can verify a factor or variable, [38]. By using this approach, the KMO used to calculate the responder sample's adequacy value. The findings and validity assessments obtained by examining KMO-MSA are as follows:

The validity test results in Table 1 (Appendix) show that the Kaiser Meyer Olkin Measure of Sampling (KMO-MSA) value for all research variables is >0.5 so the instrument used is accurate.

Next is the reliability test, this test uses Cronbach alpha [39], as presented in Table 2 (Appendix). From Table 2 (Appendix) it can be seen that all the variables studied provide Cronbach alpha values above 0.70 so that all

transformation increases, the development of human resource creativity (DHC) will increase. Meanwhile, the competency development (CD) regression coefficient is positive = 0.411, this means that if competency development increases, the development of human resource creativity (DHC) will also increase.

Table 4. R Square

Model	R Square	Adjusted R Square
1	.767 ^a	.588

The results of the determination coefficient test of regression equation 1 in Table 4 show an Adjusted R Square value of 0.579. Thus, the influence of digital transformation and competency development on the development of human resource creativity is 57.9%.

Table 5. Regression test results 2

Variable	Standardized Coefficients Beta	t	Sig
(Constant)		4.285	0.000
Development of Human Resource Creativity (DHC)	0.614	7.492	0.000

Dependent variable: Employee performance.

Based on Table 5, it can be seen that the standardized form of the regression equation formed is: $EP = 0.614DHC + e$. The regression

coefficient for the development of human resource creativity (DHC) is positive (0.614), meaning that if the development of human resource creativity (DHC) increases, employee performance (EP) will increase.

Table 6. R Square

Model	R	R Square	Adjusted R Square
1	0.614 ^a	0.376	0.370

Regression equation 2 produces an Adjusted R Square value of 0.376 as in Table 6. Employee performance is influenced by human resource creativity by 37.0%.

4.3 Chi Square Table

The chi-square test results are shown in Table 7, Table 8 and Table 9.

Table 7. Chi-Square TEST; TD with DH

	Asymptotic
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Table 8 above shows the results of the chi-square test of the relationship between CD and DHC with a significance level of 0.00. Thus, the relationship between CD and DHC is strong.

Table 9. Chi-Square Tests: DHC with EP

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	156.318 ^a	70	0.000
Likelihood Ratio	73.955	70	0.350
Linear-by-Linear Association	35.382	1	0.000
N of Valid Cases	95		

a. 87 cells (98,9%) have an expected count of less than 5. The minimum expected count is .01.

From Table 9 you can see the results of the chi-square test of the relationship between DHC and EP with a significance level of 0.00. This also indicates that the relationship between DHC and

	Value	df	Significance (2-sided)
Pearson Chi-Square	372,074 ^a	140	,000
Likelihood Ratio	133,576	140	,637
Linear-by-Linear Association	47,639	1	,000
N of Valid Cases	95		

a. 165 cells (100,0%) have expected count less than 5. The minimum expected count is ,01.

The chi-square test results of the relationship between TD and DH in Table 7 show a significance level of 0.00, which means the two variables have a strong relationship.

Table 8. Chi-Square Tests: CD with DHC

	Value	df	Asymptotic Significance 2-sided)
Pearson Chi-Square	235.297 ^a	90	,000
Likelihood Ratio	124.082	90	,010
Linear-by-Linear Association	47.468	1	,000
N of Valid Cases	95		

a. 110 cells (100,0%) have an expected count of less than 5. The minimum expected count is ,02.

indicates that the relationship between DHC and EP is strong.

4.4 Sobel Test

The impact of digital transformation (DT) on worker performance (EP) via fostering creativity in human resources (DHC).

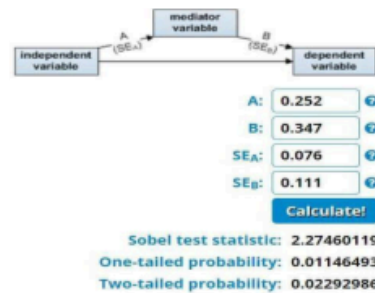


Fig. 1: Sobel test of digital transformation on employee performance

The Sobel test results in Figure 1 (37) show that the influence of digital transformation (DT) on employee performance (EP) through the development of human resource creativity (DHC) is significant.

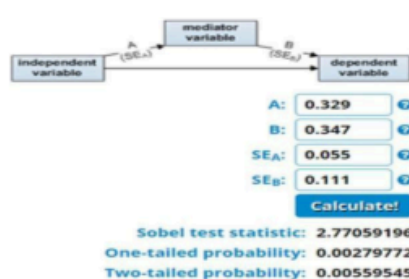


Fig. 2: Sobel test of competency development on employee performance

The next Sobel test result in Figure 2 (37) is that the influence of competency development (CD) on employee performance (EP) through the development of human resource creativity (DHC) is also significant.

Based on the results of the t-test, it is known that the Sig-t value for the influence of digital transformation (DT) on the development of human resource creativity (DHC) is $0.002 < 0.05$ with a positive β value of 0.330. Thus digital transformation has a positive effect so hypothesis 1 is accepted.

Digital Transformation has an important role in improving employee performance, because digital transformation in work has a positive

activities optimally, safely and comfortably.

The findings of this study corroborate those of studies by [39] and [42], which demonstrate that the development of human resource capabilities is positively impacted by digital transformation.

The t-test result of the effect of developing human resource creativity (DHC) on employee performance (EP) is 0.004. Meanwhile, the β value is positive at 0.298. Thus, developing human resource creativity has a proven effect on improving employee performance, so hypothesis 3 is accepted.

Encouragement makes employees do things in a certain way and achieve certain goals, namely increasing employee creativity. This implies that any improvement in the creative development of human resources will result in a highly noticeable improvement in the way that employees perform when doing their jobs. A person wants to do something, while a motive is a need, desire, urge, or impulse that an individual has that can stimulate him to carry out actions or something that becomes the basis or reason for someone to behave or do something. The findings of this study corroborate those of studies by [43], [44] and [45], which demonstrate that improving employee performance is a benefit of fostering creativity in human resources.

The Sobel test results show that employee performance (EP) is significantly influenced by

impact on performance, so that increasing digital transformation can improve employee performance. The results of this study are in line with research conducted by [40].

The results of the t-test on the influence of competency development (CD) on the development of human resource creativity (DHC) are $0.002 < 0.05$. The β value of competency development (CD) is positive at 0.571. Thus, competency development has a positive and significant influence, so hypothesis 2 is accepted.

The proper implementation of digital transformation has a maximum impact on employee capabilities, thereby directly influencing employee behavior, [41]. This can have an impact on work morale which can increase human resource competency. A person is able to carry out their work well, so that optimal results are achieved, if this is supported by digital transformation as a means of working. Digital transformation is said to be successful or appropriate if employees can carry out their

digital transformation (DT) through increasing human resource creativity (DHC). This demonstrates how employee performance (EP) may be positively impacted by the development of human resource creativity (DHC). Human resources must quickly undergo a revolution in order to adapt to the era of digital transformation. This revolution has to entail a change in mindset as much as a technological one. Batik SMEs need human resources that are highly competitive, imaginative, and creative in line with technological improvements if they are to operate effectively and be prepared to face the challenge of the disruption 4.0 age. One factor that may be used to improve the performance of SMEs is the development of human resource creativity (DHC) [19], [46].

The findings of the Sobel test also show that competence development (CD) significantly affects employee performance (EP) in both one- and two-tailed probability through the development of human resource creativity (DHC).

This demonstrates how employee performance (EP) may be significantly impacted by the development of human resource creativity (DHC). A highly competent individual has a positive outlook on their work.

5 Conclusion and Recommendation

This study investigates how employee performance in small and medium-sized batik businesses may be impacted by competency development and digital transformation, as well as how they may encourage human resource innovation. The hypothesis about the influence of multilevel regression is supported by these results, which show the function of creative human resource development as a mediator in affecting employee performance. Employee performance is positively impacted by digital transformation and competence development, which also positively impact the growth of human resource innovation. By using Sobel testing, it was discovered that resource creativity development acted as a mediating factor between the effects of digital transformation and competence development on employee performance.

According to the research's conclusions, SME workforces would perform better if they focus on nurturing employee potential and creating digital transformation indicators that foster human resource innovation. This research provides theoretical contributions related to the concept of improving employee performance through digital transformation, developing employee potential, and developing human resource creativity.

Even though this research offers benefits for

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Declaration of Generative AI and AI-assisted Technologies in the Writing Process

During the preparation of this work the author used Chat GPT 4 in order to improve the readability and language. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

References:

- [1] Koh, L., Orzes, G., & Jia, F. (2019). The fourth industrial revolution (Industry 4.0): technologies disruption on operations and supply chain management. In *International Journal of Operations and Production Management*, 39, 817–828. <https://doi.org/10.1108/IJOPM-08-2019-788>.
- [2] AlNuaimi, B. K., Singh, S. K., Ren, S., Budhwar, P., & Vorobyev, D. (2022). Mastering digital transformation: The nexus between leadership, agility, and digital strategy. *Journal of Business Research*, 145(2022), 636–648. <https://doi.org/10.1016/j.jbusres.2022.03.038>.
- [3] Hashim, M. A. M., Tlemsani, I., & Duncan Matthews, R. (2022). A sustainable university: Digital transformation and beyond. *Education and Information Technologies*, 27(7), 1–37. <https://doi.org/10.1007/s10639-022-10968-y>.

the development of small and medium businesses related to digital transformation, employee potential development, human resource creativity development, and employee performance, its limitations stem from its narrow scope, specifically on the scale of small and medium businesses, meaning it cannot be generalized. It is recommended that future research endeavors try to replicate the results of this study in small and medium-sized firms on a larger scale, say a national scale or in other industrial settings, in order to maximize the benefits.

- small and medium scale enterprises. *European Journal of Training and Development*, 42(7–8), 435-454. <https://doi.org/10.1108/EJTD-07-2017-0061>.
- [7] Joo, B.-K. (Brian), McLean, G. N., & Yang, B. (2013). Creativity and human resource development. *Human Resource Development Review*, 12(4), 390-421. <https://doi.org/10.1177/1534484313481462>.
- [8] Podmetina, D., Soderquist, K. E., Petraite, M., & Teplov, R. (2018). Developing a competency model for open innovation: From the individual to the organisational level. *Management Decision*, 56(6), 1306-1335. <https://doi.org/10.1108/MD-04-2017-0445>.
- [9] Chaturvedi, S., Bahuguna, P. C., & Raman, U. (2022). Developing innovativeness and competency through talent management in Indian oil and gas sector. *International Journal of Business Innovation and Research*, 27(2), 223-241.
- [10] Muñoz-Pascual, L., Galende, J., & Curado, C. (2021). Contributions to sustainability in smes: Human resources, sustainable product innovation performance and the mediating role of employee creativity. *Sustainability (Switzerland)*, 13(4), 1-20. <https://doi.org/10.3390/su13042008>.
- [11] Ariani, D. W. (2023). Exploring relationship of job satisfaction, organizational culture, and employee performance in small medium enterprise. *International Journal of Professional Business Review*, 8(2), 1-18. <https://doi.org/10.26668/businessreview/2023.v8i2.876>.
- [12] Vasilieva, E. V., Pulyaeva, V. N., & Yudina, V. A. (2018). Digital competence development of state civil servants in the Russian Federation. *Business Informatics*, 4(6), 28-42. [Online]. <https://cyberleninka.ru/article/n/digital-competence-development-of-state-civil-servants-in-the-russian-federation/viewer> (Accessed Date: December 21, 2024).
- [13] Ellström, D., Holtström, J., Berg, E., &

- [4] Veldhoven, V. Z., & Vanthienen, J. (2022). Digital transformation as an interaction- driven perspective between business, society, and technology. *Electronic Markets*, 32(2), 629-644. <https://doi.org/10.1007/s12525-021-00464-5>.
- [5] Cahyadi, A., Marwa, T., Hågen, I., Siraj, M. N., Santati, P., Poór, J., & Szabó, K. (2022). Leadership styles, high-involvement human resource management practices, and individual employee performance in small and medium enterprises in the digital era. *Economies*, 10(7), 1-18. <https://doi.org/10.3390/economies10070162>.
- [6] Otoo, F. N. K., & Mishra, M. (2018). Measuring the impact of human resource development (HRD) practices on employee performance in systematic literature review of the factors influencing firms' digital transformation and internationalization. *Journal of Business Research*, 157, 1-22. <https://doi.org/10.1016/j.jbusres.2022.113546>.
- [15] Tsai, W. Y., & Su, C. J. (2022). Digital transformation of business model innovation. *Frontiers in Psychology*, 13, 1-12. <https://doi.org/10.3389/fpsyg.2022.1017750>.
- [16] Schwertner, K. (2017). Digital transformation of business. *Trakia Journal of Sciences*, 15(1), 388-393, [Online]. http://tru.uni-sz.bg/tsj/TJS_Suppl.1_Vol.15_2017/65.pdf (Accessed Date: October 12, 2024).
- [17] Frendiana, M. L., & Soediantono, D. (2022). Benefits of digital transformation and implementation proposition in the defense industry: A literature review. *International Journal of Social and Management Studies*, 3(4), 1-12, [Online]. <https://ijosmas.org/index.php/ijosmas/article/view/148/112> (Accessed Date: October 9, 2024).
- [18] Gertzen, W. M., van der Lingen, E., & Steyn, H. (2022). Goals and benefits of digital transformation projects: Insights into project selection criteria. *South African Journal of Economic and Management Sciences*, 25(1), 1-13. <https://sajems.org/index.php/sajems/article/view/4158/2478> (Accessed Date: November 14, 2024).
- [19] Härting, R., Reichstein, C., Sandkuhl, K., Hoppe, N., & Yesilay, H. (2020). Potential benefits of enterprise architecture management in the digital transformation process. *Complex Systems Informatics and Modeling Quarterly*, 141(24), 49-60. <https://doi.org/10.7250/csimq.2020-24.04>.
- [20] Lee, C. H., Liu, C. L., Trappey, A. J., Mo, J. P., & Desouza, K. C. (2021). Understanding

- Josetsson, C. (2022). Dynamic capabilities for digital transformation. *Journal of Strategy and Management*, 15(2), 272-286. <https://doi.org/10.1108/JSMA-04-2021-0089>.
- [14] Feliciano-Cestero, M. M., Ameen, N., Kotabe, M., Paul, J., & Signoret, M. (2023). Is digital transformation threatened? A digital transformation in advanced manufacturing and engineering: A bibliometric analysis, topic modeling and research trend discovery. *Advanced Engineering Informatics*, 50(2021), 101428-101440. <https://doi.org/10.1016/j.aei.2021.101428>.
- [21] Blomberg, A. C., Lindwall, L., & Bisholt, B.

- (2022). Operating theatre nurses' with managerial responsibility: Self-reported clinical competence and need of competence development in perioperative nursing. *Nursing Open*, 9(1), 692-704. <https://doi.org/10.1002/nop2.1120>.
- [22] Glińska-Neweś, A., Hatami, A., Hermes, J., Keränen, A., & Ulkuniemi, P. (2022). Employee competence development in corporate volunteering. *Social Responsibility Journal*, 18(4), 757-771. <https://doi.org/10.1108/SRJ-10-2019-0352>.
- [23] Maryono, D., Adinda, K., Sambiono, D., Wahyuningtyas, T., & Hermawan, S. (2022). Development of human resources in the industry 4.0: A systematic literature Review in ICIGR conference proceedings, Sidoarjo. *KnE Social Sciences*, 2022, 7(10), 300-310. <https://doi.org/10.18502/kss.v7i10.11232>.
- Wallo, A., Kock, H., Lundqvist, D., & Coetzer, (2020). Understanding factors that enable and inhibit assessment of outcomes of competence development. *Human Resource Development Review*, 19(4), 384-421. <https://doi.org/10.1177/1534484320943332>.
- [24] Samad, A. W., Ishaq, M., & Roes Setiyadi, M. W. (2023). Determination of Indonesian HR competency development in the industrial 4.0 era. *SSRN Electronic Journal*, 1-26. <https://doi.org/10.2139/ssrn.4550502>.
- [25] Tarigan, M., & Fadillah, F. (2023). Identification of soft competencies aspects in human resource development in the industrial era 4.0. *Jurnal Ekonomi dan Bisnis*, 26(1), 21-44, [Online]. <https://ejournal.uksw.edu/jeb/article/view/5466/2360> (Accessed Date: January 18, 2025).
- [26] Palfreyman, J., & Morton, J. (2022). The benefits of agile digital transformation to innovation processes. *Journal of Strategic Contracting and Negotiation*, 6(1), 26-36. <https://doi.org/10.1177/20555636221079943>.
- [27] Harini, S., Gemina, D., & Yuningsih, E. (2020). Leveraging smes performance of sustainability: Creativity and innovation based on hr competency and market potential in the era of ir 4.0. *International Journal of Entrepreneurship*, 24(1), 1-2, http://repository.unida.ac.id/975/3/JURNAL_%20LAVERAGING.pdf (Accessed Date: December 4, 2024).
- [28] Arshad, M. Z., & Arshad, D. (2019). Internal capabilities and SMEs performance: A case of textile industry in Pakistan. *Management Science Letters*, 9(4), 621-628. <https://doi.org/10.5267/j.msl.2019.1.001>.
- [29] Gorondutse, A. H., Arshad, D., & Alshuaibi, A. S. (2021). Driving sustainability in SMEs' performance: the effect of strategic flexibility. *Journal of Strategy and Management*, 14(1), 64-81. <https://doi.org/10.1108/JSMA-03-2020-0064>.
- [30] Raharjo, K. (2019). The role of green management in creating sustainability performance on the small and medium enterprises. *Management of Environmental Quality: An International Journal*, 30(3), 557-577. <https://doi.org/10.1108/MEQ-03-2018-0053>.
- [31] Sakib, M. N., Rabbani, M. R., Hawaldar, I. T., Jabber, M. A., Hossain, J., & Sahabuddin, M. (2022). Entrepreneurial competencies and SMEs' performance in a developing economy. *Sustainability (Switzerland)*, 14(20), 1-18. <https://doi.org/10.3390/su142013643>.
- [32] Gentry, A. E., Ingram, S., Philpott, M. K., Archer, K. J., & Ehrhardt, C. J. (2023). Preliminary assessment of three quantitative approaches for estimating time-since-deposition from autofluorescence and morphological profiles of cell populations from forensic biological samples. *PloS One*, 18(10), 1-14. <https://doi.org/10.1371/journal.pone.0292789>.
- [33] Castellan, C. M. (2010). Quantitative and qualitative research: A view for clarity. *International Journal of Education*, 2(2), 1-14, [Online]. <https://pdfs.semanticscholar.org/0819/178572ac0bdf81e79efc825f069d9d4a2c64.pdf> (Accessed Date: October 12, 2024).
- [34] Lima, Q., & Newell-McLymont, E. F. (2021). Qualitative research methods: A critical analysis. *International Journal of Engineering and Management Research*, 11(2), 189-199. <https://doi.org/10.31033/ijemr.11.2.27>.
- [35] McHugh, M. I. (2013). The Chi-square test

- 143-149.
<https://doi.org/10.11613%2FBM.2013.018>.
- [36] Abu-Bader, S., & Jones, T. V. (2021). Statistical mediation analysis using the sobel test and hayes SPSS process macro. *International Journal of Quantitative and Qualitative Research Methods*, 9(1), 42-61. <https://ssrn.com/abstract=3799204>.
- [37] Suhr, D. (2006). Exploratory or confirmatory factor analysis? Proceedings of the 31st annual SAS? users group international conference. Cary, NC, Colorado. *SAS Institute Inc., Paper Number: 200-31*, 1-17, [Online]. <https://support.sas.com/resources/papers/proceedings/proceedings/sugi31/200-31.pdf> (Accessed Date: October 12, 2024).
- [38] Erlinawati., & Muslimah. (2021). Test validity and reliability in learning evaluation. *Bulletin of Community Engagement*, 1(1), 26-31. <https://doi.org/10.51278/bce.v1i1.96>.
- [39] Purwanto, A., Purba, J. T., Bernarto, I., & Sijabat, R. (2023). Investigating the role digital transformation and human resource management on the performance of the universities. *International Journal of Data and Network Science*, 7(4), 2013-2028. <https://doi.org/10.5267/j.ijdns.2023.6.011> (Accessed Date: October 12, 2024).
- [40] Nahayo, O., Suryanto, S., Windijarto, W., & Rutikanga, J. P. (2020). The output of digital transformation on humanresource development in developing countries: Case of Rwanda. *International journal of Innovation, Creativity and Change*, 13(7), 712-729, [Online]. https://www.ijcc.net/images/vol_13/Iss_7/137_95_Nahayo_2020_E_R.pdf (Accessed Date: October 12, 2024).
- [41] Jiang, D., Chen, Z., Liu, T., Zhu, H., Wang, S., & Chen, Q. (2022). Individual Creativity in Digital TransformationEnterprises: Knowledge and Ability, Which Is More Important? *Frontiers in Psychology*, 12, 1-11. <https://doi.org/10.3389/fpsyg.2021.734941>.
- [42] Saharuddin, Ukkas, I., Bachri, S., Alputila, M. J., & Zamhuri, M. Y. (2019). The analysis of human resource quality in improving employees performance: An analysis of external and internal environment. *IOP Conference Series: Earth and Environmental Science*, 343(1), 1-5. <https://doi.org/10.1088/1755-1315/343/1/012158>.
- [43] Simanjuntak, J., Raja, P. L., & Lubis, A. N. (2018). Effect of human resources development, work environment and compensation to bhabinkamtibmas performance with work satisfaction as intervening variables on Bhabinkamtibmas polres deli Serdang. *International Journal of Scientific and Technology Research*, 7(4), 136-159, [Online]. <https://www.ijstr.org/final-print/apr2018/Effect-Of-Human-Resources-Development-Work-Environment-And-Compensation-To-Bhabinkamtibmas-Performance-With-Work-Satisfaction-As-Intervening-Variables-On-Bhabinkamtibmas-Polres-Deli-Serdang.pdf> (Accessed Date: October 12, 2024).
- [44] Hatrak, D. (2021). Human Capital Orientation, Employee Creativity Development, Organizational Innovation Capabilities, and Outstanding Performance of SMEs Businesses in Thailand. *International Journal of Economics and Business Administration*, IX(2), 126-142. <https://doi.org/10.35808/ijeba/693>.
- [45] Yucel, S. (2018). Estimating the benefits, drawbacks and risk of digital transformation strategy. Las Vegas, NV, USA. Proceedings - 2018 International Conference on Computational Science and Computational Intelligence. *Institute of Electrical and Electronics Engineers, 2018*, 233-238, [Online]. <https://scihub.se/downloads/2020-05-29/d4/yucel2018.pdf> (Accessed Date: October 12, 2024).

APPENDIX

Table 1. Validity test results

Variable	Indicator	KMO	Factor Loading	Conclusion
Digital Tranformation (DT)	TD1.1	0.819	0.646	Valid
	TD1.2		0.770	Valid
	TD1.3		0.718	Valid
	TD1.4		0.756	Valid
	TD1.5		0.793	Valid
Competency Development (CD)	CD2.1	0.736	0.678	Valid
	CD2.2		0.835	Valid
	CD2.3		0.764	Valid
	CD2.4		0.741	Valid
Development of Human Resource Creativity (DHC)	DHC1.1	0.759	0.794	Valid
	DHC1.2		0.657	Valid
	DHC1.3		0.772	valid
	DHC1.4		0.822	valid
Employee Performance (EP)	EP.1	0.707	0.828	valid
	EP.2		0.846	valid
	Y.3		0.849	valid

Table 2. Reliability test results

Variable	Cronbach's Alpha	Limit Value	Conclusion
Digital Tranformation (DT)	0.781	0.7	Reliable
Competency Development (CD)	0.749		Reliable
Development of Human Resource Creativity (DHC)	0.757		Reliable
Employee Performance (EP)	0.792		Reliable

Table 3. Regression test results 1

a. Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	8.069	2.685		2.624	0.010
Digital Tranformation (DT)	0.252	0.076	0.415	4.297	0.000
Competency Development (CD)	0.329	0.055	0.411	4.250	0.000

Dependent variable: Development of human resource creativity (DHC)

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Conceptualization were handled by Askar Yunianto and Kasmari Kasmari., with Tristiana Rijanti contributing to the methodology. Kasmari Kasmari and Purwaningtyas was responsible for software development, while validation and data curation were jointly managed by Askar Yunianto and Bambang Sudiyatno. Formal analysis and investigation were led by Bambang Sudiyatno. The initial draft of the Askar Yunianto manuscript was prepared by Kasmari Kasmari., with Bambang Sudiyatno and Purwaningtyas providing valuable input during the review and editing process. Tristiana Rijanti and Purwaningtyas also took charge of data visualization and resources, while project administration and funding acquisition were overseen by Tristiana Rijanti. It is important to note that all authors have thoroughly reviewed and approve the final version of the manuscript for publication.

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