



## The Relationships between Digital Culture and Human Capital Readiness in Era 4.0 towards Employee Performance in PT XYZ (SOE in Indonesia)

Rafly Lelana Putra Wismo<sup>1</sup>, Achmad Fajar Hendarman<sup>2</sup>

<sup>1,2</sup>Master of Business and Administration, School of Business and Management, Institut Teknologi Bandung, Indonesia

**ABSTRACT:** Industry 4.0, as defined by the disruptive innovation phenomenon, focuses on digital economic patterns, artificial intelligence, big data, and robotics. The Indonesian Ministry of Industry pushed aggressively for the development of "Industry 4.0." PT XYZ is a technologically literate company, which indicates that their workplace is shaped and influenced by digital tools and technologies. PT XYZ has three big technology-based projects in the works. The 105MT Sumbagsel, LRT Jabodebek, and Kereta Cepat Jakarta-Bandung are the three strategic plans. Presidential Regulation (Perpres) No. 98 of 2015 on the Acceleration of Integrated Light Rail Transit in the Jakarta, Bogor, Depok, and Bekasi Areas, which controls the development of transportation services to assist national growth, sparked the LRT Jabodebek project. Under Presidential Decree 93 of 2021, the government designated PT XYZ as the leader of the SOEs consortium for the KCJB project. PT XYZ has established digital cultures and executed human capital digital readiness in their organizations to assist their employees in doing work, acquiring information, and communicating. While employees must perform effectively with all of these new technologies, the implementation of digital culture in PT XYZ is generally excellent but not perfect. Some staff are still unfamiliar with digitization and are finding it tough to adapt. To address the challenges of the 4.0 Industry, the relationship between digital culture, human capital digital readiness and employee performance in PT XYZ should be examined. It's also because an ideal digital culture and human capital digital readiness can improve employee performance. This study employed quantitative methods and data processing by SPSS 27. According to the data, there is a favourable and statistically significant association between digital culture, human capital digital readiness, and employee performance.

**KEYWORDS:** Digital Culture, Digital Readiness, Employee Performance.

### INTRODUCTION

PT XYZ is the only company in Indonesia's rail transportation sector. Previously known as the Railway Service Company (PJKA), it changed its name to the Railway General Company (Perumka) in 1991, then to PT XYZ in 1999, with the goal of profit. The numerous partnership work systems that PT XYZ currently implements, such as those with Telkomsel and even with multinational corporations like China Railway and Japan, have led to demands for PT XYZ to be able to continue contributing to the development of the country. As a result, PT XYZ must be prepared to face a digital-based partnership business scheme, which is becoming a PT XYZ business trend and may continue to grow in the future.

PT XYZ has three major technology-based projects to be carried out. The three major strategies are namely the 105MT Sumbagsel, LRT Jabodebek, and the Kereta Cepat Jakarta-Bandung. The LRT Jabodebek offers various advantages, including the use of CBTC GoA3 signaling technology (an automatic system without a driver controlling the train) and the absence of level crossings because all LRT lines are flyovers, removing the possibility of accidents at level crossings. The KCJB (Jakarta-Bandung High-Speed Railway) project ushers Indonesia into the modern era of rapid, dependable, safe, and comfortable mass transit. The high-speed train facilitates optimal community mobilization, enhances communication between cities, and constructs regions for the development of new economic centers.

The advent of Industry 4.0 and the rapid advancement of technology, it is unavoidable that the importance of digital will grow in the railway industry. The need for digitalization in PT XYZ's three main strategies explains that implementation can be realized and successful if employees are the key to success in building the best transportation ecosystem solutions for Indonesia to support the digital-based program. Employee at PT XYZ must be digitally literate and have learning agility in order to continue to gain



knowledge and understanding of technology that is up to date. With the current era of change, the use of technology in operations and services becomes relevant.

## DIGITALIZATION

PT XYZ Digitalization in the world of HR is currently being carried out to be able to provide the best performance for companies. SMAC (social, mobile, analytics, and cloud) technologies are used in digital HR to improve processes and make HR more effective, connected, and efficient. In other words, it represents a fundamental change in how human resources operate. HR is not digital solely because of the use of new technologies. Jeff Mike of Bersin by Deloitte (2017) stated that digital HR should also align culture, people, structure, and processes to balance efficiency and innovation, as well as to sustain a demonstrable influence on the wider organization while it undergoes ongoing transformation. According to Dave Ulrich (2022) every company's digital HR journey goes through the following four stages:

1. HR effectiveness. Companies engage in and develop technology platforms during this period, frequently working with pre-existing HR technology providers, to manage HR procedures effectively.
2. HR effectiveness. Technology is utilized in this phase to modernize personnel procedures (staffing, training), performance management, communication, and work.
3. Information. Information is exchanged for its impact on business at this phase. Data are available, internal and external data are merged, and people analytics are used to generate business-relevant insights.
4. Connection/experience. Digital HR is used to link people in the concluding phase. Technology enhances the use of social networks, fosters the creation of interpersonal encounters, and fosters a better sense of belonging.

The main objective of digitization in the majority of firms is to automate operations and reduce time spent on monotonous chores. Utilizing social, mobile, analytics, and cloud technologies, HR departments can contribute to increasing company productivity. Because of the needs of the industrial 4.0 revolution, it is critical to have qualified human resources who can demonstrate technological sophistication and data literacy based on the rate of technological growth. This will allow children to be more creative and adaptable to their surroundings. Human capital is defined as a bundle of knowledge, skills, and talents that individuals possess and use to add value to their businesses and ensure their success (Agolla, 2018).

## INDUSTRY 4.0

Industry 4.0 as defined by Saucedo-Martinez (2018), is the integration of advanced technology with sensor and software networks to better forecast, manage, and improve social consequences. According to Hendarman et al. (2020), Industry 4.0 is dependent on the integration of communication and information technologies, industrial technologies, and Cyber-Physical System (CPS). Gubán and Kovács (2017) once discussed key technology connected to the notion of Industry 4.0 conception.

1. The Cyber-Physical Production Systems (CPPS)
2. Machine-to-Machine (M2M) Communication
3. Artificial Intelligence (AI)
4. Horizontal and Vertical Integration
5. Internet of Things (IoT)
6. Big Data
7. Cloud Services, Cyber Security
8. Virtual Reality, Simulation

## DIGITAL TRANSFORMATION

Digital transformation is a process that necessitates a drastic shift from traditional business processes to digital business processes. In short, it is not limited to business processes; we also make our company's services more user-friendly. Digital transformation can be applied massively in various types of technology, such as data analytics, automation, cloud computing, and a variety of other services that we will introduce to you one by one (Lei & Jing, 2016).

We need to understand that businesses that use impractical processes, many procedures to complete, and high-cost systems will no longer be able to compete with businesses that use digital technology, which comes with the massive process of digital



transformation. However, this occurs when the digital mindset shifts. Digital is about both people and technology. In the digital age, efficiency means seamlessly integrating people and technology. As a result, having a 'Digital mindset', capable of incorporating technology into their daily roles and extracting value from it, is an important part of operating in today's landscape.

Gobble (2018) defines digital transformation as the planned and prioritized transformation of firm activities and organizations, processes, competencies, and models to optimize the transformation of the changes and potential of a technological mix and its rapid impact on society. The goal of digital transformation is to assess an organization's readiness to meet these changes. Of course, this has been demonstrated by being a disruptive, competitive, and inventive change innovator.

## DIGITAL MINDSET

A digital mindset necessitates not only knowledge but also behavior. Rather, it is a set of attitudes and behaviors that enable individuals and organizations to anticipate contingencies. Some of the great digital forces that disrupt and deconstruct today's world are social media, big data, mobility, cloud computing, artificial intelligence, and robotics. Organizations must be able to support the implementation of business strategies while taking into account the profound changes brought about by these forces in order to thrive. Organization, on the other hand, is about people. To be successful, an organization must have the right people which are the digital. organization, which has people with a digital mindset, characterizing the ability to:

1. Understand the power of technology to democratize teams and processes.
2. Adapt to the output scale and accelerate all forms of interaction and action.
3. Recognize the significance of connections.
4. React calmly to changes and disturbances.

It is critical to emphasize that having a digital mindset is not the same as having digital literacy. Being digitally savvy simply shows an individual's ability to use specific technologies and allows them to develop a digital mindset more seamlessly if they are willing to do so. However, in the digital age, failing to develop a digital mindset has disastrous consequences.

## DIGITAL CULTURE

A digital culture is a value, belief, norm, or basic assumption rooted in an organization that characterizes how the organization encourages and supports its employees in using technology to get their work done in the most efficient way possible (Microsoft, 2018). It is an organizational culture that promotes the use and development of digital technology in order to improve business performance and company success (Rudito & Sinaga, 2017). Improved communication technologies and virtual connections have created new opportunities for acquiring, developing, and managing personnel and work, including changing the way work is distributed. Furthermore, it alters the perception of work, the individuals who work there, and the entire work culture. Workplace use of digital technology boosts productivity and broadens the variety of goals that can be achieved, having a substantial impact on workplace culture (Buchanan et al., 2016). Based on the explanation above, it is possible to conclude that digital culture is a value, belief, norm, and basic assumption that guides an organization in encouraging the use and development of digital technology in order to achieve success. The variables used in this study adopted the variables in the CIGREF (2014) research model and fusion with the dimensions proposed by Buvat et al., (2017).

1. Innovation: Organizational behavior that encourages employees to take chances and experiment with new ideas.
2. Collaboration: The organization forms cross-functional and interdepartmental teams in order to maximize the company's expertise in order to achieve organizational goals.
3. Open Culture: Indicator that an organization is open to external network relationships such as third-party vendors, startups (new enterprises), or clients, implying that it is open to the outside or external world.
4. Agility: This entails the ability to transform and experiment on a continuous basis, which implies allowing for individual initiative and trial and error learning. Capable of making decisions rapidly and dynamically, as well as adapting to changing technological needs.
5. Digital Mindset: Organizations have adopted a worldview in which digital solutions are the primary means of solving problems or improving organizational performance in the future. Organizations are accustomed to engaging with digital items such as smartphones, applications or software, information systems, the internet, or websites that aid in the completion of tasks.



6. Data Based: Indicator describing how an organization uses data and analysis to make better business decisions, or how an organization makes decisions based on the data it has.
7. Customer Centrality: Organizations utilize digital solutions to increase their client base by changing the customer experience to produce new products; alternatively, organizations can use digital technology to make customer engagement closer and stronger.

## HUMAN CAPITAL DIGITAL READINESS

Human capital is crucial in the organization of a company since it demonstrates the company's strategy. The qualities that each employee possesses provide a significant opportunity for the firm. Human capital's preparedness as an intangible asset is determined by determining if employees have the necessary skills, talent, and expertise to apply the new concept and affect the organizational learning experience (Hendarman et al., 2020). Human capital readiness refers to the ability of human capital to support the execution of company strategy. Digital advances in industry 4.0 necessitate a company's readiness to carry out transformations, particularly human resources, to support the transformation process by adhering to the objectives and goals to be met. In generating human capital readiness metrics in businesses or organizations, this, of course, refers to the allocation of employee skills, talent, and know-how to carry out the internal activities critical to the strategy's success (Kaplan & Norton, 2003). This study assesses human capital readiness utilizing dimensions or indicators based on the questionnaire produced by Hendarman et al. (2020).

1. Knowledge: Statements about what we believe we know. We don't know how much we know because knowledge encompasses both explicit and implicit information (Bolisani & Bratianu, 2018). Implicit knowledge refers to an experience in our unconscious zone and manifests mainly as intuition.
2. Soft skills: Soft skills are personal traits, habits, attitudes, and social graces that make someone a good employee and work compatible (Vasanthakumari, 2019). Soft talents, according to (Hendarman & Cantner, 2017), are primarily subjective, are not tied to a deliverable or a specific consequence, and are applied without the use of tools or templates.
3. Hard skill: Components of hard skills can be seen in intelligence quotient thinking, which includes indicators such as counting, analyzing, designing, comprehensive knowledge, modelling, and critical thinking (Sopa et al., 2020). The development of hard skills is critical since a person's level of hard skills dictates how successfully he can accomplish a job. Someone could not build an effective tool unless they understood how it was made, what it was used for, and how to use it (Wibowo et al., 2020).
4. Attitude: Attitude is defined as a person's perspective and appraisal of something or someone, as well as a proclivity or predisposition to react positively or negatively to a specific notion, item, person, or scenario (Vargas-Sánchez et al., 2016).

## EMPLOYEE PERFORMANCE

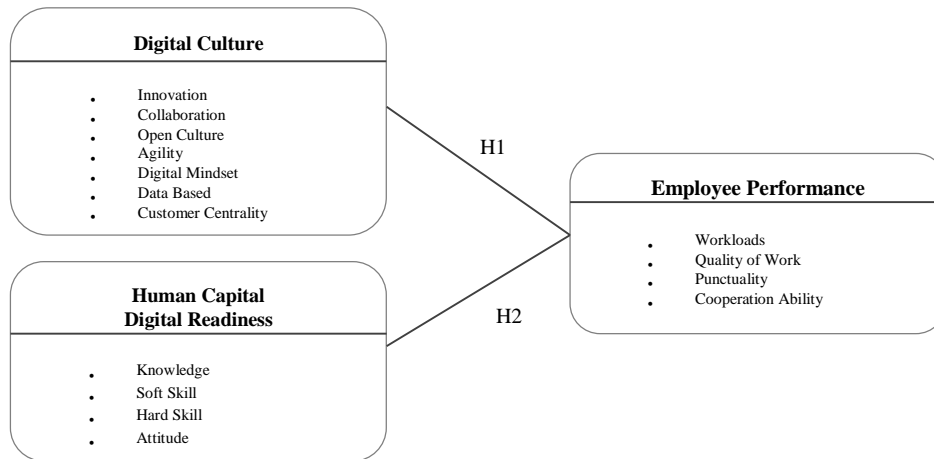
Employee performance is defined as an individual's work output and behavior in completing the obligations and responsibilities allocated within a specified time limit (Kasmir, 2016). Employee performance, according to Priansa (2017), is a measure of skill in the form of actual work or work results gained by employees as a result of performing the obligations and responsibilities assigned to them by the employer. Employee performance, according to Umam (2018), is the result of work accomplished by employees in accordance with their tasks or duties within a given timeframe, which is related to the size or standard of the organization in which the employee works. The explanation offered by experts leads to the conclusion that employee performance is a result of the labor or task that a business allocates to its employees during a specified time period in order to achieve organizational goals. In this study, researchers took measurements of employee performance appraisal using work standards, can be measured through dimensions down below (Bangun, 2012).

1. Workloads: Workloads are the amount of work generated by people or organizations as a requirement to fulfill a quality of work in which employees must meet their criteria for knowledge, skills, and relevant abilities. From that requirement, it is possible to determine how many employees are required to be able to accomplish the work of each employee can do how many work units.
2. Quality of Work: This necessitates that every person in the organization meet certain requirements in order to create work of the required quality. It signifies that employee performance is good if the employee can generate work that meets the quality criteria of the job.



3. Punctuality: Each job has unique qualities; certain types of work must be finished on time because they rely on other jobs. Employees must be able to perform job on time in this dimension. If employees are delayed, their work time will be shortened, and the work will not be completed on time.
4. Cooperation Ability: This dimension evaluates employees' ability to collaborate with their co-workers.

**CONCEPTUAL FRAMEWORK**



H1: Digital Culture has a significant effect on employee performance.

H2: Human Capital Digital Readiness has a substantial impact on employee performance.

**QUANTITATIVE RESEARCH**

In this research, data was collected using a sampling strategy based on a dispersed survey. This strategy is used to gather samples from individuals or volunteers who will be used in research. Random sampling does not imply that each sample is representative of the population. It implies that most random samples will be near to people most of the time and that it is simple to quantify the probability that an example is correct (Rahman et al, 2022). The advantage of using this sample technique is that it reduces the possibility of systematic error and sampling bias. (Datta, 2018). Employees of PT XYZ who are operationally responsible for the Jabodebek LRT and KCJB strategic projects will complete the survey questionnaire in this study. The total number of employees is 633.

**1. DIGITAL CULTURE ANALYSIS**

PT XYZ's digital culture is comprised of innovation, collaboration, open culture, agility, mindset, data-based, and customer centrality. Table of digital culture analysis below displays the mean score, standard deviation, and average score for each of these aspects.

**Table I** – Digital Culture Analysis

| <i>Sr. No.</i> | <i>Dimension</i>    | <i>Mean</i> | <i>Std. Dev</i> | <i>Score</i> |
|----------------|---------------------|-------------|-----------------|--------------|
| 1              | Innovation          | 3,94        | 0,72            | 0,79         |
| 2              | Collaboration       | 4,13        | 0,66            | 0,83         |
| 3              | Open Culture        | 4,11        | 0,65            | 0,82         |
| 4              | Agility             | 3,90        | 0,73            | 0,78         |
| 5              | Mindset             | 3,83        | 0,68            | 0,77         |
| 6              | Data Based          | 3,95        | 0,71            | 0,79         |
| 7              | Customer Centrality | 3,76        | 0,72            | 0,75         |
|                | <b>Total Score</b>  | <b>3,95</b> | <b>0,70</b>     | <b>0,79</b>  |



The average score for each dimension is ranked relatively highly in the digital culture scale's category score, as we can see above. Each dimension is given a value of 0,75. The range of value is 0,75 to 0,83. With an average score percentage of 79% or 0,79 and a mean score of 3,95, PT XYZ has a high level of digital culture, according to the results of **Table I**, which is used to interpret the digital culture level. Employees score "collaboration" the highest in digital culture, while "customer centrality" receives the lowest rating.

**2. HUMAN CAPITAL DIGITAL READINESS – GAP ANALYSIS**

The author utilizes the HDI (Human Development Index) computation to determine how ready each employee at PT XYZ is for each element. Following the receipt of survey results, the readiness gap is calculated by subtracting the anticipated state from the actual state. Based on the processed data, the following is the outcome of processing the gap data.

**Table II – Human Capital Digital Readiness Analysis**

| Sr. No. | Dimension  | Current Value | Expected Value | Gap  | HDI  | Conclusion        |
|---------|------------|---------------|----------------|------|------|-------------------|
| 1       | Knowledge  | 3,63          | 4,01           | 0,38 | 0,63 | ALMOST READY      |
| 2       | Soft Skill | 3,77          | 4,29           | 0,52 | 1,00 | EARLY STAGE READY |
| 3       | Hard Skill | 3,83          | 4,27           | 0,44 | 0,79 | ALMOST READY      |
| 4       | Attitude   | 4,08          | 4,22           | 0,14 | 0    | OPTIMAL           |

The aforementioned table displays the GAP and HDI scores of PT XYZ employees in relation to dealing with digital transformation 4.0 and their level of readiness to cope with it. It is clear that several of the dimensions exhibit noticeable gaps when categorized particularly on the variable indexed "Early Stage Ready". Since the soft skill dimension is in not ready stage, indicating that more than the soft skill component is needed insufficient to be applied to industry 4.0. These findings suggest that this variable has to work on applying soft skills to cope with the modern world. The knowledge and hard skill dimensions demonstrate that employees are at an almost of readiness. The organization has instilled in its staff the proper attitude for dealing with digital transformation 4.0, as evidenced by the fact that attitude dimension is found in the optimal index.

**3. EMPLOYEE PERFORMANCE ANALYSIS**

Table below shows the mean score, standard deviation, and average score of each dimension of employee performance in PT XYZ, which consists of workloads, quality of works, punctuality, and cooperation ability.

**Table III – Employee Performance Analysis**

| Sr. No. | Dimension           | Mean        | Std. Dev    | Score       |
|---------|---------------------|-------------|-------------|-------------|
| 1       | Workloads           | 3,97        | 0,70        | 0,79        |
| 2       | Quality of Works    | 3,98        | 0,70        | 0,80        |
| 3       | Punctuality         | 3,91        | 0,69        | 0,78        |
| 4       | Cooperation Ability | 3,99        | 0,65        | 0,80        |
|         | <b>Total Score</b>  | <b>3,96</b> | <b>0,69</b> | <b>0,79</b> |

Based on the results of Table III, which is used to assess the employee performance level, PT XYZ has very high employee performance, with scores ranging from 0,78 to 0,80. No component received a score lower than 0,78. The average score for employee performance is strong, coming in at 79% or 0,79 and followed by the average mean score of 3,96. The highest ratings for employee performance are for cooperation and quality of work, while the lowest rating is for punctuality, which is nevertheless regarded as a respectable rating. The results show that the company was effective in improving personnel performance in terms of attaining business goals for the Jabodetbek LRT and KCJB key projects.

**4. REGRESSION MODEL ANALYSIS**

Regression analysis is used to gauge the degree of the correlation between two variables. The regression model is used to quantify and characterize the relationship between the independent and dependent variables. The collected data were all generated using SPSS.



|       |                              | Coefficients <sup>a</sup>        |            |                                   | t     | Sig.  |
|-------|------------------------------|----------------------------------|------------|-----------------------------------|-------|-------|
| Model |                              | Unstandardized Coefficients<br>B | Std. Error | Standardized Coefficients<br>Beta |       |       |
| 1     | (Constant)                   | .180                             | .129       |                                   | 1.399 | .164  |
|       | Mean_Digital_Culture         | .730                             | .077       | .716                              | 9.538 | <.001 |
|       | Mean_Digital_Readiness_No_S2 | .239                             | .079       | .226                              | 3.013 | .003  |

a. Dependent Variable: Mean\_Employee\_Performance

Figure 1 – Regression Model Analysis (Author’s Processed Data)

The figure above demonstrates the importance of the two conceptions and their totally positive relationship to individual development. For a certain contribution of digital culture, it is expected that employee performance at work will increase by 0.730, and for human capital's digital readiness, by 0.239. The range that will be used to test the proposed hypotheses is consistent with a p-value (Sig.) of 0.05. The study for this case will employ a p-value approach to assess whether the construct is significant or not, hence the main attention will be on the t (t) value and p (Sig.) value. T-table for this sample size (DF = 148) with an alpha level of 5% is 1,976.

1. Verifying the H1 Hypothesis on the Digital Culture of Employee Performance. According to table 4.4 above, the construct's t-value is 9.538 and its p-value is <.001. The fact that t-count (9.538) > t-table (1.976) with a p-value (<.001) (0.05) demonstrates that this hypothesis (H1: Digital Culture has a significant effect on employee performance) leads to accepted or accepted hypotheses.
2. Investigating, in accordance with Hypothesis H2, how Industrial Human Capital Digital Readiness 4.0 affects employee performance. According to table 4.4 above, the construct t-value is 3.013 and the p-value is 0.003. This claim (H2: Human Capital Digital Readiness has a substantial impact on employee performance) is supported by the evidence, which shows that t-count (3.013) > t-table (1,976) with p-value (0.003) (0.05).

Based on the aforementioned data, the results show that the two hypotheses are accepted and significant to the dependent variable. Based on the information, it can be said that PT XYZ has implemented and exemplifies some of the practices necessary for human capital 4.0 and the digital workplace culture that enables companies to promote employee success.

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