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Article

Employee work motivation in the era of digital transformation: evidence from viglacera corporation – JSC, Vietnam

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Abstract: This study examines the factors associated with employee work motivation in the context of digital transformation at Viglacera Corporation – JSC, Vietnam. The study integrates five established human resource factors—compensation and benefits, work environment and working conditions, job characteristics, performance appraisal and recognition, and training and promotion opportunities—with Perceived Digital Transformation (CS), defined from 10employees' perceptions of technology-enabled changes in their work environment and processes. Data were collected from 506 employees and analyzed using partial least squares structural equation modeling (PLS-SEM). The results show that all six predictors are positively and significantly associated with employee work motivation, with the model explaining 59.5% of the variance in work motivation. CS showed the strongest positive association with employee work motivation (β = 0.397), followed by job characteristics (β = 0.229) and training and promotion opportunities (β = 0.217). The findings suggest that employees' experiences of digital transformation constitute an important motivational resource alongside established human resource practices. The study extends employee-motivation research by incorporating an employee-centered perspective on digital transformation into an integrated framework and provides empirical evidence from a Vietnamese industrial context. The findings suggest that organizations undergoing digital transformation should combine technological initiatives with meaningful job design, employee development, recognition, supportive working conditions, and equitable rewards to support employee work motivation.

Keywords: employee work motivation; perceived digital transformation; job characteristics; training and promotion opportunities; Vietnam

1. Introduction

Sustaining employee work motivation remains an important concern in human resource management because employees' willingness to invest effort in their work is related to individual and organizational outcomes. Previous research has emphasized the relevance of organizational practices and job-related conditions, including compensation, the work environment, job design, recognition, and opportunities for professional and career development. These factors provide an established foundation for understanding employee work motivation.

At the same time, organizations are increasingly integrating digital technologies into their operations and management systems. Digital transformation extends beyond the adoption of individual technologies and can reshape work processes, communication, information access, task execution, and capability development Vial [1]. From an employee-centered perspective, its motivational relevance depends partly on how employees perceive and experience these technology-enabled changes in their daily work. Accordingly, this study conceptualizes the construct as perceived

digital transformation (CS). The Job Demands–Resources (JD-R) framework further suggests that when digital technologies facilitate task completion, improve information access, support communication, or create learning opportunities, employees may perceive them as work-related resources that support motivation Bakker and Demerouti [2]. However, digitalization may also introduce new skill requirements and adaptation demands Tarafdar et al. [3].

This issue is particularly relevant to industrial enterprises, where technological modernization occurs alongside established production systems, workforce structures, and human resource practices. Despite extensive research on conventional factors associated with employee motivation, empirical evidence examining these determinants together with employees' perceptions of digital transformation remains comparatively limited in industrial manufacturing settings, particularly in emerging economies. Examining these factors simultaneously may therefore provide a more context-sensitive understanding of employee motivation during organizational and technological change.

Viglacera Corporation – JSC provides an appropriate empirical setting for this investigation. Operating in building materials manufacturing and industrial infrastructure development in Vietnam, the corporation has been implementing organizational modernization and digital transformation initiatives. Against this background, the present study examines employee work motivation by considering six predictors: compensation and benefits, work environment and working conditions, job characteristics, performance appraisal and recognition, training and promotion opportunities, and perceived digital transformation.

The study contributes in three respects. First, it integrates perceived digital transformation with established human resource determinants within a single empirical framework. Second, it compares the relative predictive strength of these six factors, providing evidence on whether employees' perceptions of digital transformation represent a particularly salient component of their motivational experience. Third, evidence from a Vietnamese industrial corporation extends research on employee work motivation to an emerging-economy manufacturing context. The study therefore provides an employee-centered perspective on motivation in an increasingly digitalized workplace.

2. Literature review

2.1. Work motivation

Work motivation concerns the forces that initiate work-related behavior and determine the direction, intensity, and persistence of employees' effort Pinder [4]. Rather than representing a single employee attitude, motivation reflects a process through which individuals determine how much effort they are willing to invest in their work and how persistently they pursue work-related objectives. Previous research has linked employee motivation with important individual and organizational outcomes, including job performance, organizational commitment, and productivity Judge et al. [5] and Kanfer et al. [6].

Several theoretical perspectives provide complementary explanations for work motivation. Herzberg's Two-Factor Theory distinguishes between employment conditions that prevent dissatisfaction and factors that can generate positive motivation Herzberg [7]. The Job Characteristics Model emphasizes the motivational properties of work design, particularly meaningfulness, autonomy, task significance, and feedback Hackman and Oldham [8]. Expectancy Theory focuses on employees'

perceptions of the relationship between effort, performance, and valued outcomes Vroom [9]. Self-Determination Theory highlights autonomy, competence, and psychological development as important foundations of motivation Deci and Ryan [10].

Taken together, these perspectives indicate that work motivation can be shaped by multiple organizational and job-related conditions. Compensation and working conditions provide important employment foundations, while meaningful work, recognition, development opportunities, and autonomy may strengthen employees' willingness to invest effort. This multidimensional perspective is particularly relevant when organizations undergo technological change, because digital transformation can alter work processes, job content, communication practices, and opportunities for capability development Vial [1]. Accordingly, employee motivation should be examined in relation to both established human resource practices and employees' experiences of an increasingly digitalized work environment.

2.2. Factors associated with employee work motivation

2.2.1. Compensation and benefits

Compensation and benefits represent an important component of the exchange relationship between employees and their organization. Equity Theory suggests that employees evaluate the rewards they receive against their contributions and relevant comparison standards Adams [11]. When employees perceive this exchange as equitable, compensation can reinforce the perceived value of their contribution and strengthen their willingness to exert effort. Herzberg [7] similarly identifies salary and employment conditions as important components of employees' workplace experience.

Recent empirical evidence provides additional support for this relationship. Puspitasari [12], using data from 300 start-up employees, found that financial incentives positively and significantly influenced work motivation alongside performance appraisal and employee recognition. Similarly, Obumneme and Ghapar [13] examined employees of a property management organization and reported evidence linking financial incentives and workplace conditions with employee motivation. These findings suggest that, despite increasing attention to non-financial sources of motivation, employees' perceptions of the economic rewards associated with their work remain relevant to their willingness to exert effort.

The motivational relevance of compensation may be particularly important in industrial organizations, where employees differ substantially in occupational roles, skill requirements, and employment conditions. Fair and appropriate compensation can signal organizational recognition of these contributions and reinforce employees' perceived returns from their work. Accordingly, the following hypothesis is proposed:

H1: Compensation and benefits are positively associated with employee work motivation.

2.2.2. Work environment and working conditions

Employee motivation is also shaped by the environment in which work is performed. The Job Demands–Resources perspective suggests that workplace resources can help employees manage job demands, reduce unnecessary strain, and maintain engagement in their work Bakker and Demerouti [2]. A safe, supportive, and appropriately organized work environment may therefore create conditions under which employees can direct greater physical and psychological resources toward their responsibilities.

Recent empirical findings are consistent with this reasoning. Obumneme and Ghapar [13] examined the relationship between workplace conditions and employee motivation and identified organizational culture and internal communication as relevant dimensions of the motivational work environment. Hidayat and Heryjanto [14], using SEM-PLS with employees of PT Global Loyalty Indonesia, similarly found that the work environment had a positive and significant effect on work motivation. The latter study further demonstrated that motivation mediated the relationship between the work environment and employee performance.

These findings are particularly relevant to industrial organizations, where physical conditions, workplace organization, safety, communication, and operational support can directly shape employees' daily work experiences. Favorable working conditions can reduce obstacles to task completion while signaling organizational concern for employees' ability to perform their responsibilities effectively. Thus:

H2: Work environment and working conditions are positively associated with employee work motivation.

2.2.3. Job characteristics

The characteristics of the job itself provide an important source of intrinsic motivation. According to the Job Characteristics Model, meaningfulness, autonomy, task significance, and feedback create psychological conditions through which employees become more internally motivated to perform their work Hackman and Oldham [8]. Jobs that allow employees to use their capabilities, understand the significance of their contribution, and exercise appropriate discretion can therefore strengthen the connection between individual effort and meaningful work outcomes.

Recent empirical research provides support for the continuing relevance of job characteristics. Mariska et al. [15], in a study of employees at PT Perkebunan Nusantara VI, found that job characteristics had a positive and significant effect on work motivation and that motivation subsequently contributed to employee performance. More recent evidence from Luthfiani and Rijanti [16] likewise indicates that job characteristics positively and significantly influence employee motivation, with motivation serving as an important mechanism connecting job characteristics with performance.

These findings suggest that the motivational properties identified in the Job Characteristics Model remain relevant in contemporary organizations. In an industrial enterprise undergoing modernization, this relationship may become particularly important because technological change can redesign tasks and alter employees' responsibilities, autonomy, and skill requirements. Jobs that remain meaningful and allow employees to apply and develop their capabilities should therefore strengthen work motivation.

H3: Job characteristics are positively associated with employee work motivation.

2.2.4. Performance appraisal and recognition

Employees' willingness to exert effort can also depend on whether they perceive a credible relationship between their performance and organizational responses. Expectancy Theory proposes that individuals are more likely to invest effort when they believe that effective performance will generate outcomes they value Vroom [9]. Performance appraisal provides formal information about employees' contributions, while recognition communicates that those contributions are acknowledged and valued by the organization.

Contemporary empirical evidence reinforces this theoretical relationship.

Puspitasari [12] investigated financial incentives, performance appraisal systems, and employee recognition among 300 start-up employees and found that all three factors had positive and significant effects on work motivation. The study also reported that their combined influence exceeded their individual effects, suggesting that appraisal and recognition operate as part of a broader organizational reward system rather than as isolated motivational practices.

Performance appraisal and recognition may therefore influence motivation through both informational and reward-related mechanisms. A credible appraisal system clarifies how performance is evaluated, while appropriate recognition signals that employee contributions have organizational value. When employees perceive that their effort and achievements are fairly assessed and acknowledged, they have stronger reasons to sustain their work effort. Hence:

H4: Performance appraisal and recognition are positively associated with employee work motivation.

2.2.5. Training and promotion opportunities

Training and promotion opportunities provide employees with prospects for capability development and career advancement. Self-Determination Theory identifies competence as an important psychological foundation of intrinsic motivation Deci and Ryan [10]. Training can strengthen this sense of competence by enabling employees to acquire the knowledge and skills required to perform effectively, whereas promotion opportunities provide a longer-term indication that continued effort and development may lead to career progression.

Recent empirical evidence supports this relationship. Nguyen and Le [17], using data from 254 full-time employees in Vietnam and PLS-SEM analysis, found that training and development positively contributed to employee motivation. Similarly, Aditya et al. [18] reported that training and career development significantly enhanced employee motivation. These findings indicate that development-oriented HR practices can function as motivational resources rather than merely as mechanisms for improving employees' technical competencies.

These findings indicate that development-oriented human resource practices can function as motivational resources rather than merely as mechanisms for improving technical competence. This distinction is particularly relevant during digital transformation, when employees may need to continuously update their skills and adapt to changing job requirements. Organizations that provide credible opportunities for learning and career progression may therefore strengthen employees' willingness to invest effort in both their current responsibilities and their longer-term organizational careers.

H5: Training and promotion opportunities are positively associated with employee work motivation.

2.2.6. Perceived digital transformation

Digital transformation can reshape how organizations operate by changing work processes, communication, information access, and the way employees perform their tasks Vial [1]. However, its relevance to employee motivation depends not only on the technologies introduced by an organization but also on how employees perceive and experience these technology-enabled changes in their daily work. Accordingly, this study conceptualizes perceived digital transformation (CS) as employees' perceptions of technology-enabled changes that facilitate and reshape their work.

The Job Demands–Resources (JD-R) model provides a useful theoretical

perspective for explaining why CS may be associated with employee work motivation. The JD-R model proposes that job resources can help employees deal with job demands and support positive motivational processes Bakker and Demerouti [2]. In a digitalized workplace, technologies that facilitate task execution, improve access to information, support communication and coordination, or provide opportunities for learning may be perceived by employees as work-related resources. These resources may support employees' willingness to invest effort in their work. At the same time, digital transformation can create new skill requirements and adaptation demands, meaning that its motivational relevance may depend on how employees experience the changes associated with digitalization Tarafdar et al. [3].

Recent empirical evidence provides support for the relationship between digital transformation and employee motivation. Chang and Yang [19], using three-wave data from 607 employees, found a positive relationship between enterprise digital transformation and employees' intrinsic motivation, with justice perceptions playing mediating roles. This finding suggests that the motivational relevance of digital transformation may depend partly on how employees interpret organizational changes associated with digitalization.

Evidence from Vietnam also highlights the relevance of employee-related outcomes in digitalization. Dao et al. [20] examined digital workforce training, employee motivation, job satisfaction, digital behavior, and employee performance in the Vietnamese context. Although digital workforce training is narrower than enterprise-level digital transformation, the study reinforces the importance of employee motivation when organizations adapt to digital transformation.

For employees in an industrial organization undergoing modernization, CS may therefore represent an important work-related resource when digital technologies facilitate daily tasks, improve information accessibility, support communication and coordination, and create opportunities for learning and capability development. This perspective is consistent with the JD-R framework and provides a theoretical basis for examining whether employees' perceptions of digital transformation are positively associated with work motivation. Therefore, the following hypothesis is proposed:

H6: Perceived digital transformation is positively associated with employee work motivation.

2.3. Research model

Drawing on the theoretical perspectives and empirical evidence discussed above, the proposed research model integrates five established human resource factors with Perceived Digital Transformation (CS) to examine their associations with employee work motivation. Compensation and benefits, work environment and working conditions, job characteristics, performance appraisal and recognition, and training and promotion opportunities represent established organizational and job-related conditions, while CS captures employees' perceptions of technology-enabled changes in their work environment.

The model allows the relative predictive strength of these six factors to be examined within a single empirical framework. In particular, incorporating CS alongside established human resource determinants provides an opportunity to assess whether employees' experiences of digital transformation represent a particularly salient component of work motivation in an organization undergoing modernization (**Figure 1**).

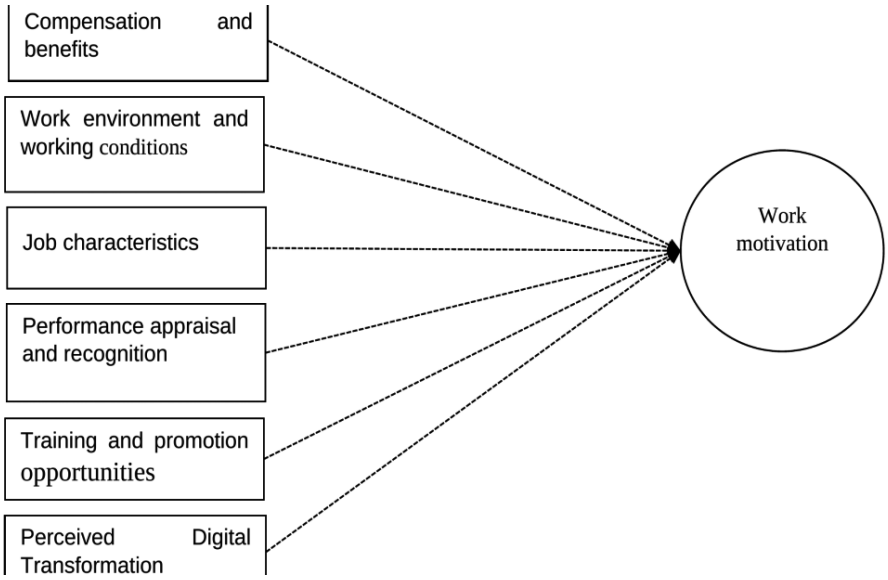


Figure 1. Proposed research model.

Source: Compiled and proposed by the authors.

3. Research methodology

3.1. Research design

A sequential mixed-methods design was employed to develop and empirically evaluate the proposed model of employee work motivation. The study was conducted in two phases. The qualitative phase examined the contextual relevance and face validity of the proposed constructs and measurement items, while the subsequent quantitative phase provided data for assessing the measurement model and testing the hypothesized associations.

During the qualitative phase, semi-structured interviews were conducted with human resource specialists, managers, and employees from Viglacera Corporation – JSC and its affiliated units. The interviews focused on employees' perceptions of work motivation, organizational and job-related conditions associated with motivation, and their experiences of technology-enabled changes in the workplace. Interviews were conducted either face-to-face or online and lasted approximately 20–30 minutes. The interview material was coded thematically.

Seven recurring themes were identified from the interview material. First, participants emphasized income, benefits, and perceived fairness in compensation, particularly the alignment between remuneration and employees' contributions. Second, participants highlighted a supportive and safe working environment, including managerial support, employee voice, collegial cooperation, workplace safety, and adequate working facilities. Third, job characteristics emerged through participants' accounts of task responsibility, problem solving, learning, creativity, and the extent to which individual work affected subsequent work processes. Fourth, participants emphasized accurate performance evaluation and timely recognition of employees' contributions. Fifth, training and career advancement were repeatedly mentioned, including opportunities for skills development, periodic training, and internal promotion. Sixth, participants described digital transformation in terms of improved work speed, accuracy, efficiency, and working conditions, while also emphasizing communication, digital skills training, and the need for adjustment

when new technologies were introduced. Finally, work motivation was reflected in employees' willingness to exert effort, learn, solve work-related problems, propose improvements, and contribute to organizational objectives.

These themes were used to assess the contextual relevance and face validity of the proposed measurement constructs and to guide the contextual refinement of the measurement instrument. The subsequent expert consultation was used to review the wording and clarity of the proposed items before the quantitative survey. Where necessary, selected items were revised to improve contextual clarity while preserving their original conceptual meaning. The measurement items were refined based on the expert consultation while preserving their original conceptual meaning.

The quantitative phase employed a structured questionnaire to collect employee-level data. All constructs were measured using multi-item reflective scales, with responses recorded on a five-point Likert scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). Questionnaires were administered in both paper-based and online formats to employees working at Viglacera Corporation – JSC and its affiliated units.

A total of 530 questionnaires were distributed and 511 responses were received. Following data screening, five questionnaires were excluded because of incomplete information or inconsistent response patterns. The final dataset therefore comprised 506 valid observations, representing 95.5% of the questionnaires distributed and 99.0% of the responses received.

3.2. Measures

The measurement instrument comprised seven constructs: compensation and benefits, work environment and working conditions, job characteristics, performance appraisal and recognition, training and promotion opportunities, Perceived Digital Transformation (CS), and employee work motivation.

The initial measurement items were developed based on established theoretical perspectives and previous research on employee motivation, job characteristics, human resource management practices, and digital transformation. The qualitative findings were then used to assess whether the proposed constructs and items adequately reflected employees' work experiences in the organizational and industrial context of Viglacera. The recurring themes identified in the interviews corresponded closely with the proposed constructs, including compensation and fairness, working conditions and managerial support, job characteristics, performance appraisal and recognition, training and career advancement, technology-enabled changes in work, and employee work motivation.

Perceived Digital Transformation (CS) was conceptualized as employees' perceptions of technology-enabled changes that shape how work is performed and supported. The qualitative evidence indicated that employees associated digital transformation with improved work speed, accuracy, efficiency, and working conditions, while also identifying the importance of communication, digital skills training, and adjustment to new technologies. This employee-centered conceptualization distinguishes CS from an objective assessment of the organization's overall level of digital transformation.

Following the qualitative phase, the measurement items were reviewed through expert consultation to assess their clarity, contextual appropriateness, and conceptual consistency. Most items were retained, while selected items were revised to improve wording. In particular, adjustments were made to items ĐC3, ĐC5, CS4, and ĐL1 following the expert review. The final measurement instrument was used in the subsequent quantitative survey.

All measurement items were specified as reflective indicators. Respondents indicated their level of agreement with each statement using the five-point Likert scale. Before testing the hypothesized associations, the measurement model was evaluated in terms of indicator reliability, internal consistency, convergent validity, and discriminant validity.

3.3. Data analysis

The empirical analysis combined descriptive and inferential procedures using SPSS and SmartPLS 4. SPSS was used to summarize respondent characteristics and conduct the common method bias assessment. PLS-SEM was used to estimate the relationships specified in the conceptual model.

The PLS-SEM analysis followed a two-stage procedure involving assessment of the measurement model followed by assessment of the structural model Hair et al. [21]. The measurement model was evaluated using outer loadings, Cronbach's alpha, composite reliability, average variance extracted (AVE), the Fornell–Larcker criterion, and the heterotrait–monotrait ratio (HTMT). The structural model was assessed using variance inflation factor (VIF), coefficient of determination (R^2), effect size (f^2), and the standardized path coefficients and corresponding significance levels for the hypothesized associations.

3.4. Common method bias assessment

Because the quantitative data were collected through a self-reported questionnaire from a single source, common method bias (CMB) was assessed using Harman's single-factor test. The analysis included the 39 measurement indicators retained in the final measurement model and excluded indicators removed during the measurement-model assessment as well as variables not included in the conceptual model.

An unrotated principal component analysis was conducted to examine whether a single factor accounted for the majority of the total variance. The first component had an eigenvalue of 9.012 and explained 23.107% of the total variance. This proportion was substantially below the 50% criterion commonly used in Harman's single-factor assessment. The results therefore did not indicate a substantial common method bias concern in the dataset. Nevertheless, because the quantitative measures were self-reported and collected at a single point in time, the possibility of some degree of common method bias cannot be completely excluded.

4. Research results

4.1. Sample characteristics

The final sample comprised 506 employees of Viglacera Corporation – JSC and its affiliated units. Male respondents accounted for 61.1% of the sample, while female respondents accounted for 38.9%. The largest age group was 30–40 years (43.5%), followed by employees aged 41–50 years (29.4%). Regarding education, 53.2% of respondents held university or postgraduate qualifications, while 28.5% had vocational or intermediate-level qualifications. Employees represented 61.5% of the sample, followed by production workers (23.3%) and managers (15.2%). In terms of organizational tenure, the largest group (46.6%) had worked for the organization for five to less than ten years.

4.2. Measurement model assessment

During the initial measurement-model assessment, five indicators (TN1, TN5,

TN6, ĐC8, and ĐG6) were removed because their measurement performance was inadequate relative to the retained indicators. Indicator deletion was not based solely on statistical criteria; the conceptual coverage of each construct was also considered. The remaining indicators continued to represent the substantive domains of compensation and benefits (TN), job characteristics (ĐC), and performance appraisal and recognition (ĐG). Thus, the final measurement model retained the conceptual coverage of the constructs while improving the empirical quality of the measures (**Table 1**).

Table 1. Outer loadings.

	CS	**MT**	**TN**	**ĐC**	**ĐG**	**ĐL**	**ĐT**
CS1	0.765						
CS2	0.785						
CS3	0.798						
CS4	0.798						
CS5	0.792						
MT1		0.716					
MT2		0.708					
MT3		0.728					
MT4		0.723					
MT5		0.796					
MT6		0.733					
MT7		0.745					
TN2			0.833				
TN3			0.854				
TN4			0.836				
TN7			0.837				
ĐC1				0.777			
ĐC2				0.852			
ĐC3				0.766			
ĐC4				0.739			
ĐC5				0.809			
ĐC6				0.848			
ĐC7				0.795			
ĐG1					0.800		
ĐG2					0.738		
ĐG3					0.817		
ĐG4					0.821		

Continuation Table:

	CS	MT	TN	ĐC	ĐG	ĐL	ĐT
ĐG5					0.808		
ĐL1						0.782	
ĐL2						0.819	
ĐL3						0.826	
ĐL4						0.793	
ĐL5						0.715	
ĐT1							0.790
ĐT2							0.787
ĐT3							0.804
ĐT4							0.707
ĐT5							0.756
ĐT6							0.811

Source: Authors' calculations using SmartPLS.

In the final measurement model, outer loadings ranged from 0.707 to 0.854. Cronbach's alpha ranged from 0.847 to 0.905, while composite reliability (rho_c) ranged from 0.891 to 0.925. AVE values ranged from 0.542 to 0.706. These results in **Table 2** provide evidence of satisfactory indicator reliability, internal consistency, and convergent validity Hair et al. [22].

Table 2. Results of reliability and convergent validity assessment.

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
CS	0.847	0.848	0.891	0.620
MT	0.865	0.911	0.892	0.542
TN	0.862	0.872	0.906	0.706
ĐC	0.905	0.907	0.925	0.639
ĐG	0.857	0.861	0.897	0.636
ĐL	0.847	0.849	0.891	0.621
ĐT	0.868	0.876	0.901	0.603

Source: Authors' calculations using SmartPLS.

In **Table 3**, discriminant validity was assessed using the Fornell–Larcker criterion and the heterotrait–monotrait ratio (HTMT). The square root of the AVE for each construct exceeded its correlations with the other constructs, supporting discriminant validity according to the Fornell–Larcker criterion Fornell and Larcker [23]. In addition, all HTMT values were below 0.85, providing further evidence that the constructs were empirically distinguishable Henseler et al. [24].

Table 3. Discriminant validity assessment using the Fornell–Larcker Criterion.

	CS	MT	TN	ĐC	ĐG	ĐL	ĐT
CS	**0.788**						
MT	0.185	**0.736**					
TN	0.025	0.179	**0.840**				
ĐC	0.157	0.308	0.067	**0.799**			
ĐG	0.257	0.332	0.065	0.166	**0.797**		
ĐL	0.555	0.449	0.216	0.447	0.413	**0.788**	
ĐT	0.192	0.242	0.037	0.300	0.135	0.431	**0.777**

Source: Authors' calculations using SmartPLS.

Discriminant validity was further assessed using the HTMT criterion (**Table 4**). All HTMT values were below the conservative threshold of 0.85, providing additional evidence of discriminant validity Henseler et al. [24].

Table 4. HTMT assessment results.

	CS	MT	TN	ĐC	ĐG	ĐL	ĐT
CS							
MT	**0.181**						
TN	0.055	**0.210**					
ĐC	0.177	0.284	**0.078**				
ĐG	0.302	0.312	0.072	**0.188**			
ĐL	0.659	0.470	0.245	0.504	**0.482**		
ĐT	0.218	0.245	0.076	0.330	0.151	**0.496**	

Source: Authors' calculations using SmartPLS.

Overall, the measurement results provide adequate evidence of indicator reliability, internal consistency, convergent validity, and discriminant validity, supporting assessment of the structural model.

4.3. Structural model and hypothesis testing

The structural model explained 59.5% of the variance in employee work motivation (R^2 = 0.595; adjusted R^2 = 0.591). This indicates that the six predictors jointly account for a substantial proportion of the variance in employee work motivation (**Table 5**).

Table 5. Coefficient of determination (R^2) for employee work motivation.

	R-square	R-square adjusted
Work Motivation (ĐL)	0.595	0.591

Source: Authors' calculations using SmartPLS.

Effect-size analysis showed substantial variation in the relative contribution of the six predictors (**Table 6**).

Table 6. Effect sizes (f^2) of the predictors.

Predictor	**f^2**
CS -> ĐL	0.350
MT -> ĐL	0.054
TN -> ĐL	0.047
ĐC -> ĐL	0.109
ĐG -> ĐL	0.067
ĐT -> ĐL	0.101

Source: Authors' calculations using SmartPLS.

Perceived Digital Transformation (CS) showed the largest effect size (f^2 = 0.350), followed by Job Characteristics (ĐC; f^2 = 0.109) and Training and Promotion Opportunities (ĐT; f^2 = 0.101). Performance Appraisal and Recognition (ĐG), Work Environment and Working Conditions (MT), and Compensation and Benefits (TN) showed smaller effect sizes of 0.067, 0.054, and 0.047, respectively. Overall, Perceived Digital Transformation (CS) made the largest individual contribution to explaining the variance in employee work motivation (**Figure 2**).

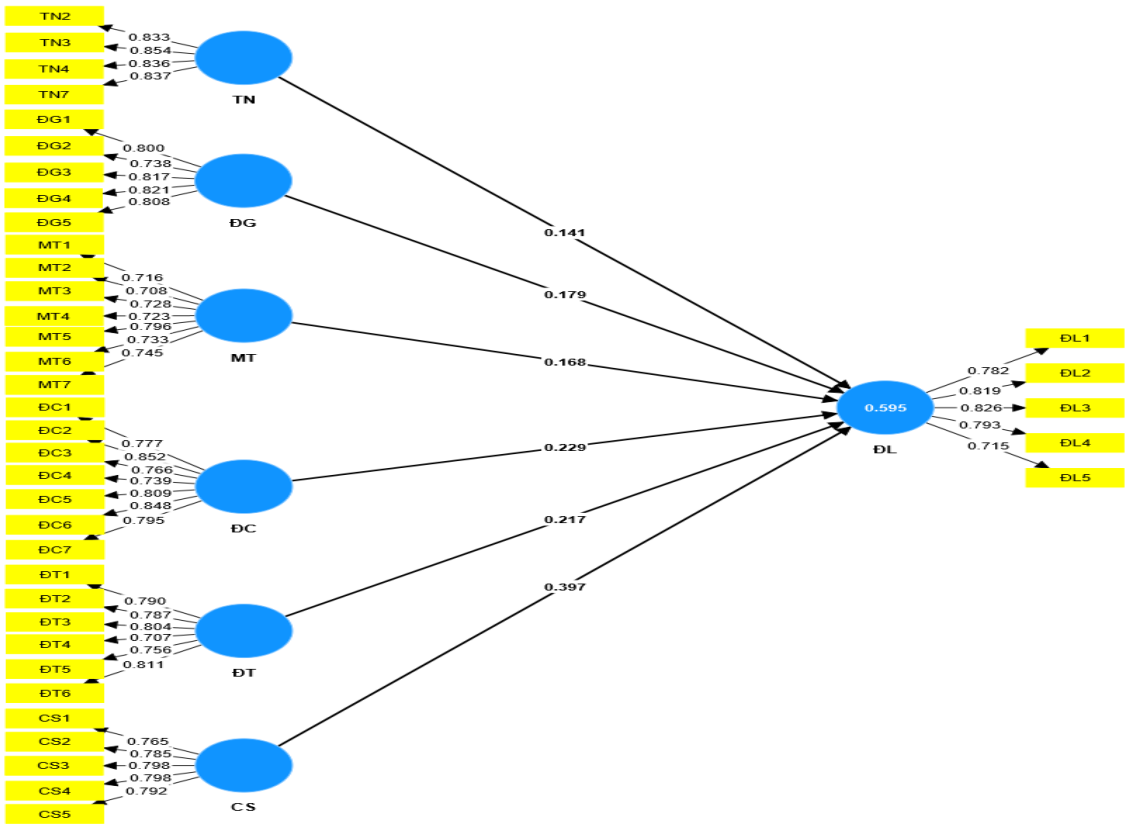


Figure 2. Results of the PLS-SEM structural model.

Source: Authors' calculations using SmartPLS.

Bootstrapping results supported all six hypotheses (**Table 7**). Perceived Digital Transformation (CS) showed the strongest positive association with work motivation (β = 0.397), followed by Job Characteristics (ĐC; β = 0.229), Training and Promotion Opportunities (ĐT; β = 0.217), Performance Appraisal and Recognition (ĐG; β = 0.179), Work Environment and Working Conditions (MT; β = 0.168), and Compensation and Benefits (TN; β = 0.141). All relationships were statistically significant at $p < 0.001$.

Table 7. Hypothesis testing results.

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Decision
CS -> ĐL	0.397	0.396	0.031	12.644	< 0.001	Supported
MT -> ĐL	0.168	0.169	0.032	5.268	< 0.001	Supported
TN -> ĐL	0.141	0.141	0.031	4.585	< 0.001	Supported
ĐC -> ĐL	0.229	0.227	0.031	7.280	< 0.001	Supported
ĐG -> ĐL	0.179	0.180	0.031	5.793	< 0.001	Supported
ĐT -> ĐL	0.217	0.217	0.030	7.233	< 0.001	Supported

Source: Authors' calculations using SmartPLS.

5. Discussion

The findings provide evidence that employee work motivation at Viglacera Corporation – JSC is associated with a combination of technology-related, job-related, developmental, and organizational factors. All six hypothesized relationships were positive and statistically significant, while the model accounted for 59.5% of the variance in employee work motivation ($R^2 = 0.595$). The relative magnitude of the path coefficients and effect sizes, however, differed considerably across the predictors. In particular, Perceived Digital Transformation (CS) showed the strongest positive association with work motivation (β = 0.397; $f^2 = 0.350$), followed by Job Characteristics (ĐC; β = 0.229; $f^2 = 0.109$) and Training and Promotion Opportunities (ĐT; β = 0.217; $f^2 = 0.101$).

Perceived Digital Transformation (CS)

The most notable finding is the strong positive association between Perceived Digital Transformation (CS) and employee work motivation. CS had the largest path coefficient (β = 0.397) and the largest effect size ($f^2 = 0.350$), indicating that it made the largest individual contribution among the six predictors in the estimated model. This finding is consistent with Chang and Yang [19], who, using three-wave data from 607 employees, found a positive relationship between enterprise digital transformation and employees' intrinsic motivation and further showed that justice perceptions played mediating roles. The present finding extends this evidence by examining employees' perceptions of technology-enabled changes within an industrial organization in Vietnam rather than focusing solely on enterprise-level digital transformation. The result is also consistent with the JD-R perspective developed in this study: when employees perceive digital technologies as facilitating task execution, information access, communication, coordination, or capability development, digitalization may be experienced as a work-related resource. However,

because the present study is cross-sectional, this interpretation should be understood as a theoretical explanation consistent with the observed association rather than evidence of a causal mechanism.

The particularly large relative contribution of CS also distinguishes the present findings from studies focusing primarily on conventional HR practices. The result suggests that, in the context of Viglacera's ongoing modernization, employees' perceptions of technology-enabled changes may constitute a particularly salient component of their motivational experience. This does not imply that digital transformation is universally more important than conventional HR practices. Rather, the relative magnitude observed in this specific organizational and empirical context indicates that technology-related changes may have become especially salient to employees. This interpretation is consistent with recent evidence from Vietnam showing that digital workforce training is positively associated with employee motivation in digitally transforming workplaces, although digital workforce training represents a narrower construct than the CS construct examined here.

Job Characteristics (ĐC)

Job Characteristics (ĐC) showed the second strongest positive association with work motivation ($\beta = 0.229$; $f^2 = 0.109$). This result is consistent with the Job Characteristics Model, which emphasizes meaningfulness, autonomy, task significance, and feedback as important motivational properties of work. It is also consistent with recent empirical evidence. Mariska et al. [15] reported a positive and significant relationship between job characteristics and work motivation among employees at PT Perkebunan Nusantara VI. Similarly, Luthfiani and Rijanti [16] found that job characteristics and job training were positively associated with motivation.

The relatively high coefficient for ĐC in the present study indicates that technological modernization does not appear to displace the motivational importance of job design. Instead, meaningful tasks, appropriate autonomy, opportunities to apply capabilities, and clear feedback may remain important aspects of employees' work experience while work processes are being digitalized. The result is consistent with a view in which technological change and job design represent complementary dimensions of employees' motivational environment.

Training and Promotion Opportunities (ĐT)

Training and Promotion Opportunities (ĐT) also showed a relatively strong positive association with work motivation ($\beta = 0.217$; $f^2 = 0.101$), ranking third among the six predictors. This finding is consistent with Nguyen and Le [17], who examined training and development and motivation among employees in Vietnam's consumer finance sector and found evidence linking training and development with employee motivation. It is also consistent with the more recent Vietnamese evidence reported by Dao et al. [20], which found that digital workforce training was positively associated with employee motivation, engagement, and adaptability among employees in Vietnamese SMEs.

The position of ĐT as the third strongest predictor is particularly relevant in a digital transformation context. As technologies and work processes change, employees may need to acquire new knowledge and skills, making opportunities for training and career development relevant to their motivational experience. At the same time, the present study does not directly test whether training operates through competence, career expectations, or another psychological mechanism. Therefore, the observed association is consistent with Self-Determination Theory's emphasis on

competence development, but the specific mechanism requires further investigation.

Performance Appraisal and Recognition (ĐG)

Performance Appraisal and Recognition (ĐG) was positively associated with work motivation ($\beta = 0.179$; $f^2 = 0.067$), although its relative contribution was smaller than those of CS, ĐC, and ĐT. This finding is consistent with Puspitasari [12], who found that financial incentives, performance appraisal systems, and employee recognition were each positively and significantly associated with work motivation among 300 start-up employees. The consistency across these settings supports the relevance of organizational recognition and performance feedback as motivational conditions.

The comparatively moderate coefficient in the present study may indicate that appraisal and recognition remain relevant but are not the most salient motivational conditions in the studied organization. In an environment undergoing digitalization, appraisal systems may become particularly relevant when they recognize employees' adaptation to changing work requirements and newly acquired capabilities. However, the current design does not allow us to determine whether such adaptation-related recognition is the mechanism underlying the observed relationship.

Work Environment and Working Conditions (MT)

Work Environment and Working Conditions (MT) showed a positive and statistically significant association with work motivation ($\beta = 0.168$; $f^2 = 0.054$). This finding is consistent with Hidayat and Heryjanto [14], who reported a positive and significant relationship between work environment and work motivation among employees of PT Global Loyalty Indonesia. It is also consistent with Obumneme and Ghapar [13], who identified workplace conditions, internal communication, organizational culture, wages, and work allowances as relevant factors associated with employee motivation.

Although MT had a smaller coefficient than CS, ĐC, and ĐT, its statistical significance indicates that the work environment remains a relevant component of employee motivation. This finding is consistent with the JD-R perspective, in which supportive working conditions can function as job resources that help employees deal with job demands. In an industrial setting, physical working conditions, operational support, communication, and workplace organization may therefore remain important even when employees increasingly interact with digital systems.

Compensation and Benefits (TN)

Compensation and Benefits (TN) had the smallest standardized path coefficient among the six predictors, although the relationship remained positive and statistically significant ($\beta = 0.141$; $f^2 = 0.047$). This result is broadly consistent with previous evidence showing that financial incentives remain relevant to employee motivation. For example, Puspitasari [12] found that financial incentives were positively associated with work motivation and had the strongest contribution among financial incentives, performance appraisal, and employee recognition in a start-up sample. Obumneme and Ghapar [13] likewise reported associations between financial incentives and employee motivation.

However, the relatively smaller coefficient for TN in the present study differs from Puspitasari's finding that financial incentives were the strongest of the three examined factors. This difference may reflect differences in organizational context, workforce characteristics, and the set of predictors included in each model. In the present study, compensation was assessed simultaneously with five other organizational and technology-related factors, including CS, ĐC, and ĐT. Therefore,

the smaller coefficient should not be interpreted as evidence that compensation is unimportant; rather, within this particular model and organizational context, its relative statistical contribution was lower than that of the other predictors.

Overall interpretation

Taken together, the findings indicate that employee work motivation in the studied organization is multidimensional. All six predictors were positively associated with work motivation, but their relative contributions differed substantially. Most notably, CS showed both the largest path coefficient and the largest effect size, while ĐC and ĐT were the next strongest predictors. The results therefore support an integrated perspective in which employees' motivational experiences during organizational modernization are associated not only with conventional HR practices but also with how they experience technology-enabled changes in their work.

The findings also provide an important qualification to a purely technology-centered interpretation of digital transformation. CS was the strongest predictor, but the significance of ĐC, ĐT, ĐG, MT, and TN indicates that digitalization does not replace established motivational conditions. Rather, the results suggest that technology-related changes coexist with job design, employee development, recognition, working conditions, and compensation as components of the broader motivational environment. Because the study uses cross-sectional data, these findings should be interpreted as associations rather than evidence that any of the six predictors causally produce changes in employee work motivation.

6. Conclusion

This study examined the factors associated with employee work motivation at Viglacera Corporation – JSC by integrating five established human resource factors with Perceived Digital Transformation (CS). Based on data from 506 employees and PLS-SEM analysis, all six hypothesized relationships were positive and statistically significant. Perceived Digital Transformation (CS) showed the strongest association with employee work motivation ($\beta = 0.397$; $f^2 = 0.350$), followed by Job Characteristics (ĐC; $\beta = 0.229$; $f^2 = 0.109$) and Training and Promotion Opportunities (ĐT; $\beta = 0.217$; $f^2 = 0.101$). Performance Appraisal and Recognition (ĐG), Work Environment and Working Conditions (MT), and Compensation and Benefits (TN) also showed positive and statistically significant associations, although their relative contributions were smaller.

The structural model accounted for 59.5% of the variance in employee work motivation ($R^2 = 0.595$; adjusted $R^2 = 0.591$). Overall, the findings indicate that employee work motivation in the studied organization is associated with a combination of technology-related, job-related, developmental, and conventional human resource conditions. In particular, the relatively strong position of CS suggests that employees' perceptions of digital transformation represent an important dimension of the motivational environment during organizational modernization.

Because the study uses cross-sectional data, the findings should be interpreted as associations rather than causal effects. The results nevertheless provide empirical evidence that Perceived Digital Transformation (CS) can be considered alongside established human resource factors when examining employee work motivation in a Vietnamese industrial context.

6.1. Theoretical implications

This study offers three main theoretical implications.

First, the findings support an integrated perspective on employee work

motivation by incorporating Perceived Digital Transformation (CS) alongside established human resource factors. Previous motivation perspectives emphasize conditions such as compensation, working conditions, job design, recognition, and employee development. The present findings indicate that employees' experiences of digital transformation can also be considered an important dimension of the contemporary motivational environment. This extends the analytical scope of traditional HR-oriented models without suggesting that digital transformation replaces established motivational factors.

Second, the relative magnitude of the estimated relationships provides evidence that the motivational relevance of these factors is not uniform. CS showed the largest path coefficient and effect size, while ĐC and ĐT ranked second and third, respectively. This pattern suggests that technology-related changes, job design, and employee development deserve simultaneous consideration when studying motivation in organizations undergoing digital transformation. At the same time, the significant relationships of ĐG, MT, and TN indicate that conventional HR conditions remain relevant. The findings are consistent with a complementary rather than substitutional view of digital transformation and established motivational conditions.

Third, the study contributes empirical evidence from a Vietnamese industrial organization, a context in which digital transformation takes place alongside established production systems and HR practices. The model explained 59.5% of the variance in work motivation, suggesting that the combination of technology-related and conventional organizational conditions provides substantial explanatory coverage within the studied setting. However, this finding should not be interpreted as evidence that the same relative ordering would necessarily occur in other industries or countries.

6.2. Managerial implications

The findings provide several implications for managers at Viglacera Corporation – JSC and similar industrial organizations undergoing digital transformation.

First, managers should treat digital transformation as an employee-experience issue as well as a technology issue. Perceived Digital Transformation (CS) showed the strongest association with work motivation ($\beta = 0.397$) and the largest effect size ($f^2 = 0.350$). Therefore, digital initiatives should be accompanied by measures that help employees understand new technologies, integrate them into their daily tasks, and develop the capabilities required by changing work processes. Communication and training should be aligned with the implementation of digital systems so that employees can better understand the relevance of technological changes to their work.

Second, managers should maintain attention to job design and work content. Job Characteristics (ĐC) was the second strongest predictor ($\beta = 0.229$; $f^2 = 0.109$). Jobs should provide appropriate opportunities to use employees' capabilities, meaningful responsibilities, appropriate autonomy, and clear feedback. When digitalization changes tasks or responsibilities, managers should review job roles and work processes rather than focusing exclusively on the technological system itself.

Third, training and promotion opportunities (ĐT) should be integrated with digital transformation. ĐT was the third strongest predictor ($\beta = 0.217$; $f^2 = 0.101$). Training programs should therefore address both current job requirements and emerging digital competencies. Where possible, training should also be connected with transparent career-development pathways so that employees can see how capability development relates to their longer-term opportunities within the organization.

Fourth, managers should strengthen performance appraisal and recognition (ĐG) during organizational change. Although its relative contribution was smaller than those of CS, ĐC, and ĐT, ĐG remained positively associated with work motivation ($\beta = 0.179$; $f^2 = 0.067$). Appraisal and recognition systems can therefore incorporate employees' adaptation to new work processes, acquisition of new capabilities, and contributions to digital implementation, alongside conventional performance criteria.

Fifth, work environment and working conditions (MT) and compensation and benefits (TN) should not be neglected because their smaller coefficients do not mean that these factors are unimportant. MT showed $\beta = 0.168$ and $f^2 = 0.054$, while TN showed $\beta = 0.141$ and $f^2 = 0.047$. Managers should therefore continue to maintain safe and supportive working conditions and equitable compensation while developing the technology-related and developmental conditions identified as relatively stronger predictors in this study.

Overall, the managerial implication is not to prioritize technology at the expense of conventional HR practices. Rather, the results suggest a combined approach in which digital transformation, meaningful job design, employee development, recognition, supportive working conditions, and equitable rewards are managed as interconnected elements of the employee experience.

6.3. Limitations and future research

Several limitations should be acknowledged. First, the study was conducted within a single corporation, which may limit the generalizability of the findings to other organizations and industries. Future research could replicate the model across different organizational and industrial contexts.

Second, the cross-sectional design does not permit causal inference or capture changes in employee motivation over time. Longitudinal studies could examine how these relationships evolve during different stages of digital transformation.

Third, the model includes six predictors and does not capture all potential determinants of employee work motivation. Future research could incorporate additional factors such as digital competence, leadership, perceived organizational support, and organizational culture.

Fourth, although Perceived Digital Transformation (CS) showed the strongest association with work motivation, the mechanisms underlying this relationship were not examined. Future studies could test relevant mediating or moderating mechanisms.

Finally, all quantitative constructs were measured using self-reported data collected through the same questionnaire, which may introduce common method variance. Future research could employ multi-source or temporally separated data to further address this concern.

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Informed consent statement: Consent to participate was obtained through respondents' voluntary completion and submission of the questionnaire. No separate written consent form was collected because the study involved a voluntary, anonymous, non-interventional questionnaire and no directly identifying personal information was collected

Data Availability Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request, subject to applicable institutional and confidentiality requirements.

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References

1. Vial G. Understanding digital transformation: A review and a research agenda. The Journal of Strategic Information Systems. 2019; 28(2): 118–144. https://doi.org/10.1016/j.jsis.2019.01.003
2. Bakker AB, Demerouti E. The job demands-resources model: State of the art. Journal of Managerial Psychology. 2007; 22(3): 309–328. https://doi.org/10.1108/02683940710733115
3. Tarafdar M, Cooper CL, Stich J-F. The technostress trifecta: Techno-eustress, techno-distress and design. Information Systems Journal. 2019; 29(1): 6–42. https://doi.org/10.1111/isj.12169
4. Pinder CC. Work motivation in organizational behavior. 2nd ed. Psychology Press; 2014.
5. Judge TA, Thoresen CJ, Bono JE, Patton GK. The job satisfaction–job performance relationship: A qualitative and quantitative review. Psychological Bulletin. 2001; 127(3): 376–407. https://doi.org/10.1037/0033-2909.127.3.376
6. Kanfer R, Frese M, Johnson RE. Motivation related to work: A century of progress. Journal of Applied Psychology. 2017; 102(3): 338–355. https://doi.org/10.1037/apl0000133
7. Herzberg F. The motivation to work. 2nd ed. John Wiley & Sons; 1959.
8. Hackman JR, Oldham GR. Motivation through the design of work: Test of a theory. Organizational Behavior and Human Performance. 1976; 16(2): 250–279. https://doi.org/10.1016/0030-5073(76)90016-7
9. Vroom VH. Work and motivation. John Wiley & Sons; 1964.
10. Deci EL, Ryan RM. The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. Psychological Inquiry. 2000; 11(4): 227–268. https://doi.org/10.1207/S15327965PLI1104_01
11. Adams JS. Inequity in social exchange. In: Berkowitz L, editor. Advances in Experimental Social Psychology. Vol. 2. Academic Press; 1965. pp. 267–299. https://doi.org/10.1016/S0065-2601(08)60108-2
12. Puspitasari MD. Effects of financial incentives, performance appraisal, and employee recognition on work motivation of start-up employee. International Journal of Business, Law, and Education. 2024; 5(2): 1812–1823. https://doi.org/10.56442/ijble.v5i2.742
13. Obumneme OS, Ghapar F. A study on the impact of financial incentives and work environment on employee motivation to work: A case study of employees of Paradise Estate Management Company. International Journal of Management, Finance and Accounting. 2024; 5(2): 1–25. https://doi.org/10.33093/ijomfa.2024.5.2.1
14. Hidayat R, Heryjanto A. The influence of career development, work environment, and rewards on employee performance mediated by work motivation (Empirical study: Employees at PT Global Loyalty Indonesia). Devotion: Journal of Research and Community Service. 2024; 5(9): 1062–1080. https://doi.org/10.59188/devotion.v5i9.784
15. Mariska ATP, Sumarni S, Willian R. The influence of job characteristics on employee performance with work motivation as an intervening variable at PT. Perkebunan Nusantara VI. Journal of Management and Innovation Entrepreneurship. 2024;

1(3): 455–462. https://doi.org/10.59407/jmie.v1i3.575

16. Luthfiani I, Rijanti T. The mediating role of motivation on the relationship of job characteristics and job training on employee performance. Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE). 2025; 8(3): 15354–15370. https://doi.org/10.31538/iijse.v8i3.8467
17. Nguyen HTN, Le ND. The impact of training and development, motivation on in-role job performance and employee creativity in Vietnam's consumer finance sector. Ho Chi Minh City Open University Journal of Science – Economics and Business Administration. 2025; 15(6): 40–56. https://doi.org/10.46223/HCMCOUJS.econ.en.15.6.3899.2025
18. Aditya IPKR, Pio RJ, Rumawas W. Effect of training and career development on motivation and employee performance. International Journal of Science and Society. 2024; 6(1): 62–81. https://doi.org/10.54783/ijsoc.v6i1.996
19. Chang X, Yang J. The impact of enterprise digital transformation on employees' intrinsic motivation: The mediating role of justice perceptions. Frontiers in Psychology. 2025; 16: 1544103. https://doi.org/10.3389/fpsyg.2025.1544103
20. Dao THA, Sisavath C, Bui HTT, Bui TQ, Le TH. Digital workforce training, employee motivation, job satisfaction, digital behavior as determinants of employee performance: Empirical research from Vietnam. SAGE Open. 2025; 15(4): 1–20. https://doi.org/10.1177/21582440251395698
21. Hair JF, Hult GTM, Ringle CM, Sarstedt M. A primer on partial least squares structural equation modeling (PLS-SEM). 2nd ed. Sage Publications; 2017.
22. Hair JF, Black WC, Babin BJ, Anderson RE. Multivariate data analysis. 7th ed. Pearson; 2016.
23. Fornell C, Larcker DF. Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research. 1981; 18(1): 39–50. https://doi.org/10.1177/002224378101800104
24. Henseler J, Ringle CM, Sarstedt M. A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science. 2015; 43(1): 115–135. https://doi.org/10.1007/s11747-014-0403-8

SUPPLEMENTARY MATERIALS

Employee Work Motivation in the Era of Digital Transformation: Evidence from Viglacera Corporation – JSC, Vietnam

Manuscript ID: HRMS-6341

Purpose of the supplementary materials. This document provides supporting materials for the qualitative phase of the study and the subsequent expert consultation used to assess the contextual relevance, face validity, clarity, and contextual appropriateness of the proposed measurement instrument. The material is based on the original in-depth interview summary (Appendix 7) and expert consultation table (Appendix 8).
Note on scope. The HL (job satisfaction) items contained in the original expert-consultation appendix are not reproduced here because they were not included in the final PLS-SEM model.

Supplementary Material S1. Summary of In-Depth Interviews

The qualitative phase involved semi-structured interviews with managers and employees from Viglacera Corporation – JSC and affiliated units. The interviews addressed work motivation and the organizational, job-related, and technology-enabled conditions perceived as relevant to employees' motivation. Interviews were conducted face-to-face or online and lasted approximately 20–30 minutes. The following table presents a structured English summary of the interview evidence.

No.	Interview topic	Summary of interview evidence	Relevant construct(s)
1	Work satisfaction/ attachment	A head-office manager reported that employees were generally proud to work for Viglacera and wanted to remain with the organization, partly because work arrangements were compatible with family life. A ceramics worker reported trying to complete assigned tasks and expressed a desire for more timely recognition and better compensation to feel secure and remain committed.	Work motivation; compensation and benefits; work–family balance
2	Work motivation	A manager at Viglacera Hanoi reported that employees actively proposed creative ideas and work improvements, particularly during organizational restructuring. An employee at Viglacera Dong Anh described being motivated by technical problem solving, reducing defects, increasing productivity, learning and applying new technologies, and contributing to organizational sustainability and production efficiency.	Employee work motivation; job characteristics; digital transformation
3	Income and benefits	A manager at Viglacera Thai Nguyen reported timely salary payments and full implementation of benefits, while noting concerns about perceived pay fairness among employees in similar positions and the need to align income and benefits with employees' contributions and current living costs. An employee at Viglacera Thang Long similarly identified income and benefits as important motivational conditions and noted concerns about differences in workload and income among employees in similar positions.	Compensation and benefits (TN)

Continuation Table:

No.	Interview topic	Summary of interview evidence	Relevant construct(s)
4	Work environment and working conditions	An employee at Dap Cau Glass reported managerial concern, respect for employee opinions, opportunities to contribute ideas, and friendly and cooperative colleagues, together with safe working conditions. An infrastructure employee noted that outdated computers reduced work-processing speed and suggested upgrading work tools.	Work environment and working conditions (MT)
5	Job characteristics	A production worker at Viglacera Tien Son described repetitive work with limited opportunities for creativity but recognized that delays in one stage affected subsequent stages and therefore tried to complete tasks well. A technology technician at Viglacera Thang Long described responsibility for operating, supervising, and optimizing technical processes, solving equipment problems, and applying new technologies, with work outcomes affecting subsequent production stages.	Job characteristics (ĐC)
6	Performance appraisal and recognition	An employee at Viglacera Consulting reported that annual performance evaluations were relatively accurate and reflected individual contributions. An employee at Viglacera Trading suggested more timely recognition because outstanding monthly business results were sometimes only recognized at the formal evaluation stage.	Performance appraisal and recognition (ĐG)
7	Training and promotion opportunities	An infrastructure employee reported opportunities for learning, annual training, soft-skills and leadership training, and internal promotion. A worker at Viglacera Thanh Tri described initial safety and operational training and expressed a desire for further promotion based on continued effort and performance.	Training and promotion opportunities (ĐT)
8	Digital transformation	An employee at Vietnam Float Glass reported that digital transformation increased work-processing speed and accuracy. The organization communicated the purpose of digital transformation, provided training, and collected employee input during implementation. The employee also noted an initial need for additional time to verify data. A manager at Tu Liem described automated kiln technology as reducing exposure to harmful conditions and improving work speed, while emphasizing the need for additional training to help employees adapt to new technologies.	Perceived Digital Transformation (CS)

S1.1. Key Themes Emerging from the Interviews

Theme	Key theme	Evidence summarized from interviews	Construct
1	Compensation, benefits, and perceived fairness	Participants discussed timely pay, benefits, perceived fairness, alignment between income and contributions, and differences in workload among employees in similar positions.	TN

Continuation Table:

Theme	Key theme	Evidence summarized from interviews	Construct
2	Supportive and safe working environment	Participants emphasized managerial support, employee voice, collegial cooperation, workplace safety, and adequate working tools and facilities.	MT
3	Job characteristics and opportunities for contribution	Participants referred to task responsibility, the effect of individual work on subsequent processes, problem solving, learning, technology use, and opportunities for creativity.	ĐC
4	Performance appraisal and timely recognition	Participants described the perceived accuracy of performance evaluation and the importance of timely recognition and rewards for outstanding performance.	ĐG
5	Training and career advancement	Participants discussed initial and periodic training, skills development, leadership training, and opportunities for internal promotion.	ĐT
6	Employee experience of digital transformation	Participants associated digital transformation with faster processing, greater accuracy, improved efficiency and working conditions, while also identifying training, communication, and initial adjustment requirements.	CS
7	Work motivation	Participants described effort, persistence, problem solving, learning, proactive ideas, contribution, and commitment to organizational objectives.	ĐL

Role in instrument development. The interview themes were used to assess whether the proposed constructs and measurement items adequately reflected employees' experiences in the organizational and industrial context of Viglacera. The subsequent expert consultation was used to review item wording and contextual appropriateness before the quantitative survey.

Supplementary Material S2. Expert Consultation and Measurement-Item Refinement

Twenty experts reviewed the proposed measurement items. For each item, the table reports the number of experts who agreed, the number who disagreed, whether an adjustment was recommended, the agreement rate, and the final wording retained for the study. Only constructs included in the final quantitative model are reported here.

Code	Item reviewed	Agree	Disagree	Adjusted?	Agreement	Final wording
TN1	Fairness of salary payments among employees	20/20	–	No	100%	Salary is paid fairly among employees
TN2	Income level and benefits policy are good	20/20	–	No	100%	Income level and benefits policy are good
TN3	Current salary is commensurate with the work performed	20/20	–	No	100%	Current salary is commensurate with the work performed

Continuation Table:

Code	Item reviewed	Agree	Disagree	Adjusted?	Agreement	Final wording
TN4	Compensation policy is comparable with organizations in the same field	20/20	–	No	100%	Compensation policy is comparable with organizations in the same field
TN5	Salary, bonus, and benefits policies are fair and reasonable	20/20	–	No	100%	Salary, bonus, and benefits policies are fair and reasonable
TN6	Benefits are provided on time	20/20	–	No	100%	Benefits are provided on time
TN7	The company pays salaries on time as committed in employment contracts	20/20	–	No	100%	The company pays salaries on time as committed in employment contracts
MT1	Working conditions are appropriate, airy, and clean	20/20	–	No	100%	Working conditions are appropriate, airy, and clean
MT2	I am provided with adequate physical facilities to perform my work	20/20	–	No	100%	I am provided with adequate physical facilities to perform my work
MT3	Working conditions ensure occupational safety	20/20	–	No	100%	Working conditions ensure occupational safety
MT4	Working and rest time are reasonable	20/20	–	No	100%	Working and rest time are reasonable
MT5	Colleagues are friendly and cooperative	20/20	–	No	100%	Colleagues are friendly and cooperative
MT6	Supervisors respect employees and treat them fairly	20/20	–	No	100%	Supervisors respect employees and treat them fairly
MT7	Leaders encourage and motivate employees when they perform well or make progress	20/20	–	No	100%	Leaders encourage and motivate employees when they perform well or make progress
ĐC1	The job allows employees to make good use of their personal abilities	20/20	–	No	100%	The job allows employees to make good use of their personal abilities
ĐC2	My manager always provides feedback on my work performance	20/20	–	No	100%	My manager always provides feedback on my work performance
ĐC3	My job allows me to be proactive and independent in choosing how to perform the work	19/20	–	Yes	95%	My job allows me to be proactive and independent in choosing how to perform the work

Continuation Table:

Code	Item reviewed	Agree	Disagree	Adjusted?	Agreement	Final wording
ĐC4	My job gives me the opportunity to complete all parts of a task from beginning to end	20/20	–	No	100%	My job gives me the opportunity to complete all parts of a task from beginning to end
ĐC5	The extent to which my work is completed affects many other people	19/20	–	Yes	95%	The extent to which my work is completed affects many other people
ĐC6	I have opportunities to learn many new things in my work	20/20	–	No	100%	I have opportunities to learn many new things in my work
ĐC7	I have opportunities to demonstrate creativity in my work	20/20	–	No	100%	I have opportunities to demonstrate creativity in my work
ĐC8	My job helps me develop social relationships	20/20	–	No	100%	My job helps me develop social relationships
ĐG1	Performance-appraisal criteria are clear and reasonable	20/20	–	No	100%	Performance-appraisal criteria are clear and reasonable
ĐG2	Recognition of achievements at work is provided in a timely manner	20/20	–	No	100%	Recognition of achievements at work is provided in a timely manner
ĐG3	Performance appraisal is conducted fairly among employees	20/20	–	No	100%	Performance appraisal is conducted fairly among employees
ĐG4	The performance-appraisal process is public and consistent for all employees	20/20	–	No	100%	The performance-appraisal process is public and consistent for all employees
ĐG5	Performance-appraisal results accurately reflect work performance	20/20	–	No	100%	Performance-appraisal results accurately reflect work performance
ĐG6	Performance-appraisal results provide a basis for salary and rewards	20/20	–	No	100%	Performance-appraisal results provide a basis for salary and rewards
ĐT1	I have opportunities to participate in courses that improve my qualifications and work skills	20/20	–	No	100%	I have opportunities to participate in courses that improve my qualifications and work skills
ĐT2	The company has a fair and transparent promotion policy	20/20	–	No	100%	The company has a fair and transparent promotion policy

Continuation Table:

Code	Item reviewed	Agree	Disagree	Adjusted?	Agreement	Final wording
ĐT3	The company provides employees with opportunities for promotion and development	20/20	–	No	100%	The company provides employees with opportunities for promotion and development
ĐT4	Training formats are diverse and varied	20/20	–	No	100%	Training formats are diverse and varied
ĐT5	I have opportunities for rapid promotion	20/20	–	No	100%	I have opportunities for rapid promotion
ĐT6	The knowledge and skills provided through training are useful for my current and future work	20/20	–	No	100%	The knowledge and skills provided through training are useful for my current and future work
CS1	Digital transformation will increase productivity and work quality	20/20	–	No	100%	Digital transformation will increase productivity and work quality
CS2	Digital transformation will save time and effort	20/20	–	No	100%	Digital transformation will save time and effort
CS3	The company empowers employees to participate in decision-making related to digital transformation	20/20	–	No	100%	The company empowers employees to participate in decision-making related to digital transformation
CS4	The company provides training programs to equip employees with skills to use digital tools	18/20	–	Yes	90%	The company provides training programs to equip employees with skills to use digital tools
CS5	The company communicates adequately with employees about digital transformation	20/20	–	No	100%	The company communicates adequately with employees about digital transformation
ĐL1	I strive to complete my work despite difficulties	18/20	–	Yes	90%	I strive to complete my work
ĐL2	I am willing to start work early or stay late to complete my work	20/20	–	No	100%	I am willing to start work early or stay late to complete my work
ĐL3	I feel driven by the work I am doing	20/20	–	No	100%	I feel driven by the work I am doing
ĐL4	I voluntarily study and improve my professional skills to meet work requirements	20/20	–	No	100%	I voluntarily study and improve my professional skills to meet work requirements
ĐL5	I actively make suggestions to improve work effectiveness	20/20	–	No	100%	I actively make suggestions to improve work effectiveness

S2.1. Items Revised Following Expert Consultation

Code	Version	Wording
ĐC3	Original wording	My job allows me freedom and independence in the way I perform my work and the methods I use.
ĐC3	Revised wording	My job allows me to be proactive and independent in choosing how to perform the work.
ĐC5	Original wording	The work I do, and the extent to which it is completed, affects many other people.
ĐC5	Revised wording	The extent to which my work is completed affects many other people.
CS4	Original wording	The company provides training programs for employees on the skills necessary to use digital tools effectively.
CS4	Revised wording	The company provides training programs to equip employees with skills to use digital tools.
ĐL1	Original wording	I strive to complete my work to the best of my ability regardless of difficulties.
ĐL1	Revised wording	I strive to complete my work.

I**nterpretive note.** The interview phase established the contextual relevance of the proposed constructs, while the expert consultation provided the documented basis for specific wording adjustments. Four items (ĐC3, ĐC5, CS4, and ĐL1) were revised; all other reported items received 100% agreement and were retained without wording changes.

S2.2. Supplementary Note on Perceived Digital Transformation (CS)

The qualitative and expert-review evidence supports an employee-centered interpretation of Perceived Digital Transformation (CS). Interview participants associated digital transformation with increased processing speed and accuracy, reduced effort or exposure to harmful working conditions in some contexts, communication about implementation, employee input, and training. Participants also reported an initial need for additional adjustment and verification when new digital technologies were introduced. The expert review retained five CS items, with CS4 revised to emphasize training that equips employees with skills to use digital tools.

Source Note

This supplementary document was prepared from the study's original Appendix 7 (Summary of In-Depth Interviews) and Appendix 8 (Summary of Expert Consultation for Measurement-Scale Refinement). English wording is a faithful translation and structured presentation of the supplied materials; no additional interview participants, frequencies, coding statistics, or empirical results have been added.