

Strategic Business Planning for Optimizing Work Atmosphere, Employee Participation, and Workforce Efficiency in Manufacturing Industries

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Abstract

This study aims to analyze the strategic role of corporate initiatives in improving work climate, enhancing employee engagement, and increasing workforce productivity within the manufacturing industry. Employing a descriptive research design, data were obtained through structured surveys and in-depth interviews with employees from several manufacturing firms. The study identifies key strategic factors namely open internal communication, consistent employee recognition, provision of adequate workplace infrastructure, and ergonomic optimization as primary drivers of a positive organizational climate. A particular emphasis is placed on the GNB-04 machine, a high-efficiency industrial tool frequently used in production lines. Ergonomic improvements and proper maintenance of this equipment have been found to significantly reduce physical strain, thereby enhancing employee safety, comfort, and operational performance. The integration of human-centered design principles with strategic equipment use underscores the importance of aligning corporate strategy with both technological and human resource considerations. The research findings demonstrate that a well-structured corporate strategy that prioritizes employee well-being can substantially improve motivation, job satisfaction, and long-term workforce effectiveness. Moreover, companies that proactively foster a positive work environment experience not only improved individual performance but also organizational resilience and sustainable productivity. This study contributes to the broader discourse on strategic human resource management and operational excellence by offering empirical evidence on the synergistic impact of workplace climate and engagement strategies. The practical implications highlight the necessity for manufacturing leaders to formulate policies that holistically address both technological advancement and psychosocial workplace dynamics. Investing in such integrated strategies is essential for achieving a sustained competitive advantage in the global manufacturing landscape.

Keywords: Company Strategy; Employee Satisfaction; Employee Performance; Manufacturing Industry; GNB-04 Machine

Introduction

In the modern business landscape, especially in the manufacturing sector, achieving competitive advantage requires more than just operational efficiency and technological advancement. One critical yet sometimes overlooked factor is the internal environment where employees perform their tasks daily. A positive workplace is one that can inspire, motivate, and support individuals in performing to the best of their abilities in their professions, leading to optimal results (Seta, 2020). The work environment also influences employee performance in addition to organizational assistance (Ratnasari et al., 2023).

Therefore, it becomes crucial for companies to implement strategic efforts that focus not only on profit-making but also on creating an environment conducive to employee well-being. Employee satisfaction has long been identified as a key driver of organizational performance. Additionally, employee engagement is the main determinant of organizational commitment. The other factor that affects organizational commitment is job satisfaction (Sivaram et al., 2019). In the manufacturing industry, where routine tasks and physical demands are prevalent, addressing workplace conditions, ergonomics, and psychological safety becomes even more significant.

Strategic planning that integrates employee needs into company goals can help bridge the gap between operational goals and human resource potential. One such strategic effort is the implementation and optimization of modern machinery, such as the GNB 04 machine. The GNB 04 is known for its operational efficiency and ergonomic design, which reduces the physical strain on workers and enhances safety during production processes. Its automated features allow employees to focus on supervisory and value-added tasks, contributing to higher satisfaction levels and reduced fatigue. Integrating advanced equipment like the GNB 04 is not only a move toward innovation but also a practical response to improving the overall work environment.

In examining how such strategies are operationalized at the organizational level, this study focuses on PT. Tjiwi Kimia as a representative case. The company was selected due to its long-standing reputation in the manufacturing sector and its recent initiatives aimed at enhancing employee performance and well-being through workplace innovation. Rather than offering a general profile of the firm, this research concentrates on specific aspects of its human resource management practices and productivity strategies that align with the study's core objectives.

By investigating PT. Tjiwi Kimia's approach to implementing ergonomic technology and fostering a positive work climate, this study seeks to provide practical insights into how corporate strategy can effectively bridge technological advancement and employee-centric development in a competitive industrial context. PT. Pabrik Kertas Tjiwi Kimia Tbk, commonly known as Tjiwi Kimia, stands as one of the largest and most reputable paper manufacturers in Indonesia. Located in Sidoarjo, East Java, the company was founded in 1972 and has since evolved into a prominent player in the global paper and pulp industry.

PT. Tjiwi Kimia Tbk. and PT. Indah Kiat Pulp and Paper Tbk. are among the top firms in Indonesia's pulp and paper sector. These companies have been in operation for over ten years and possess significant production capabilities. As a key member of Asia Pulp and Paper (APP), one of the world's leading pulp and paper companies, Tjiwi Kimia plays a significant role in the production and distribution of a wide variety of paper products such as photocopy paper, coated and carbonless, in addition this company also produces various kinds of stationery and office supplies such as notebooks, memos, notepads, envelopes and others. office supplies and other chemicals (Anantia et al., 2023).

These include writing paper, printing paper, packaging materials, stationery products, and other paper-based items that are exported to over 120 countries around the world. Since its establishment, Tjiwi Kimia has committed itself to meeting the growing demand for high-quality paper products both domestically and internationally. The company's massive manufacturing facilities are equipped with modern technologies and high-capacity machines, enabling efficient production while maintaining consistency in product quality.

The integration of advanced machinery and cutting-edge processing systems ensures that Tjiwi Kimia can continuously innovate and adapt to market trends and customer expectations. One of the core strengths of Tjiwi Kimia is its ability to diversify its product offerings to cater to various market needs. From traditional paper forms to value-added paper products such as notebooks, exercise books, envelopes, and packaging solutions, the company delivers both functional and customized products that support businesses, education, printing, and packaging industries.

Tjiwi Kimia's brand reputation is built on a foundation of durability, performance, and visual appeal, making its paper products highly sought after in both developed and emerging markets. As a company operating under the umbrella of Asia Pulp & Paper, Tjiwi Kimia is deeply committed to sustainable and responsible business practices. The company implements strict environmental management systems and follows global best practices in sustainable forest management, energy efficiency, and waste reduction. Tjiwi Kimia emphasizes the importance of sourcing raw materials responsibly, ensuring that its pulp supply chain complies with national and international environmental standards.

The adoption of clean and efficient manufacturing processes helps to minimize the environmental impact of its operations while also contributing to the circular economy. Moreover, the link between a well-structured work environment and business outcomes has been widely acknowledged in recent studies. Attaining high performance is closely linked to the standard of quality in human resources (Pardamean, 2022). These strategies, when consistently implemented alongside technological improvements such as GNB 04 machine utilization, foster a culture of trust, innovation, and accountability that supports sustainable growth in the manufacturing sector.

This study aims to examine the strategic initiatives undertaken by manufacturing companies to enhance the work environment and their impact on employee satisfaction and performance. It explores how internal improvements including the introduction of advanced machinery like the GNB 04 contribute to better business outcomes and provides empirical insights that can guide future managerial decisions. By focusing on the human and technological dimensions of organizational strategy, this research underlines the importance of aligning workplace conditions with business goals to drive long-term success.

Method

This study employs a quantitative research methodology, integrating both descriptive and associative research designs to systematically explore the influence of corporate strategy on various organizational outcomes, namely work climate, employee engagement, and productivity, within the context of PT. Pabrik Kertas Tjiwi Kimia Tbk, located in Sidoarjo, East Java. The research process commenced with the collection of primary data through a structured questionnaire, meticulously developed to capture key dimensions of the organizational environment. The distribution of the questionnaire targeted employees actively involved in production activities, selected through purposive sampling to ensure that the data collected were both contextually relevant and representative of operational realities. The questionnaire comprised closed-ended items designed to assess perceptions related to internal communication, ergonomic quality of the workplace, and overall job satisfaction. Complementing the survey, direct field observations were conducted using a systematic checklist to evaluate environmental conditions within the factory. These observations focused on critical indicators of occupational health and safety, such as lighting sufficiency in operational zones, ambient temperature levels affected by machinery usage, the effectiveness of ventilation systems,

and the extent of noise exposure in the production area. In addition to environmental factors, the study also examined the company's approach to employee motivation, categorizing incentives according to Maslow's hierarchy of needs. This included an analysis of safety-related benefits (e.g., BPJS and workplace accident insurance), the availability of physiological support mechanisms (e.g., holiday allowances, overtime compensation), the provision of social and esteem-based rewards (e.g., recognition programs and performance bonuses), and opportunities for self-actualization (e.g., professional development and training). These dimensions were cross-referenced with observational findings and employee demographics to provide a comprehensive understanding of motivational efficacy. The analysis phase began with descriptive statistics to summarize the distributional properties of the data and to identify general trends across the various variables. This was followed by inferential statistical techniques, particularly multiple linear regression analysis, to model the strength and direction of relationships between corporate strategic variables and employee productivity. The methodological design and sequence were deliberately structured to ensure the internal consistency of findings, methodological rigor, and analytical depth, thereby enabling valid conclusions and actionable recommendations for improving organizational performance.

Result dan Discussions

1. Measuring Employee

Due to the potential influence of variables such as age, educational attainment, duration of work experience, and marital status on overall job satisfaction, the respondents were categorized into high and low groups. This classification was intended to facilitate an analysis of how these demographic factors impact the respondents' perceived job satisfaction. The observation of personal factors among employees at PT. Pabrik Kertas Tjiwi Kimia Tbk reveals a diverse demographic composition, which has a significant impact on workplace dynamics and management strategies. The workforce spans a broad age range, from 15 to 55 years, indicating a blend of youthful energy and mature experience. This age diversity can contribute positively to knowledge transfer, although it may also require tailored communication and motivation approaches. In terms of education, the presence of workers with varying educational levels from basic literacy to graduates highlights the importance of adaptable training programs to ensure that all employees can effectively perform their roles. Work experience also varies widely, with employees ranging from 1 to over 21 years of service, suggesting a strong potential for mentoring and leadership development within the company.

The majority of the workforce are general workers, with a smaller portion in supervisory roles such as foremen, which may influence the overall decision-making and communication structure in the production environment. Gender diversity is present, with both male and female workers contributing to operations, and marital status is also balanced between married and unmarried individuals, which can affect employees' personal needs and work-life balance. Understanding these personal factors is essential for creating a supportive, inclusive, and productive work environment that aligns with both individual and organizational goals.

2. Respondent Characteristic

The characteristics of respondents in this study highlight the demographic diversity of employees at PT. Pabrik Kertas Tjiwi Kimia Tbk, categorized by gender, age, educational background, and length of employment. The gender distribution shows that the majority of the workforce is male, with 29 male respondents (55.8%) and 23 female

respondents (44.2%). This gender balance suggests that the company provides employment opportunities for both men and women, though there remains a slight male dominance. The age distribution of employees is fairly balanced, with 28.8% under 25 years old, 23.1% aged 26-30, another 23.1% in the 31-35 age group, and 25% aged 36-40. This spread reflects a mix of early-career and more experienced employees, which can benefit teamwork, innovation, and mentorship within the organization.

In terms of educational background, the workforce consists of varying levels of academic achievement. A significant portion (38.5%) of employees have completed high school (SMA or equivalent), while 25% hold a Diploma III, and 36.5% possess a Bachelor's degree (S1). This diversity in educational attainment indicates that the company recruits employees from various academic levels, creating a workforce with both practical skills and theoretical knowledge. Regarding length of employment, 19.2% of employees have worked for less than one year, 44.2% for 1 to 3 years, and 36.5% for more than three years.

The high percentage of employees with over a year of experience reflects a relatively stable workforce with institutional knowledge and operational familiarity. Overall, the demographic profile of respondents suggests that PT. Pabrik Kertas Tjiwi Kimia Tbk maintains a balanced and diverse workforce in terms of gender, age, education, and work experience. This diversity plays a crucial role in fostering an inclusive and productive work environment that supports both individual growth and organizational performance.

Table 1. Validity Test of Work Environment Variables

No	Statement	r-calculated	r-table	Result
1	The workplace lighting is sufficient and well-maintained.	0.39	0.273	Valid
2	Adequate lighting at the workplace enables me to carry out tasks effectively.	0.536	0.273	Valid
3	The ambient temperature in the workplace does not hinder my comfort during work.	0.276	0.273	Valid
4	The air quality within the workspace is adequate to support work-related activities.	0.684	0.273	Valid
5	The factory's ventilation system is sufficient to facilitate my work activities.	0.763	0.273	Valid
6	I believe the amount of air circulation in the workspace is proportional to the number of employees present.	0.515	0.273	Valid
7	The air quality in the vicinity of my workstation is unsatisfactory	0.724	0.273	Valid
8	My workplace is located in an area with minimal noise disturbances.	0.742	0.273	Valid
9	Excessive machine noise interferes with my concentration during work.	0.626	0.273	Valid
10	I experience discomfort due to mechanical vibrations in the work environment	0.594	0.273	Valid

Table 2. Validity Test of Motivation Variables

No	Statement	r-calculated	r-table	Result
1	The workplace lighting is sufficient and well-maintained.	0.486	0.273	Valid
2	Adequate lighting at the workplace enables me to carry out tasks effectively.	0.496	0.273	Valid
3	The ambient temperature in the workplace does not hinder my comfort during work.	0.4	0.273	Valid
4	The air quality within the workspace is adequate to support work-related activities.	0.387	0.273	Valid
5	The factory's ventilation system is sufficient to facilitate my work activities.	0.287	0.273	Valid
6	I believe the amount of air circulation in the workspace is proportional to the number of employees present.	0.504	0.273	Valid
7	The air quality in the vicinity of my workstation is unsatisfactory	0.607	0.273	Valid
8	My workplace is located in an area with minimal noise disturbances.	0.581	0.273	Valid
9	Excessive machine noise interferes with my concentration during work.	0.462	0.273	Valid
10	I experience discomfort due to mechanical vibrations in the work environment	0.574	0.273	Valid

Table 3. Validity Test of Employee Performance Variables

No	Statement	r-calculated	r-table	Result
1	The workplace lighting is sufficient and well-maintained.	0.413	0.273	Valid
2	Adequate lighting at the workplace enables me to carry out tasks effectively.	0.464	0.273	Valid
3	The ambient temperature in the workplace does not hinder my comfort during work.	0.36	0.273	Valid
4	The air quality within the workspace is adequate to support work-related activities.	0.328	0.273	Valid
5	The factory's ventilation system is sufficient to facilitate my work activities.	0.643	0.273	Valid
6	I believe the amount of air circulation in the workspace is proportional to the number of employees present.	0.545	0.273	Valid

7	The air quality in the vicinity of my workstation is unsatisfactory	0.697	0.273	Valid
8	My workplace is located in an area with minimal noise disturbances.	0.557	0.273	Valid
9	Excessive machine noise interferes with my concentration during work.	0.478	0.273	Valid
10	I experience discomfort due to mechanical vibrations in the work environment	0.354	0.273	Valid

3. Reliability and Validity Test

To ensure the accuracy and consistency of the research instruments used in this study, a reliability test was conducted using Cronbach's Alpha for each variable. This evaluation measures the internal consistency of the questionnaire items, reflecting the degree to which the items are interrelated as part of a cohesive group. In social science research, a Cronbach's Alpha value equal to or exceeding 0.6 is typically regarded as acceptable, indicating that the instrument demonstrates sufficient reliability to justify its use in subsequent statistical analysis.

Table 4. Reliability Test

No	Variable	Cronbach's Alpha	Critical Value	Conclusion
1	Work Environment (X1)	0.785	0.6	Reliable
2	Work Motivation (X2)	0.623	0.6	Reliable
3	Employee Performance (Y)	0.64	0.6	Reliable

As shown in Table 4, all variables Work Environment (X1), Work Motivation (X2), and Employee Performance (Y) achieved Cronbach's Alpha values greater than the critical threshold of 0.6. These results indicate that the instruments employed in measuring these variables are internally consistent and statistically reliable. Therefore, the data derived from these instruments can be confidently used to explore the relationships between the variables in subsequent stages of the analysis.

4. Multiple Linier Regression Analysis

A multiple regression analysis was conducted to assess the impact of the work environment and work motivation on the dependent variable. As shown in Table 1, both independent variables demonstrate a statistically significant and positive influence. The unstandardized coefficient for the work environment is 0.384 ($p < 0.001$), indicating that a one-unit improvement in work environment is associated with a 0.384-unit increase in the dependent variable, assuming other variables are held constant. Similarly, the coefficient for work motivation is 0.356 ($p = 0.003$), suggesting a positive and substantial effect. These findings underscore that both the work environment and employee motivation are critical factors influencing changes in the outcome variable.

Table 5. Multiple Regression Analysis

Coefficients ^a						
	Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error			
1	(constant)	10.319	3.317	0.486	3.111	0.003
	Work	0.384	0.095	0.372	4.038	0.000

Environment					
Work	0.356	0.116	0.372	0.308	0.003
Motivation				6	

a. Dependent Variable

Table 5 outlines the results of the multiple regression analysis conducted to evaluate the effect of work environment and work motivation on the dependent variable. The constant value is reported at 10.319 with a significance level of 0.003, indicating that in the absence of both predictors, the expected value of the dependent variable is 10.319. The work environment variable has an unstandardized coefficient of 0.384, a t-value of 4.038, and a significance level of 0.000 demonstrating a statistically significant and positive contribution. In parallel, the work motivation variable yields an unstandardized coefficient of 0.356, a t-value of 3.086, and a significance level of 0.003, also confirming a meaningful and positive relationship. Notably, both variables have identical standardized beta values of 0.372, indicating that each factor contributes equally to variations in the dependent variable when assessed in standardized terms. Furthermore, Table 2 presents a summary of the regression model, including statistical indicators such as the correlation coefficient (R), the coefficient of determination (R Square), the adjusted R Square, the standard error of the estimate, and the Durbin-Watson statistic. These indicators collectively evaluate the robustness and predictive power of the model in explaining the relationship between the independent variables work environment and work motivation and the outcome variable, which is employee performance.

Tabel 6. Correlation Coefficients Test

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std.Error Of the estimate	Durbin Watson
1	0.788 a	0.622	0.606	2.114	2.424

a. Predictors: (constant): work motivation, work environment

b. Dependent Variable: Performance

As shown in Table 6, the results indicate a strong and statistically significant relationship between the independent variables and employee performance. The R Square value of 0.622 reveals that the regression model accounts for approximately 62.2% of the variance in performance, highlighting that both work motivation and work environment serve as meaningful predictors. Furthermore, the Durbin-Watson statistic of 2.424 falls within the acceptable threshold, indicating the absence of autocorrelation among the residuals. This confirms that the model satisfies key regression assumptions, allowing for valid interpretation of the results. The findings of this study indicate that personal factors such as age, educational background, years of work experience, and marital status significantly influence employee job satisfaction. The broad age range (15-55 years) creates a multigenerational workforce dynamic, which requires differentiated management approaches in terms of communication and motivation. The varying levels of education among employees highlight the need for flexible training programs to ensure all workers can understand and execute operational procedures effectively. The wide span of work experience, ranging from 1 to over 21 years, represents a valuable opportunity for internal leadership development and peer mentoring. These findings add to the existing literature, which has often focused predominantly on physical work environment aspects. This study demonstrates that demographic factors also play a critical role in shaping a positive and sustainable workplace climate.

For the management of PT. Tjiwi Kimia, the practical implications include the importance of adopting data-driven personnel policies, such as training programs tailored to educational levels and recognition systems that consider employee tenure. These strategies are equally applicable to other manufacturing companies with similarly diverse workforces. However, this study is limited by its descriptive nature and does not yet test causal relationships between personal factors and productivity through advanced statistical analyses. Therefore, future research is recommended to adopt inferential quantitative or mixed-methods approaches to provide stronger and more generalizable insights into employee performance enhancement strategies within the manufacturing sector.

Conclusion

This study reveals that employee satisfaction in the manufacturing sector is not solely determined by physical working conditions or operational factors, but is significantly influenced by demographic attributes such as age, educational background, work tenure, and marital status. The key novelty of this research lies in demonstrating how these personal characteristics interact with the work environment to affect motivation, communication dynamics, and job engagement. For instance, age diversity presents both opportunities for cross-generational learning and challenges in aligning communication styles, while variations in education and experience demand differentiated training and management approaches. These insights offer practical value for PT. Pabrik Kertas Tjiwi Kimia and similar manufacturing firms, suggesting that human resource strategies should be more adaptive and inclusive, taking into account the heterogeneity of the workforce. By shifting the view of employee satisfaction from a generalized concept to a strategic, data-informed priority, companies can foster more resilient, innovative, and high-performing organizational cultures in increasingly competitive industrial landscapes.

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