

# An Empirical Study on the Influence of Internal and External Factors on Port Enterprise Employee Performance: A Case Study in Indonesia

© Larsen Barasa

Department of Marketing, Innovation, and Technology, Maritime Higher Education Institute, Jakarta, Indonesia

## Abstract

Indonesia is an archipelago country with thousands of islands ranging from Sabang to Merauke. Because of these circumstances, port services are essential as a mode of transportation for transporting people or products from one island to another. To improve the performance of port services, the performance of its employees must be consistently upgraded. The purpose of this study was to investigate the components that influence the performance of Port Enterprise (PEs) employees. The total sample for the research is 262 PE employees spread across Jakarta. A survey was used to collect data, which was then processed using principal component factor analysis and ordinary least squares regression techniques. We categorize the factors that influence employee performance into two groups: those connected to the environment/company (external) and those related to employee personal characteristics (internal). According to the regression results, organizational climate, work environment, and job autonomy are work/environment components that have been empirically demonstrated to affect employee performance. Employee adaptability and skill development, on the other hand, represent components related to employee qualities.

**Keywords:** Employee performance, Port enterprise, Work environment, Job autonomy, Adaptation

## 1. Introduction

Port services encompass all aspects of port logistics, from cargo loading and unloading to marine engineering work. These activities are controlled by port companies, the majority of which are open to the public. As a result, proper management and supervision are critical for effectively carrying out all of the processes required for port activities [1]. In the context of Indonesia, there are 17,840 islands with a coastline of 95,181 km. This makes Indonesia the world's largest marine country [2]. Because Indonesia is an archipelagic country with two-thirds of its area covered by water, ports play a critical role in promoting economic growth, social mobility, and regional trade. This is achievable only if port activities are conducted efficiently [3]. Employee performance is inextricably linked to efficient company activities. Employees are a company's most valuable asset because their actions can have a substantial impact on its reputation and profitability [4]. Therefore, ensuring

optimal employee performance is a crucial responsibility of the company.

The Tanjung Priok Port in Jakarta is a large port that serves as the main gateway for exports and imports and contributes significantly to national growth. According to the most recent data, the Non-Tax State Revenue (PNBP) generated by Tanjung Priok's Main Port in 2022 is IDR 413,162,043,000 [5]. This port has also contributed significantly to more than half of the transportation of products into and out of other nations through this port. Thus, Tanjung Priok Port is the busiest port in Indonesia [6]. Considering the significance of Tanjung Priok port, employee performance must be maintained and should not decline, as it did in 2018 at a port enterprise [7].

Employee performance can be influenced by a variety of factors, including characteristics at the individual level or those related to employees, such as a lack of intrinsic



**Address for Correspondence:** Larsen Barasa, Department of Marketing, Innovation, and Technology, Maritime Higher Education Institute, Jakarta, Indonesia  
**E-mail:** larsenbarasa@gmail.com  
**ORCID ID:** orcid.org/0000-0001-7755-8297

**Received:** 18.06.2023  
**Last Revision Received:** 20.11.2023  
**Accepted:** 23.11.2023

**To cite this article:** L. Barasa. "An Empirical Study on the Influence of Internal and External Factors on Port Enterprise Employee Performance: A Case Study in Indonesia." *Journal of ETA Maritime Science*, vol. 11(4), pp. 290-303, 2023.

©Copyright 2023 by the Journal of ETA Maritime Science published by UCTEA Chamber of Marine Engineers

motivation, relevant knowledge, skills, and employee attitudes. Furthermore, several environmental factors (related to the company/work) such as corporate culture, organizational structure, job design, performance appraisal systems, power and politics in the company, and work and group dynamics are very likely to influence this decrease in performance. Several studies have found that both external and internal factors significantly impact employee performance [8,9]. Diamantidis and Chatzoglou [8] examined the influence of company-related factors, job-related factors, and employee-related factors on employee performance. The results of the study concluded that employee performance is a complex variable that can be influenced by many factors. The research indicates that both factors from management or the work environment (external) and internal employee factors are closely related to each other in influencing optimal performance. Nevertheless, research on the factors influencing the performance of port service companies is still very limited.

To assess performance, several studies have sought to link the operational effectiveness of port service companies with customer perceptions [1]. While studies from the perspective of employees are relatively uncommon, Pang and Lu [10] examined the influence of motivation on job satisfaction and organizational performance within the context of container shipping companies in Taiwan. This study exclusively used intrinsic factors to assess their correlation with employee performance. This research seeks to address this research gap by investigating both internal and external factors that could impact employee performance in the port industry. The purpose of this survey is to analyze the perceptions of Port Enterprise employees about the company for which they work. We attempt to provide a more exact and reliable research strategy for grouping indicators into appropriate variable dimensions by employing principal component factor analysis (PCFA).

Finally, this research contributes to stakeholders in several ways. First, it contributes to the development of knowledge and research by addressing the literature gaps on employee perceptions within the Port Authority. Research on factors influencing employee performance in the port industry is limited. Second, for management, this research assists them in understanding the internal and external factors that affect employee performance in port companies. This can provide crucial insights for management to enhance efficiency and productivity. Moreover, the research findings can serve as a knowledge foundation for developing more effective human resource management strategies in the shipping industry, especially within port environments. Furthermore, by understanding the factors influencing employee performance, port companies can enhance their

competitiveness in the shipping industry. High-performing employees contribute to operational efficiency and customer satisfaction. Lastly, the context of Tanjung Priuk is crucial for continuing research due to its significant contribution to national development. The findings of this research can also have implications for government policies related to the development of the shipping industry. The government can use these insights to design policies that support sustainable growth and development. This research can serve as a crucial foundation for improving human resource management and employee performance in port companies, with a positive impact on the shipping industry as a whole.

The next section discusses the theory relevant to this research topic, namely, the self-determination theory (SDT). SDT is widely used in research on motivation, human behavior, and psychological well-being. In addition, the second section discusses the hypotheses we have developed. The third section addresses the methods used. To establish the main variables, we used the PCFA technique. To obtain estimates of the relationship between employee motivation and performance, we employed ordinary least square (OLS) regression. The fourth section is dedicated to discussing the results of PCFA and regression. This section also presents arguments and justifications for the findings. The final section contains the conclusions drawn from the research results.

## 2. Theoretical Framework and Hypothesis Development

### 2.1. SDT

According to SDT, different types of motivation have different functional catalysts, accompaniments, and consequences [11]. When applied to the organizational work environment, this theory posits that the type of motivation employees have for their work activities influences their performance and well-being [11]. This motivation can come from within the individual (without the interference of other forces), known as intrinsic motivation, or it can be created by conditions or controls outside the employee's self, known as extrinsic motivation. Based on this explanation, SDT illustrates that when a person (employee) is motivated (especially intrinsically motivated) toward the activities or tasks they are performing, they tend to work or complete their tasks well, independently, and possibly with more creativity. Thus, the expectations of satisfactory achievement or performance can be achieved.

Furthermore, the new SDT framework model specifically mentions two main indicators or elements that can affect employee performance: social context variables related to the workplace (workplace context) and variables related to individual differences [11]. Both of these aspects

can influence employee performance, either directly or indirectly through motivation. The core concept of SDT's theory in describing employee performance is how employees can generate autonomous motivation, which is a circumstance in which employees engage in an activity (job) with a complete feeling of will, desire, and choice [12]. Employees are more likely to be independently motivated, produce better work, learn more effectively, and adapt to changing circumstances when they are aware of the value and purpose of their job, experience a sense of ownership and autonomy in carrying it out, and receive clear feedback and support [11]. Although this study does not specifically address motivation and employee performance, the logic of SDT can be used to explain how external (internal) factors related to extrinsic and intrinsic motivation can influence employee performance, as demonstrated in previous studies [9,13]. Figure 1 illustrates the framework of SDT.

SDT can be applied to the maritime port industry to understand and enhance employee motivation, performance, and well-being within this specific context. SDT can help explain the motivation of employees working in the maritime port industry. Port workers, including dockworkers, crane operators, and logistic personnel, often perform physically demanding and safety-sensitive tasks. SDT stated that understanding their intrinsic motivation (e.g., a genuine interest in their work, a sense of competence) and extrinsic motivation (e.g., recognition, fair compensation) is crucial for managers. This understanding can assist managers in designing motivation strategies tailored to their needs [13]. In addition, safety is a top priority in the maritime port industry due to the potential risks and hazards associated with port operation. SDT

can be used to study the factors influencing employees' compliance with safety regulations and guidelines. For instance, autonomy-supportive management styles can enhance employees' intrinsic motivation to adhere to safety protocols [14]. High turnover rates can also be a challenge in the maritime port industry. SDT emphasizes the importance of addressing employees' basic psychological needs to enhance their motivation and commitment to the organization. By creating a work environment that nurtures autonomy, competence, and relatedness, port authorities can improve employee retention rates.

In summary, the SDT can be a valuable framework for studying and improving various aspects of the maritime port industry, including employee motivation, safety compliance, job satisfaction, skill development, and employee retention. By recognizing and addressing the basic psychological needs of port workers, organizations can create a more engaged and motivated workforce, leading to improved performance and overall well-being in the industry.

### 2.2. Employee Performance Influencing Factors

There are internal and external factors related to the employees themselves that affect employee performance within the company [15]. Regarding employee motivation, social context variables, such as organizational support and individual differences, are the two most significant factors determining the quality or quantity of employee work (performance). Diamantidis and Chatzoglou [8] further classified the factors influencing employee performance into three categories: corporate environmental factors such as management support, training culture, and organizational climate; work-related factors such as on-the-job communication, job autonomy, and work environment;

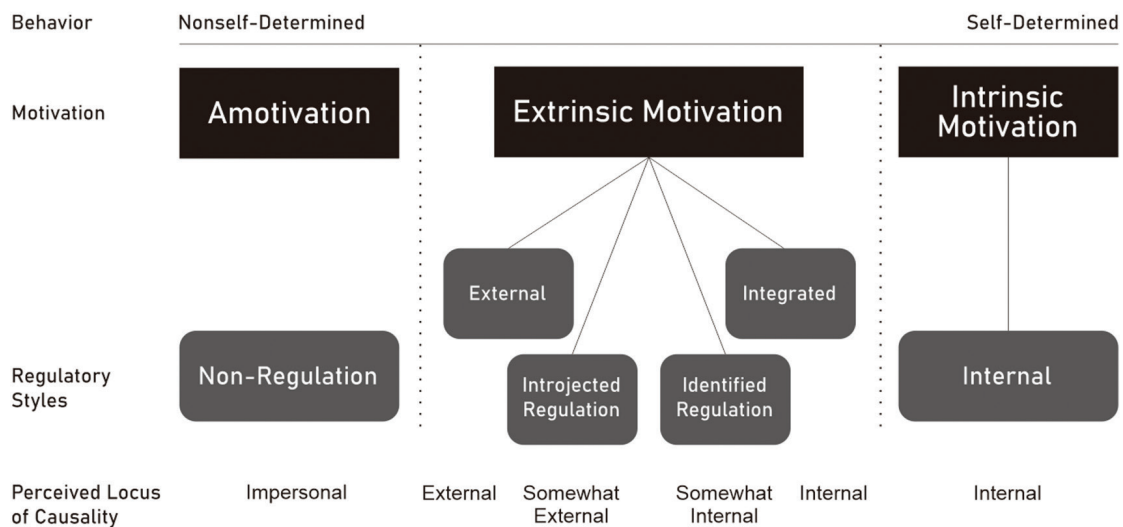


Figure 1. Self-Determination Theory (SDT) Framework

Sources: Ryan and Deci [12], redrawn by the researcher (2023)

and employee characteristics such as intrinsic motivation, adaptability, skills, and commitment. Using the Diamantidis and Chatzoglou [8] employee evaluation model, this study divides the main hypotheses into two categories, with external factors related to the work environment and job factors and internal factors related to employee personal characteristics. Thus, the hypothesis developed can be explained as follows.

### **2.2.1. Environmental/company-related factors (external)**

Employee performance is thought to be influenced by a variety of organizational factors, including corporate culture, organizational structure, job design, performance appraisal systems, and the political dynamics that emerge within them [4,11]. Several more studies discuss environmental/company characteristics such as leadership style [16,17], company values and beliefs, and how the organization recognizes/supports employees. In essence, things that are unrelated to the personal characteristics of employees are included in the external factors of employees [15].

According to the SDT, the existence of organizational support can facilitate employee motivation to fulfill some or all of their overall basic psychological needs, so that the support felt by employees directly or indirectly can significantly improve performance [11]. In other words, when employees receive positive organizational support (such as raises in salary, incentives, a comfortable work environment, competent leadership, and so on), their need for competence, connectivity, and independence (autonomy) is achieved. As a result, employees will be motivated to work more thoroughly and diligently, and their performance will improve. Thus, a positive relationship exists between extrinsic motivation from organizational support and employee performance, according to the SDT framework. This relationship can be explained by examining employees' level of effort, which is higher when people are extrinsically motivated (by organizational settings), and this level of effort results in higher performance [9].

Many studies have proven the relationship between organizational support, social aspects of the work environment, and employee performance. Parker et al. [18], for example, discovered that management support is positively linked to employee commitment and proactivity. Similarly, previous studies' findings yield the same results [19]. Furthermore, Ouakouak and Zaitouni [16] found that ethical and emotional leadership improves employee motivation, which has a favorable impact on employee job performance. Similar results were found in Pawirosumarto and Sarjana [17], a study of an Indonesian manufacturing company.

Other forms of organizational support that improve employee performance include intense training or educational programs [4,20]. Employees who undergo workplace training will be more motivated to achieve higher levels of performance. According to SDT, providing this training can be a method of meeting competency and autonomy needs. By teaching employees how to master or 'become proficient' in their tasks, training may generate a "feeling of competence" [9]. In addition, this sense of autonomy can also be increased when the organization emphasizes training that is really needed by employees (compatibility with tasks feelings of competence and autonomy over employee work may improve intrinsic motivation and result in better performance [11]. Other factors, such as company culture, have a significant impact on work performance, attitudes, and even the behavior of workers [21].

In addition to being influenced by factors related to the environment/organization, employee performance can also be influenced by factors related to employee work (job-related factors) [8]. For example, how work is delegated (job autonomy), communicated (job communication), and work environment circumstances that may limit or help employees work. Previous research has provided empirical evidence of the impact of these components. For example, Imam et al. [22] discovered that in addition to support from leaders (supervisors), internal communication (the exchange of work-related information between superiors and subordinates) plays an important role in increasing employee engagement. Clear, high-quality information from leaders can promote employee involvement, and they are more likely to reciprocate with positive behavior, leading to improved work performance.

Furthermore, Diamantidis and Chatzoglou [8] found that working environment conditions influence employee performance, either directly or indirectly. Employees face many challenges because of the constantly changing working environment conditions, such as changing tasks/jobs, endless career advancement, continual learning, and many types of additional mental and emotional pressures. These conditions necessitate that employees remain involved and satisfied with their work to achieve the intended outcomes [22]. The involvement of a leader or supervisor who can give positive affirmation in both the tasks and responsibilities of employees in the organization can improve employee performance [8]. In the context of the port industry, Hussein and Simba [23] examined the motivation influencing the behavior of employees at Mogadishu Al Port. Their research findings indicated that external factors such as wages, remuneration, and recognition from superiors significantly

influence employee performance. Subsequently, more recent studies have confirmed this significant relationship [24].

The complex relationship between various organizational supports to improve employee performance can be explained by SDT, which shows that encouraging workplace conditions in which employees feel supported in their autonomy leads to better employee satisfaction and growth, as well as assurance of organizational effectiveness [11]. In brief, various organizational supports or company policies that promote employee autonomy and competence in the workplace can lead to increased employee intrinsic motivation, which in turn influences the quality and quantity of expected employee work.

Using SDT rationality, this study hypothesizes that the presence of organizational support, both related to the various aspects of the organization and the work of these various employees, will later facilitate greater employee motivation, particularly when this support fulfills or is consistent with the basic psychological needs of autonomy, competency and employee engagement [11,12]. As a result, these circumstances should enable them to increase their job performance. Formally, this study constructs the first hypothesis on the basis of the theory and evidence from the numerous studies mentioned above.

H1: Environmental/company factors influence the performance of Port Enterprise employees.

### **2.2.2. Employee characteristic factors (Internal)**

Hiring employees with multiple skills is a beneficial asset for companies [8]. Apart from supporting them in performing their own specific tasks, these abilities are also used to assess the overall success of the company. This shows that the personal characteristics inherent in employees are critical in supporting the achievement of company targets. These characteristics are frequently related to intrinsic aspects that encourage employees to work, owing to the inherent nature of individual personalities. Nonetheless, Diamantidis and Chatzoglou [8] mention several other aspects as predictors of employee performance, including proactivity, adaptability, skill flexibility, commitment, and skill level. To some extent, all of these factors can affect employee performance.

In conducting their duties or performing their roles in the company, there are various characters or personalities of the employees. Some of them may be passive or proactive on the job. Bakker et al. [25] stated that if employees can proactively adapt to their work environment, they manage to stay engaged and perform well. Furthermore, being proactive has a beneficial impact on employee attitudes and behavior because proactive employees identify and

generate opportunities for individual or team effectiveness [26]. Several other indicators, such as adaptability [8] and flexibility or creativity [13,27], can also empirically affect employee performance.

Furthermore, Diamantidis and Chatzoglou [8] found that when compared to the other dimensions, flexibility and intrinsic motivation are the dominating factors that have an immediate effect on employee performance. Several prior studies have found a positive relationship between intrinsic motivation and performance [9,13,28]. SDT explains that someone who performs an activity (for example, job) because they find it engaging and enjoyable (intrinsically motivated) prefers to give their best effort to that work or activity. Therefore, it can direct them to perform at their optimum level.

Van der Kolk et al. [9] further explains that there are several reasons why intrinsic motivation leads to increased performance. First, employees who are intrinsically motivated tend to set challenging goals for themselves to improve their task competence and performance [28]. In addition, employees who perceive jobs to be more intrinsically motivated will put in more effort simply because they enjoy the activity [9,11]. Thus, based on the theory's explanation and some research findings, the second hypothesis of this study could be described as follows.

H2: Factors related to employee characteristics that affect the performance of Port Enterprise employees.

## **3. Research Method**

This study employs a quantitative methodology using data collected through survey techniques. All employees in the Port Enterprise in the DKI Jakarta area, namely PT. The Tanjung Priok Port, Jakarta International Container Terminal, and Koja Container Terminal were included in this study. A five-point Likert scale was used to measure statements in the survey instrument. From one to 5, 1 represents strongly disagree and 5 represents strongly agree. The research began in 2018 and continued until 2020, before the pandemic. The pandemic temporarily halted this research because of changes in lifestyle and teaching patterns, which required a considerable time and effort to adapt to. Physical questionnaires were distributed with permission from the company management. This also contributed to a significant delay in the research because the responses from the completed questionnaires had to be manually inputted into digital form. Digital-based questionnaires may have more advantages, such as being more cost-effective and faster; however, paper-based questionnaires allow for higher response rates and validity because respondents can fill them out gradually in their leisure time [29].

There are three dimensions: employee performance, environment/company influences, and employee characteristics. Employee performance dimensions consist of 10 statements, dimensions of factors related to the environment/company as many as 20 statements, and factors related to employee characteristics as many as 20 statements. Therefore, the total number of statements in the questionnaire is 50.

The validity and reliability of the respondents' responses will be examined first. In this research dataset, indicators that do not pass will be discarded. Furthermore, the responses of each variable indicator were examined using PCFA. This PCFA technique is used to reduce the complexity of high-dimensional data while maintaining trends and patterns. This is accomplished by reducing the data to smaller dimensions that act as feature summaries [30]. Many studies have been conducted using this methodology, and they claim that using PCFA produces more accurate results than using manual methods by averaging the responses of each respondent [31].

Principal component analysis (PCA) is not the only technique for data reduction, but it has advantages over other techniques such as exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). PCA can be used to reduce dimensions in a large dataset while retaining most of the data's variability. This can be valuable in behavioral analysis involving many measurable variables, allowing researchers to focus on the most important components. In addition, PCA is relatively simple and efficient in its implementation [30,32]. However, PCA has some limitations, especially in the context of behavior. One of its limitations is that PCA does not consider the interpretation of latent factors, as is done in EFA. Because this study did not establish latent factors, PCA is more suitable for use.

Our empirical model examines whether environmental/company conditions and employee characteristics influence the performance of Port Enterprise employees. The model can be defined as follows.

$$PFM_i = \beta_0 \text{Intercept} + \sum_{i=1}^j \beta_i ENV + \sum_{i=j+1}^k \beta_i CHRT + \epsilon \quad (1)$$

where the dependent variable (PFM/performance) is a performance variable, and the main independent variables are ENV (Environment) and CHRT (Characteristic). Each of these variables represents environmental/company factors and employee internal characteristics. The above regression model was conducted using STATA 16's OLS regression model. The research framework for this study is neatly illustrated in Figure 2 below.

## 4. Discussion

### 4.1. Demographics of the Respondents

We distributed a questionnaire to 264 respondents. Two survey findings cannot be used because the responses are incomplete. As a result, the total number of data points in this study was 262. The responses of the respondents are provided in Table 1 based on the data obtained from the distributed questionnaires. Male responders dominated all the observation objects, contributing to 81.68% of the total (8.32%). In terms of age, 37% of respondents were between the ages of 31 and 40, 32.06% were between the ages of 41 and 50, and only 6.11% were under the age of 30. Furthermore, 67% of respondents were bachelor graduates (S1), with 48.47% having worked for 5 to 7 years.

### 4.2. Principal Factor Component Analysis (PCFA)

Before proceeding to the PCFA process, we conducted

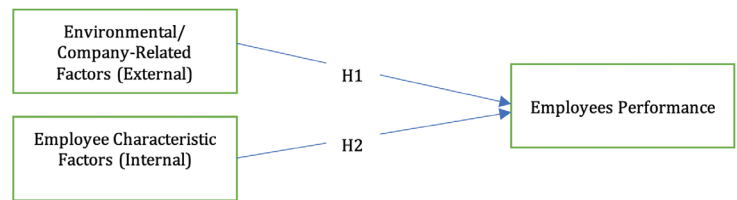


Figure 2. Research Framework

Table 1. Profile of the respondents

Demographic characteristics	Number of respondents	Percentage (%)
Gender		
Male	214	81.68%
Female	48	18.32%
Age		
21-30 years old	16	6.11%
31-40 years old	97	37.02%
41-50 years old	84	32.06%
>51 years old	65	24.81%
Educational level		
High school/Equivalent	5	1.91
Diploma (D1/D2/D3/D4)	32	12.21
Bachelor's degree (S1)	176	67.18
Master's degree (S2)	49	18.70
Work experience		
<2 years	3	1.15
3-5 years	24	9.16
5-7 years	127	48.47
>7 years	108	41.22
Total observations=262		
Source: Data processed by the researcher (2023)		

reliability and prior validity tests on all indicators of each variable. Indicators that fail these two tests will not be included. On the basis of the test findings, four indicators on employee-related factors were issued. The PCFA results for the three variables in this study are shown in Tables 2-4.

Table 2 shows that the KMO value is 0.65, with a significance value of 0.05. As a result, the existing data can be subjected to factor analysis (PCFA). Based on the same table, only one factor is formed out of the ten indicators in the employee performance variable. One component has a percentage of variance or proportion of 74.65%, which indicates that it represents 74.65% of all available variants. Furthermore, various factors with eigenvalues less than one represents the remainder. In addition, Table 3 shows the PCFA results for the “Environmental/Company-Related Factors (ENV)” variable.

Table 3 shows that the PCFA results provide five factors. The KMO value is 0.5617, and the significance level is 0.000, which is less than 0.05. This indicates that the PCFA analysis is suitable for use in a amount of the study data. The overall eigenvalue is 8.48. Keywords from the question are used to name each factor. Table 4 shows the PCFA results for factors related to employee characteristics.

On the basis of the aforementioned table, the PCFA technique condenses the components of factors relevant to employee characteristics into 3 factors. The KMO value was 1055.49, with a significance level of 0.0000. The three components are named on the basis of their respective keywords, similar

to the previous factors. Six components were excluded from the variable because the validity test could not be applied to them. The definitions of each of these factors are presented in Table 5.

After conducting the PCFA on all dimensions in this study, we noted that several of them were broken down into several variables. The changes made resulted in the study framework represented in Figure 2 Developed to be like the one in Figure 3 below.

### 4.3. Univariate Analysis

Univariate analysis is used to examine the relationship or correlation between variables alone. The results of the univariate test using the Pearson correlation technique are shown in Table 6.

According to the table, some dependent variables have significant relationships with the dependent variable. *CHRT\_Skill*, *CHRT\_Adapt*, *ENV\_Climate*, *ENV\_Dynamism*, *ENV\_JobEnv*, and *ENV\_Autonomy* are among these variables. These data indicate that several of the specified independent variables have significant effects on employee performance at a level of less than 1%. However, univariate testing results cannot be utilized to evaluate hypotheses because they exclude other variables as predictors in a model. This test examines the correlation between variables on its own, and if the relationship is very strong (close to 1), it must be omitted from the model because it is perfectly correlated.

### 4.4. Hypothesis Testing

We apply the OLS regression approach to test the hypothesis. We checked the variance inflation factor (VIF) on the study variables before performing the OLS regression to ensure that they were free of any multicollinearity problems. The test results are shown in Table 7. Based on the table, there are no values more than 10, implying that all variables in the study are free of multicollinearity problems.

Table 7 also includes the results of hypothesis testing. Column (1) is the result of the OLS regression for the influence of environmental/company factors on employee performance, Column (2) is the result of testing the influence of employee characteristics on employee performance, and Column (3) combines both factors in one model.

Column (1) shows that all environmental/company factors have been empirically shown to affect employee performance at the same time, indicating that Hypothesis 1 is supported. Once back at home, the results in Column (2) show that factors related to employee characteristics are likewise proven to influence employee performance. This evidence is provided by the probability’s significance value, which is less than 1%.

**Table 2.** PCFA results on employee performance variables (PFM)

Indicator code	Keyword	Performance
		Factor 1
PFM1	Meets requirements	0.3035
PFM2	Improved resolution	0.3868
PFM 3	Quantity of work	0.4389
PFM 4	Learning from more experienced individuals	0.5864
PFM 5	Be a role model	0.3856
PFM 6	Following the leader	0.5272
PFM 7	Complete work under all conditions	0.5440
PFM 8	Reached the target	0.4101
PFM 9	Unsupervised job	0.0365
PFM 10	Quality of work	-0.0847
Eigenvalue		1.67745
Proportion		0.7465
KMO		0.6497
k <sup>2</sup>		371.43
Prob>chi <sup>2</sup>		0.0000
Source: Data processed by the researcher (2023)		

**Table 3.** PCFA results for variables related to environment/company (ENV)

Code	Keyword	Company/Environmental Related Factors (ENV)				
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
		Organizational climate	Environmental dynamism	Job environment	Job autonomy	Organizational vision
ENV1	Supporting work	-	-	0.3559	-	-
ENV2	Work comfort	-	-	0.9484	-	-
ENV3	Work planning	0.2428	-	-	-	-
ENV4	Simple and flexible work procedures	-	-	-	0.8709	-
ENV5	Organizational change	-	-	-	0.4354	-
ENV6	Effect of policies and practices.	-	0.2769	-	-	-
ENV7	Tolerance value	0.3648	-	-	-	-
ENV8	Trust value	0.9090	-	-	-	-
ENV9	Organizational vision	-	-	-	-	0.8318
ENV10	Process of achieving goals	0.3459	-	-	-	-
ENV11	Effect of organizational change	-	0.9099	-	-	-
ENV12	Practices/written regulations	0.4799	-	-	-	-
ENV13	Unwritten regulations	-	-	-	0.2069	-
ENV14	Interaction between employees and superiors	-	0.2230	-	-	-
ENV15	Problem solving	-	-	0.1503	-	-
ENV16	Process in finding the solution	0.9063	-	-	-	-
ENV17	Future plans for the company	-	-	-	-	0.8360
ENV18	Commitment and discipline	-	-	0.9637	-	-
ENV19	Integration	-	0.9062	-	-	-
ENV20	Organizational Goal	-	-	-	-	0.8602
Eigenvalue		2.60249	2.37292	2.28312	2.24802	1.57750
Proportion		0.2582	0.2354	0.2265	0.2230	0.1565
KMO		0.5617				
k <sup>2</sup>		2112.01				
Prob>chi <sup>2</sup>		0.0000				
Source: Data processed by the researcher (2023)						

Furthermore, according to Table 7 Column (3), there are 5 variables that have been scientifically demonstrated to affect employee performance. ENV\_Climate (H1a), ENV\_JobEnv (H1c), and ENV\_Autonomy (H1d) are variables that describe environmental/company factors. CHRT\_Skill (H2a) and CHRT\_Adapt (H2b) are the variables that describe employee characteristics. Column (3) results are consistent with the results of testing Columns (1) and (2). The difference is that the level of significance of variables related to the environment/company has decreased. This indicates that when predictor variables from employee personal characteristics are added to the model, the influence of environmental/company factors reduces. This research also implies that employee characteristics have a greater effect on their work performance.

#### 4.5. Analysis and Discussion

In the port industry, dedicated and motivated workers are required to provide the best service and maintain competitive advantage [10]. This study aims to examine the internal and external influences on port industry employees in Indonesia that can enhance their performance. External factors refer to those originating from outside of employee motivation, such as working conditions, management, colleagues, and so on. Internal factors, on the other hand, pertain to factors that originate from within the employee, such as adaptability and other abilities possessed by the employee [8].

The results of testing the hypothesis proposed in this study can be seen in Table 7 above. The table shows that the two hypotheses in this study have been empirically accepted.



**Table 4.** PCFA results on factors related to employee characteristics (CHRT)

Code	Keyword	Factors related to employee characteristics (CHRT)		
		Factor 1	Factor 2	Factor 3
		Skill development	Adaptability	Intrinsic motivation
CHRT1	Meeting life needs	-	-	0.8320
CHRT2	Provide for the family	-	-	0.4284
CHRT3	Adaptation to the workplace	-	0.2520	-
CHRT4	Work tranquillity	-	-	-
CHRT5	Guaranteed	-	0.2830	-
CHRT6	Security	-	-	-
CHRT7	Respect between employees	-	0.4370	-
CHRT8	Acceptance of other employees	-	0.7646	-
CHRT9	Appreciation	-	-	-
CHRT10	Giving performance-based bonuses	-	0.3802	-
CHRT11	Attend seminars	0.8916	-	-
CHRT12	Further study	0.2455	-	-
CHRT13	Pleasure based on knowledge	-	0.1002	-
CHRT14	New insight	-	-	-
CHRT15	Work-life balance	0.2985	-	-
CHRT16	Bonus	-	-	0.7725
CHRT17	Training	-	-	-
CHRT18	Discussion with managers or seniors	-	0.7640	-
CHRT19	Moral support	-	-	-
CHRT20	Support from coworkers	0.8554	-	-
Eigenvalue		2.02626	1.86550	1.70391
Proportion		0.3726	0.3430	0.3133
KMO		0.5751		
k <sup>2</sup>		1055.49		
Prob>chi <sup>2</sup>		0.0000		

Source: Data processed by the researcher (2023)

Columns (1) and (2) show how each aspect affects employee performance at the same time. Column (3) also shows the test results of the two components together to see which variables in the two factors affect employee performance. These two criteria are inextricably linked since they are significant indicators of employee performance [15].

According to Table 7 Column (3), not all identified factors have significant effects on the performance of Port Enterprise employees. Job environment (*ENV\_JobEnv*) and job autonomy (*ENV\_Autonomy*) were determined to have the greatest influence in the group of environmental/company factors, followed by organizational climate factors. The work environment factor has a coefficient value of 0.114 and the job autonomy factor has a coefficient value of 0.113 (*ENV\_Climate*). Both of these variables have a significance level of less than 0.05 (<0.05). Meanwhile, the effect of organizational climate is smaller with a coefficient value of

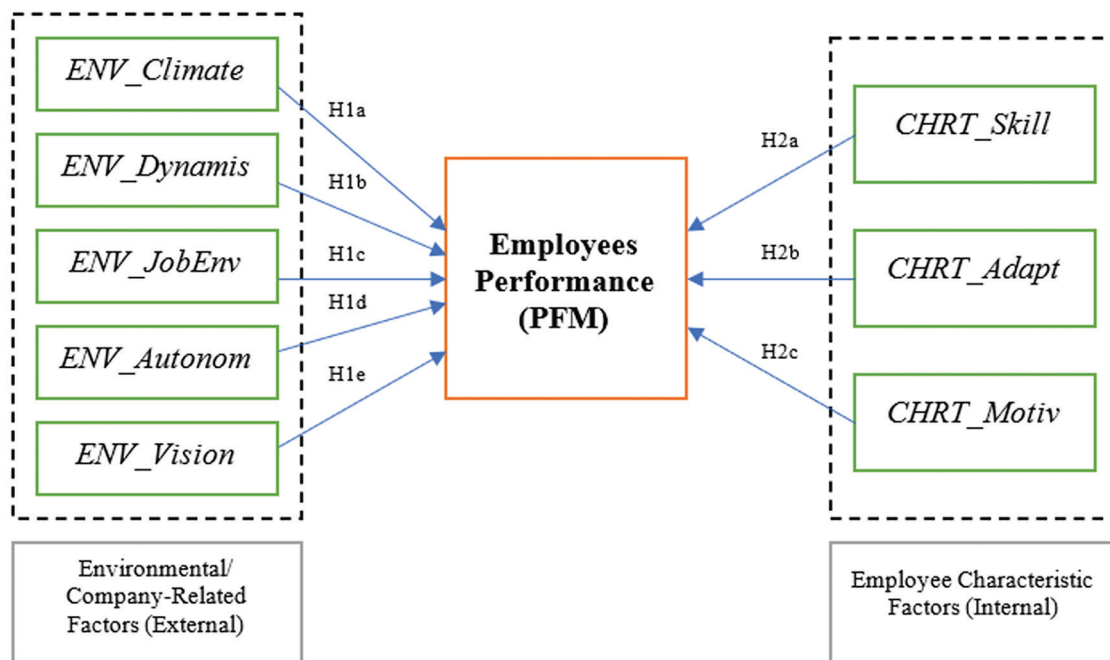
0.111, although it is still significant (<0.1). In other words, it has been empirically proven that the organizational climate, job autonomy, and job environment all positively influence employee performance in the Port Enterprise, nevertheless to varying degrees. The findings of this research support the findings of earlier studies [8,21,22,33].

A conducive work environment, in the sense that it can create the perception that the work performed by employees is unique and valuable to the company, can have a positive impact on employees (especially in achieving higher job performance). Port companies rely heavily on their employees to carry out their operations. Employees in the port industry play a key role in performing various tasks necessary to efficiently manage the port, such as in port operations, management and administration, security and compliance, ship maintenance, logistics and distribution, and in serving their customers [23,24]. Therefore, employees

**Table 5.** Definition of PCFA factor results

Factor	Code	Operational Definition	Total items	Reference
Organizational climate	<i>ENV_Climate</i>	How an employee perceives the company's culture, particularly the quality of relationships between superiors and co-workers.	6	Suliman and Al Harethi [33]; Cherian et al. [21]
Environmental dynamism	<i>ENV_Dynamism</i>	Management's perception of the stability of the business environment in which the organization works.	3	de Hoogh et al. [34]; Diamantidis and Chatzoglou [8]
Job environment	<i>ENV_JobEnv</i>	The degree to which the work environment promotes comfort, meets social needs, and fosters the belief that skills lead to high levels of work performance	4	van der Kolk et al. [9]; Chen et al. [19]; Imam et al. [22]
Job autonomy	<i>ENV_Autonomy</i>	The degree to which the company allows employees to work flexibly or spontaneously in various aspects of their work while yet keeping mindful of the responsibilities and objective of their job	3	Dysvik and Kuvaas [35]; Diamantidis and Chatzoglou [8]
Organizational vision	<i>ENV_Vision</i>	How employees perceive the company's vision and mission as motivation to improve their performance	3	Cerasoli and Ford [28]
Skill development	<i>CHRT_Skill</i>	Concerned with the development of skills needed by employees in order to improve their performance	4	Elnaga and Imran [4]; Ibrahim et al. [36]
Adaptability	<i>CHRT_Adapt</i>	How employees can adapt to their working environment and achieve comfort at work	7	Pulakos et al. [37]; Diamantidis and Chatzoglou [8]; Jnaneswar and Ranjit [13]
Intrinsic motivation	<i>CHRT_Motiv</i>	Related to internal motivation such as meeting needs and bonuses got by employees	3	Dysvik and Kuvaas [35]; Cerasoli and Ford [28]

Source: Data processed by the researcher (2023)

**Figure 3.** Research Framework after PCFA

require a comfortable environment to work optimally [10]. According to Cherian et al. [21] stated that the work environment and organizational climate serve as mechanisms that influence the behavior of each individual inside them. If the work environment is competitive, every employee will be selfish rather than concerned with

the overall goals of the company. As a result, managers and supervisors play a crucial role in maintaining and improving the behavioral aspects of employee ownership and affirmation in the work environment. Job autonomy is also essential. Employees will be able to increase their performance by carrying out their jobs in more effective

**Table 6.** Univariate analysis results

Variabel	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) PFM	1.000								
(2) CHRT_Skill	0.441*** (0.000)	1.000							
(3) CHRT_Adapt	0.409*** (0.000)	0.445*** (0.000)	1.000						
(4) CHRT_Motiv	0.015 (0.808)	0.100 (0.104)	-0.197*** (0.001)	1.000					
(5) ENV_Climate	0.295*** (0.000)	0.369*** (0.000)	0.220*** (0.000)	0.213*** (0.001)	1.000				
(6) ENV_Dynamism	0.161*** (0.009)	0.289*** (0.000)	0.231*** (0.000)	0.067 (0.280)	0.437*** (0.000)	1.000			
(7) ENV_JobEnv	0.331*** (0.000)	0.464*** (0.000)	0.247*** (0.000)	0.054 (0.385)	0.279*** (0.000)	0.268*** (0.000)	1.000		
(8) ENV_Autonomy	0.317*** (0.000)	0.351*** (0.000)	0.322*** (0.000)	0.006 (0.929)	0.346*** (0.000)	0.381*** (0.000)	0.287*** (0.000)	1.000	
(9) ENV_Vision	0.056 (0.364)	0.043 (0.485)	0.037 (0.551)	0.090 (0.146)	0.046 (0.458)	0.077 (0.216)	-0.003 (0.956)	-0.009 (0.883)	1.000

PFM: Employee performance, CHRT\_Skill: Skill development, CHRT\_Adapt: Adaptability, CHRT\_Motiv: Employee motivation, ENV\_Climate: Organizational climate, ENV\_Dynamism: Environmental dynamism, ENV\_JobEnv: Job environment, ENV\_Autonomy: Job autonomy, ENV\_Vision: Organizational vision.  
 \*\*\*: Significance level less than 1%, \*\*: Significance level less than 5%, \*: Significance level less than 10%

**Table 7.** Hypothesis testing results

Variable	(1) Perform	(2) Perform	(3) Perform	VIF
ENV_Climate	0.165*** (2.81)		0.111* (3.07)	1.44
ENV_Dynamism	-0.061 (2.81)		-0.086 (-1.53)	1.37
ENV_JobEnv	0.209*** (3.94)		0.114** (2.13)	1.33
ENV_Autonomy	0.195*** (3.36)		0.113** (2.00)	1.35
ENV_Vision	0.052 (0.99)		0.037 (0.75)	1.02
CHRT_Skill		0.284*** (5.11)	0.188*** (3.06)	1.65
CHRT_Adapt		0.267*** (4.46)	0.236*** (3.87)	1.44
CHRT_Motiv		0.036 (0.69)	0.015 (3.06)	1.17
Intercept	0.0002	0.0003	0.0023	
Obs	262	262	262	
Adj. R2	0.1761	0.2437	0.2749	
F value	12.16	29.24	13.37	
Prob>F	0.0000	0.0000	0.0000	

PFM: Employee performance, CHRT\_Skill: Skill development, CHRT\_Adapt: Adaptability, CHRT\_Motiv: Employee motivation, ENV\_Climate: Organizational climate, ENV\_Dynamism: Environmental dynamism, ENV\_JobEnv: Job environment, ENV\_Autonomy: Job autonomy, ENV\_Vision: Organizational vision. \*\*\*: Significance level less than 1%, \*\*: Significance level less than 5%, \*: Significance level less than 10%

ways if they feel free to do so [8]. Meanwhile, too much pressure to follow text-book-based procedures will prevent employees from reaching their full potential [35].

Following that, the environmental dynamism and company vision factors show insignificant values. This suggests that employee understanding of the company's vision and objective, as well as environmental changes, have no

effect on Port Enterprise employees' performance. This contradicts prior research findings and research predictions that demonstrated a positive relationship between these factors and employee performance [8]. One explanation for why both of these factors have no effect on performance is that the work environment at Port Enterprises is static (particularly the output/products provided in the form of services). This means that a company's ability to update equipment and production procedures and identify ways to strengthen its competitive position is extremely limited. As a result, environmental changes have less of an impact on employee performance.

Employee performance is also extremely likely to be influenced by individual variables. According to the test results in Table 7 Column (3), self-development (*CHRT\_Skill*) and adaptability (*CHRT\_Adapt*) have an impact on employee performance. Both of these variables have a significance value of less than or equal to 0.01 ( $<0.01$ ), with coefficient values of 0.188 and 0.236, respectively. The findings of this study are consistent with those of Diamantidis and Chatzoglou [8], Elnaga and Imran [4], Ibrahim et al. [36], and Pulakos et al. [37].

In recent decades, many innovations have been introduced in the port industry, highlighting the importance of innovation in this sector, such as digitization and the introduction of new tools. Port industry employees around the world have faced new challenges in adapting to such rapid changes. They are driven by companies to undergo various training programs to enhance performance, which will result in increased company profits [38]. Both the desire to develop or the ability to adapt encourages better employee performance [8]. Employees who can quickly adapt to unexpected situations or new workplaces/environments and complete new duties efficiently are more likely to have a positive effect on their performance [37]. In contrast, employees who find it difficult to adapt or use new skills, knowledge, and techniques in performing tasks or work, will provide minimal support for their job performance. Companies must therefore give training and self-development programs for employees in order to achieve high performance. This training is intended to inculcate necessary attitudes such as integrity, work ethic, as well as effective work methods [4]. Furthermore, training helps to change corporate culture by changing the attitudes and/or behaviour of all employees in the organization [36].

## 5. Study Limitations

There are several limitations to this study. First, a research sample was collected from Jakarta Port Enterprises for this study. Despite the fact that it has represented the majority of the Port Enterprises in Indonesia, future research can

include research samples from other Port Enterprises. Due to its more case-study-oriented nature, research is needed that can generalize findings by expanding the sample. Research in other fields in the future can also use the same methodology as this study. Second, future studies can include additional characteristics that are believed to influence employee performance. The addition of this factor can improve the model's accuracy for prediction. These factors can also be used to moderate or mediate the relationship between environmental factors and employee characteristics and employee performance. Third, the adjusted R-square ( $R^2$ ) in this study indicates that the independent variables in the model only influence employee performance by 27.49%, meaning that the remaining 72.51% is influenced by other variables not included in the model. Subsequent research may consider incorporating other variables to increase the  $R^2$  value.

## 6. Conclusion

This study examines the effect of environmental/company factors and individual characteristics on the performance of Port Enterprise employees. In contrast to many previous research, this one utilizes of the PCFA method to provide more specific evidence on the factors that influence employee performance. The findings of this study support our research hypotheses. Five of the eight identified variables (5 related to the environment/company and 3 related to individual characteristics) had significant effects on employee performance. In particular, for environmental/company factors, the performance of Port Enterprise employees is influenced by the job environment, job autonomy, and organizational climate in this study. Furthermore, adaptability and self-development are among the most important characteristics that managers must consider, particularly in order to attain optimal company performance. This study contributes to the literature on employee performance, which infrequently samples shipping enterprise. By using the SDT theory, this research makes a theoretical contribution by providing empirical evidence that the performance of Port Enterprise employees is influenced by intrinsic and extrinsic factors. Furthermore, the practical contribution of this research is that companies must prioritize an enjoyable working environment and job autonomy for their employees. This comfort and autonomy will help them to maximize each other's capabilities to boost company performance. In terms of internal employees' characteristics, adaptability, and capacity building are also major factors of performance improvement. As a result, the company has a responsibility to provide employees with suitable training on a regular basis.

**Peer-review:** Externally peer-reviewed.

**Funding:** The author received no financial support for the research, authorship, and/or publication of this article.

## References

- [1] M. Y. García-Briones, J. A. Pedraza-Rodríguez, and C. Mora-Márquez, "Business satisfaction with the services provided by the public port entities in Ecuador," *Journal of Positive School Psychology*, vol. 6, pp. 4477-4488, 2022.
- [2] A. Nontji, *Laut nusantara*. Aceh: Djambatan, 1987.
- [3] X. Chen, "Marine transport efficiency evaluation of cross-border e-commerce logistics based on analytic hierarchy process," *Journal of Coastal Research*, vol. 94, pp. 682-686, Jun 2019.
- [4] A. Elnaga, and A. Imran, "The effect of training on employee performance," *European Journal of Business and Management*, vol. 5, pp. 137-147, 2013.
- [5] Bisnisnews, "OP dan KSU Tanjung Priok Sampaikan Capaian Selama Periode 2022," 2023. <https://bisnisnews.id/detail/berita/op-dan-ksu-tanjung-priok-sampaikan-capaian-selama-periode-2022> (Accessed: Mar. 14, 2023).
- [6] Y. Romadhon, "Optimalisasi Pelabuhan Tanjung Priok Menuju Pelabuhan Berkelas Dunia," *Jurnal Logistik Indonesia*, vol. 2, pp. 37-43, 2018.
- [7] T. P. Sirkullah, D. Purwana, J. Susono, M. Rasbi, and C. Yohana, "Organizational culture and job satisfaction: its impact on organizational commitments and employee performance," *The International Journal of Social Sciences World*, vol. 2, pp. 196-204, Jul-Dec 2020.
- [8] A. D. Diamantidis, and P. Chatzoglou, "Factors affecting employee performance: an empirical approach," *International Journal of Productivity and Performance Management*, vol. 68, pp. 171-193, Jan 2019.
- [9] B. van der Kolk, P. M. G. van Veen-Dirks, and H. J. ter Bogt, "The impact of management control on employee motivation and performance in the public sector," *European Accounting Review*, vol. 28, pp. 901-928, Dec 2019.
- [10] K. Pang, and C.-S. Lu, "Organizational motivation, employee job satisfaction and organizational performance," *Maritime Business Review*, vol. 3, pp. 36-52, Jan 2018.
- [11] E. L. Deci, A. H. Olafsen, and R. M. Ryan, "Self-determination theory in work organizations: the state of a science," *The Annual Review of Organizational Psychology and Organizational Behavior*, vol. 4, pp. 19-43, Jan 2017.
- [12] R. M. Ryan, and E. L. Deci, "Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being," *American Psychologist*, vol. 55, pp. 68-78, 2000.
- [13] K. Jnaneswar, and G. Ranjit, "Explicating intrinsic motivation's impact on job performance: employee creativity as a mediator," *Journal of Strategy and Management*, vol. 15, pp. 647-664, 2022.
- [14] K. Bichou, "The ISPS code and the cost of port compliance: an initial logistics and supply chain framework for port security assessment and management," *Maritime Economics & Logistics*, vol. 6, pp. 322-348, Dec 2004.
- [15] M. Armstrong, *A handbook of human resource management practice*. Kogan Page Publishers, 2006.
- [16] M. L. Ouakouak, and M. G. Zaitouni, "Ethical leadership, emotional leadership, and quitting intentions in public organizations: Does employee motivation play a role?," *Leadership & Organization Development Journal*, vol. 41, pp. 257-279, Feb 2020.
- [17] S. Pawirosumarto, and P. K. Sarjana, "Factors affecting employee performance of PT . Kiyokuni Indonesia," *International Journal of Law and Management*, vol. 59, pp. 602-614, Jul 2017.
- [18] S. K. Parker, H. M. Williams, and N. Turner, "Modeling the antecedents of proactive behavior at work," *Journal of Applied Psychology*, vol. 91, pp. 636, 2006.
- [19] T. Chen, S. Hao, K. Ding, X. Feng, G. Li, and X. Liang, "The impact of organizational support on employee performance," *Employee Relations*, vol. 42, pp. 166-179, Jan 2020.
- [20] P. Tharenou, A. M. Saks, and C. Moore, "A review and critique of research on training and organizational-level outcomes," *Human Resource Management Review*, vol. 17, pp. 251-273, Sep 2007.
- [21] J. Cherian, V. Gaikar, R. Paul, and R. Pech, "Corporate culture and its impact on employees' attitude, performance, productivity, and behavior: an investigative analysis from selected organizations of the United Arab Emirates (UAE)," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 7, pp. 45, Jan 2021.
- [22] H. Imam, A. Sahi, and M. Farasat, "The roles of supervisor support, employee engagement and internal communication in performance: a social exchange perspective," *Corporate Communications: An International Journal*, vol. 28, pp. 489-505, 2023.
- [23] I. A. Hussein and F. Simba, "Effect of employee motivation on organizational performance of Mogadishu al port in Somalia," *The Strategic Journal of Business & Change Management*, vol. 4, pp. 89-97, 2017.
- [24] L. Barasa, A. G. Malau, and B. Sumali, "Determinants of job satisfaction and its implication on employee performance of port enterprises in DKI Jakarta," 2018.
- [25] A. B. Bakker, M. Tims, and D. Derks, "Proactive personality and job performance: The role of job crafting and work engagement," *Human Relations*, vol. 65, pp. 1359-1378, Sep 2012.
- [26] J. M. Crant, "Proactive behavior in organizations," *Journal of Management*, vol. 26, pp. 435-462, 2000.
- [27] N. M. P. Ribeiro, A. P. Duarte, and R. S. de B. Filipe, "How authentic leadership promotes individual performance: mediating role of organizational citizenship behavior and creativity," *International Journal of Productivity and Performance Management*, vol. 67, pp. 1585-1607, Nov 2018.
- [28] C. P. Cerasoli, and M. T. Ford, "Intrinsic motivation, performance, and the mediating role of mastery goal orientation: A test of self-determination theory," *The Journal of Psychology Interdisciplinary and Applied*, vol. 148, pp. 267-286, 2014.
- [29] D. D. Nulty, "The adequacy of response rates to online and paper surveys: what can be done?," *Assessment & Evaluation in Higher Education*, vol. 33, pp. 301-314, Jun 2008.
- [30] I. T. Joliffe, and B. Morgan, "Principal component analysis and exploratory factor analysis," *Statistical Methods in Medical Research*, vol. 1, pp. 69-95, Mar 1992.
- [31] A. A. Soomro, R. J. Breiteneker, and S. A. M. Shah, "Relation of work-life balance, work-family conflict, and family-work conflict with the employee performance-moderating role of job

- satisfaction," *South Asian Journal of Business Studies*, vol. 7, pp. 129-146, Mar 2018.
- [32] I. T. Jolliffe, *Principal component analysis for special types of data*. In: *Principal Component Analysis*. Springer Series in Statistics. Springer, New York, NY. 2002.
- [33] A. Suliman, and B. Al Harethi, "Perceived work climate and employee performance in public security organizations in the UAE," *Transforming Government: People, Process and Policy*, vol. 7, pp. 410-424, Jan 2013.
- [34] A. de Hoogh, et al. "Charismatic leadership, environmental dynamism, and performance," *European Journal of Work and Organizational Psychology*, vol. 13, pp. 447-471, Dec 2004.
- [35] A. Dysvik and B. Kuvaas, "Intrinsic motivation as a moderator on the relationship between perceived job autonomy and work performance," *European Journal of Work and Organizational Psychology*, vol. 20, pp. 367-387, Jun 2011.
- [36] R. Ibrahim, A. Boerhannoeddin, and K. K. Bakare, "The effect of soft skills and training methodology on employee performance," *European Journal of Training and Development*, vol. 41, pp. 388-406, Jan 2017.
- [37] E. D. Pulakos, N. Schmitt, D. W. Dorsey, S. Arad, W. C. Borman, and J. W. Hedge, "Predicting adaptive performance : further tests of a model of adaptability," *Human Resource Development Review*, vol. 15, pp. 299-323, 2002.
- [38] A. Bottalico, T. Vanelslander, and P. Verhoeven, "Innovation and labor in the port industry: A comparison between Genoa and Antwerp," *Journal of Business Logistics*, vol. 43, pp. 368-387, Sep 2022.