Mutation and Work Environment Effect on Employee Performance with Compensation as Mediation Variable

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Abstract
This study aims to analyze the effect of job rotation and work environment on the performance of patrol vessel crew members at the Ministry of Marine Affairs and Fisheries, with compensation as a mediating factor. The population consisted of patrol vessel crew members across Indonesia, with a sample of 133 respondents. A quantitative approach using path analysis was employed to examine the direct and indirect effects of the variables. The results show that compensation can mediate the effect of the work environment on performance, but it does not mediate the effect of job rotation on performance. This study is limited to employees of the Directorate General of Marine and Fisheries Resources Surveillance (Ditjen PSDKP), which may restrict the generalizability of the findings to other public sector organizations with different contexts and work systems. Based on these findings, the Ministry of Marine Affairs and Fisheries can redesign its job rotation policy to focus on enhancing employees' experience, skills, and competence. Policies regarding the work environment and compensation should be integrated to improve patrol vessel crew performance while ensuring their welfare and loyalty, considering the high risks and remote locations involved.

Keywords: *Compensation, Environment, Job Rotation, Ministry Of Marine Affairs And Fisheries, Patrol Vessel Crew, Work Performance*

1. INTRODUCTION

Indonesia is an archipelagic country whose territory comprises 3/4 of the ocean. Indonesia's waters cover an area of 6.4 million kilometer and have more than 17,508 islands. The potential fish resources contained in it are estimated at 12.01 million tons per year, spread across Indonesian territorial waters. In addition, the Indonesian Sea has approximately 8,500 species of fish, 555 species of seaweed, and 950 coral reef biota. Fish resources in Indonesia account for 37% of the world's fish species. To optimize the management of marine and fishery resources, the government established the Ministry of Marine Affairs and Fisheries. The Ministry of Maritime Affairs and Fisheries is tasked with organizing government affairs in the marine and fisheries sector to assist the President in organizing the country's government. In carrying out the task of policy formulation, determination, coordination, preparation of norms, standards, procedures, and criteria, and implementation of tasks in the field of marine and fisheries resources supervision, the first echelon unit, namely the Directorate General of Marine Resources and Fisheries Supervision, is responsible.

In 2025, policy changes related to the supervision of marine resources and fisheries are expected to occur. Based on the direction of the Minister of Maritime Affairs and Fisheries at the leadership meeting, the success of marine and fisheries resource supervision section is not the increase in the number of boats captured, but the fewer ships that are caught, or even zero. From this perspective, it can be concluded that the success of marine and fisheries resource supervision section is when fishing business actors comply with the policies that have been set. However, behind the increased performance achievements, various structural and psychosocial problems arise that can reduce the performance of the supervisory crew in the future. One of the problems is the increasing number of transfers/mutations from crew members. Some of the reasons for the requests include long working periods on ships, work locations far from family and moving, and declining health conditions. In some cases, crew members have become seriously ill or died.

The performance of surveillance vessel crews is increasingly at risk due to low job satisfaction and high levels of occupational stress, triggered by a high-risk working environment, including extreme weather conditions, illegal fishing conflicts, and geographical isolation compounded by non-holistic transfer (mutation) policies. This condition is further exacerbated by compensation disparities, where crews facing high operational risks receive remuneration equivalent to that of shore-based staff, thereby triggering demotivation and higher turnover intentions. Theoretically, job

transfers are viewed as human resource development instruments capable of reducing burnout and broadening professional horizons, which, in turn, contribute to work productivity. In alignment with this, a conducive work environment, encompassing both physical and non-physical dimensions, plays a crucial role in creating a safe and comfortable atmosphere that significantly stimulates employee performance.

Furthermore, compensation is positioned as a mediating variable that connects the dynamics of job placement and environmental conditions to the final performance outcomes. The effectiveness of transfers and the quality of the work environment are strongly presumed to impact the amount of compensation received through both increased contributions and organizational policy adjustments. Given that equitable compensation is a primary motivational factor in enhancing productivity, its correlation with transfers and the work environment is predicted to strengthen the systemic performance outcomes. Based on a synthesis of theory and previous empirical studies, this study hypothesizes that transfers and the work environment exert a positive and significant influence on performance, both directly and through the mediation of compensation.

Given these prevailing issues within the Directorate General of Marine and Fisheries Resources Surveillance and the lack of specific research on the influence of transfers and the work environment on performance with compensation as a mediating variable among maritime-based employees, this study was conducted to analyze these dynamics among surveillance vessel crews at the Ministry of Marine Affairs and Fisheries. This study is expected to provide both theoretical and practical contributions to the development of human resource management, particularly within the context of public sector organizations.

2. LITERATURE REVIEW

2.1 Mutations and Performance

Mutation is the transfer of employees from one job position to another equivalent position, with the main goal of avoiding boredom and boredom at work (Astuti, Zunaidah, Hadjri, & Widiyanti, 2024). In addition, mutation functions as a tool for human resource development by expanding employee experience, skills, and insights. Through mutation, employees can increase their motivation, work morale, and sense of responsibility for the organization (Riskarini, Putriana, Prakoso, & Martiza, 2025). Directly, mutations can increase motivation and morale. Work morale can increase employee productivity and performance (Urfa & Tarigan, 2026). Work motivation is a condition that affects the emergence of passion, work spirit, and pleasure in work, which in turn impacts employee performance (Schleicher et al., 2018). "The Effect of Compensation, Mutation, Promotion, and Work Environment on Employee Performance through Job Satisfaction as an Intervening Variable at KPP Pratama Padang Satu" shows that there is a significant influence of mutation on employee performance (Maulana, 2023). In other studies, the position mutations had a non-significant effect on performance. Mutations are influential but not significant (Widiyawanto & Muljaningsih, 2023). Based on these findings, the following hypotheses were formulated:

H_1: Mutations affect performance

2.2 Mutations and Compensation

Mutation is an organizational effort to place employees in the right position in addition to improving performance, career development, and so on (Wa, Desriyantika, Hasbullah, Et, & Indrianni, 2024). The transfer of the work location and position affects the compensation received by employees. Compensation is defined as everything that employees receive in return for their work. Compensation can be given in the form of giving money, providing materials and facilities and in the form of providing career opportunities. If the goal of mutation can be achieved, then the work results will increase, and the impact of the contribution given by employees to the organization will be greater. The impact of these contributions affects the compensation received by employees (Indripriarko & Aima, 2022). Based on these findings, the following hypothesis was formulated:

H_2: Mutations affect compensation

2.3 Work Environment and Performance

The work environment is the location or place where employees work. Comfortable and safe working conditions can affect employee performance. Aronsson et al. (2017) mention that the work environment is everything that exists around the employee and that can affect him in carrying out his duties. In this opinion, the emphasis is on everything and what can influence. Everything is an object or situation, both physical and non-physical, that can affect employees at work. This influence can increase or decrease employee morale at work (Konjala & Wulansari, 2025). Even minor disturbances in the completion of work can affect employee performance. In the study "The Influence of Work Environment and Job Satisfaction on the Performance of Civil Service Police and Community Protection Unit Employees in Teluk Dalam Regency, South Nias Regency" which examined the influence of the work environment on performance, it was concluded that the work environment has a significant partial and simultaneous effect on performance (Wau, 2022). Based on these findings, the following hypotheses were formulated:

H_3: The work environment affects employee performance

2.4 Work Environment and Compensation

A conducive work environment plays a role in determining the compensation system policy. The work environment includes both physical and non-physical work environments. A good and comfortable work environment can increase the productivity of employees. Increased productivity also increases employee compensation. Productivity is defined as "A good, healthy, safe, and comfortable work environment greatly affects employee morale and the work results achieved" (Laras, Jatmiko, Susanti, & Susiati, 2021). A good work environment creates a productive atmosphere and improves employee performance. Increased contributions to the organization will increase the compensation received. Based on these findings, the following hypotheses were formulated:

H_4: The work environment affects compensation

2.5 Compensation and Performance

Compensation is an organization's reward for employees' contributions. Fair remuneration can increase job satisfaction and improve performance. Compensation plays an important role in motivating employees and increasing productivity, especially when it is perceived as fair and competitive (Fulmer, Gerhart, & Kim, 2023; Sakaria & Umar, 2025). From the description above, it is clear that fair compensation can increase employee motivation, which has an impact on employee performance and productivity. Based on the results of research on the Influence of Work Environment, Work Discipline and Work Compensation on Employee Performance at the South Sumatra Provincial Marine and Fisheries Service, it is known that Work Compensation has an effect on Employee Performance variables (Apriyansyah, Idris, & Choiriyah, 2023). Based on these findings, the following hypotheses were formulated:

H_5: Compensation affects performance of employees

2.6 The Role of Compensation Mediation

Mutations can increase motivation and morale of the players. Work morale can increase employee productivity and performance. Work motivation is a condition that affects the emergence of passion, work spirit, and pleasure in work which will have an impact on employee performance. As conveyed by Indripriarko and Aima (2022), compensation is everything that employees receive in return for their work. Compensation can be given in the form of giving money, providing materials and facilities and in the form of providing career opportunities. The work environment is everything that exists around the employee and can affect him in carrying out his duties (Aronsson et al., 2017). In this opinion, the emphasis is on everything and what can influence. Everything is an object or situation, both physical and non-physical, that can affect employees at work. This influence can increase or decrease employee morale. Even many disturbances in the completion of work can affect employee performance (Lianasari & Ahmadi, 2022). Based on this description, compensation is

positioned as an intervening variable that bridges the influence of mutation and the work environment on employee performance. Therefore, the following hypothesis is proposed:

H_6: Compensation mediates the effect of mutations on performance

H_7: Compensation mediates the influence of the work environment on performance

2.7 Theoretical Framework

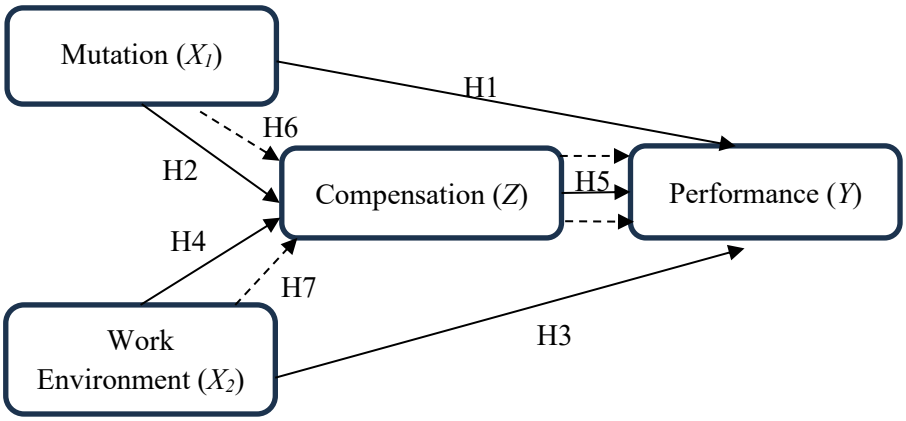


Figure 1. Theoretical framework

Figure 1 shows a simple flowchart illustrating a process or organizational structure. It consists of four rectangular boxes connected with arrows, suggesting a sequential or hierarchical relationship. The flow likely represents the progression of tasks, decision-making steps, or reporting lines, moving from the top-level box down to subsequent subordinate or related components. The chart visually summarizes how elements are interrelated and how information or responsibilities flow within the system.

3. METHODOLOGY

This study uses a quantitative approach with a survey method that aims to test the influence of mutations and the work environment on the performance of supervisory ship crews at the Ministry of Maritime Affairs and Fisheries, with compensation as a mediating variable. The research population is all state civil servants in the Directorate General of Marine and Fisheries Resources Supervision who implement flexible work systems. A total of 113 respondents were selected using saturation sampling techniques.

Table 1. Variable operationalization

Variables	Dimensions	Indicator	Size	Scale
Mutations (Andrayani & Kurniawan, 2023)	Experience	Previous work experience in a similar position	Previous Job Completion Level	Likert 1 - 5
		Long working in the previous position	Old Tier working in the previous position	Likert 1 – 5
	Knowledge	New job-related knowledge	New level of job knowledge	Likert 1 – 5
		Technical skills needed for a new position	Skill level in the current job occupied	Likert 1 – 5
	Requirements	The organization's needs for the position	Levels of Need for a new position	Likert 1 – 5

Variables	Dimensions	Indicator	Size	Scale
		Individual needs for career development	The level of individual needs for career development	Likert 1 – 5
	Work performance	Performance achieved in previous positions	Previously achieved performance levels	Likert 1 - 5
		Evaluation of documented work performance	Previous work performance levels	Likert 1 – 5
	Responsibilities	Level of responsibility in previous jobs	Previous level of job responsibilities	Likert 1 – 5
Work Environment (Siddiqi & Tangem, 2018)	Lighting	Lighting quality in the work area	Lighting quality level	Likert 1 - 5
	Air Temperature	Air temperature in the workplace	Air Temperature Level	Likert 1 – 5
	Noise	Noise levels in the work environment	Levels of Noise	Likert 1 - 5
	Occupational Safety	Safety of work facilities and equipment	Facility and equipment safety level	Likert 1 – 5
	Occupational Safety	Workplace safety policy	K3 policy compliance level	Likert 1 – 5
	Movement Space	Sufficient wiggle room for work	Movement Space Level	Likert 1 – 5
	Leadership Support	Support provided by leadership	Leadership Support Level	Likert 1 – 5
		Leadership's concern for employee needs	Leader's level of concern	Likert 1 – 5
	Group Cooperation	Collaboration between team members	Levels of teamwork	Likert 1 – 5
		Team member involvement in completing tasks	Team member engagement rate	Likert 1 – 5
	Communication	Clear communication between employees and leaders	Level of communication between employees	Likert 1 – 5
		Information disclosure in the workplace	Information disclosure level	Likert 1 – 5
Compensation (Daniel, 2019)	Suitability with the Department	Suitability of compensation with job responsibilities	Degree of Compensation vs. Liability	Likert 1 - 5
		Compatibility between position and salary	The level of fit between the position and salary	Likert 1 - 5
	Amount of Allowance	Adequacy of the allowance provided	The level of adequacy of the allowance provided	Likert 1 – 5

Variables	Dimensions	Indicator	Size	Scale
		The level of sufficiency of benefits for employment	The level of sufficiency of benefits for employment	Likert 1 – 5
	Frequency or Consistency of Giving	Consistency of compensation	Consistency of compensation	Likert 1 – 5
		Clarity of timing of compensation	Clarity of timing of compensation	Likert 1 – 5
	Impact on Work Motivation	The effect of compensation on work motivation	The degree of effect of compensation on work motivation	Likert 1 – 5
		Motivation to perform thanks to compensation	Motivation level to excel thanks to compensation	Likert 1 – 5
	Impact on Loyalty	The effect of compensation on job loyalty	The degree to which compensation affects job loyalty	Likert 1 – 5
		Compensation as a factor that strengthens commitment	Compensation level as a factor that strengthens commitment	Likert 1 – 5
Performance (Schleicher et al., 2018)	Quality	Accuracy of work results	Accuracy Level of Work	Likert 1 – 5
		Timeliness of task completion	Task Completion Timeliness Rate	Likert 1 - 5
		Ability to produce quality results	Level of Ability to produce quality results	Likert 1 – 5
	Quantity	Number of jobs completed	Level: Number of jobs completed	Likert 1 – 5
		Productivity in completing tasks	Productivity Level in completing tasks	Likert 1 - 5
		Volume of work that can be completed in a given time	Volume of work that can be completed in a given time	Likert 1 – 5
	Responsibilities	Commitment to assigned tasks	Level of Commitment to the assigned task	Likert 1 – 5
		Consistency in carrying out duties and responsibilities	Level of Consistency in carrying out duties and responsibilities	Likert 1 – 5
		Compliance with applicable procedures and regulations	Level of Compliance with applicable procedures and regulations	Likert 1 – 5
	Initiatives	Willingness to take extra steps in the job	Level of willingness to take additional steps in the job	Likert 1 – 5
		Creativity in finding new solutions	Level of Creativity in finding new solutions	Likert 1 – 5
		Ability to work without direct instructions	Level of Ability to work without direct instruction	Likert 1 – 5

Table 1 shows data were collected using a closed questionnaire distributed online using Google Forms. The research instruments were compiled based on the dimensions and indicators of mutation variables, work environment, compensation, and employee performance adapted from previous literature. Measurements were made using a Likert scale of 1–5. Data analysis was carried out using Linear Regression Analysis with the help of SPSS software. The SPSS method is very effective in speeding up the process of quantitative data analysis, including multiple linear regressions. He explained that with the help of SPSS, researchers can minimize manual calculation errors and directly focus on interpreting the results. SPSS is also equipped with classical assumption test tools, such as normality, multicollinearity, and heteroscedasticity, which are important to ensure that the regression model used is valid and complies with statistical requirements.

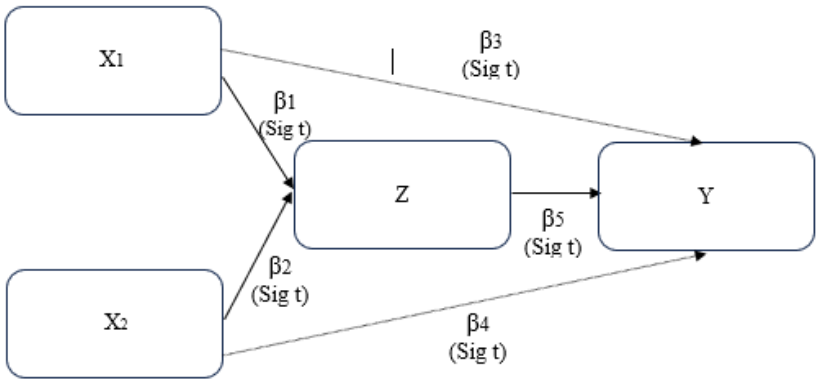


Figure 2. Conceptual framewok

Equation 1: The Influence of X_1 and X_2 on the Mediator (Z)

$$Z = \alpha 1 + \beta 1X1 + \beta 2X2 + e1 \quad (1)$$

Equation 2: The Influence of X_1, X_2, and Z on Performance (Y)

$$Y = \alpha 2 + \beta 3X1 + \beta 4X2 + \beta 5Z + e2 \quad (2)$$

Formula for Indirect Effect X_1 on Y : β1 x β5
Formula for Indirect Effect X_2 on Y : β2 x β5

Figure 2 shows the relationships among performance, compensation, mutation, and work environment. Variable Y represents performance and α is the constant. Z denotes compensation, while X_1 and X_2 represent mutation and work environment, respectively. The regression coefficients β1 and β2 capture the effect of mutation and work environment on compensation. Meanwhile, β3, β4, and β5 indicate the influence of job transfer, work environment, and compensation on performance. Together, these coefficients and variables illustrate how mutation and work environment indirectly and directly affect performance through compensation.

4. RESULTS AND DISCUSSION

4.1 Results

The respondents in this study comprised 130 State Crew of the Directorate General of Marine Resources and Fisheries Supervision. Respondents' characteristics were reviewed based on gender, age, and education level. Based on gender, respondents were dominated by 130 men (100%), while female respondents amounted to 0 (0%). Based on age, the majority of respondents were dominated–41-44 years old, with 33 respondents, accounting for 25% of the total respondents. The age of respondents was 37-40 years old as many as 28 respondents (22%). This condition indicates that the crew of the supervisory ship is still at the age of emotional maturity and productivity.

Based on the level of education, most of the respondents had a D4/S1 educational background, with 51 respondents, representing 39% of the total respondents. This was followed by respondents with a high school/vocational education background, with 50 respondents or 38% of the total respondents. The validity test in this study was carried out with the SPSS program with the provision that the variable is declared valid if the item-total correlation value is greater than 0.3, and even more ideal if it is greater than 0.5 (Ghozali, 2021). The results of the study show that the r calculation has a greater value than the r table. Therefore, it can be concluded that all indicators in this study are valid.

The reliability test using the Cronbach's alpha technique aims to measure the internal consistency of the instrument used. The results of the study show that all variables have a large Cronbach's alpha, above 0.60. Thus, it can be concluded that the reliability of the variables Mutation, Work Environment, Compensation, and Performance studied is reliable. The normality test aims to determine whether the residual data in a regression model are normally distributed. This is important because many classic statistical methods, such as linear regression, variance analysis, and t-tests, assume that the data should be normally distributed. The Heteroscedastic test is used to determine whether there is a variance of variant differences from other residual observations in the regression model. The results of the study showed that all variables had significance above 0.05. This proves that the regression model does not experience heteroscedasties.

The multicollinearity test aims to determine whether there is a correlation between independent variables in a regression model. The basis for decision-making is that the regression model exhibits multicollinearity when the tolerance value is less than 0.10, and there is no multicollinearity when the tolerance value is more than 0.10. Decision-making can also be based on the VIF of the regression model. Multicollinearity occurs if the regression model has a VIF value of more than 10.00, while multicollinearity does not occur if the regression model has a value below 10.00. The results of the study showed that all variables had values greater than 0.1. Furthermore, based on the VIF value of the regression model, all variables had values below 10.00. Therefore, it can be concluded that multicollinearity does not occur in the regression model.

The t-test was used to test the significance of the relationship between the independent variables and the dependent variable. The t-test was performed by comparing the calculated t-value to the t-value of the table at a certain level of significance (usually 0.05). If the significance value (p-value) of the variable is less than 0.05, then the independent variable is considered to have a partial significant effect on the dependent variable.

From the results of the simultaneous significance test (t-test) the effect of mutation and the work environment on performance showed that the mutation variable (X_1) had a significant influence on performance (Y). The significance value for the mutation variable (X_1) is 0.001, which means that the variable has a significant effect on performance, as the value is lower than the 0.05 threshold. The significance value for the work environment variable (X_2) was 0.000. This value is also below the significance threshold of 0.05. This can be interpreted as having a significant influence on the performance. A simultaneous significance test (t-test) of the effects of mutation and the working environment on compensation showed that the effect of mutation on compensation had a significance value of 0.218. This value was greater than the set threshold of 0.05. This can be interpreted as having no significant effect of mutations on the compensation. The test results from the work environment on compensation had a significance value of 0.00. This value was below the threshold of 0.05. This suggests that the work environment significantly influences compensation. The results of the simultaneous significance test (t-test) of the effect of compensation on performance show that the compensation variable (Z) has a significance value of 0.00. The value of 0.00 was below the set threshold of 0.05. This suggests that compensation significantly influences performance.

The Sobel test is a statistical method used to test the significance of indirect effects in mediation models. From the results of the previous test, it was known that the value of the regression coefficient from the mutation to the compensation was 0.163, with a standard error of 0.131. The value of the work environment regression coefficient for compensation was 0.997, with a standard error of 0.125. The value of the compensation regression coefficient for performance is 0.535, with a standard error of 0.056.

a. Results of the calculation of the Sobel test of the effect of mutations on compensation-mediated performance.
   H of the results of the Sobel test calculation showed that the Z-value was 1.233 in the context of the effect of mutations on compensation-mediated performance. The Z-value of the test result of 1.233 is below 1.96. Therefore, it can be interpreted that compensation does not play a significant role as a mediator in the effect of mutations on performance.
b. Results of the calculation of the sobel test on the effect of the work environment on compensation-mediated performance
   The results of the Sobel test calculation of the influence of the work environment on compensation-mediated performance showed that the Z-value was 3.194 witha P-valuee of 0.001 in the context of the influence of the work environment on compensation-mediated performance. The Z-value of the test result of 3.194 is below 1.96, so it can be interpreted that compensation plays a significant role in the influence of the work environment on performance.

4.2 Discussion

Mutation has a positive and significant effect on employee performance, with a coefficient of 0.444. This value can be interpreted as each mutation resulting in an increase in employee performance by 0.444. A significance value of 0.001 indicates that this effect is statistically significant. Therefore, it can be concluded that a well-managed mutation can improve the performance of the crew of the surveillance vessel at the Ministry of Maritime Affairs and Fisheries. This finding is in line with previous research entitled "The Influence of Compensation, Mutation, Promotion and Work Environment on Employee Performance through Job Satisfaction as an Intervening Variable at KPP Pratama Padang Satu" which shows that there is a significant effect of mutation on employee performance.

The results of the analysis showed that the mutation variable did not significantly influence compensation. This is supported by the results of the regression analysis, which shows a coefficient value of 0.163. This value indicates that an increase in mutation will only increase the compensation by 0.163 units. However, a significance value of 0.218 indicates that it is not significant, as it is greater than the alpha value of 0.05.

The compensation system for supervisory vessel crews does not include transfers as a part of remuneration; financial compensation consists solely of the basic salary determined by grade and years of service, along with performance allowances based on job complexity. Given that the public sector demands high levels of transparency in state financial management, compensation regulations tend to be rigid and bureaucratic in nature. This phenomenon encourages policymakers to standardize compensation amounts to simplify oversight mechanisms and administrative implementation, even though such measures limit flexibility in responding to the dynamics of personnel assignments in the field.

Compensation has a positive and significant effect on employee performance, with a coefficient of 0.535. This value indicates that each increase in compensation increases employee performance by 0.535. The significance value was also very low (0.000). This supports the evidence that the effect of compensation on performance is significant. These results show that creating a good and conducive work environment can improve employee performance (Qomari, 2024; Sendow, Tewal, & Paita, 2015). Therefore, the Directorate General needs to improve the work environment, both physically and non-physically.

This finding is in accordance with the results of (Wau, 2022) research in the study, The Influence of Work Environment and Job Satisfaction on the Performance of Civil Service Police and Community Protection Unit Employees in Teluk Dalam Regency, South Nias Regency, and concluded that the work environment has a significant partial and simultaneous effect on performance.

The work environment has a positive and significant influence on compensation, with a coefficient of 0.997. This value can be interpreted as every improvement in the quality of the work environment increasing employee compensation by 0.997 units. The very low significance value of 0.000 indicates that the work environment significantly influences compensation. This is in line with

the opinion of Ariansy and Kurnia (2022), who emphasized the principle of fairness in providing compensation for jobs that have harsher working environment conditions. This shows that the work environment is an important component in formulating employee compensation system policies. If the aspect of fairness in providing compensation is met, it can trigger employees to work better and more comfortably.

These findings reinforce the necessity of incorporating a risk component into the compensation system for supervisory vessel crews in the Ministry of Maritime Affairs and Fisheries. Currently, the existing system fails to represent the workload and extreme risks faced by these crew members. Consequently, policy transformation is required to integrate work environment risk variables as determinant indicators in calculating performance allowances, aiming to create a compensation system that is both equitable and competitive.

Compensation has a positive and significant effect on employee performance, with a coefficient of 0.535. This value indicates that each increase in compensation increases employee performance by 0.535. The significance value was also very low (0.000). The results of this study are in line with those of Apriyansyah et al. (2023), who showed that the provision of appropriate compensation received by employees improves employee performance. Fair compensation can meet the needs of employees so that they can focus on work, encourage loyalty, and trigger employees to work more productively. Providing compensation that is appropriate to the portion can also create a good work environment so that organizational performance increases and goals are achieved more effectively (Jopanda, 2019; Noviyanti & Asmalah, 2023).

Compensation does not mediate the effect of mutation on performance. This is evidenced by the Z value, which shows a value of 1.233. The Z-value of the test results 1.233 was below 1.96. This supports the evidence that compensation does not mediate mutation in performance. In addition, the results of previous tests also showed that there was no effect of mutations on compensation, although there was an effect of mutations on performance and compensation on performance (Handaya & Astuti, 2023; Handoko & Susbiyani, 2022; Kustanto & Harsoyo, 2019).

The finding that compensation does not mediate the effect on performance offers a new perspective on this sector. The transfer of employees (mutation) is viewed as an order or task that must be carried out without expecting an increase in income. This result indicates that the purpose of the transfer is to refresh the work environment and gain experience working on different ships or locations. The effectiveness of the transfer in improving performance is not dependent on changes in compensation but rather on the development of employees.

Compensation mediates the influence of the work environment on employee performance. This is evidenced by the Z-value, which shows a value of 3.194. The Z-value of the test result of 3.194 is greater than 1.96. This supports the evidence that compensation may mediate performance. These findings are in line with the results of Hudayah, Echdar, and Maryadi (2022)g that compensation as an intervening variable strengthens the relationship between the work environment and performance. The results reveal that fair compensation not only improves performance but also helps overcome the challenges of the employee work environment (Maisuro, Ngaliman, & Indrawan, 2024).

5. CONCLUSIONS

5.1 Conclusion

Based on the results of hypothesis testing, this study shows that mutations have a significant effect on the performance of the supervisory crew, and changes in location and effective and patterned work placement of the supervisory crew can improve performance. The mutation has no effect on the compensation of the crew of the surveillance vessel at the Ministry of Maritime Affairs and Fisheries. The Ministry of Maritime Affairs and Fisheries can redesign the mutation pattern to emphasize competence, skills, and work experience. The proposed transfer framework should transcend mere administrative relocation and evolve into a strategic talent management tool aimed at enriching competencies while mitigating the risk of professional burnout.

By implementing needs-based transfers, cross-functional movements between interrelated positions, and tour of duty assignments as promotional instruments, the organization can foster a dynamic career development ecosystem. Within the context of the Ministry, the diversity of vessel

types and heterogeneous characteristics of fishing zones present unique operational complexities. This diversity serves as a vital mechanism for capacity building, continuously honing personnel's technical skills and capabilities. Adopting a structured transfer model is expected to optimize knowledge sharing and minimize performance stagnation resulting from monotonous routines in long-term assignments. The work environment has a positive influence on crew performance, and the extreme work environment of the crew should be accompanied by comfortable and safe infrastructure facilities (physical) and the creation of a comfortable work atmosphere (non-physical) so that performance can be further improved. The work environment affects the compensation received by the crew of a supervisory vessel, either directly or indirectly. The Ministry of Maritime Affairs and Fisheries should include the work environment factor in the calculation of compensation given to employees.

Compensation has a positive effect on performance, and the compensation component is one of the factors that increase work morale. It can directly affect performance; for this reason, the Ministry of Maritime Affairs and Fisheries designs fair and appropriate compensation for fishermen. Compensation cannot mediate the effects of mutations on performance. Based on these findings, the Ministry of Maritime Affairs and Fisheries should be able to redesign the mutation pattern, which focuses on mutation patterns based on the knowledge, experience, competence, and skills of employees to improve performance. Compensation mediates the influence of the work environment on employee performance. Thus, based on the above findings, it is necessary to consider the components of the work environment as an integrated policy in the formulation of policies related to compensation. This can increase employees' sense of fairness regarding the compensation obtained. Therefore, the hope of improving performance more optimally and effectively can be realized in a sustainable manner.

5.2 Research Limitations

This study has several limitations that must be considered. First, the scope of the research is only focused on the Supervisory Crew at the Ministry of Maritime Affairs and Fisheries; therefore, the results of the research cannot be generalized widely to other positions or work units that have other crew positions. The limitations of the number and scope of the sample also have the potential to affect the statistical testing power. Therefore, further research is recommended to expand the objects and number of samples, for example, in other work units within the Ministry of Maritime Affairs and Fisheries with work environments in other Offices or Ministries that manage crews, such as the Maritime Security Agency, Customs and Excise, and others.

5.3 Suggestions And Directions For Future Research

To obtain more comprehensive empirical conclusions regarding the influence of the work environment and mutation on performance with compensation as a mediating variable. In addition, this study is limited to the variables of work environment, mutation, compensation, and performance. Future research should develop a research model with other variables related to the performance of the supervisory crew, such as work motivation, employee psychologists, or job satisfaction, to provide a deeper understanding of the factors that affect the performance of the supervisory crew. The findings of this study also open up opportunities for further studies to explore the role of factors that affect the performance of supervisory vessel crews, especially in supporting the effectiveness of organizations in eradicating illegal fishing.

AUTHOR CONTRIBUTIONS

ADW conceptualized the study, developed the research design, conducted data collection and analysis, and drafted the manuscript. AS supervised the research process, contributed to the refinement of the theoretical framework, and critically reviewed and revised the manuscript for important intellectual content. All authors have read and approved the final version of the manuscript

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