



## THE INFLUENCE OF HUMAN RESOURCE QUALITY ON PERFORMANCE CREW SHIP AT BOURBON OFFSHORE ASIA PTE.,LTD

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### ABSTRACT

This study aims to analyze the influence of Human Resource (HR) quality on crew performance at Bourbon Offshore Asia Pte., Ltd. The main focus of the research is how HR quality affects the operational effectiveness of ships, which directly impacts safety and work efficiency in the maritime environment. This study employs a quantitative method using a questionnaire instrument that has been tested for validity and reliability. The data is analyzed using linear regression to determine the relationship between HR quality and crew performance. The results indicate that the majority of crew members have 0–4 years of work experience, highlighting the need for more effective training strategies to enhance their competencies. In terms of job distribution, 53.75% of the crew consists of deckhands (ABK), who play a crucial role in daily ship operations. The regression test results show a positive and significant effect between HR quality and crew performance, with a correlation value of 0.926. The coefficient of determination ( $R^2 = 0.857$ ) indicates that 85.7% of crew performance variation is explained by HR quality, while 14.3% is influenced by other factors. Key factors improving crew performance include individual competence, work productivity, and compliance with safety standards. However, aspects such as work initiative and task completion require further attention.



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## Introduction

Technological advances in the maritime sector, such as the implementation of Autonomous Ship Surfaces (ASS) supported by artificial intelligence (AI) and automatic navigation systems, presents new challenges in improving crew performance. This technology is indeed able to improve shipping efficiency and safety, but it also requires crew to have new skills to remain relevant in an increasingly advanced industry (Aguinis,

2019). In this context, understanding and compliance with regulations such as those stipulated in Government Regulation No. 7 of 2000 concerning Maritime Affairs is very important. The regulation regulates the rights, obligations, and competency standards of crew members which greatly affect the quality of human resources (HR) on board. In addition, this regulation also includes training, certification, and work protection that have a direct impact on crew performance.

Although automation can reduce the need for a ship's crew, the existence of human resources still plays an important role in ensuring smooth operations and shipping safety (Hasibuan, 2016). Therefore, improving the quality of human resources is a major factor so that the role of the ship's crew remains strategic and is not completely replaced by technology (Sedarmayanti, 2017). The ship's crew needs to be equipped with skills and knowledge that continue to develop, in order to ensure operational efficiency and shipping safety, and prevent full replacement by an automated system. Optimal crew performance also supports the efficiency of human resource management, especially because the development of automation technology will have an impact on reducing the number of crew needed in the future.

According to Cascio (2015), performance is an individual's contribution to achieving organizational goals as measured by quality, quantity, and timeliness. Crews with good quality human resources—including in terms of knowledge, skills, and attitudes—tend to have optimal performance, especially in complying with safety procedures and supporting smooth operations. Hasibuan (2016) stated that the quality of human resources, obtained through education and training, has a direct impact on work productivity. Sedarmayanti (2017) also emphasized that high quality human resources can drive overall organizational efficiency.

Zainuddin's (2021) research at PT. Petrosea Tbk shows a significant influence between HR quality and employee performance, with a correlation coefficient of 0.686 indicating a positive and strong relationship between the two variables. This finding is relevant to the context of the maritime industry, where HR quality also plays an important role in determining crew performance. Therefore, companies need to pay attention to the quality of each individual in their team. If there are crew members who do not show optimal performance, the company should evaluate their performance after the contract is completed. This evaluation can refer to several indicators such as professional knowledge, compliance with SOPs, work initiative, task completion, organizational skills, safety awareness, teamwork skills, team management, client feedback, and English language proficiency.

Every organization cannot achieve its goals without the contribution of human resources who carry out their functions according to their respective roles and responsibilities. Although terms such as employees, workers, and laborers are used in different contexts, they all refer to individuals who devote their time and energy to achieving organizational goals (Aljabar, 2020). In this case, the crew is considered a professional employee who is bound by a contract, as stated by Supriyanto B (2020).

Bourbon Offshore Asia Pte., Ltd. is a subsidiary of Bourbon based in Asia, engaged in ship ownership (shipowner) which operates its own vessels and rents them to clients in various parts of the world. The company provides quality maritime logistics services and adheres to a system of providing vessels and their crews in one charter package. As shipowner, companies need to be supported not only by capital and equipment, but also by quality, responsible, disciplined human resources, and those with high loyalty to improve performance and client trust—important factors in facing competition with shipowner other.

Hasibuan (2016) stated that the quality of human resources includes the physical and mental aspects of individuals that affect the level of productivity. Continuous education, training, and work experience are the main keys in creating quality human resources. Sedarmayanti (2017) added that improving the quality of human resources can directly impact the productivity and efficiency of the organization. In the shipping world, quality crews are able to carry out their duties well, comply with safety procedures, and are ready to face various challenges in the field. The relationship between human resource quality and crew performance is mutually supportive—crews with high competence tend to make maximum contributions to achieving company goals.

However, in reality, Bourbon Offshore Asia Pte. Ltd. still faces a number of challenges related to crew performance, which impacts ship operations, company productivity, and client satisfaction and loyalty. These issues include delayscrew change, demand drops before contract completion, delays in document revalidation, disciplinary violations such as *scruisewithout permission* when the shipdocking, falling asleep during working hours, lack of communication with the crewing team, to lack of mastery of foreign languages that causes difficulty in receiving instructions. In fact, several cases of work accidents also occur due to non-compliance with SOPs. To overcome these challenges, Bourbon Offshore Asia needs to optimize HR management through the development of evaluation strategies and improvement of crew performance. The crewing department and HR management must be responsive in resolving various problems such as document revalidation, violation of regulations, and non-compliance with work contracts. This effort will not only minimize the negative impact on the company's operations, but also increase trust and loyalty from clients.

Therefore improving the quality of human resources through evaluation and development of crew performance is very crucial. Based on the description above, this research was raised with the title: "The Influence of Human Resource Quality on Crew Performance at Bourbon Offshore Asia Pte.,Ltd."

## Materials and Methods

This quantitative study employed a causal-associative design to examine the relationship between human resource (HR) quality and crew performance at Bourbon Offshore Asia Pte., Ltd., a company operating in the offshore oil-and-gas support sector. Data were collected aboard company vessels and at company facilities during the 2025 data-collection period. The primary objective was to estimate the magnitude and direction of the association between HR quality (independent variable) and crew performance (dependent variable) using standardized survey instruments and inferential statistics.

The sampling frame comprised all crew members employed by Bourbon Offshore Asia (N = 175); a saturated sampling approach was planned and all crew were invited to participate. Completed questionnaires from 80 respondents were returned and included in the final analysis (response rate =  $80/175 = 45.7\%$ ). Inclusion criteria required respondents to be active crew members during the data collection period and to provide informed consent. Questionnaires with extensive missing data (>20% of items) were excluded from analysis; remaining missing values were handled according to pre-specified procedures during data cleaning.

Data were collected using a structured, closed-ended questionnaire adapted from prior literature (e.g., Zainuddin, 2021). HR quality was operationalized through items capturing formal education, certification and revalidation, on-the-job and formal training participation, technical competence, and work experience. Crew performance was operationalized via items on professional knowledge, SOP compliance, initiative, task completion, safety awareness, teamwork, client feedback, and English proficiency. All items used a five-point Likert scale (1 = strongly disagree to 5

= strongly agree). Instrument validity was assessed using corrected item-total correlations (acceptable threshold  $> 0.30$ ) and item-level significance testing; internal consistency was evaluated with Cronbach's alpha ( $\alpha \geq 0.70$  as the primary threshold, with  $\alpha \geq 0.60$  considered for newly developed scales). The full questionnaire is available as an appendix.

Questionnaires were administered in electronic and paper formats, coordinated with company management and the crewing department to facilitate distribution and retrieval. Data were entered and analyzed in IBM SPSS Statistics for Windows (version 27). Preliminary procedures included descriptive statistics, missing-data assessment, and scale diagnostics. Regression assumptions were evaluated prior to hypothesis testing: normality of residuals (Kolmogorov–Smirnov and Q–Q plots), linearity (Test for Linearity and scatterplots), homoscedasticity (visual inspection and formal tests), independence of errors (Durbin–Watson), and influential observations (Cook's distance, leverage). Hypothesis testing used simple linear regression with  $\alpha = 0.05$ ; results are reported as unstandardized coefficients (B), standard errors, t-values, p-values, correlation (R) and coefficient of determination ( $R^2$ ). Ethical approval and permission to access participants were obtained from company management; participation was voluntary, informed consent was secured, and responses were anonymized and reported in aggregate.

## Result and Discussion

In accordance with the criteria, an item is considered valid if has a significance value (p-value)  $< 0.05$  and a value Corrected Item-Total Correlation  $> 0.3$ . If the correlation value meets the requirements, it can be concluded that the item has a strong relationship with its variables and can be used in research. The value Corrected Item Total Correlation is greater than rtable with  $df=80-2$  which is 78 so that rtable with 5% significance is 0.2199

Reliability testing is carried out using techniques Cronbach's Alpha is a technique that shows accurate, fast and economical internal consistency index. The instruments used meet reliability requirements according to Cronbach's Alpha if  $> 0.6$ . The higher the Cronbach's Alpha closer to 1, the higher the internal consistency reliability.

Table 4.3 Results of Reliability Test of Variable X

Reliability Statistics	
Cronbach's Alpha	N of Items
.897	9

Source: Processed SPSS Data, 2025

Based on table 4.7 it can be concluded that the value Cronbach's Alpha is  $0.897 > 0.60$ , then the questionnaire variable X is declared reliable or consistent.

Table 4.4 Results of Reliability Test of Variable Y

Reliability Statistics	
Cronbach's Alpha	N of Items
.940	24

Source: Processed SPSS Data, 2025

Based on table 4.8. it can be concluded that the value Cronbach's Alpha is  $0.940 > 0.60$ , then the questionnaire variable Y is declared reliable or consistent.

Table 4.5 Description of HR Quality and Performance DataCrew

Statistics		Kualitas SDM	Kinerja Crew
N	Valid	80	80
	Missing	0	0
Mean		31.46	86.50
Median		35.00	92.50
Std. Deviation		7.574	18.202
Variance		57.366	331.316
Minimum		16	44
Maximum		42	120

Source: Processed SPSS Data, 2025

Based on the descriptive results in the previous table, the HR Quality variable shows the highest value of 42, the lowest value of 16, with an average (mean) of 31.46. From all the data obtained, there were 47 sailors or around 58.75% who had values above the average for the HR quality variable. Meanwhile, in the crew performance variable, there were 46 sailors or 57.5% who showed values above the average. This finding indicates that more than half of the respondents showed relatively good performance. However, there are still some crews with values below the average, which suggests that there are certain factors that cause variations in performance levels.

#### 1. Normality Test

Data normality is used to determine whether the data obtained is on a normal scale or not. For searching for the normality value of the data in this study was used SPSS computer program Version 27. Data is declared normal if the significance is  $0.2 > 0.05$ .

Table 4.6 Description of Human Resource Quality Data

One-Sample Kolmogorov-Smirnov Test			Unstandardized Residual
N			80
Normal Parameters <sup>a,b</sup>	Mean		.0000000
	Std. Deviation		6.87469245
Most Extreme Differences	Absolute		.072
	Positive		.054
	Negative		-.072
Test Statistic			.072
Asymp. Sig. (2-tailed) <sup>c</sup>			.200 <sup>d</sup>
Monte Carlo Sig. (2-tailed) <sup>e</sup>	Sig.		.394
	99% Confidence Interval	Lower Bound	.381
		Upper Bound	.407

a. Test distribution is Normal.  
b. Calculated from data.  
c. Lilliefors Significance Correction.  
d. This is a lower bound of the true significance.  
e. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 334431365.

Source: Processed SPSS Data, 2025

The technique used for normality testing is Kolmogorov-Smirnov Test of Normality technique. Based on the test normality, a significance value of  $0.2 > 0.05$  was obtained so that It can be said that the data is normally distributed. It can seen in the table above.

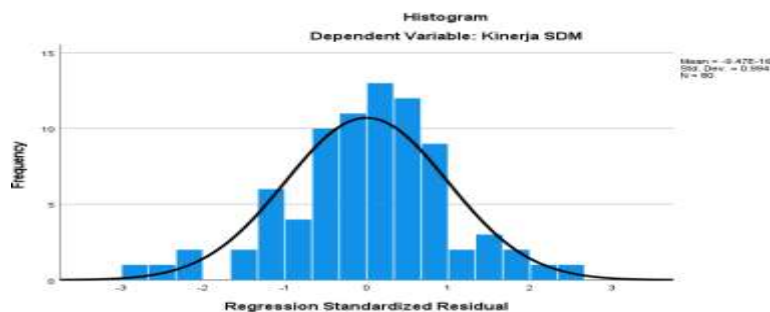


Figure 4.1 Normality Graph

Source: Processed SPSS Data, 2025

This graph shows a histogram with a curve normal which shows the distribution of data. The histogram forms a symmetrical pattern resembling a bell curve, so it can be concluded that the data tends to be normally distributed.

## 2. Linearity Test

The Linearity Test aims to determine whether two variables have a linear or non-linear relationship significant. This test is carried out using SPSS Version 27 with the Test for Linearity method with a level of significance  $\geq 0.05$  (Ghozali, 2016).

Table 4.7 Linearity Test



ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Kinerja Crew * Kualitas SDM	Between Groups	(Combined)	24122.401	22	1096.473	30.464	7.637
		Linearity	22440.350	1	22440.350	623.465	2.228
		Deviation from Linearity	1682.051	21	80.098	2.225	.090
	Within Groups		2051.599	57	35.993		
	Total		26174.000	79			

Source: Processed SPSS Data, 2025

Based on the table above, the Deviation from Linearity value is at a value of 0.09 and that value is higher than 0.05 so it can be said that there is significant linear relationship between HR quality on performance crew vessels at Bourbon Offshore Asia Pte., Ltd.

### 3. Homogeneity Test

Data homogeneity is used to determine whether the data obtained comes from a uniform population or not. To find the homogeneity of the research data used with SPSS Version 27 tools. Data is stated homogeneous if the significance value  $> 0.05$ . Based on the table below, it can be seen that the quality of human resources is significant on performance  $0.279 > 0.05$ . This shows that data is homogeneous or uniform.

Table 4.8 Homogeneity Test

ANOVA

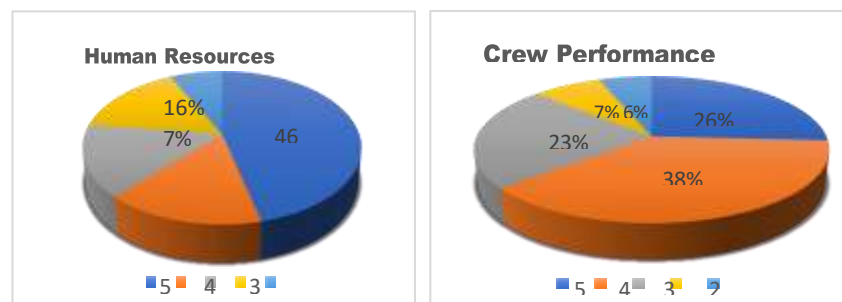
Kinerja SDM

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8415.073	22	382.503	1.208	.279
Within Groups	17728.294	56	316.577		
Total	26143.367	78			

Source: Processed SPSS Data, 2025

#### c. Description of Respondents' Responses Regarding the Influence of Quality

Human Resources on Performance Crew Ship On Bourbon Offshore Asia Pte., Ltd. The following are the respondents' responses to variable X. (Human Resource Quality) and variable Y (Performance) Crew based on predetermined dimensions and indicators. The questionnaire



was distributed to 80 respondents on a scale The answers and results are as follows:

Figure 4.2 Pie Chart of Results of Analysis of Variable X and Y

Source: Processed primary data

# 1. Data Analysis Techniques

## a. Hypothesis Testing

Table 4.9 Hypothesis Testing

Correlations			
		Kualitas SDM	Kinerja SDM
Kualitas SDM	Pearson Correlation	1	.926**
	Sig. (2-tailed)		< .001
	N	80	80
Kinerja SDM	Pearson Correlation	.926**	1
	Sig. (2-tailed)	< .001	
	N	80	80

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Processed SPSS Data, 2025

Decisions that can be taken if the value is significant is below 0.05 is to reject the Null Hypothesis ( $H_0$ ) and accept the Alternative Hypothesis ( $H_a$ ). Thus, it can be concluded that the quality of human resources has a significant impact on the performance of the ship's crew Bourbon Offshore Asia Pte., Ltd. The magnitude of the correlation between both variables amounting to 0.926 indicate the level of a very strong relationship, as stated in Table 3.2. In addition, the correlation coefficient has a positive value shows that the relationship between the quality of human resources and performance is unidirectional. This means that if the quality of human resources increases, then the crew's performance will also experience increase, and vice versa. Effective Contributions (SE)

Table 4. 10 Effective Contributions

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.926 <sup>a</sup>	.857	.856	6.918	.857	468.803	1	78	< .001

a. Predictors: (Constant), Kualitas SDM

Source: Processed SPSS Data, 2025

The table above explains the magnitude of the correlation value or the relationship (R) is 0.926. From the output the coefficient of determination (R square) obtained is 0.857 which means that the contribution value or the effective contribution of variable X (Quality of Human Resources Human) on variable Y (Performance)Crew) is amounting to 85.7% while the remainder or 14.3% contributed by variables other than resource quality humans outside of research.

## Simple Linear Regression Test

The results of data analysis using simple linear regression can seen in the table below.



Table 4.11 Regression Test

Coefficients <sup>a</sup>						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	16.489	3.325		4.959	<.001
	Kualitas SDM	2.225	.103	.926	21.652	<.001

a. Dependent Variable: Kinerja SDM

a. Dependent Variable: Kinerja SDM

Source: Processed SPSS Data, 2025

Based on the data from data processing using the simple linear regression statistics above can be determined as follow Simple Linear Regression Equation

From this equation it is known that:

- a. The constant value (a) = 16.489, which means if  $X = 0$ , then the Y value is 16,489. In this context, if independent variable X (HR quality) does not exist or has a value of zero, then the dependent variable Y (Performance) remains has a value of 16,489.
- b. The regression coefficient value (b) = 2.225, which shows that every one unit increase in the variable X (quality of human resources), then the Y variable (Performance) will increased by 2,225 units.

### 3. Direction of Variable Relationship

Based on the results of simple linear regression, it is known that the relationship between variable X (HR quality) and variable Y (crew performance) is positive and unidirectional. This can be seen from the regression coefficient value of 2.225, which indicates that every one unit increase in HR quality will be followed by an increase in crew performance of 2.225 units. Thus, it can be concluded that the higher the quality of HR, the performance of the ship's crew will also increase proportionally. Conversely, a decrease in HR quality will have a direct impact on a decrease in performance. Based on the results of the research that has been conducted, it is known that the quality of human resources (HR) has a significant effect on the performance of ship crews at Bourbon Offshore Asia Pte., Ltd. Crews with a high level of competence, optimal work productivity, and compliance with work safety standards tend to provide a positive contribution to the operational efficiency of ships. This also supports the company's competitiveness in the competitive maritime industry. The diversity of work experience among crews also becomes a challenge in HR management, especially for crews with a work period of 0-4 years that still require further coaching and training to achieve the expected level of competency. On the other hand, crews who have ANT/ATT certification show a crucial role in ensuring the safety and smooth operation of the ship. Therefore, the company needs to continue to implement training programs and performance evaluations routinely to improve the quality of human resources as a whole.

Data analysis shows that the relationship between HR quality and crew performance is very strong. The correlation coefficient (R) value of 0.926 illustrates a very high positive correlation between the two variables. Meanwhile, the determination coefficient ( $R^2$ ) of 0.857 indicates that 85.7% of the variation in crew performance can be explained by factors related to HR quality, such as technical competence, productivity, and discipline towards safety procedures.

The remaining 14.3% is explained by other external factors outside the scope of this study, such as leadership on board, working conditions, organizational culture, and environmental factors. This finding is in line with Sari's opinion (2018), which states that although HR quality is a dominant factor, there are other variables that also need to be considered in understanding the dynamics of crew performance as a whole. The simple

linear regression results obtained in this study strengthen the relationship through the equation  $Y = 16.489 + 2.225X$ . This means that every one unit increase in HR quality will increase crew performance by 2.225 units. The constant value of 16.489 indicates that even though HR quality is considered zero, crew performance remains at a certain basic level, indicating that there are other factors that also affect work performance. Practically, this indicates that increasing HR quality will directly and proportionally have an impact on increasing crew performance in the field.

Furthermore, the quality of human resources including technical skills, work experience, ongoing training, and communication skills are key factors in creating a productive, disciplined, and compliant crew that adheres to work safety standards. Crews with superior human resources will be able to carry out tasks efficiently, reduce the risk of operational errors, and support the creation of a safe work environment. Conversely, crews with low quality human resources tend to present obstacles in carrying out tasks, reduce productivity, and even potentially cause work accidents. This finding is consistent with the results of Zainuddin's (2021) research conducted at PT. Petrosea Tbk., where the quality of human resources was also found to have a significant influence on employee performance.

The results of the hypothesis testing in this study indicate that the alternative hypothesis ( $H_a$ ) is accepted, while the null hypothesis ( $H_0$ ) is rejected. Thus, it is statistically proven that there is a positive influence between the quality of human resources on crew performance at Bourbon Offshore Asia Pte., Ltd. This very strong correlation confirms that investment in human resource development through.

## Conclusion

Based on the results of the study on the effect of HR quality on crew performance at Bourbon Offshore Asia, it can be concluded that there is a significant positive relationship between HR quality and ship crew performance. The regression results show that every one unit increase in HR quality will increase ship crew performance by 2,225 units. The constant value of 16,489 indicates that even though HR quality does not affect ship crew performance (when the value is zero), the performance still has a base value of 16,489. This means that even though HR quality does not contribute, crew performance is still influenced by other factors that play a role. Furthermore, based on the calculation of the coefficient of determination ( $R^2$ ), a value of 0.857 was obtained, indicating that 85.7% of the variation in crew performance can be explained by the quality of human resources, while 14.3% is influenced by other factors not covered in this study. This finding confirms that the quality of human resources has a significant influence on the performance of ship crews at Bourbon Offshore Asia Pte., Ltd. and is the main factor influencing work performance. However, other external factors also play a role in creating optimal performance. Therefore, to improve the quality of human resources, managerial policies are needed that pay attention to various related aspects.

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