THE INFLUENCE OF OPERATIONAL COST EFFICIENCY AND HUMAN RESOURCE COMPETENCE ON PRODUCT QUALITY AT 1000 RENTCAR MEDAN

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Abstract:
Rapid industrial development and changes in consumer behavior require companies to continuously improve their competitiveness, particularly in maintaining customer satisfaction and trust. Operational cost efficiency is a company's ability to optimally manage expenses without compromising service quality. This study examines the effect of operational cost efficiency and human resource (HR) competency on product quality at PT 1000 Rentcar Medan. Using an associative quantitative method with multiple linear regression, data were collected from 35 operational and management employees. The results showed that operational cost efficiency had no significant effect on product quality. However, HR competency had a positive and significant effect on product quality. Furthermore, simultaneously, operational cost efficiency and HR competency significantly influenced product quality. These findings indicate that in the car rental industry, product quality is highly dependent on HR competency. Although customers do not directly feel internal cost efficiency, the synergy between the two is important for service quality.
Keywords: Operational Cost Efficiency, Human Resource Competence, Product Quality, Car Rental Services.

INTRODUCTION

Rapid industrial development and changes in consumer behavior require companies to continuously improve their competitiveness, particularly in maintaining customer satisfaction and trust (Kotler & Keller, 2016; Tjiptono, 2014). The car rental sector in major cities like Medan has shown significant growth along with increasing community mobility and tourist visits (Sukmana & Yulianto, 2020; Ministry of Tourism and Creative Economy, 2023). PT 1000 Rentcar Medan, as a player in this industry, strives to provide quality services by prioritizing operational cost efficiency and improving human resource competency.

Operational cost efficiency is a company's ability to optimally manage expenses without compromising service quality (Hansen & Mowen, 2009). In the context of car rentals, this includes managing fuel costs, vehicle maintenance, and employee salaries. Meanwhile, human resource (HR) competency encompasses the abilities, skills, and work attitudes that influence service quality (Sutrisno, 2009; Mangkunegara, 2015). Product quality in the car rental industry is determined not only by the physical condition of the vehicle but also by direct interactions between employees and customers (Kotler & Armstrong, 2018).

Table 1. Revenue for 2022

Month	2022		
	Income	Cost	Net Profit
January	Rp. 57.000.000	Rp. 28.450.650	Rp. 28.549.350
February	Rp.61.075.000	Rp. 43.872.970	Rp. 17.202.030

March	Rp.52,900,000	Rp. 31,105,990	Rp. 21,790,010
April	Rp.66,025,000	Rp. 40,650,900	Rp. 25,374,100
May	Rp.61,000,000	Rp. 30,985,700	Rp. 30,014,300
June	Rp.191.000.000	Rp. 102.070.450	Rp. 90.992.400
July	Rp.157.000.000	Rp. 100.007.600	Rp. 56.992.400
August	Rp.102.000.000	Rp. 80.970.100	Rp. 21.029.900
September	Rp.98.635.000	Rp. 78.200.000	Rp. 20.435.000
October	Rp.76.980.000	Rp. 53.780.341	Rp. 23.199.659
November	Rp166.750.000	Rp. 107.000.054	Rp. 59.749.946
December	Rp.79.250.000	Rp. 62.560.450	Rp. 16.689.550
Amount	**Rp.1.229.615.000,**	**Rp.759.655.205**	**Rp.469.959.795**

In 2022, PT 1000 Rentcar faced significant challenges that impacted its business performance, particularly declining revenue. The key issues identified were:

- Declining Consumer Interest and Fleet Condition: The decline in revenue was caused by a decline in consumer interest in rental vehicles. Most units were 2018 models, which were considered less visually appealing, looked outdated, and had limited technological features compared to newer units. Lack of attention to vehicle maintenance and appearance exacerbated this problem, creating the impression that the fleet was poorly maintained and did not provide comfort or confidence to customers. It reflected negligence in managing operational costs, particularly vehicle maintenance, a key asset.

- Limited and Lack of Human Resource Competence: PT 1000 Rentcar also faced internal challenges in human resource management. The company was supported by only two administrative staff members with limited knowledge and skills, resulting in poorly organized daily administration and operational management. Furthermore, the quality of driver service was substandard due to the lack of clear Standard Operating Procedures (SOPs), leading to service inconsistencies and customer dissatisfaction. The lack of human resource development and guidance directly impacted the overall decline in service quality.

Based on the above problems, this study aims to:

- Analyze the effect of operational cost efficiency on product quality at PT 1000 Rentcar Medan.
- Analyze the effect of human resource competency on product quality at PT 1000 Rentcar Medan.
- Analyze the simultaneous effect of operational cost efficiency and human resource competency on product quality at PT 1000 Rentcar Medan.

The research hypotheses are formulated as follows:

H1: Operational cost efficiency has a positive and significant effect on product quality at 1000 Rentcar Medan.

H2: Human resource competency has a positive and significant effect on product quality at 1000 Rentcar Medan.

H3: Operational cost efficiency and human resource competency simultaneously influence product quality at 1000 Rentcar Medan.

METHODS

Research Type and Approach. This research uses an associative quantitative method. This quantitative approach was chosen because it aims to test hypotheses and analyze causal relationships between the variables studied using numerical data and statistical analysis (Sugiyono, 2019). The associative design was used to determine the influence of the independent variables

(operational cost efficiency and human resource competency) on the dependent variable (product quality).

Research Location and Timeline. The research was conducted at the PT 1000 Nusantara Rentcar Medan office. Data collection and analysis were limited to the period from 2022 to 2023.

Population and Sample.

- Population: The population in this study was all operational and management employees of PT 1000 Rentcar Medan who are directly involved in operational activities and service quality management.
- Sample: The sampling technique used was purposive sampling, which involves selecting the sample based on specific considerations. The sample size was 40 respondents, consisting of permanent employees of PT 1000 Rentcar Medan (to measure operational cost efficiency and human resource competency) and customers of PT 1000 Rentcar Medan (to assess product/service quality). The criteria for employee respondents were permanent employees involved in operational cost management, service delivery, and control, and who had worked with the company for at least six months.

Data Analysis Method. Data analysis was conducted using a descriptive and inferential approach. The analytical model used was multiple linear regression. Prior to the regression analysis, instrument quality testing and classical assumption testing were conducted.

Data Quality Test.

- Validity Test: Measures the extent to which the questionnaire instrument is able to reveal data according to the concept being measured. The instrument is declared valid if the calculated r value is greater than the table r value (at).
- Reliability Test: Measures the consistency of respondents' answers. The instrument is considered reliable if the Cronbach's Alpha value is greater than 0.60.

Descriptive Statistical Analysis. Provides an overview of the data characteristics (minimum, maximum, mean, and standard deviation) of each variable.

Classical Assumption Test:

- Normality Test: Ensures variable data is normally distributed using the Kolmogorov-Smirnov test (significance value > 0.05).
- Heteroscedasticity Test: Ensures there is no inequality in residual variance, indicated by a randomly distributed pattern on a scatterplot or a Glejser test significance value > 0.05.
- Multiple Linear Regression Analysis: Measures the simultaneous and partial influence of independent variables on the dependent variable using the model: $$Y = a + b_1 X_1 + b_2 X_2 + e$$ $$Where:$$
  - = Product Quality
  - = Operational Cost Efficiency
  - = Human Resource Competence
  - = Constant
  - = Regression Coefficient
  - = Error

Hypothesis Testing:

- Coefficient of Determination (Adjusted R^2): Measures the ability of the regression model to explain variation in the dependent variable. An Adjusted R^2 value close to 1 indicates a good model. • Partial Significance Test (t-Test): Tests the individual influence of each independent variable. The hypothesis is accepted if α and β are <0.05.

- Simultaneous Significance Test (F-Test): Tests the joint influence of the independent variables. The hypothesis is accepted if α and β are <0.05.

RESULT AND DISCUSSION

This section presents the results of data processing from the questionnaire and the company's financial/operational report documentation. The analysis was conducted to determine the effect of Operational Cost Efficiency and Human Resource Competence on Product Quality at PT 1000 Rentcar Medan using a multiple linear regression model.

Validity Test.

Table 2. Validity Test

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
EBOX11	51,89	167,222	,844	,961
EBOX12	51,69	167,575	,854	,960
EBOX13	51,77	169,182	,796	,962
EBOX14	52,46	177,079	,469	,969
EBOX15	51,71	172,798	,701	,963
KSDMX21	51,63	172,534	,716	,963
KSDMX22	51,57	169,370	,849	,961
KSDMX23	51,43	165,546	,903	,959
KSDMX24	51,63	167,829	,760	,962
KSDMX25	51,57	167,076	,850	,960
KPY11	51,46	166,138	,909	,959
KPY12	51,46	163,491	,904	,959
KPY13	51,26	168,491	,850	,960
KPY14	51,29	171,916	,792	,962

The validity test results showed that for 35 respondents, the r value ($\alpha=5\%$) was 0.3338. All questionnaire items had a Correction Item Total Correlation value greater than 0.3338; thus, all questionnaire items were declared valid.

Reliability Test. Based on Table 2, the Cronbach's Alpha value for item deletion for all questionnaire items was above 0.70, indicating that the research instrument was reliable.

Classical Assumption Test, Normality Test.

Table 3. Kolmogorov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		35
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	1,56200289
Most Extreme Differences	Absolute	,136
	Positive	,136
	Negative	-,085

Kolmogorov-Smirnov Z	,804
Asymp. Sig. (2-tailed)	,538
a. Test distribution is Normal.	
b. Calculated from data.	

The Kolmogorov-Smirnov test on the regression model residuals shows an Asymp. Sig. (2-tailed) value of 0.538. Since this value is greater than 0.05, it can be concluded that the residual variables for the regression model are normally distributed.
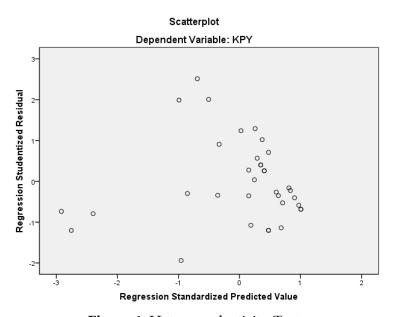
Heteroscedasticity Test.

Figure 1. Heteroscedasticity Test

The results of the heteroscedasticity test indicate that the points on the scatterplot are randomly distributed, do not form a specific pattern, and are spread both above and below zero on the Y-axis. It indicates the absence of heteroscedasticity in the Regression Model.

Hypothesis Testing, Direct Effect Hypothesis Test (H1).

Partial Significance Test (t-statistic test). The t-statistic test is used to assess the individual influence of the independent variable on the dependent variable. The acceptance criteria for H1 are if the calculated t value is greater than the table t value and the significance level is <0.05.

Table 4. t-Test

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	,993	1,119		,887	,382
EBOX	,141	,100	,162	1,412	,168
KSDM	,661	,096	,795	6,922	,000
a. Dependent Variable: KPY					

Operational Cost Efficiency Variable (EBOX/X1):

- t-test = 1.412
- t-test = 2.032
- Significance level = 0.168
- Since t-test (1.412) < t-test (2.032) and Sig. (0.168) > 0.05, Operational Cost Efficiency does not significantly influence Product Quality.

Human Resource Competence Variable (KSDM/X2):

- t-test = 6.922
- t-test = 2.032
- Significance level = 0.000
- Since t-test (6.922) > t-test (2.032) and Sig. (0.000) < 0.05, Human Resource Competence has a significant positive influence on Product Quality.

Based on the partial test results, the regression equation for the Regression Equation Model is:

$$KPY = 0.993 + 0.141 \times EBOX + 0.661 \times KSDM$$

- KPY (Product Quality) is the dependent variable influenced by EBOX (Operational Cost Efficiency) and KSDM (Human Resource Competence).
- 0.993 is a constant value, indicating the value of KPY when EBOX and KSDM are zero.
- 0.141 is the coefficient for EBOX, indicating that every one-unit increase in EBOX will lead to a 0.141 increase in KPY, assuming KSDM remains constant.
- 0.661 is the coefficient for KSDM, indicating that every one-unit increase in KSDM will lead to a 0.661 increase in KPY, assuming EBOX remains constant.

Simultaneous Significance Test (F-statistic Test). The F-test is used to determine the simultaneous effect of independent variables on the dependent variable. The acceptance criteria for H1 are if the calculated F-statistic is greater than the table F-statistic and the Sig. The test is less than 0.05.

Table 5. F-test

ANOVA[b]					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	568,931	2	284,465	109,733	,000[a]
Residual	82,955	32	2,592		
Total	651,886	34			

a. Predictors: (Constant), KSDM, EBOX
b. Dependent Variable: KPY

The F-test results show a calculated F-value of 109.733, which is greater than the F-table (4.110), with a significance level of 0.000 (well below 0.05). It means that H0 is rejected and H1 is accepted, indicating that the variables Operational Cost Efficiency and Human Resource Competence simultaneously have a significant effect on Product Quality.

Coefficient of Determination Test. The coefficient of determination test measures the model's ability to explain variation in the dependent variable.

Table 6. Coefficient of Determination Test

Model Summaryb				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	,934a	,873	,865	1,61008

a. Predictors: (Constant), KSDM, EBOX
b. Dependent Variable: KPY

The R coefficient value for the Regression Model is 0.934 (93.4%), indicating a close relationship between the independent variables (Operational Cost Efficiency and Human Resource Competence) and Product Quality. The R Square value is 0.873, which means 87.3% of the variation in Product Quality can be explained by Operational Cost Efficiency and Human Resource Competence. The remaining 12.7% is explained by other factors not examined.

The Effect of Operational Cost Efficiency on Product Quality at PT 1000 Rentcar Medan. The results of this study indicate that Operational Cost Efficiency does not significantly impact Product Quality partially. Cost savings implemented by PT 1000 Rentcar tend to focus on internal cost management and do not necessarily have a direct impact on service aspects or vehicle quality perceived by consumers. As explained by Hansen and Mowen (2009), cost efficiency is important in operations, but it is not always the primary indicator of perceived quality for service users. In the service context, quality is determined more by the direct service experience than simply internal cost efficiency.

The Influence of Human Resource Competence on Product Quality at PT 1000 Rentcar Medan. Human Resource Competence has a significant positive effect on Product Quality. It means that the higher the employee competence and professionalism, the better the quality of service received by customers. This finding is consistent with Mangkunegara's (2011) opinion, which states that competence (knowledge, skills, and work attitude) is a key factor in job success. Improving employee competence directly improves customer satisfaction and perceptions of the company's service quality.

The Simultaneous Effect of Operational Cost Efficiency and Human Resource Competence on Product Quality at PT 1000 Rentcar Medan. Although Operational Cost Efficiency was not significantly affected, when combined with Human Resource Competence, both significantly impacted product quality. The F-test results showed a calculated F-value of 109.733 (greater than the F-table of 4.110) with a significance level of 0.000 (less than 0.05). Therefore, the null hypothesis (H0) was rejected and the alternative hypothesis (H1) was accepted.

It demonstrates that in the operational context of a service company such as a car rental, product quality is not determined by a single factor, but rather by the synergy of various managerial aspects, including cost management efficiency and human resource capacity. Appropriate cost efficiency can optimally allocate funds for vehicle maintenance, employee training, or facility improvements. Meanwhile, competent human resources are able to translate this efficiency into high-quality, professional service that meets customer expectations. Tjiptono (2015) emphasized that service product quality is strongly influenced by human factors and the work systems that support

the service. Thus, the collaboration between efficiency and human resource competence drives overall quality improvement. The two complement each other: efficiency creates operational stability, while human resources ensure optimal service delivery, making this simultaneous influence statistically significant and practically relevant.

CONCLUSION

1. Operational Cost Efficiency: Operational cost efficiency, as a partial measure, does not significantly impact Product Quality. It is because the company's cost savings focus more on internal operational aspects and are not directly felt by customers. In service industries such as car rentals, quality is determined more by the customer service experience than simply internal cost efficiency.
2. Human Resource Competence: Human Resource Competence has a positive and significant impact on Product Quality. It indicates that the higher the quality and capabilities of employees, the better the service provided to customers. This finding underscores the crucial role of HR in creating superior service quality, especially in the service sector, which relies heavily on direct interaction between employees and customers.
3. Simultaneous Effect: Although Operational Cost Efficiency does not significantly impact Product Quality, when combined with Human Resource Competence, both have a significant and significant impact on Product Quality. It demonstrates that efficient cost management must be implemented simultaneously with improving employee competency to achieve maximum results. In the service context, quality is largely determined by the quality of human resources, service, and customer satisfaction, reinforcing the importance of HR as a strategic asset.

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