https://doi.org/10.31871/IJNTR.10.517
International Journal of New Technology and Research (IJNTR)
ISSN: 2454-4116, Volume-10, Issue-5, May 2024 Pages 38-41

Effect of Implementing an Occupational Health and Safety Management System on Worker Productivity in Fit Out Mall Work

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***Abstract*—Paper Work accidents in Indonesia are still likely to be high even though the company received a certificate of Occupational Health and Safety Management System (SMK3) soaring up 70%. In these phenomena there are indications of declining productivity of construction workers. One of the unique construction results is the property malls. In Jakarta itself has built 80 malls with various classes. The application of SMK3 in each legal civil activity must be carried out in accordance with Government Regulation no. 50 of 2012 which is integrated with the company's regulations. The research was conducted on the participants of mall management building in Jakarta and in cooperation with PT XYZ one of the developers and managers of a large mall in Jakarta. It is necessary to evaluate the factors of the application of SMK3 that affect the productivity of workers in fit out mall work. The data was taken with field surveys, interviews and questionnaires as well as supporting data. It uses 7 free variables defined by ranking by the RII (Relative Importance Index) method, and combined with multiple linear regressions. The results showed the dominant factor affecting worker productivity in fit out mall jobs in DKI Jakarta was the communication factor of workers (X5) with a significance of 0.002 and a double regression coefficient of 0.469.**

***Index Terms*— Construction, Mall, OHSMS,Productivity**

I. INTRODUCTION

A.. Backgroundof Problems

Along with the rapid growth of malls, there is also the rapid growth of mall management and development companies in Indonesia, one of which is PT tower in West Jakarta. However, there are still several challenges in implementing K3 (occupational safety and health) in the implementation of construction projects and fit out projects. The development of the world of building construction in Indonesia is increasingly developing, one of which is the result of the construction of shopping and retail centers (Malls) in Indonesia. When viewed from the architecture, the mall is a closed building with a regulated temperature and has a regular walking path so that it is located between small and large shops that face each other. Due to the wide architectural shape of the building, generally a mall is three floors high. The purpose and size of this shopping center is generally determined by the characteristics of the market served, the higher the economic strata served, the more luxurious the mall will be. The uniqueness of the construction of the mall itself lies in the distribution of empty units which will later be rented out to tenants to build their businesses in the mall, where contractors are involved in the work process. The term or term for creating a business unit is usually called tenant fit out work. Due to its dynamic nature, there are often rapid

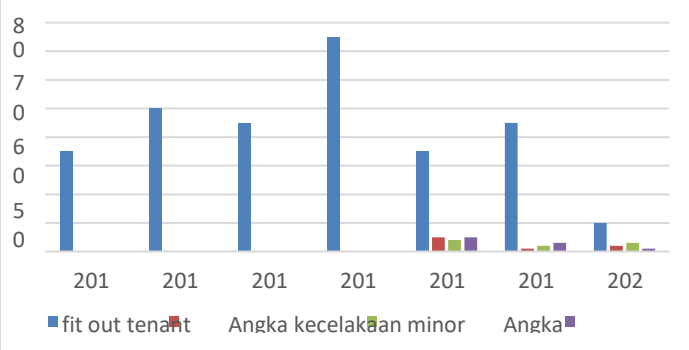

Figure 1 Tenant Fit Out and Work Accident Rates for the 2014-2020 Period
Source: PT. XYZ

changes in development in terms of architecture as well as additions or transfers from one function to another according to market developments.(Nugroho , R.E and Sunbara, A. 2021).

II. THEORITICAL REVIEW

A.Occupational Health and Safety Management System

According to PP No. 50 of 2012 Occupational health and safety management systems or often called SMK3 are part of the overall management system which includes organizational structure, planning, responsibilities, implementation, procedures, processes and resources needed for development, implementation, and achievement. , assessing and maintaining OHS policies in the context of controlling risks related to work in order to create a safe, efficient and productive workplace (Yuan, 2018).

B. Work accident

According to (Kaynak, 2016),occupational safety and health are the main means of preventing accidents, disabilities and deaths due to work accidents.Good work safety is a gateway for workforce security. Work accidents can cause indirect losses, such as damage to work machines and equipment,

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interruption of the production process for a while, and damage to the work environment.

According to the ILO cited by(Warioguyo and Romanus , 2014), occupational safety and health is a promotion, protection and improvement of health status which as much as possible includes physical, mental and social aspects for the welfare ofworkers in the workplace.Occupational safety and health are defined as efforts to carry out a job without causing accidents and to make the work atmosphere free from all kinds of dangers so that high work productivity will be achieved.

C. Worker Productivity

Productivity in research Godrati et al (2018) cites research (Yuan, 2018) that construction companies use different terms to calculate worker productivity because there is no standard definition in the construction industry. Meanwhile, other research reveals that labor productivity is the volume of work that can be produced by a worker or a work team within a certain time period. Which means, labor productivity is the amount of time required by a worker or a work team to produce a certain volume of work (Yie and Chan, 2017). According to (Steel, Godrich and Luyten,2018), the results of his research show that there are two indicators of productivity, namely labor productivity (labor) and capital productivity (capital).

D. Formulation of The Problem

Based on the description in the background above, as with other companies, PT XYZ also experiences many challenges and obstacles in improving the implementation of the Occupational Safety and Health Management System (SMK3). By paying attention to the things described in the background written above, it is very possible to identify problems in this research. With the following problem identification results:

In connection with the background and identification of problems that have been described previously, the formulation of the problem that will be discussed in this research is as follows:

1) What is the relationship (correlation) between the factors implementing SMK3 and worker productivity?

2) What is the influence of the factors implementing SMK3 on worker productivity?

3) What are the factors that have the most influence (dominant) on the implementation of SMK3 on worker productivity.

E. Research Purposes

Based on the problem formulation above, the aims and objectives of this research are as follows:

1) Identify the effect of implementing SMK3 on worker productivity.

2) Evaluate the factors that influence the implementation of SMK3 on the productivity of Mall fit out workers.

3) Analyze the relationship between factors implementing SMK3 on the productivity of mall fit out workers.

III. METHOD

Multiple linear regression analysis (multiple regression analysis) is a statistical technique that can be used to analyze the relationship between one single dependent variable and several independent variables. Multiple linear analysis techniques were used, because this research wanted to test the influence of the independent variable on the dependent variable. "Multiple" (not "simple") was chosen, because the number of independent variables is one or more than two (mutltivariate) (Haryono, 2017: 17-18), in this case seven dimensions in the independent variables. Multiple linear regression analysis (multiple regression analysis) was chosen, because the type of hypothesis testing in this research was sufficient only with this analysis technique Because in this study there are 7 independent variables, namely factors implementing SMK3 and a dependent variable, namely worker productivity, the multiple linear regression equation model in this study is used.:

$$\mathbf{Y} = Q_0 + Q_1X_1 + Q_2X_2 + Q_3X_3 + Q_4X_4 + Q_5X_5 + Q_6X_6 + Q_7X_7$$

Where :

Y: Worker Productivity

$\beta 0$: Constant coefficient

β1-β7: Regression coefficient of independent variable X1: X7-Occupational Health Factors

X2: Top Management Commitment

X3: Prevention of Work Accidents

X4: K3 Procedures and Regulations

X5: Employee Communication

X6: Worker Competency

X7: Equipment and Machines

Data analysis uses an Alpha significance level of 0.05..

IV. RESULT AND DISCUSSION

This analysis was carried out to obtain an assessment of the influence of SMK3 implementation factors on worker productivity in fit out work mall. This analysis has output in the form of the most influential factor with a sig value < 0.05, simultaneous influence with the F test, significant influence of individual parameters with the T test, simultaneous relationship form with multiple correlation coefficients, and percentage influence of the coefficient of determination.

Table 1. Multiple Linear Regression Results

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.906	0.482		3.952	0.000
	X1 Faktor Kesehatan Kerja	-0.140	0.112	-0.153	-1.249	0.216
	X2 Komitmen Top Manajemen	-0.056	0.152	-0.060	-0.369	0.713
	X3 Pencegahan kecelakaan kerja	0.320	0.123	0.294	2.594	0.012
	X4 Prosedur dan peraturan K3	-0.164	0.157	-0.192	-1.040	0.302
	X5 Komunikasi Pekerja	0.469	0.147	0.591	3.200	0.002
	X6 Kompetensi Pekerja	-0.072	0.095	-0.087	-0.756	0.452
	X7 Peralatan dan Mesin	0.223	0.135	0.289	1.648	0.104
a. Dependent Variable: Y Produktifitas Pekerja						
	F_hitung =9725					
	t_tabel = 1.99495					
	Sig. = 0.000					
	R = 0.705					
	R2 = 0.497					

The author processed the data source from SPSS
This multiple linear regression coefficient was carried out to determine the factors in implementing SMK3 that most influence worker productivity in Mall fit out work, by looking at the Sig value < 0.05. Based on the coefficient values in the table above, the multiple linear regression equation is as follows.

Y = 1.906 -0.140X1 -0.056X2 + 0.320X3 -0.164X4 + 0.469X5 -0.072X6 + 0.223X7

From the equation above, the multiple linear regression coefficient above can be interpreted as follows.

1. Occupational health factors (X1) on worker productivity in mall fit out work.

The research results show that the regression value is -0.140. This indicates that the influence of the two is not in the same direction and explains that the lower the application of occupational health factors (X1) to mall fit out work, the lower worker productivity will be.

2. Top Management commitment (X2) to worker productivity on the job fit out mall.

The research results show that the regression value is -0.056. This indicates that the top management commitment factors are not in the same direction and explains that the lower the application of top management commitment (X2) to mall fit out work, the lower worker productivity will be.

3. Work accident prevention factors (X3) on worker productivity in mall fit out work.

The research results show that the regression value is 0.320. This indicates that the work accident prevention factors (X3) are both in the same direction and explain that the higher the application of work accident prevention to mall fit out work, the higher worker productivity will be.

4. Factors of K3 procedures and regulations (X4) on worker productivity in mall fit out work.

The research results show that the regression value is -0.164. This indicates that the factors of K3 procedures and regulations (X4) are both not in the same direction and explains that the lower the application of K3 procedures and regulations to mall fit out work, the lower worker productivity will be.

5. Worker communication factor (X5) on worker productivity on the job fit out mall.

The research results show that the regression value is 0.469. This indicates that the worker communication factors (X5) are both in the same direction and explain that the higher the application of worker communication to mall fit out work, the higher the worker productivity.

6. Worker competency factor (X6) on worker productivity on the job fit out mall.

The research results show that the regression value is -0.072. This indicates that the worker competency factors (X6) are not in the same direction and explains that the lower the application of worker competence to mall fit out work, the lower the worker productivity will be.

7. Equipment and machine factor (X7) on worker productivity on the job fit out mall.

The research results show that the regression value is 0.223. This indicates that the equipment and machine factors (X7) are both in the same direction and explain that the higher the application of equipment and machines to mall fit out work, the higher worker productivity will be.

T Test

To explain the influence of the significance of individual parameters or the t test based on table 1.0 by comparing the T calculated value and the Sig value based on if the T calculated > T table then there is an influence of the independent variable (X) on the dependent variable (Y) and the Sig value <0.05 means there is an influence of the independent variable (X) on the dependent variable (Y) and based on the T table value obtained as 1.99495 it can be explained as follows.

1. The occupational health factor (X1) has a T value of -1.249 < 1.995 and a Sig value of 0.216 > 0.05, so it can be concluded that the occupational health factor has no

significant influence on worker productivity in mall fit out work.

2. The top management commitment factor (X2) has a T value of -0.369 < 1.995 and a Sig value of 0.713 > 0.05, it can be concluded that the top management commitment factor has no significant influence on worker productivity in mall fit out work.

3. The work accident prevention factor (X3) has a T value of 2,594 > 1,995 and a Sig value of 0.012 > 0.05, it can be concluded that the work accident prevention factor has a significant influence on worker productivity in mall fit out work.

4. The K3 procedures and regulations factor (X4) has a calculated T value of -1,040 < 1,995 and a Sig value of 0.302 > 0.05, it can be concluded that the K3 procedures and regulations have no significant influence on worker productivity in mall fit out work.

5. The worker communication factor (X5) has a T value of 3,200 > 1.995 and a Sig value of 0.002 > 0.05, so it can be concluded that the worker communication factor has a significant influence on worker productivity in mall fit out work.

6. The worker competency factor (X6) has a T value of -0.756 < 1.995 and a Sig value of 0.452 > 0.05, so it can be concluded that the worker competency factor has no significant influence on worker productivity in mall fit out work.

7. The equipment and machinery factor (X7) has a T value of 1.648 < 1.995 and a Sig value of 0.104 > 0.05, so it can be concluded that the equipment and machinery factor has no significant influence on worker productivity in mall fit out work.

V. CONCLUSION

1. The results of this study explain that the factors implementing SMK3 have an influence on worker productivity in mall fit out work with a fairly strong to strong correlation.

2. Meanwhile, the results of the influence of SMK3 implementation factors on worker productivity based on the results of the regression coefficient produce a positive output value which indicates the same direction which explains if the work accident prevention factor (X3), worker communication factor (X5) and equipment and machine factor (X7) are improved will affect worker productivity in mall fit out work. Likewise, negative output results indicate that it is not in the same direction which explains that occupational health factors (X1), top management commitment (X2), K3 procedures and regulations (X4) and worker competency factors (X6) if not improved will also have an effect on decreasing worker productivity. . In its application, based on the results of the F test and the multiple coefficient values, it is very influential if carried out simultaneously on worker productivity in mall fit out work simultaneously and produces a strong correlation. And based on the coefficient of determination, the factors implementing SMK3 on worker productivity in mall fit-out work have a simultaneous effect of 49.7%.

3. Based on the results of data tabulation processing, it was found that the factor that has a dominant influence on mall fit out work is the worker communication factor (X5).

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