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COMPARATIVE ANALYSIS OF MAN POWER, PRODUCTIVITY, AND OUTPUT IN THE SHORT AND LONG CONVEYOR CONVEYOR USING MICRO MOTION (CASE STUDY: PT.EDS MANUFACTURING INDONESIA)

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Abstract: The thesis is compiled to analyze the ratio of man power, productivity and output between short and long conveyor conveyor. In addition to analyzing the conveyor which is better to be applied in PT. EDS Manufacturing Indonesia by using micro motions. The analysis used by researchers working maps, motion studies and calculation of standard time obtained from the data retrieval researchers with methods of micro motion (use a stop watch).The sample in this study is that there are in the final process assy namely setting. From the results, it can be calculated that for man power has the addition of 58% from 7 to 12, to the output increase from 23.49 unit be 51.17 units and poduktivitas takttime increased 9% from 4 units to 4.41 units and 20% productivity standard time of 3.35 units to 4.2 units.

Keywords: productivity, output, micro-motion

INTRODUCTION

The results achieved by the final assy output, found the problem inability to achieve production output target set by the company. Therefore, the company is required to make improvement or change activities to increase the efficiency of the company.

Ouput data used is output by two conveyor-type car harness suzuki solio and suzuki ignis where this conveyor has the same characteristics and harness of the same carmaker is suzuki. Aggregate output in 2016 was 28712 harness, 2017 harness as many as 25 817, and 2018 as many as 992 harness. The average achievement of output in 2016 was only 72%, in 2017 by 73% and in 2018 in January and February by 76%.

Table 1. Total output short conveyor is the target and actual 2016 until 2018 (February)

MONTH	2016				2017				2018			
	PLAN	ACTUAL	DIFFERENCE *OUTPUT*	ACHIEVEMENTS	PLAN	ACTUAL	DIFFERENCE *OUTPUT*	ACHIEVEMENTS	PLAN	ACTUAL	DIFFERENCE *OUTPUT*	ACHIEVEMENTS
JANUARY	3757	2108	1649	56%	4661	3177	1484	68%	2991	2125	866	71%
FEBRUARY	2310	1545	765	67%	9456	6756	2700	71%	663	537	126	81%
MARCH	12044	9139	2905	76%	6228	4140	2088	66%				
APRIL	6963	4816	2147	69%	8919	6225	2694	70%				
MAY	11818	7920	3898	67%	10017	7672	2345	77%				
JUNE	25672	18418	7254	72%	6588	4665	1923	71%				
JULY	5360	3692	1668	69%	16543	11589	4954	70%				
AUGUST	1605	1290	315	80%	4776	3500	1276	73%				
SEPTEMBER	3373	2761	612	82%	5965	4800	1165	80%				
OCTOBER	14653	10872	3781	74%	11260	8742	2518	78%				
NOVEMBER	9807	6912	2895	70%	5493	4071	1422	74%				
DECEMBER	3384	2561	823	76%	4565	3317	1248	73%				

LITERATURE REVIEW

Productivity

According Hatani (2008), in general productivity can be defined as the ratio between the amount of goods and services produced (output) with the amount of resources used (input).

Work Map

According Sutalaksana et al. (2006), work map is a tool that describes the work activities in a systematic and clear. Map can be divided into two major groups based on their activities, namely the maps that are used to analyze the overall work activities and maps are used to analyze the activities of local labor. Group work activities include the whole operation process map, map process flows, process maps and flow charts of the working group. On the other hand, the local work group activities is a map of workers and machines as well as a map of the left hand and right hand.

Motion Studies

According Sitohang and Norita (2015), the study is an analysis of the movement of the body parts of workers in adjusting their work, so that movements are not effective can be reduced or even eliminated, so that would be obtained savings and reduction of working time worker fatigue.

According Astuti and Iftadi (2016), the benefits of the movement study include:

1. Improve the ability of workers, due to implementing a good method, using a good tool and stop the unnecessary activities.
2. Reduce worker fatigue.
3. Reduce labor costs, because the waste in the plant is reduced.

Calculation of time standard

According Wignjosoebroto (2006), there are various ways to measure and set the standard time. Some industries only make time estimates based on historical experience. Timing is done by measuring standard work such as stop watch time study, work sampling, delay ratio study, standard data, and predetermined motion time system.

RESEARCH METHODS

Figure 1. Research Method Framework

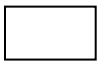
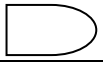
FINDINGS AND DISCUSSION

Data retrieval time when the process in regular and long conveyor conveyor collected and processed to be used in research. Then analyze the operator working map obtained from the determination of work processes by drawing harnes operator that has been done by the department of concept and then later researchers will analyze the sequence of the process and there is no wait process between processes. Later analysis of motion studies with sorting operator operator movement if the movement is effective movements or movements ineffective as to the concept of working elements therblig. Further analysis with the standard time measurement cycle time calculation (2.1), the calculation of normal time (2.2), the standard time (2.3). And lastly fishbone diagram analysis of environmental conditions and why-why analysis of 4M (machine, material, method,

Analysis of the operator Conveyor Regular map

Table 2
Map of the operator setting regular CV

NO	WORK	MAP SYMBOL OF WORK
1	Home position	
2	Take kanban from surishage, save in sao clamp kanban being processed.	
3	Open the rubber on a roll circuit	
4	Take connector 7289-3740-30, the setting for part matting Edge 43	
5	Take circuit 480 (0.0 B), setting the matting to the end part 95	
6	Take connector 7283-4779-30, setting matting to the tip part 42	
7	Open the rubber rolls	
8	Take matting connector 7283-0391-30 setting to end part 57	
9	Take matting connector 7123-2312-30 setting to end part 60	
10	Take circuit 469 (Sb 0.3), 462 (Y 0.3) setting to matting part ends 49	
11	Take the 7283-7699 setting to matting connector end part 73	
12	Take circuit 461 (Lg 0.3) setting to matting part 77 ends.	
13	Take matting connector 7383-1571-30 setting to end part 76	
14	Take circuit 531 (V 0.35), 530 (Y 0.75), 529 (Y 0.75) Setting matting to the tip part 29	
15	Take circuit 175 (Y 0.35) setting matting to the tip part 72	

16	Take circuit 478 (W 1:25) setting matting to the tip part 95	
17	Take matting connector 7283-1225-40 setting to end part 82	
18	Take circuit 223 (V 0.5) setting to matting part ends 83	
19	Take matting connector 7283-4672-90 setting to end part 49	
20	Take circuit 469 (Sb 0.3), 462 (Y 0.3) Insert the connector to the end of the 49	
21	Take the 7287-7165 setting to matting connector end part 77	
22	Take circuit 459 (0.3 Lg) Insert the end of the connector to the circuit 77 through VO-B	
23	Take circuit 544 (Br 0.35) setting matting to the tip part 29	
24	Make sure that at the time of connector insert circuit to perform 4T (press and press tensile pull)	
25	Make sure all the circuit into the fork and no one setting	
26	Back to the home position	

Analysis motion studies operator ***conveyor regular***

Table 3

Analysis motion studies operator setting regular CV

RIGHT HAND			LEFT HAND		
WORK	NAME THERBLIG	SYMBOL THERBLIG	WORK	NAME THERBLIG	SYMBOL THERBLIG
Home position	Reach	RE	Home position	Reach	RE
Take kanban from surishage, save in sao clamp kanban being processed.	Reach	RE	Take kanban from surishage, save in sao clamp kanban being processed.	hold	G
Open the rubber on a roll circuit	release	RL	Open the rubber on a roll circuit	release	RL
Take connector 7289-3740-30, the setting for part matting Edge 43	Choose	S	Take connector 7289-3740-30, the setting for part matting Edge 43	assemble	A
Take circuit 480 (0.0 B), setting the matting	Choose	S	Take circuit 480 (0.0 B), setting the matting	assemble	A

to the end part 95			to the end part 95		
Take connector 7283-4779-30, setting matting to the tip part 42	Choose	S	Take connector 7283-4779-30, setting matting to the tip part 42	assembl e	A
Open the rubber rolls	release	RL	Open the rubber rolls	release	RL
Take matting connector 7283-0391-30 setting to end part 57	Choose	S	Take matting connector 7283-0391-30 setting to end part 57	assembl e	A
Take matting connector 7123-2312-30 setting to end part 60	Choose	S	Take matting connector 7123-2312-30 setting to end part 60	assembl e	A
Take circuit 469 (Sb 0.3), 462 (Y 0.3) setting to matting part ends 49	Choose	S	Take circuit 469 (Sb 0.3), 462 (Y 0.3) setting to matting part ends 49	assembl e	A
Take the 7283-7699 setting to matting connector end part 73	Choose	S	Take the 7283-7699 setting to matting connector end part 73	assembl e	A
Take circuit 461 (Lg 0.3) setting to matting part 77 ends.	Choose	S	Take circuit 461 (Lg 0.3) setting to matting part 77 ends.	assembl e	H
Take matting connector 7383-1571-30 setting to end part 76	Choose	S	Take matting connector 7383-1571-30 setting to end part 76	assembl e	A
Take circuit 531 (V 0.35), 530 (Y 0.75), 529 (Y 0.75) Setting matting to the tip part 29	Choose	S	Take circuit 531 (V 0.35), 530 (Y 0.75), 529 (Y 0.75) Setting matting to the tip part 29	assembl e	A
Take circuit 175 (Y 0.35) setting matting to the tip part 72	Choose	S	Take circuit 175 (Y 0.35) setting matting to the tip part 72	assemble	A
Take circuit 478 (W 1:25) setting matting to the tip part 95	Choose	S	Take circuit 478 (W 1:25) setting matting to the tip part 95	assemble	A
Take matting connector 7283-1225-40 setting to end part 82	Choose	S	Take matting connector 7283-1225-40 setting to end part 82	assemble	A
Take circuit 223 (V 0.5) setting to matting	Choose	S	Take circuit 223 (V 0.5) setting to matting	assemble	A

part ends 83			part ends 83		
Take matting connector 7283-4672-90 setting to end part 49	Choose	S	Take matting connector 7283-4672-90 setting to end part 49	assemble	A
Take circuit 469 (Sb 0.3), 462 (Y 0.3) Insert the connector to the end of the 49	Choose assemble	S A	Take circuit 469 (Sb 0.3), 462 (Y 0.3) Insert the connector to the end of the 49	hold	H
Take the 7287-7165 setting to matting connector end part 77	Choose	S	Take the 7287-7165 setting to matting connector end part 77	hold	H
Take circuit 459 (0.3 Lg) Insert the end of the connector to the circuit 77 through VO-B	Choose assemble	S A	Take circuit 459 (0.3 Lg) Insert the end of the connector to the circuit 77 through VO-B	hold	H
Take circuit 544 (Br 0.35) setting matting to the tip part 29	Choose	S	Take circuit 544 (Br 0.35) setting matting to the tip part 29	hold	H
Make sure that at the time of connector insert circuit to perform 4T (press and press tensile pull)	Check	I	Make sure that at the time of connector insert circuit to perform 4T (press and press tensile pull)	Check	S
Make sure all the circuit into the fork and no one setting	Check	I	Make sure all the circuit into the fork and no one setting	Check	I
Back to the home position	Reach	RE	Back to the home position	Reach	RE

Analysis of the standard time measurement***conveyor Regular***

A. Value flats

$$\chi = \frac{\Sigma xi}{k} = \frac{117+118+121+119}{4} = 118.75 = 119$$

B. Standard deviation

$$\sigma = \sqrt{\frac{\Sigma(Xj - X)^2}{N-1}} = \sqrt{\frac{9}{3}} = 1.73$$

C.The standard deviation of the distribution of the average value subgrub

$$\sigma X = \frac{\sigma}{\sqrt{n}} = \frac{1.73}{\sqrt{4}} = 0.86$$

D. limitscontrol of the upper and lower control limits

BKA = X + 3 σx = 119 + 3 x 0.86 = 121.58

BKA = X - 3 σx = 119-3 x 0.86 = 116.42

E. Test adequacy of the data

$$N' = \left(\frac{40\sqrt{N\Sigma Xj^2 - (\Sigma Xj)^2}}{\Sigma Xj}\right)^2 = \left(\frac{40\sqrt{4\ x\ 56415 - (475)^2}}{475}\right)^2 = 0.24 = 1$$

F. Factor Adjustment class with Westinghouse engineering

Table 4

Value Adjustment regular cv Westinghouse engineering

Skills	*Average*	0:00
Effort	*Good effort*	0:02
Events Work	*Average*	0:00
Consistency	*Good*	0:01
AMOUNT		**0:03**

Energy released	very light	6%
attitude to work	Standing on both feet	1%
labor movement	Normal	0%
eyestrain	The views continuously with fixed focus	4%
State temperature of the workplace	Normal	2%
state of the atmosphere	Enough	2%
Environmental conditions	Cycle of repetitive work	1%
Personal needs	Woman	5%
Allowances are not spared	May be assisted by other operators	4%
AMOUNT		**25%**

Source: Authors (2019)

Normal time (Wn) Wn = Ws x P = 119 x (1+ 0.03) = 122.57 seconds

Standard time (Wb) = Wn x P = 122.57 x (1+ 0.25) = 153.21 seconds

G. Comparison of current productivity and standard time

Table 5

Comparison Tacktime and Standard Time

Productivity	Tacktime	standard time
Units / hour	128	153.21
Unit / person	7	7

From the calculation of the author, the time required by workers on short conveyor to carry out a process of 153.21 seconds from 128 seconds or an increase of 19% over the targeted company due niai adjustment (P) in the calculation of standard time are taken into account and the amount of man power the same (7)

Analysis of standard time measurement Long***conveyor***

Table 6
Map of the operator setting Long conveyor

NO	WORK	MAP SYMBOL OF WORK
1	Home Position	
2	Take circuit no.091 (B 0.5) insert circuit connector to no.7283-8050-30 to fork U / 58, through the VO-B D10X11 L = 370 download 7158-5246-60 of wasurenbou spacer and plug the connector 7283- 8050-30 Key spacer (Make 4T press press tensile pull)	
3	Take circuit no.261 (B 0.35) circuit to the connector insert no.7283-1225-40 to fork U / 65, through the VO-B L = 300 Key D8X9 spacer (Make 4T press press tensile pull)	
4	Take circuit 257 (B 0.3) insert circuit connector to no.7283-1527 to fork U / 84, through the VO-B L = 360 Key D8X9 spacer (Make 4T press press tensile pull)	
5	Take circuit 122 (B 0.75), 130 (B 0.75), 252 (B 0.75), 128 (Sb 0.75) circuit to the connector insert no.7283-1289-10 to fork U / 70, through the VO-B D14X15 L = 105 Key spacers (Make 4T press press tensile pull)	
6	Take circuit 248 (B 0.35) circuit to the connector insert no.7283-0392-40 to fork U / 67, through the VO-B D08X09 L = 70 Key spacers (Make 4T press press tensile pull)	
7	Take circuit 374 (B 0.75), insert the connector to the circuit no.7123-3233-30 to fork U / 66, through the VO-B L = 110 Key D16X17 spacer (Make 4T press press tensile pull)	
8	Take circuit no.042 (B 0.35) circuit to the connector insert no.7183-7725-40 to fork U / 97, through the VO-B L = 125 Key D6X7 spacer (Make 4T press press tensile pull)	
9	Take circuit 438 (B 0.35) circuit to the connector insert no.7183-7725-40 to fork U / 97, through the VO-B L = 125 Key D6X7 spacer (Make 4T press press tensile pull)	
10	Take circuit no.436 (B 0.35) circuit to the connector insert no.7183-7725-40 to fork U / 97, through the VO-B L = 125 Key D6X7 spacer (Make 4T press press tensile pull)	
11	Take circuit 441 (B 0.35) circuit to the connector insert no.7183-7725-40 to fork U / 97, through the VO-B L = 125 Key D6X7 spacer (Make 4T press press tensile pull)	
12	Check and make sure there is no damage to the connector circuit U / 70 with visible and in touch.	
13	* Back to the home position *	

5. Analysis motion studies Long conveyor operator

Table 7
Analysis motion studies Long conveyor operator settings

RIGHT HAND			LEFT HAND		
WORK	NAME THERBLIG	SYMBOL THERBLIG	WORK	NAME THERBLIG	SYMBOL THERBLIG
Home Position	Reach	RE	Home Position	Reach	RE
Take circuit no.091 (B 0.5) insert circuit connector to no.7283-8050-30 to fork U / 58, through the VO-B D10X11 L = 370 download 7158-5246-60 of wasurenbou spacer and plug the connector 7283- 8050-30 Key spacer (Make 4T press press tensile pull)	Choose assemble	SA	Take circuit no.091 (B 0.5) insert circuit connector to no.7283-8050-30 to fork U / 58, through the VO-B D10X11 L = 370 download 7158-5246-60 of wasurenbou spacer and plug the connector 7283- 8050-30 Key spacer (Make 4T press press tensile pull)	hold	H
Take circuit no.261 (B 0.35) circuit to the connector insert no.7283-1225-40 to fork U / 65, through the VO-B L = 300 Key D8X9 spacer (Make 4T press press tensile pull)	Choose assemble	SA	Take circuit no.261 (B 0.35) circuit to the connector insert no.7283-1225-40 to fork U / 65, through the VO-B L = 300 Key D8X9 spacer (Make 4T press press tensile pull)	hold	H
Take circuit 257 (B 0.3) insert circuit connector to no.7283-1527 to fork U / 84, through the VO-B L = 360 Key D8X9 spacer (Make 4T press press tensile pull)	Choose assemble	SA	Take circuit 257 (B 0.3) insert circuit connector to no.7283-1527 to fork U / 84, through the VO-B L = 360 Key D8X9 spacer (Make 4T press press tensile pull)	hold	H
Take circuit 122 (B 0.75), 130 (B 0.75), 252 (B 0.75), 128 (Sb 0.75) circuit to the connector insert no.7283-1289-10 to fork U / 70, through the VO-B D14X15 L = 105 Key spacers (Make 4T press press tensile pull)	Choose assemble	SA	Take circuit 122 (B 0.75), 130 (B 0.75), 252 (B 0.75), 128 (Sb 0.75) circuit to the connector insert no.7283-1289-10 to fork U / 70, through the VO-B D14X15 L = 105 Key spacers (Make 4T press press tensile pull)	hold	H

Take circuit 248 (B 0.35) circuit to the connector insert no.7283-0392-40 to fork U / 67, through the VO-B D08X09 L = 70 Key spacers (Make 4T press press tensile pull)	Choose assemble	S A	Take circuit 248 (B 0.35) circuit to the connector insert no.7283-0392-40 to fork U / 67, through the VO-B D08X09 L = 70 Key spacers (Make 4T press press tensile pull)	hold	H
Take circuit 374 (B 0.75), insert the connector to the circuit no.7123-3233-30 to fork U / 66, through the VO-B L = 110 Key D16X17 spacer (Make 4T press press tensile pull)	Choose assemble	S A	Take circuit 374 (B 0.75), insert the connector to the circuit no.7123-3233-30 to fork U / 66, through the VO-B L = 110 Key D16X17 spacer (Make 4T press press tensile pull)	hold	H
Take circuit no.042 (B 0.35) circuit to the connector insert no.7183-7725-40 to fork U / 97, through the VO-B L = 125 Key D6X7 spacer (Make 4T press press tensile pull)	Choose assemble	S A	Take circuit no.042 (B 0.35) circuit to the connector insert no.7183-7725-40 to fork U / 97, through the VO-B L = 125 Key D6X7 spacer (Make 4T press press tensile pull)	hold	H
Take circuit 438 (B 0.35) circuit to the connector insert no.7183-7725-40 to fork U / 97, through the VO-B L = 125 Key D6X7 spacer (Make 4T press press tensile pull)	Choose assemble	S A	Take circuit 438 (B 0.35) circuit to the connector insert no.7183-7725-40 to fork U / 97, through the VO-B L = 125 Key D6X7 spacer (Make 4T press press tensile pull)	hold	H
Take circuit no.436 (B 0.35) circuit to the connector insert no.7183-7725-40 to fork U / 97, through the VO-B L = 125 Key D6X7 spacer (Make 4T press press tensile pull)	Choose assemble	S A	Take circuit no.436 (B 0.35) circuit to the connector insert no.7183-7725-40 to fork U / 97, through the VO-B L = 125 Key D6X7 spacer (Make 4T press press tensile pull)	hold	H
Take circuit 441 (B 0.35) circuit to the connector insert no.7183-7725-40 to fork U / 97, through the VO-B L = 125 Key D6X7 spacer (Make 4T press press tensile pull)	Choose assemble	S A	Take circuit 441 (B 0.35) circuit to the connector insert no.7183-7725-40 to fork U / 97, through the VO-B L = 125 Key D6X7 spacer (Make 4T	hold	H

			press press tensile pull)		
Check and make sure there is no damage to the connector circuit U / 70 with visible and in touch.	Check	I	Check and make sure there is no damage to the connector circuit U / 70 with visible and in touch.	Check	I
* Back to the home position *	Reach	RE	* Back to the home position *	Reach	RE

Analysis standard time measurement Long Conveyor

A. the average value

$$\chi = \frac{\Sigma xi}{k} = \frac{55+59+56+58}{4} = 57\ detik$$

B. Standard deviation

$$\sigma = \sqrt{\frac{\Sigma(Xj - X)^2}{N-1}} = \sqrt{\frac{10}{3}} = 1.82$$

C.The standard deviation of the distribution of the average value subgrub

$$\sigma X = \frac{\sigma}{\sqrt{n}} = \frac{1.82}{\sqrt{4}} = 0.91$$

D. limitscontrol of the upper and lower control limits

BKA = X + 3 σx = 57 + 3 x 0.91 = 59.73

BKA = X - 3 σx = 57-3 x 0.91 = 54.27

E. Test adequacy of the data

$$N' = \left(\frac{40\sqrt{N\Sigma Xj^2} - (\Sigma Xj)^2}{\Sigma Xj}\right)^2 = \left(\frac{40\sqrt{4\ x\ 13006} - (228)^2}{228}\right)^2 = 1.23 = 1$$

Class F. Adjustment Factor with Westinghouse engineering

Table 8

Value Adjustment with Westinghouse engineering Long conveyor

Skills	*Average*	0:00
Effort	*Good effort*	0:02
Events Work	*Average*	0:00
Consistency	*Average*	0:00
AMOUNT		**0:02**

Energy released	very light	6%
attitude to work	Standing on both feet	1%
labor movement	Normal	0%
eyestrain	The views continuously with the focus turns	2%
State temperature of the	Normal	2%

workplace		
state of the atmosphere	Enough	2%
Environmental conditions	Cycle of repetitive work	1%
Personal needs	Woman	5%
Allowances are not spared	May be assisted by other operators	2%
AMOUNT		**21%**

Normal time (Wn) = Ws x P = 57 x (1+ 0.02) = 58.14 sec

Standard time (Wb) = Wn x P = 58.14 x (1+ 0.21) = 70.34 sec

G. Comparison of current productivity and standard time

Table 9

Comparison Tacktime and Standard Time

Productivity	Tacktime	standard time
Units / hour	68	70.34
Unit / person	12	12

From the calculation of the author, the time required by the worker on Long conveyor in performing a process of 70.34 seconds from 68 seconds or an increase of 3% over the targeted company due niai adjustment (P) in the calculation of standard time are taken into account and the amount of man power the same (7)

7. Comparison of Productivity and Output

A. Conveyor Regular

Productivity is not time $= \frac{output}{input} = \frac{28}{7} = 4$ unit/jam

output $= \frac{\text{Jumlah waktu yang tersedia}}{waktu\ baku} = \frac{3600}{153.21} = 23.49$ unit

Productivity standard time $= \frac{output}{input} = \frac{23.49}{7} = 3.35$ unit/jam

B. Longconveyor

Productivity is not time $= \frac{output}{input} = \frac{53}{12} = 4.41$ unit/jam

output $= \frac{\text{Jumlah waktu yang tersedia}}{waktu\ baku} = \frac{3600}{70.34} = 51.17$ unit

Productivity standard time $= \frac{output}{input} = \frac{51.17}{12} = 4.2$ unit/jam

Calculation resulting from the increase in productivity of between short conveyor into a long conveyor is taktime 9%, 54% and productivity output standard time 20%

CONCLUSION AND SUGESTION

Conclusions

1. The comparative study man power, productivity, and output in the short and long conveyor conveyor is for man power has the addition of 58% from 7 to 12 for the output has increased from 23.49 unit be 51.17 units and to poduktivitas takttime increased 9% from 4 units to 4:41 units and 20% productivity standard time of 3:35 units to 4.2 units

2. According to the author's calculations using the micro-motions, longconveyor better to be applied in PT.EDS Manufacturing Indonesia by considering the amount of man power, output, and productivity

Suggestions

1. Workers perform effective movement appropriate to use both hands to ease the process
2. The Company considers the standard time obtained in this study, because the calculation results higher than when using standard takt time as the completion of the product.
3. It should be further research on the time standard in all production processes in the process of setting by incorporating elements of the workload on each production process

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