

ANALYSIS OF LABOR PRODUCTIVITY IN THE *PRINTING* *DEPARTMENT*

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Abstract

Productivity compares inputs and outputs for a worker to finish his task. Sukorejo Indah Textile Company includes industry manufacturing that produces products from cloth sarong. In the department printing, focus on producing the fabric you want, given a motif and coloring. Every day, department printing keeps going continuously to fulfill the request, so frequent obstacles are found in activity production like damage to machines, product resulting in defects every day, negligent workers, and the environment with less work support, which cause fatigue. Necessary calculation measurement productivity to deliver proposal alternatives in increasing productivity at PT Sukorejo Indah Textile, specifically in the department printing. Calculation productivity uses the method of total productivity because the method This easily implemented in the company. After that, an analysis of the influencing factors was carried out on productivity as well as suggestions for improvement productivity company. Research results show that results calculation productivity department printing amounted to 82.3%, which is significant and not enough productive, so a cause analysis consequences and discovery factor the cause originate from power work, machines, methods, and environment work.

Keywords: Input, Output, *Printing*, Productivity

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I. INTRODUCTION

Industrial era 4.0, or industry digitalization, is a strategy to implement enhancement technology in the manufacturing sector in the face of global competition. Sector manufacturing, technology mover industry 4.0 intends to maximize productivity, efficiency production, and power competitive in global competition (7). Industry 4.0 in Indonesia prioritizes five sectors industry like industry automotive, food and beverage, electronics and chemicals, textiles, and products textiles. Hence, industry manufacturing becomes the hope government to minimize unemployment and development field work (1). Then, sector industry that has role one of them is important for the Indonesian economy is industry textiles included to in industry superior congested work. Central Bureau of Statistics (2) reports that the amount of power Work industry processing

in 2022 will reach 19.2 million people, and the growth of power work in the textile industry by 3% occupies the position second top.

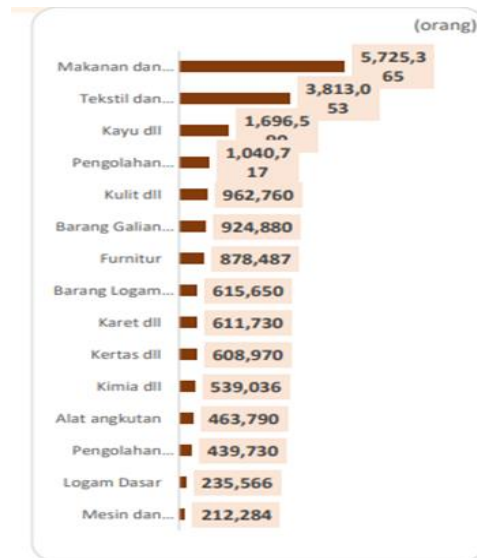


Figure 1. Total manpower Sector Industry 2022

His height number power work in industry textiles in Indonesia create busy industry works, so stability in the industry This must protected because of influence on the country's economy. Apart from that, the textile industry includes ten commodity exports, non-oil, and gas orders second after coconut palm oil; however, the export experience caused a decline in underperformance satisfaction and problems efficiency (3).

Based on research conducted (4) disclose factors that can encourage growth economy optimally. One of them is productivity. Companies need background behind abilities, skills, knowledge, attitudes, and behavior from source Power humans who want to achieve maximum productivity. Measurement productivity becomes important for company as it can show performance from results source power used for reach efficiency and effectiveness company. Success is something a company utilizes source power humans to produce the product is also needed the indicator is productivity as the base company to improve and improve his productivity.

Efforts to monitor achievement productivity are one method for companies to understand business processes according to the specified target. Sukorejo Indah Textile Company includes industry manufacturing that produces products from cloth sarong, where the industry is very strict with competition. In the beginning, Sukorejo Indah Textile Company only owned weaving machines. Along with development, increasingly technologically advanced companies start complete need production using modern machines to improve productivity. Then, PT Sukorejo Indah Textile produces in a way that constantly fulfills consumers' needs and implements a system of make-to-order, which means the company carries out the production process when ordering comes from consumers. Request consumers for products produced by the company Sukorejo Indah Textile is like that a lot, so a company must keep increasing productivity for quality results production can maximum.

In the department printing, focus on producing the fabric you want, given a motif and coloring. Every day, department printing keeps going continuously to fulfill the request; that way, needed power and enough work lots to support productivity work. The production process carried out in a way that keeps going continuously can result in not achieving production targets, so achievement productivity decreases. That matter caused frequent obstacles found in activity production like damage to machines, products resulting in defects every day, negligent workers, and the environment less work support, which causes fatigue.

The need exists for calculation measurement productivity to deliver proposal alternatives to increase productivity at PT Sukorejo Indah Textile, specifically in the printing department. Calculation productivity uses method total productivity because the method this easily implemented in the company. After that, an analysis of the influencing factors was carried out on productivity as well as suggestions for improvement productivity company.

II. RESEARCH METHODS

Study This was carried out at PT. Sukorejo Indah Textile in the department frequent printing found in activity production like damage to machines, products resulting in daily defects, negligent workers, and the environment less work support, which causes fatigue. Analyzing level productivity work data is needed to help calculate (10). Data used This is production quantity data from department printing for one month obtained from the results interview. The method used is total productivity (6)(8)(9) and fishbone diagram, with data collection, namely observation field, do observation at production department printing start from printing until the smoothing process cloth as well as identify problems that occur in the field, interview with the head part department printing and employees to find out description process suitability.

III. RESULTS AND DISCUSSION

A. Productivity Analysis

Productivity is the ratio of effective output with the use of efficient input. Productivity is important in a company because it relates to the amount of energy worked to achieve company targets. (5).

1. Calculation of Production Amounts Printing

Table I. Production Data

Date	Inputs	Outputs
	(Score)	
13-Feb-23	1710.45	1558.7
14-Feb-23	1656.05	1539.55
15-Feb-23	2203.75	2080.65
16-Feb-23	2265	2119.6
17-Feb-23	2103.25	1985,75
18-Feb-23	2427.45	2288.85
19-Feb-23	2321.75	2146.7
20-Feb-23	2379	2222.5
21-Feb-23	2580.05	2430.35
22-Feb-23	2353.95	2213.95
23-Feb-23	2466.85	2263.2
24-Feb-23	2557.6	2416.05
25-Feb-23	2394.45	2229.4
26-Feb-23	2396.25	2249.1
27-Feb-23	2251.25	2108.8
28-Feb-23	2382.1	2260.25
01-Mar-23	2176	2053.15
02-Mar-23	2454.3	2304.6
03-Mar-23	2257.8	2082.45
04-Mar-23	2322.65	2218.45
05-Mar-23	2177.1	2057.4
06-Mar-23	2199.95	2080.05
07-Mar-23	2194.25	2043.8
08-Mar-23	2175.75	2048.05
09-Mar-23	2161.65	1999,9
10-Mar-23	1975,8	1843.25
11-Mar-23	1687.2	1545.05
12-Mar-23	2205.6	2042.55
13-Mar-23	1845.7	1759.9

Every the day inputs and outputs from the results of production printing experience change because there is defective products and power less work discipline. The following results are the total sum for input and output production department printing.

Total inputs = 64,283 Kodi
Total output = 60,192 Kodi

2. Calculation of Labor Productivity

Total power: there are 25 workers in the printing department of PT Sukorejo Indah Textile. For counting productivity, power work can be compared with results production. The following equation for calculating labor productivity (1).

$$\text{Labor Productivity} = \frac{\text{production output}}{\text{number of labor}} \quad (1)$$

$$\text{Labor Productivity} = \frac{60.192}{725} = 83 \text{ kodi/labor/day}$$

From the results of the calculations above, labor productivity for printing production is 83 kodi/labor/day.

3. Calculation of Work Hour Productivity

To find out big utilization of time used to produce against time.

$$\text{Work Hours} = \frac{\text{production output}}{\text{number of work hours}} \quad (2)$$

$$\text{Work Hours} = \frac{60.192}{232} = 259 \text{ kodi/hour}$$

From the results calculation on working hours productivity production amounting to 259 kodi/hour.

4. Calculation Productivity of Printing Results

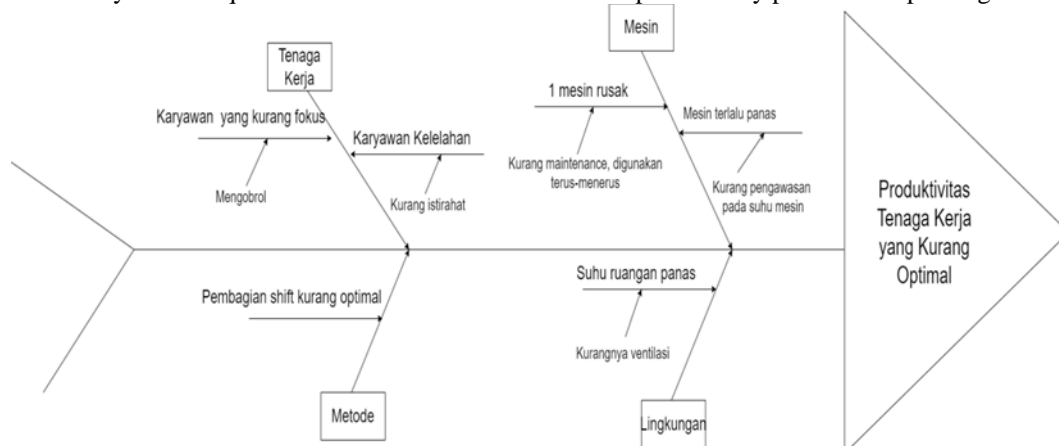
Count big productivity results of production quantities printing that produces output product holster with input as many as 64,283 Kodi. Following results calculations that can determine big total productivity is used equation. (3).

$$\text{Total Productivity} = \frac{\text{output}}{\text{input}} \times 100\% \quad (3)$$

The calculation results in total labor productivity work printing in one month not enough productive because percentage obtain yield was 82.3%. Productivity values that are more than 100%-mark productivity Already Good. If mark not enough than 100% then level productivity decrease

B. Cause Analysis Consequence

Cause analysis consequence needed to know reason lack of productivity power work printing.



Picture. 2. Cause and Effect Diagram

Less than optimal productivity in the department printing is caused by several factors, namely:

1. Labor

Fewer employees focus when work causes unnecessary communication with other employees, then the production process is disturbed, and productive negligence impacts the product. In addition, employees who often fatigue consequence a lack of rest because there are distribution shifts employees who get two shifts, that is, shifts evening and continued with shifts morning.

2. Method

A need exists for distribution repeat on shift workers to optimize and reduce factor tired on workers.

3. Machine

Machines become the reason for productivity power work decreases because the machine is damaged, resulting in the production process becoming hampered. Using continuous machines without existing maintenance scheduling can result in machine damage. Then, the temperature of too machine heats (overheats) due to lack of supervision of the temperature machine, causing the product to be disabled.

4. Environment

The temperature room is hot enough because of the lack of ventilation. The existing air causes power work not enough comfortable when on the floor production.

C. Repair Solution

The analysis results use a fishbone diagram, then need done alternative improvements to improve productivity power work in the department printing.

1. Manpower, necessary supervision to workers not to do unnecessary things during the production process run and reprimand if employees are chatting during working hours. Then, it is necessary to improve the division of working hours to increase the productivity of workers can be optimal.
2. Method, in making timetable shifts work, system computing or special software make timetable work and shifts employee. Should distribution timetable shifts refer to article 77 of the human resources law, which regulates shifts work eight hours a day. Rule this can be done reference in do distribution timetable, work employee. After the creation timetable shift, information exists to employees using easy-to-understand language so that employees can consider the scheduled hours they have worked.
3. Machine, necessary scheduling machine maintenance to prevent machine damage during production. In addition, workers pay more attention to temperature machines to minimize overheating, which can result in the product being disabled.
4. Environment, conditions more attention to the environment temperature room for workers comfortable on the floor production because the environment also influences productivity power work.

IV. CONCLUSION

The results of the calculation analysis can be concluded that the level of productivity in the department printing the data still needs to be more productive. It matters because results mark calculation productivity printing amounting to 82.3%. Power work cannot reach the target in the month. Factors affecting not enough productivity power work that is powerless work discipline and fatigue, lack of maintenance on machines, lack of supervision of temperature machines, and the environment. Therefore, analyzing the solution alternatives that have been suggested could be considered for upgrading productivity power work in the department printing.

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REFERENCES

- [1] Andriana, A., & Purwoko, SD (2019). Measuring Employee Productivity in the Production Department of Pt. Akur Pratama. *Proceedings of FRIMA (Management and Accounting Scientific Research Festival)*, 6681 (2)
- [2] Bappenas RI. (2021). Indonesia and the World. 5 (2).
- [3] Cahyaningrum, DT, Putri, AAS, Lestari, D., & ... (2022). Analysis of Labor Productivity using the Partial Productivity Method (Packaging Section of Other Business Units of PDP Kahyangan Jember). *Journal of Management...*, 2 (1), 36–40.
- [4] Darmanto, D., & Ismawati, K. (2020). Performance of Textile and Garment Companies. *Accounting journal*
- [5] Gunawan, A., Kusnadi, K., & Hamdani, H. (2021). Labor Productivity Analysis using the Marvin E. Mundel Method at CV. Mulia Tata Sejahtera. Serambi *Engineering Journal*, 6(3),
- [6] Nurlia. (2019). The Influence of Organizational Structure on Measuring Service Quality (Comparison Between Expectations/Expectations and Work Results). *Reigning Journal*, 2 (2), 53–58.
- [7] Oktika, M. (2022). Industrial Era 4.0 Digitalization Plays an Important Role in Education. 2022 National Seminar - NBM Arts, 2015, 1–5.

- [8] Suliyanthini, D. (2016). *Textile Science*. PT Raja Grafindo Persada.
- [9] Syahputra, A., & Andriani, M. (2021). Strategy to Increase Company Productivity Using the Total Productivity Model (TPM) at PT. Putra Tamiang Dolomite. *Journal of Ocean Industries*, 2(1), 2797–7730.
- [10] Utomo, S., & Setiastuti, N. (2019). Industry 4.0: Measuring the Readiness Level of the Textile Industry using the Singapore Smart Industry Readiness Index Method. *InfoTekJar (National Journal of Informatics and Network Technology)*, 3 (2), 89–95.