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Productivity Improvement Knuckle Steering Production Line through the Objective Matrix (OMAX) Method

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***Abstract*—In the face of market dynamics and increasing demand, the company needs to optimise productivity in every production line, including the knuckle steering item line. This study aims to measure and evaluate productivity using the Objective Matrix (OMAX) method, which integrates several key performance ratios. The analysis results showed that the highest productivity occurred in March 2024 (517.2), while the lowest was in September 2024 (23.6). The lowest ratio was production achievement to machine capacity, contributing only 27 out of a total score of 131. The low productivity is due to the lack of operator competence, suboptimal machine maintenance, long process duration, and the high amount of defective material from the foundry process. These findings emphasise the importance of comprehensive improvements in human resources, machine maintenance, and raw material quality control to drive sustainable productivity improvements.**

Keyword: Productivity; Knuckle Steering; Objective Matrix; Foundry Process

I. INTRODUCTION

Productivity is the comparison or ratio between total output and total input used by a company. [Afianti et al, 2020]. Productivity is related to production efficiency, which is the ratio of products produced to resources used. This ratio can indicate a company's productivity level in relation to its operational processes, which are used to create more effective and efficient company activities. [Wahyuni et al, 2017]. The inefficient and ineffective use of raw materials, labor, energy, and machinery during production activities prompted the company to increase productivity. Therefore, companies need to measure productivity, which can ultimately support national productivity. [Mukhtar, 2019]. One such company is an automotive component manufacturer that is striving to increase its competitiveness.

There are two departments responsible for production, namely the Foundry Department, which is tasked with producing raw materials into semi-finished materials (castings), and the Machining Department, which is tasked with processing automotive components after they have been processed in the Foundry Department. Products are manufactured through a machining process using CNC (Computer Numerical Control) Milling and Turning machines. This machining process plays a major role in increasing production and ensuring product quality. In addition, there is an increase in orders from customers that must be fulfilled every month. The production line for Knuckle Steering items has unstable productivity every month. This item line experienced a decline in production in August. In 2025, production was 4.799 pieces, while in March 2025, production reached 6,439 pieces. This decline resulted in the company failing to meet its target. Over the past year, the number of orders for this item was 5.000 pieces/month. The average monthly production was around 5,300 pieces/month, so orders at that time could still be fulfilled. In December 2025, orders for this month increased to 6.000 pieces/month. With an average production volume of 5.365 from December 2020 to November 2025, the target for that month could not be met. Therefore, the company needs to measure productivity to identify the dominant factors affecting productivity levels and propose improvements that will be used as a basis for future productivity planning. [Priscilia, 2017].

The use of the OMAX Method for productivity analysis has been proven to solve productivity-related problems. The OMAX method is a productivity analysis method used to measure and determine productivity in each part of the company, with productivity criteria that are appropriate for that part. [Wibisono, 2019]. The OMAX method can measure and assess performance in each part of the company while identifying the factors causing productivity decline. [Mundari dan Firmansyah, 2023].

Previous research by [Supriyanto et al, 2017] on measuring the productivity of tofu companies using

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the Objective Matrix (Omax) method. This study aims to measure the productivity of tofu companies. The method used for this problem is the Objective Matrix (OMAX) method. The calculation of company productivity refers to three criteria, namely the number of orders, the use of raw materials, and the number of employees. The results of this study show that the productivity index obtained at the beginning of the period reached 1.13, then in the following periods it decreased until the seventh period, which reached -0.70. The number of tofu orders from consumers decreased due to seasonal influences. Raw material usage resulted in waste of 1.124 kg, and there were 49 unemployed employees, meaning that the company did not meet the standard productivity value[8].

Then, research conducted by [9] entitled Analysis of Productivity Using the Objective Matrix Method (Omax) on the Production Floor of a Beverage Bottle Company. This study aims to evaluate productivity decline by measuring productivity values based on three criteria, namely production efficiency, effectiveness, and machine working hours. The method used is the Objective Matrix (OMAX). The criterion that contributes less to productivity and needs improvement is the production efficiency criterion because the criterion value shows below-standard performance. Meanwhile, the effectiveness criterion and the inferential criterion (machine working hours) show values that tend to be good[Prakoso et al, 2022]. The quality and efficiency of raw material usage play an important role in increasing productivity at a ratio of 3, and creating an efficient production system.[Fitriani et al, 2023.]

II. RESEARCH METHOD

The OMAX method is a method that measures a company's productivity index using more than one productivity ratio that is considered important for the company. The OMAX method has advantages over other methods, namely: Several factors that influence productivity improvement can be identified properly and quantified, and there is a weighting system that reflects the influence of each factor on the company's productivity improvement, the determination of which requires management approval [Gaoul, 2025] This model also combines all factors that influence productivity improvement and assesses them into a single indicator or index. [Priyono dan Jaya, 2023].

The advantages of the OMAX model in measuring company productivity include: it is relatively simple and easy to understand, easy to implement, and does not require special expertise; the data is easy to obtain, it is more flexible, and it depends on the problems faced. [Ernawati, 2025].

The structure of the Objective Matrix method consists of several parts, as follows. [Ernawati, 2025]:

1. Productivity Criteria are activities and factors that support the productivity of the work unit whose productivity is being measured, expressed as a ratio. These criteria indicate the effectiveness, quantity, and quality of output; the efficiency and utilization of inputs; the consistency of operations; and specific measures or other factors indirectly related to the measured level of productivity.

Table 1. Criteria Priority Scale

Nilai	Nilai Tingkat Prioritas
1	CRITERION 1 is equally important compared to CRITERION 2
2	CRITERION 1 is slightly more important than CRITERION 2
5	CRITERION 1 is more important than CRITERION 2
7	CRITERION 1 is very important compared to CRITERION 2
9	CRITERION 1 is much more important than CRITERION 2

a. Production achievement against machine capacity = (Total products produced) / (Available working hours) × 100
b. Consumption of semi-finished materials = (Semi-finished materials used) / (Total products produced) × 100
c. Machine breakdown ratio = (Total machine breakdown hours) / (Available working hours) × 100
d. Defective product ratio = (Total defective products) / (Total products produced) × 100

2. Achievement Level, which is the ratio calculated based on productivity criteria, then this result is placed in the performance column with the identification of the Ratio parameter, Highest value, Lowest value, Performance value, Initial standard, and Target percentage.

$$\text{Performance} = \frac{\text{Highest value} + \text{Lowest}}{2}$$

$$\text{Target Ratio} = (\text{Highest value x Target}) + \text{Highest value}$$

3. Matrix scale cells: to fill in the matrix scale cells, we first determine standard level 3 (average), level 0 (worst performance ratio),

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and level 10 (target to be achieved).

Calculation of level 1 and level 2 increases in the ratio

$$\text{Interval } (1-2) = \frac{\text{Level } 3 - \text{Level } 0}{(3-0)}$$

Calculation of level 4 and level 9 increases in the ratio

$$\text{Interval } (4-9) = \frac{\text{Level } 10 - \text{Level } 3}{(3-0)}$$

4. Score, which is the result of the performance ratio achievement, whether the achievement is above, below, or exactly on the standard scale (3).
5. Weight, each criterion that has been determined has a different influence on the level of productivity measured. For this reason, it is necessary to include a weight that indicates the degree of importance (in percentage terms) that shows the relative influence of the criterion on the productivity of the work unit being measured. The total weight of the criteria is 100%.

$$Weighting = \frac{Wight\ Value}{Total\ Weight} \times 100\%$$

6. The value of the achievement obtained for each criterion in a given period is obtained by multiplying the score for that criterion by the weight of that criterion.

   Value = Weight x score
7. Performance Indicator: During a specific period, the total value for each criterion is listed in the performance indicator box. The initial indicator value is 300 because all criteria receive a score of 3 when the matrix is first implemented. Productivity improvement is determined by the increase in the performance indicator.

Table 2. Criteria Priority Scale

Nilai	Nilai Tingkat Prioritas
1	CRITERION 1 is equally important compared to CRITERION 2
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III. RESULT

The Machining Department is responsible for processing automotive components after they have been processed in the Foundry Department. Products are manufactured using CNC (Computer Numerical Control) milling and turning processes. One of the products is the steering knuckle, and production productivity on this line is unstable from month to month. In August 2025, this production line experienced a decrease in output to 4.799 pieces, while in March 2025, it produced 6.439 pieces. Over the past year, the order volume for this item has been 5.000 pieces per month. The average monthly production output is approximately 5.300 pieces per month, so orders at that time could still be fulfilled.

In December 2025, orders for this month increased to 6.000 pcs/month. With the average production volume in the last year still unable to meet the target for that month, the company needs to measure productivity in order to determine and analyze the productivity of the knuckle steering product production department and find alternatives to increase existing productivity. These results can be used by management to improve productivity based on the OMAX method. Several factors cause productivity in the Knuckle Steering line to be unstable/less than optimal, namely:

- Frequent casting shifts occur during the production process in the Foundry Department.
- Therefore, every time the casting number is changed, it must be set first.
- Production operators do not work professionally.
- Machines often break down because the production line still uses old machines.
- Defective products caused by the machining process, such as MC shifting, stepping, vibration, and others.
- Defective products caused by the Foundry Department process, such as sand, drop, slag, and others.

The data obtained from the company includes the number of products produced, semi-finished materials used, total machine downtime, total available working hours, and total defective products. This is illustrated in the table below.

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Table 3. Knuckle steering production data for 12 months

Mon[th]	Semi-finished Materials (Unit)	Products (Unit)	Product Defect (Unit)	Work Time (Hour)	Breakdown Machine (Hour)
1	5.267	5.194	43	480	18
2	5.516	5.417	34	480	16
3	5.458	5.351	44	480	23
4	6.530	6.439	35	480	10
5	5.622	5.524	38	480	15
6	5.163	4.974	97	480	31
7	5.441	5.350	39	480	21
8	5.401	5.326	79	480	23
9	4.857	4.699	98	480	26
10	5.487	5.386	44	480	20
11	5.283	5.179	51	480	27
12	5.655	5.552	57	480	19

From Table 3, the highest use of semi-finished materials occurred in March 2025 with a total of 6,530 pieces. Meanwhile, the lowest use of semi-finished materials occurred in August 2025 with a total of 4,857 pieces. The highest production occurred in June 2025, producing 6,439 pieces, and the lowest production occurred in August 2025, producing 4,699 pieces. The highest total number of defective products occurred in August 2025, reaching 98 pieces, and the lowest total number of defective products occurred in January 2025, reaching 34 pieces. All production hours from December 2024 to November 2025 were 480 hours. The highest number of machine breakdown hours occurred in October 2025, with 27 hours of repairs, and the lowest number of machine breakdown hours occurred in March 2025, with 10 hours of repairs.

1. *Determination of Ratio*

This research was conducted from December 2024 to November 2025 based on company production data. Data processing used the OMAX method based on data collected during the research. The data used in this study were collected from December 2024 to November 2025, specifically including data on the amount of semi-finished materials, total products produced, total defective products, hours worked, and total machine damage.

This ratio is determined based on production support factors.

a) Production achievement relative to machine capacity hours

$$= \frac{\text{Total product}}{Available\ Work\ Time}\ x\ 100\ (Rasio\ 1)$$

b) Consumption of semi-finished materials

$$= \frac{\text{Semi} - \text{finished Material}}{Total\ product}\ x\ 100\ (Rasio\ 2)$$

c) Ratio of Breakdown Machine

$$= \frac{\text{Total Hour Breakdown Machine}}{Available\ Worktime}\ x\ 100\ (Rasio\ 3)$$

d) Ratio of defective products

$$= \frac{\text{Total Product Defect}}{Total\ Production}\ x\ 100\ (Rasio\ 4)$$

The results of each ratio calculation during the research period are shown in the table below.

Table 4. Ratio Data December 2024 – November 2025

Moon[th]	Production Achievement In Relation to Working Hours	Consumption of Semi-finished Materials	Damage Machine	Product Defect
1	1.097.29	10.,4	3.75	0.82
2	1.149.16	101.82	3.33	0.62
3	1.137.08	101.99	4.79	0.82
4	1.360.41	101.41	2.08	0.54
5	1.171.25	101.77	3.12	0.68
6	1.075.62	103.79	6.45	1.95
7	1.133.54	10.7	4.37	0.72
8	1.12.,2	101.4	4.79	1.48
9	1.01187	103.36	5.41	2.08
10	1.143.12	101.87	4.16	0.81
11	1.100.62	102	5.62	0.98
12	1.178.12	101.85	3.95	1.02

2. *Determination of Target Ratio Values*

The company's productivity target is the value that the company wants to achieve and will be placed at a score of 10. Based on the company's stipulations, the final goal to be achieved is a productivity increase target of 30%. Performance values are obtained by determining the highest and lowest values during the observation period and calculating the target using the highest value of each ratio during the observation period.

The calculation for performance value and target ratio is as follows:

$$Performance\ Value = \frac{\text{High Value} + \text{Lower Value}}{2}$$

Target rasio 1 = (High Value x Target) + High Value

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= 1360.41 x 0,3 + 1360.41 = 1768.54
Target ratio 2 = High Value x Target
= 101.41 x 0,3 = 30.42
Target ratio 3 = High Value x Target
= 2.08 x 0.3 = 0.62
Target ratio 4 = High Value x Target
= 0.54 x 0.3 = 0.16

Table 5. Performance Values and Target Values

Ratio	High Value	Low Value	Performance Value	Mean	Target 30 %
1	1.360.41	1.011,87	1.186.14	1.140.27	1.768.54
2	101.41	103.79	102.6	102.03	30.42
3	2.08	6.45	4.27	4.32	0.62
4	0.54	2.08	1.31	1.04	0.16

Table 5 shows that Ratio 1 has a different calculation method from Ratios 2, 3, and 4. This is because in ratio 1, the target value is directly proportional, meaning that the higher the value, the better. In ratios 2, 3, and 4, the target value is inversely proportional, meaning that the lower the value, the better. The initial standard value, target value, and lowest value during the observation period will be used in creating the omax table.

3. *Matrix Scale Cells*
The levels used as reference points consist of 3 levels, namely:

a) Level 0: The value of level 0 is determined based on the lowest value.
b) Level 3: The value of level 3 is determined based on the average value.
c) Level 10: The value of level 10 is determined based on the target value.

For finding the interval distance is as follows:

a) Calculation of level 1 and level 2 increases at a ratio of 1

$$interval(1-2) = \frac{\text{level 3} - \text{Level 0}}{(3-0)}$$
$$= \frac{1.140{,}27 \; - \; 1.011{,}87}{3}$$
$$= 42{,}8$$

b) Calculation of level 4 and level 9 increases at a ratio of 1

$$interval(1-2) = \frac{\text{level 10} - \text{Level 3}}{(10-3)}$$
$$= \frac{1.768{,}54 - \; 1.140{,}27}{7}$$
$$= 89{,}75$$

Table 6. Interval Scale

Kenaikan Level Rasio 1	
1 sampai 2	42,8
4 sampai 9	89,75
Kenaikan Level Rasio 2	
1 sampai 2	-0,58
4 sampai 9	-10,23
Kenaikan Level Rasio 3	
1 sampai 2	-0,71
4 sampai 9	-0,52
Kenaikan Level Rasio 4	
1 sampai 2	-0,34
4 sampai 9	-0,12

4. *Determine Weight*
The weighting has been determined by the company's management. Table 4 shows the weighting value, which represents the priority scale of each ratio. The highest weighting is given to ratios 1 and 2, namely production achievement against machine capacity and use of semi-finished materials. The weighting calculation is as follows:

$$Converted\ weight\ value = \frac{\text{Weigth Value}}{Total\ Weigth\ Value} \times 100\%$$

Table 7. Weight of Ratio

Rasio	Bobot	Bobot %
1	10	26,3
2	10	26.3
3	9	23.6
4	9	23.6
Jumlah	38	100

Level 0 in Table 5. shows the company's worst performance. Level 3 shows the company's standard performance. Meanwhile, level 10 is the best performance that the company should be able to achieve.

Example of score determination for each ratio:
For example, for ratio 2, the actual calculation data for December 2020 is 101.4. The value that can be achieved with this actual value is at level/score 3, which is 102.03. Ratio 2 for January 2020 is actually 101.82. The value that can be achieved with this actual value is at level/score 3, which is 102.03.

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Table 8. Measurement of OMAX Standard Productivity Values

	Production Achievement In Relation to Working Hours	Consumption of Semi-finished Materials	Damage Machine	Product Defect	Consumption of Semi-finished Materials
Performance	1.186.14	102.6	4.27	1.31	
10	1.768.54	30.42	0.6	0.16	Verry Good
9	1.678,.8	40.65	1.15	0.28	
8	1.589.03	50.88	1.68	0.41	Good
7	1.499.28	61.11	2.2	0.54	
6	1.409.53	71.34	2.73	0.66	
5	1.319.78	81.57	3.26	0.79	Fine
4	1.230.02	9i.,8	3.79	0.92	
3	1.140.27	102.03	4.32	1.04	
2	1.097.47	102.62	5.03	1.39	Poor
1	1.054.67	103.21	5.74	1.73	
0	1.011.87	103.79	6.45	2.08	Bad
Weight	26.3	26.3	23.6	2.,6	
Score	3	3	3	3	
Value	78.9	78.9	70.8	70.8	

Table 8 shows that the biggest cause of productivity decline in the Knuckle Steering production line is ratio 1, where ratio 1 is production achievement productivity against machine capacity. This ratio has the lowest total score of 27.

Table 9. Determining Productivity Levels

Moonth	Production Achievement In Relation to Working Hours	Consumption of Semi-finished Materials	Damage Machine	Product Defect
1	1	3	4	4
2	3	3	4	6
3	2	3	2	4
4	5	3	7	6
5	3	3	5	5
6	1	0	0	0
7	2	3	2	4
8	2	3	2	2
9	0	0	1	0
10	3	3	3	4
11	2	2	1	3
12	3	3	3	3
Jumlah	27	29	34	41

The productivity values in the table 10 are the sum of all ratio values. The productivity value (0) for ratio 1 is in August 2025, while ratio 2 is in May and August 2025. Ratio 3 is in May and October 2025. Ratio 4 is in May and August 2025. It can be concluded that the worst productivity values are in May and August 2025. The lowest value is in ratio 1 with a value of 736.4. Meanwhile, the highest value is in ratio 4 with a value of 944.

Table 10. Productivity Values for December 2024 - November 2025

No	Production Achievement In Relation to Working Hours	Consumption of Semi-finished Materials	Damage Machine	Product Defect	Index Value Productivity
1	26.3	78.9	94.4	94.4	294
2	78.9	78.9	94.4	141.,6	393.8
3	52.6	78.9	47.2	94.4	273.1
4	131.5	78.9	165.2	141.,6	517.2
5	78.9	78.9	118	118	393.8
6	26.3	0	0	0	26,3
7	52.6	78.9	47.2	94.4	273.1
8	52.6	78.9	47.2	23.6	202.3
9	0	0	23.6	0	23.6
10	78,.9	78.9	70.8	94.4	323
11	52.6	52.6	0	70.8	176
12	78.9	78.9	70.8	70.8	299.4
Jumlah	710.1	762.7	778,8	944	3.195.6

5. Productivity Change Analysis

From the results of productivity data processing, changes in productivity during the research period were then analyzed. The calculation of changes in productivity values is as follows:

$$Changes\ in\ productivity\ values = \frac{\text{Productivity Overal} - \text{Productivity Provious}}{Productivity\ \text{Provious}} \times 100\%$$

Table 11. Changes in Productivity Index Values

No	Overal Produktivity	Provious	Index value of change compared to the previous period's productivity
1	294	0	0
2	39.,8	294	33.9
3	27.,1	393.8	-30.6
4	517.,2	273.1	89,.6
5	393.8	517.2	-23.8
6	26.3	393.8	-93.3
7	273.1	26.3	938,.
8	202.3	273.1	-25.9
9	23.6	202.3	-88.3
10	323	23.6	1.268.6
11	176	323	-45.5
12	299.4	176	70.1

Table 11 shows that a positive sign (+) indicates an increase in company productivity and vice versa. The highest productivity was in March 2021 at

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517.2, while the lowest productivity was in August 2021 at 23.6. The highest productivity index was in September 2021 at 1,268.6, while the highest decline in productivity occurred in July 2020 at (minus) -93.3.

6. Score Achievement

Table 9 shows that the highest productivity is at ratio 4, which is the productivity of defective products with a score of 41. The biggest cause of the decline in productivity on the production line is ratio 1, with a score of 27.

Table 12. Total Score Achievement

Productivity on the production line	Produktivity	Cumulative Count	Cumulative %
Productivity Production achievement relative to machine capacity hours	27	27	21%
Productivity consumption materials semi-finished	29	56	43%
Machine breakdown productivity	34	90	69%
Produktivitas produk cacat	41	131	100%

Ratio 1 is the productivity of production achievement against machine capacity, which is the ratio between the number of products produced and the number of working hours used on the Knuckle Steering production line. The low productivity achieved is caused by several factors, the main one being low output. Output can be caused by suboptimal machine performance or frequent breakdowns. Not only that, but it is also influenced by other variables such as frequent employee absences, substandard materials, inappropriate work methods, and others.

IV. CONCLUSION

The lowest productivity was in August 2025, with a productivity value of 23.6, and the highest productivity was in March 2025, with a value of 517.2. Based on the Pareto chart, of the four ratios, the lowest performance was shown by ratio 1, namely the level of production achievement relative to machine capacity hours, which did not contribute to an increase in production line productivity. Its productivity value is only 27 out of a total of 131 overall productivity values. The factors hindering production achievement are caused by unprofessional operators, inexperienced operators, lack of supervision of operators, lack of machine maintenance resulting in frequent breakdowns, lengthy production processes, and many defective materials from the Foundry department, such as drops, sand, slag, pitting, shifting, and grease.

REFERENCES

[1] I. W. G. Afianti, E. Z., Satriawan, I. K., & Sedana Yoga, "Analisis Produktivitas Produksi PT. Bapak Bakery Badung Bali.," *J. Rekayasa Dan Manaj. Agroindustri*, vol. 1, no. 8, p. 127, 2020.

[2] S. Wahyuni, H. C., & Setiawan, "Implementasi Metode Objective Matrix (OMAX) Untuk Pengukuran Produktivitas Pada PT.ABC," *PROZIMA (Productivity, Optim. Manuf. Syst. Eng.*, vol. 1, no. 12, 2017.

[3] A. M. MNA Mukhtar, "Pengukuran Dan Analisis Produktifitas Pada Rancang Bangun Kursi Ergonomis Operator Mesin POND," in *Seminar Nasional Hasil Riset dan Pengabdian*, 2019, pp. 363–369.

[4] P. Priscilia, "Analisis Produktivitas Kerja Pada PT. Berkat Anugerah Raya," *Agora*, vol. 1, no. 5, pp. 1–6, 2017.

[5] D. Wibisono, "Analisis Produktivitas Dengan Menggunakan Pendekatan Metode Objective Matrix (OMAX) Studi Kasus di PT. XYZ," *J. Optimasi Tek. Ind.*, vol. 1, no. 1, pp. 1–7, 2019.

[6] S. Mundari and R. Firmansyah, "Productivity Measurement to Monitor the Performance of Shrimp Cracker Companies," vol. 11, no. 12, pp. 397–402, 2023.

[7] B. Supriyanto, A., Probowati, B. D., & Burhan, "Pengukuran Produktivitas Perusahaan Tahu Dengan Metode Objective Matrix (Omax)," *Agrointek*, vol. 2, no. 9, pp. 109–117, 2016.

[8] I. Prakoso, E. Mustakim, and D. N. Saputro, "Productivity Analysis Of Split Stone Production Using Objective Matrix (Omax) Method (A Case Study)," vol. 3, no. 1, pp. 41–48, 2022.

[9] S. Ramayanti, G., Sastraguntara, G., & Supriyadi, "Analisis Produktivitas dengan Metode Objective Matrix (OMAX) di Lantai Produksi Perusahaan Botol Minuman," *J. INTECH Tek. Ind. Univ. Serang Raya*, vol. 1, no. 6, pp. 31–38, 2020.

p-ISSN 2622-2027
e-ISSN 2622-2035

[10] M. A. Saryatmo and A. S. Gunawan, "ANALISIS PENGUKURAN KINERJA PERUSAHAAN DENGAN METODE PERFORMANCE PRISM DAN SCORING OBJECTIVE MATRIX (OMAX) PADA PT . BPAS," pp. 61–70.

[11] D. Fitriani, R. Nasution, and N. Sari, "JURIT Journal Riset Ilmu Teknik Productivity Analysis on Liquid Nitrogen (LIN) and Liquid Oxygen (LOX) Production Using Objective Matrix (OMAX) Method," pp. 139–151, 2023, doi: 10.59976/jurit.v1i3.31.

[12] K. L. Gaol, E. Aryanny, and E. Java, "Journal la multiapp," vol. 06, no. 06, pp. 1640–1655, 2025, doi: 10.37899/journallamultiapp.v6i6.2234.

[13] A. Priyono and W. Java, "Strategies to improve human resource performance at PT XYZ in West Java," 2023.

[14] D. Ernawati and P. Measurement, "Performance Measurement Analysis of Sustainable Supply Chain Management Using the AHP-Based SCOR Method and OMAX at PT XYZ," vol. 11, no. 1, pp. 23–34, 2025.