United International Journal for Research & Technology
Volume 05, Issue 09, 2024 | Open Access | ISSN: 2582-6832

Improving Disbursed Ratio Productivity with Objective Matrix (OMAX) Method Based on Analytical Hierarchy Process (AHP) and Plan Do Check Action (PDCA) at PT XYZ

Natanael Oloan Silaban[1] and Agustinus Hariadi Djoko Purwanto[2]
[1]Member, Universitas Mercu Buana, Jakarta, Indonesia
[2]Faculty of Economics and Business, Universitas Mercu Buana, Jakarta Indonesia

***Abstract*—** This research discusses the improvement of Disbursed Ratio productivity at PT XYZ using Objective Matrix (OMAX) method based on Analytical Hierarchy Process (AHP) and Plan Do Check Action (PDCA). The questionnaire results show the importance weight of each productivity criterion, with indicator C (Submit/Base) having the highest weight of 32.0%. The highest productivity index occurred in May 2023 with a value of 7.394, while the lowest was in January 2023 with a value of 1.547. The implementation of FGD through PDCA showed improvement in the three highest productivity indicators, namely indicator C increased by 27.1% to 15.3% in Q1 2024, indicator E (Submit/Attempt) increased by 18.4% to 26.4% in Q1 2024, and indicator A (Disburse/Labor) increased by 68.2% to 67 applications/person in Q1 2024. These improvements resulted in an increase in the total productivity index value to 7,678 in March 2024. FGDs elaborated with fishbone diagrams and triangulation confirmed that PDCA recommendations can increase productivity and sustain continuous improvement, which include MPP recalculation, operational team training, procurement of CRM-based Whatsapp Business tools, implementation of one-way IVR Robo, evaluation of scoring and clustering methods, and creation of a complete SOP for the operational team. This research provides important insights for productivity improvement at PT XYZ.

***Keywords*—** Disbursed Ratio, Objective Matrix (OMAX), Analytical Hierarchy Process (AHP), Plan Do Check Action (PDCA), PT XYZ

I. INTRODUCTION

Background of the Problem

Operations are business processes carried out by fintech P2P lenders, starting from registration, verification, credit scoring, loan disbursement, to collection.

Operations also include the development of systems and technologies that support fintech P2P lending services, such as applications, platforms, and algorithms.

The amount of loan disbursement can be affected by productivity because accurate measurement and productivity improvement efforts are key factors in ensuring that fintechs can achieve sustainable growth and provide optimal added value to users and other stakeholders.

Productivity measurement is a challenge faced by many organizations, especially in the context of the financial technology industry.

The productivity of the operational team at PT XYZ, as a fintech company, has a direct impact on the company's operational sustainability.

The productivity standards or goals set provide clear direction for the operations team to achieve sales and business growth targets.

However, when the company compares the actual performance of the operations team with the set goals, the gap between business and operational indicators becomes a worrying picture of management issues.

The absence of productivity measurement from the operations side may mean that operations cannot know and improve their performance, outputs, and inputs in the loan disbursement process.

This can reduce the efficiency, effectiveness, and quality of the lending process by fintech P2P lenders.

United International Journal for Research & Technology
Volume 05, Issue 09, 2024 | Open Access | ISSN: 2582-6832

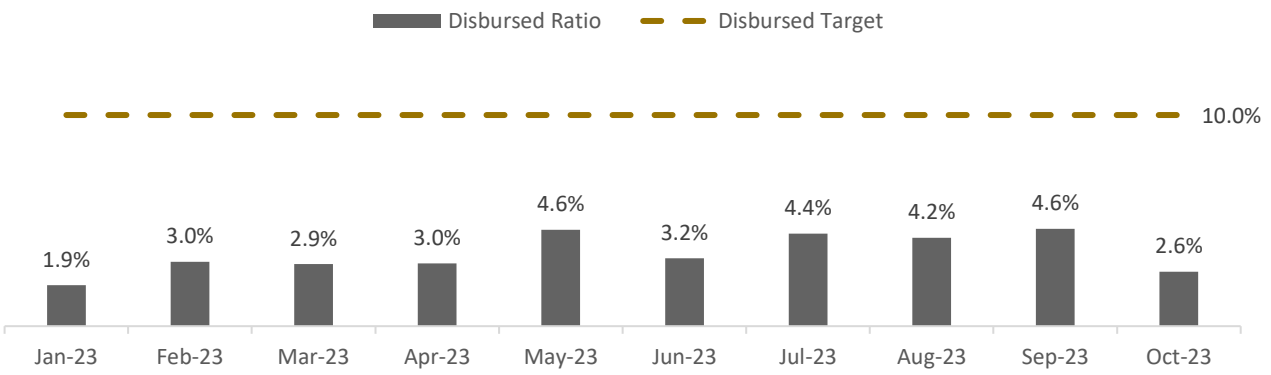

Figure 1. *PT XYZ Disbursed Productivity January 2023 - October 2023*
Source: (Researcher's Processed Results, 2023)

In figure 1. above, there is a difference between the Disbursed productivity level that has been set as the standard and the actual productivity level, creating a gap that needs attention. Disbursed productivity is the ratio between the total products sold per month (output) divided by the total inventory of products in that month (input). There is a gap between the productivity level that has been set as the standard and the actual productivity level.

Problem Formulation

Based on the background of the research described above, the problems to be discussed in this study are:

1. How to determine the importance weight value for each productivity criterion and determine the order of productivity indicators from the most important based on its weight?
2. How to measure and analyze the productivity index of Disbursed at PT XYZ?
3. How to do improvement planning in an effort to increase Disbursed productivity for the future at PT XYZ?

II. RESEARCH METHODS

Research Design

According to Sukardi in [1] Research design is a clear depiction of the relationship between variables, data collection, and data analysis, so that with a good design, researchers and other interested people have an idea of how the relationship between variables, how to measure it, and so on. The research flow diagram can be seen in the figure below.

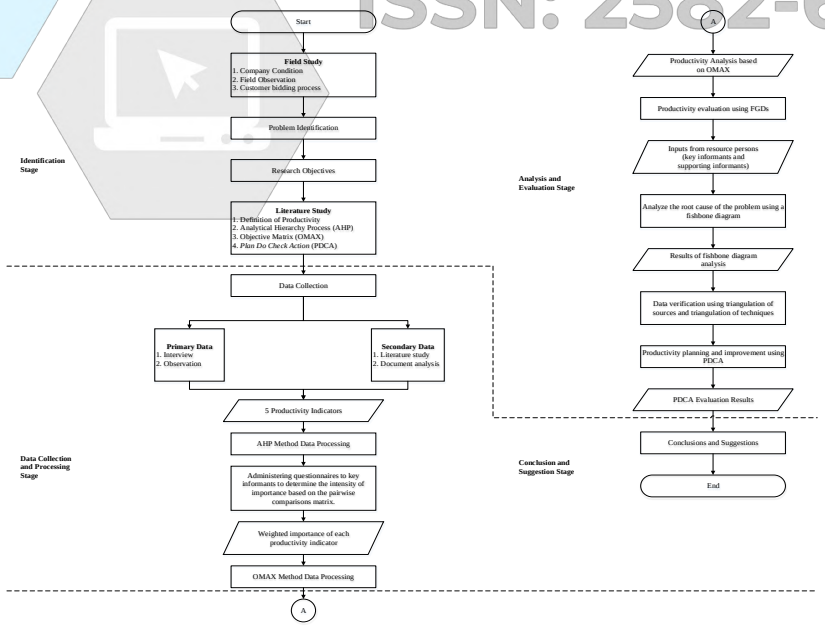

Figure 2. *Research Flow Diagram*
Source: (Researcher's Process Results, 2023)

This research uses a paradigm with quantitative qualitative methods (mixed method approach) as the basis of research. This research uses synchronization of AHP, OMAX and PDCA methods, which are combination methods that combine quantitative and qualitative approaches.

The OMAX and AHP methods are used to determine the priorities and weights of the factors affecting productivity, while the PDCA method is used to plan, implement, monitor, and evaluate the improvements made. This research produces a product in the form of a productivity improvement program that is in accordance with the conditions of the company, and tests the effectiveness of the program using performance indicators.

Key Informants

Judging from the amount and amount of information, whether or not the information is important, and whether or not the information provided to the researcher is relevant to the focus of the research, informants can be grouped into two, namely key informants and supporting informants. Key informants are people who know the most and know the most about the focus intended by the researcher [2]. Key informants in this study, namely Senior Manager Operation Strategist and Teleborrower Manager.

Supporting informants are people who provide additional information to researchers because they know about the information needed in data collection which can help Key Informants in making decisions [2]. Supporting informants include Senior Manager Anti-Fraud & Credit Analyst, Customer Service Manager, Operation Strategist Analyst and Business Intelligence Analyst.

Sampling Method

Population is the totality of units of analysis that have certain qualities and characteristics that researchers determine to study and draw conclusions [3]. The population in this study are employees of PT XYZ who are in the Operation Strategist Division, Teleborrower Division, Anti-Fraud Division, Customer Service Division, Credit Analyst Division and Business Intelligence Division. The sampling method used in this research is non-probability sampling where sampling does not provide an opportunity for the entire population to become a sample. The techniques used include purposive sampling where the samples used are people who are believed to know best about the topic under study [4].

AHP input sampling is taken from the Teleborrower and Operation Strategist functions because these two functions have direct contact with the disbursement rate in the company. For the OMAX method because it is an analyzer, the most capable of sampling is from the Operation Strategist function and for the PDCA method, because it is iterative which is used for control and continuous improvement of the quality of operational processes as a whole, the researchers took samples from representatives of each manager for each operational function in the company.

III. RESULTS

Determination of Productivity Indicator Weights Using AHP

Determination of indicator weights aims to determine the level of importance of the comparison between one indicator and another. The weight calculation was carried out using the Analytical Hierarchy Process (AHP) by making a questionnaire which was then given to two respondents, namely Senior Manager Operation Strategist and Teleborrower Manager.

Table 1. *Comparison Results between Productivity Indicators*

Indicator Comparison	**More Important Indicators**	**Intensity of Interest**	
		R1	R2
Indicator A vs Indicator A	Equal	1	1
Indicator A vs Indicator B	Indicator A	3	1
Indicator A vs Indicator C	Indicator A	1	3
Indicator A vs Indicator D	Indicator A	1	7
Indicator A vs Indicator E	Indicator A	3	1
Indicator B vs Indicator B	Equal	1	1
Indicator B vs Indicator C	Indicator B	1/3	1
Indicator B vs Indicator D	Indicator B	1/3	7
Indicator B vs Indicator E	Indicator B	1	1

Indicator C vs Indicator C	Equal	1	1
Indicator C vs Indicator D	Indicator C	3	3
Indicator C vs Indicator E	Indicator C	1	1
Indicator D vs Indicator D	Equal	1	1
Indicator D vs Indicator E	Indicator D	1	1/3

Sumber: Source: (Questionnaire Results, 2024)

As described in the research methodology, the researcher appointed key informants as questionnaire respondents to determine the relative weight of each criterion which could cause variations in the process, especially if there were significant differences in opinion. Examples can be seen in Table 8, such as Indicator A (Disbursed/Labor) vs Indicator D (Disbursed/Working Days) where according to R1 both indicators are of equal importance, but according to R2 indicator A (Disbursed/Labor) is clearly more important than indicator B (Approved/Submit) (demonstrated importance) and another significant difference is in Indicator B (Approved/Submit) vs Indicator D (Disbursed/Working Days), Where according to R1 indicator D (Disbursed / Working Days) is slightly more important than indicator B (Approved / Submit) (Weak importance of one over another) while according to R2 indicator B (Approved / Submit) is clearly absolutely more important than indicator D (Disbursed / Working Days) (demonstrated importance).

Importance Intensity Weighting Data Processing

Furthermore, the geometric mean calculation is carried out using the Microsoft Excel 2021 application, the geometric mean calculation is carried out because there are more than one respondent, referring to the geometric mean formula in the research methodology, the results are obtained as presented in the figure below.

	A	B	C	D	E	F	G	H	I	J	K
1	Respondent	Indicator									
2	ID	A vs B	A vs C	A vs D	A vs E	B vs C	B vs D	B vs E	C vs D	C vs E	D vs E
3	1	3.000	0.200	0.333	0.333	0.200	0.333	0.333	3.000	3.000	0.333
4	2	1.000	3.000	7.000	1.000	1.000	7.000	1.000	3.000	1.000	1.300
5	Geomean	1.732	0.775	1.528	0.577	0.447	1.528	0.577	3.000	1.732	0.658
6	Formula	=GEOMEAN(B3:B4)	=GEOMEAN(C3:C4)	=GEOMEAN(D3:D4)	=GEOMEAN(E3:E4)	=GEOMEAN(F3:F4)	=GEOMEAN(G3:G4)	=GEOMEAN(H3:H4)	=GEOMEAN(I3:I4)	=GEOMEAN(J3:J4)	=GEOMEAN(K3:K4)

Figure 3. *Excel Calculation for Geometric Averages*
Source: (Researcher's Process Results, 2024)

After obtaining the geometric mean results based on the results of the questionnaires from two respondents, then a pairwise comparison calculation is carried out by filling in the results of the geometric mean calculation according to the paired indicators.

	A	B	C	D	E	F	G	H	I	J	K
1	Respondent	Indicator									
2	ID	A vs B	A vs C	A vs D	A vs E	B vs C	B vs D	B vs E	C vs D	C vs E	D vs E
3	1	3.000	0.200	0.333	0.333	0.200	0.333	0.333	3.000	3.000	0.333
4	2	1.000	3.000	7.000	1.000	1.000	7.000	1.000	3.000	1.000	1.300
5	Geomean	1.732	0.775	1.528	0.577	0.447	1.528	0.577	3.000	1.732	0.658
6	Formula	=GEOMEAN(B3:B4)	=GEOMEAN(C3:C4)	=GEOMEAN(D3:D4)	=GEOMEAN(E3:E4)	=GEOMEAN(F3:F4)	=GEOMEAN(G3:G4)	=GEOMEAN(H3:H4)	=GEOMEAN(I3:I4)	=GEOMEAN(J3:J4)	=GEOMEAN(K3:K4)
7											
8	Comparison Matrix										
9		A	B	C	D	E					
10	A	1.000	1.732	0.775	1.528	0.577					
11	B	0.577	1.000	0.447	1.528	0.577					
12	C	1.291	2.236	1.000	3.000	1.732					
13	D	0.655	0.655	0.333	1.000	0.658					
14	E	1.732	1.732	0.577	1.519	1.000					
15	Total	5.255	7.355	3.132	8.574	4.545					
16											
17	Comparison Matrix										
18		A	B	C	D	E					
19	A	1.000	=B5	=C5	=D5	=E5					
20	B	=1/C10	1.000	=F5	=G5	=H5					
21	C	=1/D10	=1/D11	1.000	=I5	=J5					
22	D	=1/E10	=1/E11	=1/E12	1.000	=K5					
23	E	=1/F10	=1/F11	=1/F12	=1/F13	1.000					
24	Total	=SUM(B10:B14)	=SUM(C10:C14)	=SUM(D10:D14)	=SUM(E10:E14)	=SUM(F10:F14)					

Figure 4. Excel Calculation for Indicator Pairwise Comparison Matrix
Source: (Researcher's Process Results, 2024)

After calculating the indicator pairwise comparison matrix, the normalization matrix calculation is then carried out. Normalization is done by dividing each element in the pairwise matrix by the total value of each column. The results of the normalization matrix calculation can be seen in Figure 5.

L38

	A	B	C	D	E
8	Comparison Matrix				
9		A	B	C	D	E
10	A	1.000	1.732	0.775	1.528	0.577
11	B	0.577	1.000	0.447	1.528	0.577
12	C	1.291	2.236	1.000	3.000	1.732
13	D	0.655	0.655	0.333	1.000	0.658
14	E	1.732	1.732	0.577	1.519	1.000
15	Total	5.255	7.355	3.132	8.574	4.545
17	Matrix					Priority
18		A	B	C	D	E	
19	A	0.190	0.235	0.247	0.178	0.127	0.196
20	B	0.110	0.136	0.143	0.178	0.127	0.139
21	C	0.246	0.304	0.319	0.350	0.381	0.320
22	D	0.125	0.089	0.106	0.117	0.145	0.116
23	E	0.330	0.235	0.184	0.177	0.220	0.229
24	Total	1.000	1.000	1.000	1.000	1.000	1.000
26	Matrix					Priority
27		A	B	C	D	E	
28	A	=B10/B$15	=C10/C$15	=D10/D$15	=E10/E$15	=F10/F$15	=IFERROR(AVERAGE(B19:F19),"")
29	B	=B11/B$15	=C11/C$15	=D11/D$15	=E11/E$15	=F11/F$15	=IFERROR(AVERAGE(B20:F20),"")
30	C	=B12/B$15	=C12/C$15	=D12/D$15	=E12/E$15	=F12/F$15	=IFERROR(AVERAGE(B21:F21),"")
31	D	=B13/B$15	=C13/C$15	=D13/D$15	=E13/E$15	=F13/F$15	=IFERROR(AVERAGE(B22:F22),"")
32	E	=B14/B$15	=C14/C$15	=D14/D$15	=E14/E$15	=F14/F$15	=IFERROR(AVERAGE(B23:F23),"")
33	Total	=SUM(B19:B23)	=SUM(C19:C23)	=SUM(D19:D23)	=SUM(E19:E23)	=SUM(F19:F23)	=SUM(G19:G23)

Figure 5. *Excel Calculation for Normalization Matrix*
Source: (Researcher's Process Results, 2024)

To calculate the normalization matrix, this value is divided by the number of values in indicator column B (Approved/Submit), which is 7,355.

Normalization Matrix A-B = 1.732/7.355 = 0.235

The pairwise comparison normalization matrix of all indicators along with the value of the eigenvector can be seen in the figure above. Furthermore, the calculation of the λmax (Max. Eigen Value) value is obtained from dividing the weighted normalization matrix sum by the matrix order.

	A	B	C	D	E	F	G	H	I	J	K	L	M
26	Matrix						Priority	Parameter	Value	Result		Matrix Size (n)	IR Value (Random Index)
27		A	B	C	D	E							
28	A	0.190	0.235	0.247	0.178	0.127	0.196	Max. Eigen Value	5.090	Consistency Ratio		1, 2	0.00
29	B	0.110	0.136	0.143	0.178	0.127	0.139	CI	0.023	2.0%		3	0.58
30	C	0.246	0.304	0.319	0.350	0.381	0.320	RI	1.120	Inconsistency is		4	0.90
31	D	0.125	0.089	0.106	0.117	0.145	0.116	CR = CI / RI	0.020	acceptable		5	1.12
32	E	0.330	0.235	0.184	0.177	0.220	0.229					6	1.24
33	Total	1.000	1.000	1.000	1.000	1.000	1.000					7	1.32
34												8	1.41
35	Matrix						Priority	Parameter	Value	Result		9	1.45
36		A	B	C	D	E						10	1.49
37	A	=B10/B$15	=C10/C$15	=D10/D$15	=E10/E$15	=F10/F$15	=IFERROR(AVERAGE(B28:F28),"")	Max. Eigen Value	MULT(B15:F15,G28:G	Consistency Ratio		11	1.51
38	B	=B11/B$15	=C11/C$15	=D11/D$15	=E11/E$15	=F11/F$15	=IFERROR(AVERAGE(B29:F29),"")	CI	=(I28-5)/(5-1)	2.0%		12	1.48
39	C	=B12/B$15	=C12/C$15	=D12/D$15	=E12/E$15	=F12/F$15	=IFERROR(AVERAGE(B30:F30),"")	RI	=M31	Inconsistency is		13	1.56
40	D	=B13/B$15	=C13/C$15	=D13/D$15	=E13/E$15	=F13/F$15	=IFERROR(AVERAGE(B31:F31),"")	CR = CI / RI	=I29/I30	acceptable		14	1.57
41	E	=B14/B$15	=C14/C$15	=D14/D$15	=E14/E$15	=F14/F$15	=IFERROR(AVERAGE(B32:F32),"")					15	1.59
42	Total	=SUM(B28:B32)	=SUM(C28:C32)	=SUM(D28:D32)	=SUM(E28:E32)	=SUM(F28:F32)	=SUM(G28:G32)						

Figure 6. Excel Calculations for Max. Eigen Value, Consistency Index, Random Index and Consistency Ratio
Source: (Researcher Processed Results, 2024

After getting the Max. Eigen Value, next will calculate the Consistency Index (CI). The consistency index calculation is used to measure indicators against consistency.

CI = (λmax - n)/(n-1) = (5.090-5)/(5-1) = 0.023

Description:

n = number of criteria

CI = Consistency Index

After getting the consistency index value, then we must test its consistency. Consistency testing is obtained from the division of CI / RI where CI is a consistency index obtained from the results of previous calculations, and RI with a value of 1,120 because n is 5, Weighting is declared consistent if the consistency ratio is less than 0.1 or 10% [5].

CR = CI/RI = 0.023/1.120 = 0.020

Because the CR value is less than 0.1, it can be concluded that the assessment of the two respondents in the pairwise comparison is consistent [6]. The results of the weighting of each indicator can be seen in Table 2.

Table 2. *Weight of Each Indicator*

Indicator	Weight
C (Submit/Attempt)	0.320
E (Submit/Attempt)	0.229
A (Disbursed/Tenaga Kerja)	0.196
B (Approved/Submit)	0.139
D (Disbursed/Hari kerja)	0.116
Total	1.000

Source: (Researcher's Processed Results, 2024)

Calculation of Productivity Ratio and Index

After the productivity indicators have been defined and the importance weights have been obtained as shown in Table 2, the next step is to calculate the productivity ratio and index using the OMAX method. Table 3 is the data used in analyzing the productivity index in this study. This data is obtained from the company's internal system used by the company to monitor the performance of the operational team, in this case the company uses a visualization tool called Redash, whose input data is taken from the company's internal system called Athena.

Table 3. *Data Used in Productivity Calculation*

Month	Disbursed (Application)	Labor (Person)	Approved (Application)	Submit (Application)	Disbursed Target (Application)	Working Days (Day)	Attempt (Application)	Base (Application)
Jan-23	1,296	49	2,719	4,192	6,655	21	20,890	66,551
Feb-23	2,062	54	3,891	6,138	6,765	20	39,238	67,652
Mar-23	2,017	49	4,183	6,210	6,851	22	43,116	68,506
Apr-23	2,089	49	4,218	7,958	7,034	18	42,937	70,343
May-23	3,301	58	5,781	11,864	7,242	19	48,790	72,422
Jun-23	2,284	70	4,342	9,424	7,110	21	38,962	71,097
Jul-23	3,165	61	5,938	9,655	7,217	22	29,982	72,168
Aug-23	3,151	75	6,455	10,281	7,533	22	43,892	75,333
Sep-23	3,523	80	6,239	9,681	7,639	21	43,920	76,393

Oct-23	2,027	76	5,824	9,529	7,851	21	37,130	78,507
Nov-23	2,775	76	6,347	9,760	7,375	21	38,731	73,751
Dec-23	2,900	74	5,743	9,721	7,600	20	40,918	75,996

Source: (Internal Data of PT XYZ, 2024)

Determination of Standard Performance and OMAX Level Calculation

In the Objective Matrix (OMAX) measurement model, there are 11 levels, namely level 0 to level 10, where level 10 is the highest level of productivity achieved by the company from each productivity indicator during the measurement period, level 3 is the average productivity value for each indicator during the measurement period, while level 0 is the lowest level of productivity achieved by the company during the measurement period, level 1 and level 2 are obtained from the interpolation of the ratio value at level 3 and the ratio value at level 0, while for level 4 to level 9 are obtained from the interpolation of the ratio value at level 10 and the ratio value at level 3.

	A	B	C	D	E	F	G
1	**Indicator A**						
2	**Month**	**Disbursed (Application)**	**Labor (Person)**	**Ratio**	**Min**	**Average**	**Max**
3	Jan-23	1,296	49	26.449	**26.449**	**39.857**	**56.914**
4	Feb-23	2,062	54	38.185	**=MIN(D3:D14)**	**=IFERROR(AVERAGE(D3:D14),"")**	**=MAX(D3:D14)**
5	Mar-23	2,017	49	41.163			
6	Apr-23	2,089	49	42.633			
7	May-23	3,301	58	56.914			
8	Jun-23	2,284	70	32.629			
9	Jul-23	3,165	61	51.885			
10	Aug-23	3,151	75	42.013			
11	Sep-23	3,523	80	44.038			
12	Oct-23	2,027	76	26.671			
13	Nov-23	2,775	76	36.513			
14	Dec-23	2,900	74	39.189			
15							
16	**Indicator B**						
17	**Month**	**Approved (Application)**	**Submit (Application)**	**Ratio**	**Min**	**Average**	**Max**
18	Jan-23	2,719	4,192	0.649	**0.461**	**0.598**	**0.674**
19	Feb-23	3,891	6,138	0.634	**=MIN(D18:D29)**	**=IFERROR(AVERAGE(D18:D29),"")**	**=MAX(D18:D29)**
20	Mar-23	4,183	6,210	0.674			
21	Apr-23	4,218	7,958	0.530			
22	May-23	5,781	11,864	0.487			
23	Jun-23	4,342	9,424	0.461			
24	Jul-23	5,938	9,655	0.615			
25	Aug-23	6,455	10,281	0.628			
26	Sep-23	6,239	9,681	0.644			
27	Oct-23	5,824	9,529	0.611			
28	Nov-23	6,347	9,760	0.650			
29	Dec-23	5,743	9,721	0.591			

Figure 7. *Excel Calculations for Level Values 0,3 and 10 on OMAX*
Source: (Researcher's Process Results, 2024)

Score Calculation on OMAX

After obtaining the value of each level for each indicator at PT XYZ, then fill in the OMAX matrix table for January 2023 to December 2023, the following is an example to determine the score of each productivity indicator ratio on indicator B (Approved/Submit) in January 2023.

Known:

Performance in January = 0.649

Value at level 7 = 0.641

Value at level 8 = 0.652

Then the score for the value of 0.649:

(Level 8 - Performance)/(Performance - Level 7) = (8 - x)/(x - 7)

(0.652 - 0.649)/(0.649 - 0.641) = (8 - x)/(x - 7)

(0.003)/(0.008) = (8 - x)/(x - 7)

x = 7.662

	A	B	C	D	E	F	G	H
1								
2		Jan-23						
3		Indicator	Indicator A (application/person)	Indicator B	Indicator C	Indicator D (application/day)	Indicator E (application/hour)	Level
4		Performance	26.449	0.649	0.063	61.714	0.201	
5		Level 10	56.914	0.674	0.164	173.737	0.322	10
6		Level 9	54.477	0.663	0.158	166.579	0.308	9
7		Level 8	52.041	0.652	0.151	159.421	0.294	8
8		Level 7	49.604	0.641	0.145	152.263	0.280	7
9		Level 6	47.167	0.631	0.138	145.105	0.266	6
10		Level 5	44.730	0.620	0.132	137.947	0.252	5
11		Level 4	42.294	0.609	0.125	130.789	0.238	4
12		Level 3	39.857	0.598	0.119	123.631	0.225	3
13		Level 2	35.388	0.552	0.100	102.992	0.198	2
14		Level 1	30.918	0.507	0.082	82.353	0.171	1
15		Level 0	26.449	0.461	0.063	61.714	0.144	0
16		Score						
17		Weight						
18		Value						
19		Index						
20								
21		Jan-23						
22		Indicator	Indikator A (aplikasi/orang)	Indikator B	Indikator C	Indikator D (aplikasi/hari)	Indikator E (aplikasi/jam)	Level
23		Performance	=Indicator!D3	=Indicator!D18	=Indicator!D33	=Indicator!D48	=Indicator!D63	
24		Level 10						
25		Level 9	=((C$5-C$12)/(10-3))+C7	=((D$5-D$12)/(10-	=((E$5-E$12)/(10-3))+E7	=((F$5-F$12)/(10-3))+F7	=((G$5-G$12)/(10-	
26		Level 8	=((C$5-C$12)/(10-3))+C8	=((D$5-D$12)/(10-	=((E$5-E$12)/(10-3))+E8	=((F$5-F$12)/(10-3))+F8	=((G$5-G$12)/(10-	
27		Level 7	=((C$5-C$12)/(10-3))+C9	=((D$5-D$12)/(10-	=((E$5-E$12)/(10-3))+E9	=((F$5-F$12)/(10-3))+F9	=((G$5-G$12)/(10-	
28		Level 6	=((C$5-C$12)/(10-	=((D$5-D$12)/(10-	=((E$5-E$12)/(10-	=((F$5-F$12)/(10-	=((G$5-G$12)/(10-	
29		Level 5	=((C$5-C$12)/(10-	=((D$5-D$12)/(10-	=((E$5-E$12)/(10-	=((F$5-F$12)/(10-	=((G$5-G$12)/(10-	
30		Level 4	=((C$5-C$12)/(10-	=((D$5-D$12)/(10-	=((E$5-E$12)/(10-	=((F$5-F$12)/(10-	=((G$5-G$12)/(10-	
31		Level 3						
32		Level 2	=((C$12-C$15)/(3-	=((D$12-D$15)/(3-	=((E$12-E$15)/(3-	=((F$12-F$15)/(3-	=((G$12-G$15)/(3-	
33		Level 1	=((C$12-C$15)/(3-	=((D$12-D$15)/(3-	=((E$12-E$15)/(3-	=((F$12-F$15)/(3-	=((G$12-G$15)/(3-	
34		Level 0						
35		Score						
36		Weight						
37		Value						
38		Index						

Figure 8. *Excel Calculations for Score, Value and Index on OMAX*
Source: (Researcher Processed Results, 2024)

Based on the results of the calculation, it was found that the performance of indicator B (Approved / Submitted) in January 2023 was at level 7.662 so that the score column in the OMAX matrix was filled in with the number 7.662, then the score calculation was carried out for each productivity indicator during 2023. The number in the weight row is the weight of the importance of each indicator, the value row is the result of multiplying the level obtained by weight, and the index value is the sum of the values of all indicators.

Calculation of Productivity Index

After the measurement using the OMAX model, it can be calculated the total productivity value achieved by the company during 2023, the productivity value for each month is obtained from the sum of all values obtained from the multiplication of score and weight for each productivity indicator. The IP calculation is done with January as the base period, so the IP in January is 0, because the company has never done productivity measurement before.

After knowing the productivity index for each month during 2023, then calculate the total productivity index. The results of the calculation of the total productivity index can be seen in Table 4, the calculation below is an example of the calculation of the productivity index delta for February 2023 at PT XYZ.

ΔIP February = (2,204 - 1,547)/1,547 = 42.425%

Table 4. *Delta Productivity Index of PT XYZ*

Month	Productivity Index (t)	Productivity Index (t-1)	Var
Jan-23	1.547	0	-
Feb-23	2.204	1.547	42.425%
Mar-23	2.722	2.204	23.536%
Apr-23	2.538	2.722	-6.762%
May-23	7.394	2.538	191.307%
Jun-23	3.144	7.394	-57.483%
Jul-23	6.853	3.144	118.004%
Aug-23	4.903	6.853	-28.462%
Sep-23	4.996	4.903	1.902%
Oct-23	3.086	4.996	-38.238%
Nov-23	4.776	3.086	54.800%
Dec-23	3.954	4.776	-17.209%

Source: (Researcher's Processed Results, 2024)

Total Productivity Index Analysis

After processing the data and calculating the total productivity index, then we can analyze the results of the total productivity index calculation that has been done before. Based on Table 6, it can be seen that the productivity index in the company's operations, the highest increase in productivity is in May 2023 with an increase in productivity index of 191.307% when compared to the previous month, this is due to an increase in 4 values from 5 productivity indicators when compared to April 2023. While the highest decrease in productivity was in June 2023 by -57.483% when compared to the previous month, the decline was caused by a decrease in the level of achievement of all indicators,

IV. DISCUSSION

Root Cause Analysis of Main Problems Using Fishbone Diagram

After conducting a Focus Group Discussion (FGD), researchers tried to classify the root causes of the main problem, namely the low Disbursed ratio using a fishbone diagram. In general, a fishbone diagram is a graphical representation that displays data about the causal factors of failure or non-conformity, to analyze to the deepest sub of the factors causing the problem [7].

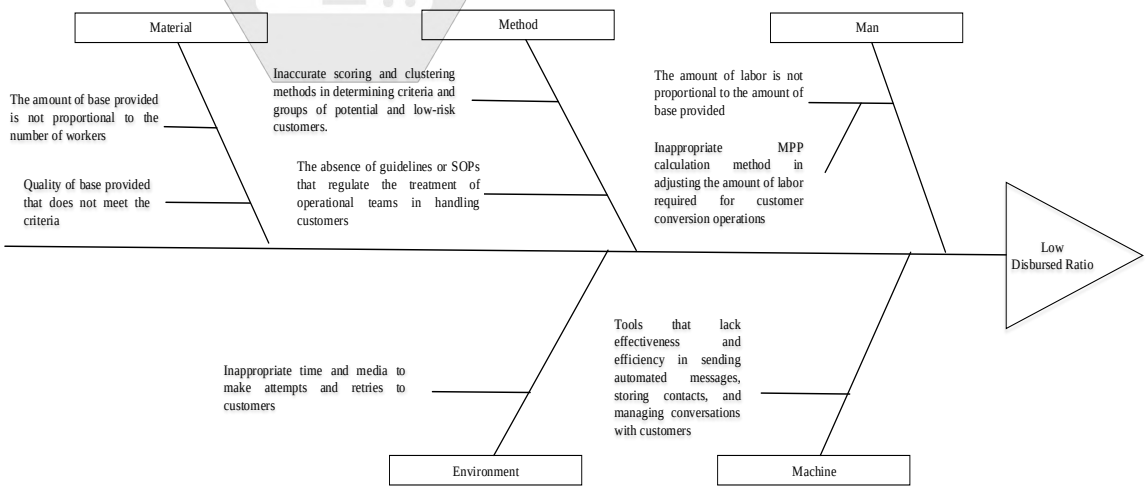

Figure 9. *Causes of Disbursed Ratio Problems*
Source: (Focus Group Discussion, 2024)

This exercise was conducted by six people, consisting of key informants and supporting informants. There is no fixed rule regarding the number of people who should be involved, but team collaboration provides more comprehensive results due to the various perspectives brought into the analysis. Regarding the phases, the researcher chose to conduct the analysis to fill in the 'bones' along with the causes of each bone, then the final finalization was done with the key informants and supporting informants.

PDCA Implementation

In the previous section, the author has explained the concept and benefits of PDCA as a management method that can be used to improve company productivity. The author has also outlined the steps of PDCA which include Plan, Do, Check, and Act. In addition, the author has also conducted FGD discussions with several related parties at PT XYZ to obtain input and suggestions on improving the productivity of the Disbursed ratio. The FGD discussion resulted in several findings and recommendations that will be used as the basis for implementing PDCA in the production process of PT XYZ. In this section, the author will discuss the analysis of PDCA implementation in the production process of PT XYZ using the data and information obtained from the FGD discussion.

Plan

In the planning phase, efforts to improve Disbursed ratio productivity are by collecting data and conducting cause and effect analysis. Based on direct observations in the field and the results of the cause-and-effect diagram analysis, that the problem lies in 5 categories, namely man, machine, method, material and environment which will be explained in more detail in the do section. There is a gap of 64.8% between the Disbursed obtained throughout 2023 when compared to the target (Actual = 33,622 applications, Target = 79,272 applications).

Do

1. MPP Recalculation Based on Forecasting Base

Researchers recalculated MPP based on forecasting the number of bases throughout 2024, elaborated with operational assumptions to obtain actual and based MPP calculation results. Researchers used the exponential smoothing method to perform base forecasting in 2024 based on the number of bases in 2023. The Base forecasting process uses the FORECAST.ETS function in Microsoft Excel software which is used to predict future values using the Exponential Triple Smoothing or ETS algorithm. The syntax used is as follows FORECAST.ETS (target_date, values, timeline, [seasonality], [data_completion], [aggregation]).

In order to match the number of manpower with the base and increase the present rate from 34% (2023 average) to 68%, the number of agents is increased from an average of 47 agents/month in 2023 to 83 agents/month in 2024 by forecasting an increase in the base from an average of 72,393 applications/month to an average of 83,386 applications/month.

2. Operational Team Training or Coaching

The operational team works closely with the Learning & Development (L&D) team to conduct regular coaching, especially for teams that often under perform. This project is called the cloning project where L&D will apply this training to bottom ten agents to be given learning materials taken from agents who have consistent achievements always above the target.

3. Procurement of CRM-based Whatsapp Business Tools

Researchers together with the marketing technology team from PT XYZ conducted vendor sourcing for the implementation of the CRM-based Whatsapp Business system. PT XYZ uses a vendor (third party) called ADA-ASIA, which is a platform that provides innovative and integrated digital solutions headquartered in Singapore and Malaysia.

4. Implementation of Interactive Voice Response Robo One-Way

The author and PT XYZ appointed one of the vendors to implement a one-way Robo Interactive Voice Response (IVR) system, namely Dalnet to send voice messages automatically to many customers with efficient time. Dalnet is a company engaged in telecommunications, especially call center and IP telephony services. Because this service is one way, this means that the robot only speaks to the customer, and the customer cannot answer or ask the robot. This service is usually used to provide notifications, reminders, or brief information to customers.

5. Evaluation and Improvement of Scoring and Clustering Methods

The start of customer clustering based on a certain segment score (whitelist) and as of January 20, a campaign was added to support whitelist, namely greylist. Where the approval rate target for whitelist is >90% and for greylist is >80%. whitelist and greylist are special segments where customers are given an easy

approval rating from the Risk Analytics team using the rules set by the Risk team.

6. Creation of complete guidelines or SOPs for the operational team

Create SOPs or technical guidelines for operations that regulate procedures and best practices in customer bidding activities. The SOP created is the result of proposals along with planning steps that have been determined from the start of the Focus Group Discussion until the improvement process runs.

Check

The next stage is check or evaluation of results. The steps taken are comparing conditions before and after improvements are made. For routine checks every day, researchers are always intense and monitor the achievement of the Disbursed ratio at PT XYZ. Every week, both the author and key informants always coordinate well to monitor the execution of the plans that have been made based on the proposed results of the cause and effect diagram that has been made previously.

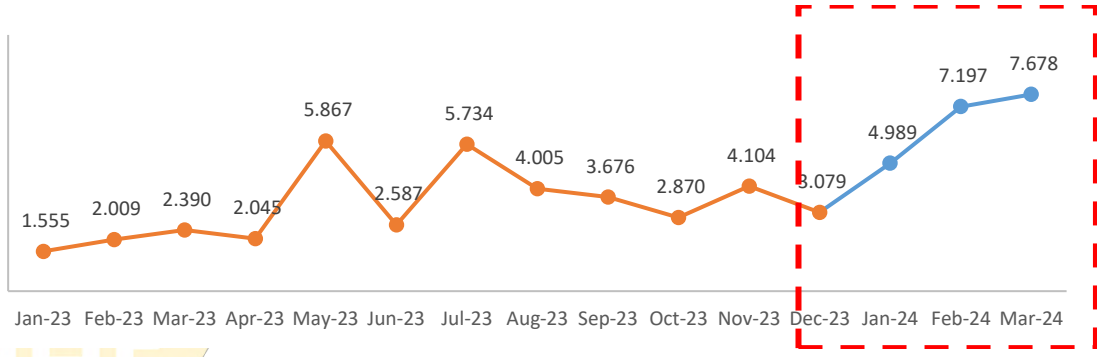

Figure 10. *Total Productivity Index January 2023 - March 2024*
Source: (Researcher's Processed Results, 2024)

The increase in indicators with the highest importance weights, namely indicator C (Submit/Base), indicator E (Submit/Attempt) and indicator A (Disbursed/Labor) also had an impact on increasing the total productivity index value. It can be seen in Figure 19 that there is an increasing trend starting from January 2024 and continuing to increase until March 2024, even reaching its peak in March 2024 where before December 2023 the highest total productivity index occurred in May 2023 with a figure of 5.867 and can now reach a figure of 7.678 in March 2024. This is also evidenced by the relationship that is in line with the increase in the Disbursed ratio. As referring to the results of research [8] which states that based on the results of data processing in the previous chapter conducted to measure productivity as an evaluation material for efforts to increase productivity in the company where the conclusion is that there is a pattern of ups and downs from 12 periods of total productivity measurement, the lowest productivity occurred in period 7 of November 2018 at 261.6 and the highest productivity occurred in period 3 of July 2019 at 512.2, but after the proposed improvements productivity increased to 900.9% in period 13.

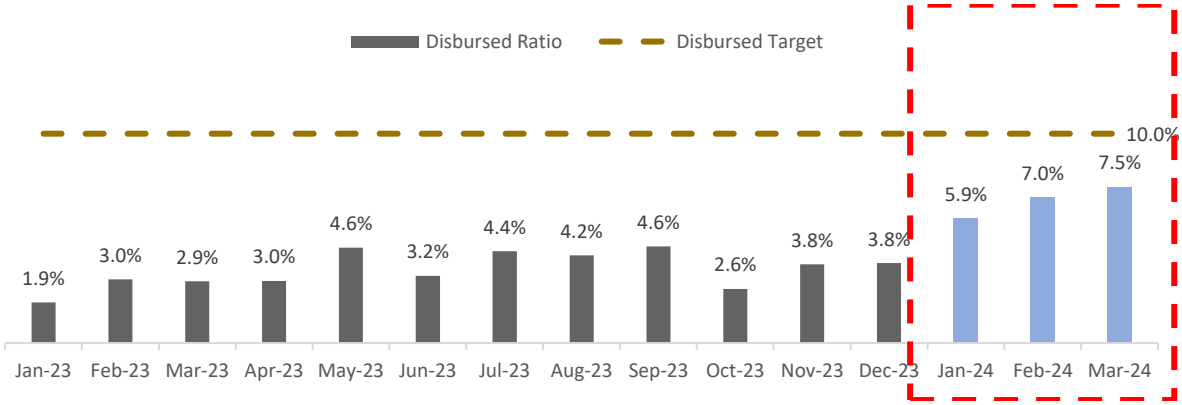

Figure 11. *Productivity Disbursed January 2023 - January 2024*
Source: (Researcher Processed Results, 2024)

Linear with the results of improvements in the top 3 indicators with the highest importance weights, namely indicator C (Submit/Base), indicator E (Submit/Attempt) and indicator A (Disbursed/Labor) and supported by an increase in the total productivity index presented through the OMAX method, it can be seen in Figure 20 that the Disbursed productivity ratio has increased from January 2024 to March 2024, where from the previous blended average of 3.5% in 2023 to 6.8% until March 2024, meaning that there has been a 98% increase in productivity.

Act

Based on the results of planning, implementation, and inspection. The final stage is to take action through standardization. To maintain and improve the Disbursed ratio at PT XYZ, it is necessary to consistently monitor and take maintenance actions, namely by making SOPs or operational guidelines held by the operational team as an operational reference that has been standardized by the company based on the developments that have been made.

In addition, the follow-up to the process of implementing and examining the results of planning to increase the Disbursed ratio that has been carried out at PT XYZ is communication about the results of improvements to all parties involved, namely the teleborrower team, credit analyst, marketing technology, business intelligence and risk analytics.

VI. CONCLUSION AND SUGGESTION

Conclusion

Based on the determination and ranking of importance weights for each productivity criterion using AHP, measurement and analysis of the productivity index using the OMAX measurement model and planning and improvement to increase the productivity of the Disbursed ratio using PDCA, several conclusions are obtained, namely:

1. Based on the results of filling out questionnaires by respondents on 5 indicators (criteria) of Disbursed ratio productivity at PT XYZ, the importance weight value for each productivity criterion is obtained and the order of productivity indicators from the most important based on its weight, namely indicator C (Submit/Base) worth 0. 320 or 32.0%, indicator E (Submit/Attempt) worth 0.229 or 22.9%, indicator A (Disbursed/Labor) worth 0.196 or 19.6%, indicator B (Approved/Submit) worth 0.139 or 13.9% and indicator D (Disbursed/Labor Days) worth 0.116 or 11.6%.
2. Based on the calculation of the productivity index using the OMAX measurement model, the productivity index fluctuates every month at the productivity level of the Disbursed ratio at PT XYZ. The highest productivity index is in May 2023 with a value of 7.394 and the lowest productivity index is in January 2023 worth 1.547. The highest increase in productivity index is in May 2023 with an increase of 191.307% from the previous month and the largest decrease in productivity index is in June 2023 by -57.483% from the previous month. Based on the results of the FGD implementation through the PDCA method, there is an increase in the total productivity index value where before December 2023 the highest total productivity index occurred in May 2023 with a figure of 5.867 and now it can reach a figure of 7.678 in March 2024.
3. Based on the results of the presentation of opinions in the Focus Group Discussion (FGD) elaborated with the fishbone diagram and has met the verification requirements of qualitative research using triangulation of sources and triangulation of techniques obtained identification of factors affecting productivity and by using PDCA, the recommendations given can increase the expected level of productivity and continue to maintain continuous improvement. The proposed improvements given are, recalculating MPP according to the forecasting base and analyzing labor needs to avoid employee deficits, conducting training or coaching of operational teams to improve competence, performance, and customer conversion, procuring CRM-based Whatsapp Business tools to streamline and streamline the Attempt process for prospective customers, implementing a one-way IVR Robo to send automated voice messages, collect data, and direct prospective customers, evaluating and improving the scoring and clustering methods of the risk analytics team to produce valid, reliable, and consistent outputs and creating complete guidelines or SOPs for operational teams in handling customers from start to finish.

Suggestions

The following are suggestions that can be given both to companies and further research, namely:

- The company can use the OMAX model elaborated with PDCA as a model that can be used in measuring and improving productivity in continuity.

- The company can measure and evaluate productivity every year or in every specified period to determine the level of achievement of the company and evaluate so that it can determine continuous improvement steps.

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