ANALYSIS OF RELATIONSHIP CLV WITH 8 CORE DRIVES USING CLUSTERING K-MEANS AND OCTALYSIS GAMIFICATION FRAMEWORK

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ABSTRACT

The CLV model is an indicator used to measure and evaluate the future value of customers to the company. But the CLV model is predictive where it will be more accurate if there are many supporting variables, one of which is customer motivation. Adopt the point of view of the Octalysis gamification framework, that behavior occurs because of an individual's motivation or drive. Therefore, it is important to explore what drives influence customer behavior, so that it can affect the customer's future value (Customer Lifetime Value). By using the K-Means clustering approach, CLV value weighting, and Octalysis framework, the study analyzes the relationship between CLV and 8 core drives to customer motivation to produce 3 contributions: (1) The results of K-Means analysis of customers based on variables L, R, F, M and CLV value weights have produced the best cluster k = 2 where segment-2 has a future value level (CLV) of the company higher than segment-1, (2) Likert scale comparison analysis and the relationship between the results of CLV segmentation on 8 core drives motivational resellers to produce similarity of ranking patterns on each core drive and its average, meaning that between the customer's future value (CLV) with 8 core drives the customer motivation is not interplay. (3) Comparative Octalysis analysis of the balance of 8 core drives resellers in the two segments results in a difference in the total Octagon score (segment-2 = 368, segment-1 = 419), and this means that the high or low future value of the customer against the company is inversely proportional to the high and low of 8 core drives reseller of companies.

Keywords: *Gamification, Octalysis, K-Means Clustering, CLV, SME*

1. INTRODUCTION

Strong business competition stimulates challenges for small and medium enterprises (SMEs), therefore, they need to be encouraged to be more creative in creating innovative breakthroughs [1]. One of the solutions done by SMEs is developing innovation [2], for example by competing to provide excellent service to customers [3]. SMEs need to analyze what extend are their service level is to customers, for example by detecting how loyal their customers are to their company so that improvements to the form of company service to customers can be more targeted.

CLV (Customer Lifetime Value) is an approach used to determine the level of customer loyalty to the company by testing the future value of customers to the company [4]. Meanwhile, K-Means clustering is a data mining approach to explore and group data according to the attributes selected for a specific purpose [4] , [5]. Data mining with K-Means was carried out based on the selected attributes, then

weighted using AHP parameters to produce Customer Lifetime Value ranking analysis [6], [5]. Thus, the company can find out who are the customers with high potential, so that it can be used as the basis for the company to carry out the treatment. But the CLV results cannot provide an overview of the factors that cause customer loyalty to the company, meanwhile, it is important to do to support the company to make the right decision. For example, a company can analyze customers' motivation or motivation for the company. One approach that can measure motivation is Gamification.

Gamification has become part of the current lifestyle that aims to increase participation and motivation [7], [8] and influence user behavior [9]. Gamification aims to bring together functionality and engagement to improve function, productivity, and satisfaction, to create more experience, to direct behavior, and to produce positive business impacts [10]. Gamification has several frameworks, including Octalysis [11]. Octalysis is a gamification framework that was discovered and developed by Yu-kai Chou [12], [13], [11]. The basic principle of Octalysis is that almost all successful games have attracted certain core drives in individuals and motivated them to make decisions and carry out activities [12], [13]. If there is no core drive behind the desired action, then there is no motivation, and no behavior occurs [12]. Octalysis has 8 core drives which are divided into 2 divisions of the left brain group and the right brain group, where the left brain emphasizes the logic of analytic thought and ownership, while the right brain emphasizes creativity, and expression of social dynamics [12], [12]. Thus, the Octalysis framework can be used to measure how much and what encouragement is involved in customer loyalty in a company. Furthermore, the results of the analysis can also find out the relationship between the level of Customer Lifetime Value and customer motivation encouragement to the company, therefore, it can provide a reference to the company to make decisions that are more targeted. Therefore, this study aims to (1) To mine reseller group data and rank based on their lifetime value to the company, (2) To analyze the comparison and relationship between the results of CLV segmentation and 8 core drives reseller in Octalysis framework with a Likert scale test, (3) To analyze and evaluate the balance comparison of 8 core drives resellers for both segments using the Octalysis scale test.

2.   LITERATURE REVIEW

2.1 K-Means Clustering and Customer Lifetime Value (CLV)

K-Means Clustering data mining techniques to explore and group data to produce a certain number of clusters [14], [4], [5]. The number of clusters was analyzed using the Elbow method to determine the best cluster [5]. For data analysis in several fields usually, clustering is combined with analytical techniques according to the type of data. As data in business, clustering can be combined with the Customer Lifetime Value (CLV) approach to determine the level of loyalty or the future level of customers towards the company [4]. Whereas CLV needs to be combined with LRFM (Length, Recency, Frequency, Monetary) models that are used to segment customers for CLV analysis material [15], [16]. Therefore, the attributes chosen for analysis in clustering are determined based on Length (range of relationships between customers and companies), Recency (last transaction time), Frequency (number of transactions), Monetary (the amount of money spent), then the best cluster is searched with Elbow method and SSE. The results of segmentation are multiplied by AHP weights to produce a ranking of the future levels of customers for the company (CLV) [5].

2.2 Gamification

Currently, gamification becomes a lifestyle [7]. Gamification is a product/way of thinking/approach/experience/process/way of problem-solving that adopts game thinking for non-game problems that focus on increasing user participation and motivation [11], [7], [8]. Gamification has a basic MDA framework (Mechanics, Dynamics, Aesthetics), where Mechanics builds the Dynamics environment so that it determines the Aesthetics component [17]. In detail the MDA components can be described as follows:

- ✓ Mechanics (M) are algorithms or rules that are determined for players to interact with a gamified system. Mechanics cause players to take action and is usually manifested in components. Examples of some existing mechanics in components include Genres and topics, goals, platforms, ratings, levels, art concepts [18], [17], [19].
- ✓ Dynamics (D) is the result of interaction between mechanics and players in the game and determines what happens to players when Mechanics works. The difference with mechanics is that mechanics cannot be seen by

players, but can direct players to the correct game path, while Dynamics is part of the mechanics that can be seen by players. This is like when a player completes a challenge, so the results will be seen by getting points, leveling up, and so on. Examples of Dynamics include challenge, storyline, character[18], [17], [19].

✓ Aesthetics (A) is the player's response to game Dynamics which is related to the emotions generated by the player while playing. Aesthetics are abstract and emotional responses desired by players so that each player will have a different response to the game being played. Here are some components of Aesthetics: sensation, fantasy, narrative, challenge, fellowship, discovery, expression, submission [18], [17], [19].
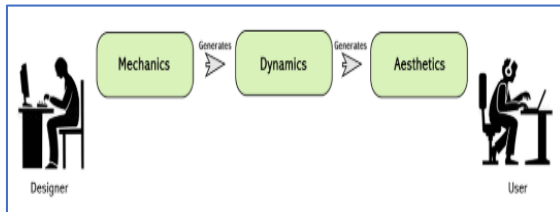

Figure 1: Framework of MDA Gamification [11].

In principle, the other frameworks are the development of MDA, and one of them is the Octalysis framework.

2.2.2 Octalysis Framework

Octalysis is a gamification framework found by Yu-kai Chou, where the basic principle is that successful games have attracted certain core drives in individuals and motivated them to make decisions and conduct activities [11], [20], [12]. In other words, there is no motivation, and no behavior occurs if previously there was no encouragement [12]. Octalysis has 8 core drives which are divided into 2 left brain and right brain divisions. The left brain emphasizes the logic of analytic thought and ownership, and the right brain emphasizes creativity, and expression of social dynamics [12], [11]. Octalysis is also grouped into 2 groups of the top (white hat) and bottom (black hat), where the white hat is considered a positive motivation to be creative, making individuals feel strong because of the sense of meaning and a sense of greater control. While the black hat is considered as a negative impetus, but its existence can inspire motivation as much as positive motivation, so the balance of both is very important to achieve maximum results [12], [11]. And in detail

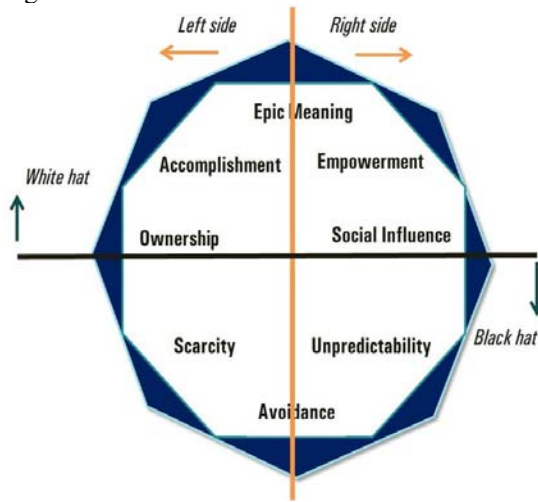of framework can be seen in the following picture in Figure 2.

Figure 2: Framework of Octalysis [21], [12].

The description of the 8 core octalysis drives [12]:

1. Epic Meaning and Calling
   This drive plays a role when someone believes that they are doing something bigger than themselves and or are chosen to take the action. They believe that doing work for the benefit of the people is far greater than themselves.

2. Development and Accomplishment
   It is an internal drive to make progress, develop skills, achieve mastery, and finally overcome challenges. The challenge here is very important to strengthen the drive (drive). These drives are the easiest to design and place most of the focused gamification elements (Point, Badge, Leaderboard).

3. Empowerment of Creativity and Feedback
   This drive encourages players to get involved in the creative process where they look for new things. This is thick with intrinsic motivation.

4. Ownership and Position
   Where users are motivated because they feel like they own or control something. When someone feels ownership of something, they innately want to improve/improve what they have. Someone will spend a lot of time adjusting their profile/avatar, they will automatically have more ownership of it.

5. Social Influence and Relatedness
   Combine all the social elements that motivate people, including guidance, social acceptance, friendship feedback, and even competition and jealousy. When you see someone who is an extraordinary friend at a skill or has something extraordinary, you become compelled to do the same thing. this is further expressed in the way we

naturally approach people/places/events that we can relate to.

6. Scarcity and Impatience

Wanting something just because it's very rare, exclusive, or not immediately achieved. the fact that people can't get something now motivates them to think about it all day long. as a result, they return to the product every chance they get.

7. Unpredictability and Curiosity

The encouragement that is interested in doing something that results are unpredictable and it is considered interesting.

8. Loss and Avoidance

An impulse that feels that if they don't act immediately they will lose the opportunity to act forever.

2.3 Previous Research

Some related research on octalysis has been carried out in various fields. Research [22] uses Octalysis to observe consumer shopping motivations in the field of E-Commerce. In the field of management In the field of health [23] octalysis has been used to analyze people's motivation to exercise. In the field of education [24] evaluates the effectiveness of educational games with the Octalysis framework, while [25] identifies the motivating factors that motivate students in the learning process. In research [26] try to explore the key elements of gamification in the application of learning using the Octalysis framework. As a recommendation for future research [24], [25], [26] suggests adding features that can increase motivation following the direction of core drives. In the field of government, octalysis is used [27] for the analysis and evaluation of CiRM (Citizen Relationship Management). The equation from some of the research that has been mentioned is aimed at analyzing, evaluating, and increasing user participation and motivation in gamified systems in various fields.

3. RESEARCH METHODOLOGY

The methodology steps combine cluster techniques, Customer Lifetime Value (CLV) models, and the gamification octalysis framework in a series of steps that have been systematically adjusted as needed. The K-means algorithm is used to classify data, then the results of grouping are weighted to produce the CLV value. The results of the CLV value were analyzed using the octalysis framework. Figure 3 shows the stages of the research methodology in this study:
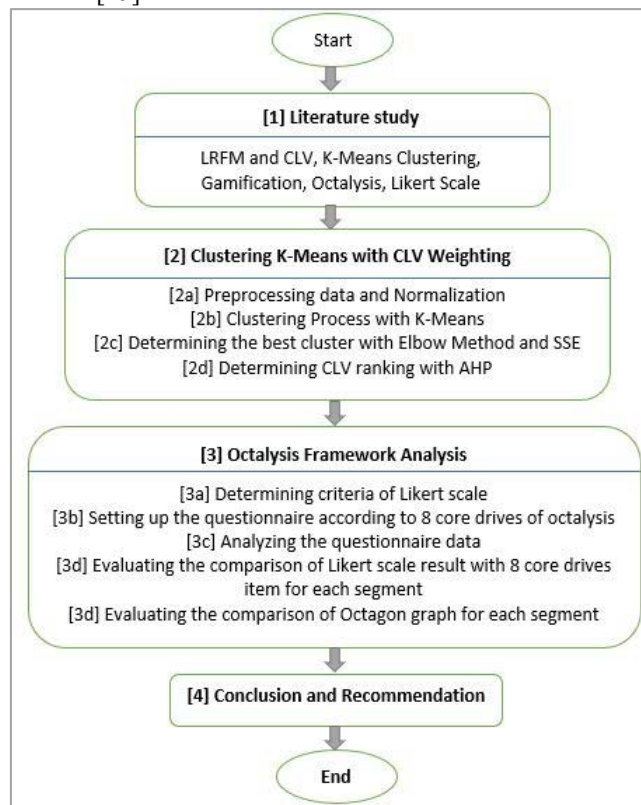

Figure 3: Research Methodology

[1] Literature study.

The literature study is focused on collecting library resources related to LRFM (Length, Recency, Frequency, Monetary) as the basis for determining clustering attributes, CLV (Customer Life Time) theory as the basis for determining the basis for reseller future ranking [4]. In grouping data, this study uses the K-Means clustering technique. Then the literature study discusses the theory of gamification and the Octalysis framework as a basis for data analysis and evaluation in this research. The theory of Likert scale and sample determination are also discussed in this study as the basis for processing questionnaire data.

[2] Clustering K-Means with CLV Weighting.

This stage is digging data using the K-Means clustering data mining approach to produce data clusters according to the attributes involved.

[2a] Stages start from preprocessing and normalizing data to the Length, Recency, Frequency, and Monetary attributes.
The normalization formula can be seen in formula (1).

$$V^1 = \frac{V - min}{max - min} \,(new\ max - new\ min) + new\ min \quad (1)$$

Where:

V = min max value
new max, new min = range min and max

[2b] Clustering Process
The K-Means clustering process is technically looking for the shortest centroid distance, and the following formula [5]:

$$d_{ij} = \sqrt{\sum_{k-1}^{p}\{X_{ik} - X_{jk}\}}^{\,2} \quad (2)$$

d_{ij} = Object Distance between object i and j
P = Data dimension
X_{ik} = Object coordinate i in dimension k
X_{jk} = Object coordinate j in dimension k
BCV (Between Cluster Variation) = eucledien distance from m to mj
WCV (Within Cluster Variation) = $\sum$(the smallest distance between data and centroid)^2

[2c] Determining the best cluster with Elbow method and SSE.
In principle in the Elbow method, if the angle in the graph has decreased sharply, then the meeting point becomes the ideal number of clusters (k) [5].
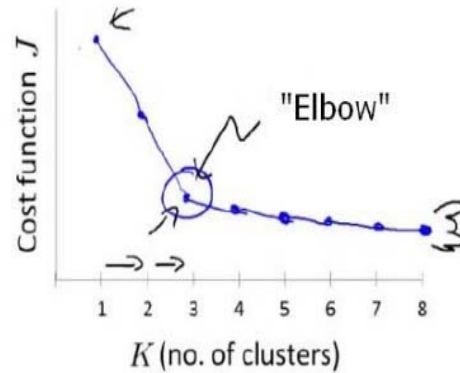

Fig 4 : Elbow Method [5].

Whereas SSE (Sum Square Error) is as in formula

(2) and the largest SSE difference is stated as the best cluster [28]:

$$SSE = \sum_{K=1}^{K}\sum_{x_1 \in S_K}^{K}\|x_i - C_k\|_2^2 \quad (3)$$

[2d] Determining CLV rangking.
In this stage, the results of the cluster values L, R, F, M are multiplied by AHP weights which refer to the following weight values: $W_L = 0.238, W_R = 0.088, W_F = 0.326, W_M = 0.348$ [6], [5]. Then do the CLV calculation with the following formula:

$$CLV = L * W_L + R * W_R + F * W_F + M * W_M \quad (4)$$

Where:

L,R,F,M = Customer value Average
L_w, R_w, F_w, M_w = weight of LRFM

[3d] Octalysis Framework Analysis
At this stage the reseller motivation analysis using the octalysis framework begins by conducting two tests as follows:

[3a] Determining Criteria of Likert Scale
This stage is determining the criteria and weight of the questionnaire using a Likert scale with 4 criteria, each of which has a predetermined weight value [29]. Then a ranking scale is calculated for the average yield of each measured questionnaire column.

[3b] Setting up the Questionnaire According to 8 Core Drives

This stage is structuring and distributing questionnaires with questions following 8 core drives octalysis. One question represents one core drive so there are a total of 8 questions. The questionnaire is intended for resellers following a predetermined segment by calculating the number of samples that follow Slovin's guidelines.

$$n = \frac{N}{1+Ne^2} \qquad (5)$$

n= sample, N=populasi, e=standar error 5%, then the results of the calculation of determining the sample of the two samples (N1=26, N2=74) adalah n1= 8, n2=21.

[3c] Analysing The Questionnaire Data

Conducting the process of calculating and analyzing the questionnaire by grouping calculations on each core drive and determining the scale level. The level scale determination starts with determining the lowest criteria weight multiplied by the number of respondents as the lower bound and the highest criteria weight multiplied by the respondent as the upper limit. Then the multiplication results have calculated the difference then the resulting difference divided by the number of criteria. The results of this division are used to determine the level scale. Then the respondent's answers are grouped according to criteria and are summed and the average is calculated. Average results are used to determine the level scale.

[3d] Evaluation the Comparison of Octagon Graph

Perform a comparative test of the balance of the core drive of each segment. The first step is to determine the weight with the Octalysis scale by converting the average of each core drive to the standard Octalysis scale. Then the weight calculation results are entered in the Octalysis tools to produce a visualization of Octagon Graph patterns and Octalysis scores for each segment. The results of the visualization are then evaluated and compared with the CLV ranking.

[4] Conclusion and Recommendation

Summarize all research results and confirm the findings obtained and recommendations for the system under study and for subsequent research.

4. RESULT AND DISCUSSION

4.1 Clustering Process to Determine the Best Cluster Group in CLV Ranking.

The experimental data are taken from SME Reseller transaction data of 100 Resellers of electrical pulses, with each record consisting of 4 columns: Reseller_ID, Name, Length (duration of the relationship between the company and customer in the analysis period), Recency (the last date of the transaction during the analysis period), Frequency (number of transactions in the analysis period), Monetary (the amount of money spent during the analysis period)[4].

4.1.1 Preprocessing and Normalization

Dataset of customer based on L,R,F,M after normalization described in Table 1.

Table 1: Dataset after normalization

No	Id	L	R	F	M
1	RS-001	1	1	0.03	0.04
2	RS-004	1	1	0.08	0.06
3	RS-008	1	1	1	1
4	RS-010	1	1	0.12	0.12
5	RS-011	0.9	0.9	0.003	0.002
6	RS-012	1	1	0.05	0.1
7	RS-016	0.9	1	0.007	0.01
8	RS-018	1	1	0.01	0.01
9	RS-024	1	1	0.2	0.3
10	RS-028	1	1	0.05	0.1
	..	..	..	..	..
100	RS-340	0.1	1	0.02	0.01

4.1.2 K-Means Clustering Analyzing Process.

The clustering process produces 5 segments with different reseller groups in each segment.

Table 2: Detail of five clusters

No	Number of Cluster	Number of reseller of each segmen
1	1	Segment = 100
2	2	Segment-1 = 26, Segment-2=74
3	3	Segment-1=23, Segment-2-76, Segment-3=1
4	4	Segment-1=1, Segment-2=26, Segment-3=58, Segment-4=1
5	5	Segment-1=1, Segment-2=20, Segment-3=42, Segment-4=20, Segment-5=17

Determine the best clusters by using the Elbow method and SSE [30] where the x-y axis meets the

most angular angles on the Elbow graph and compares the resulting difference in the SSE values.
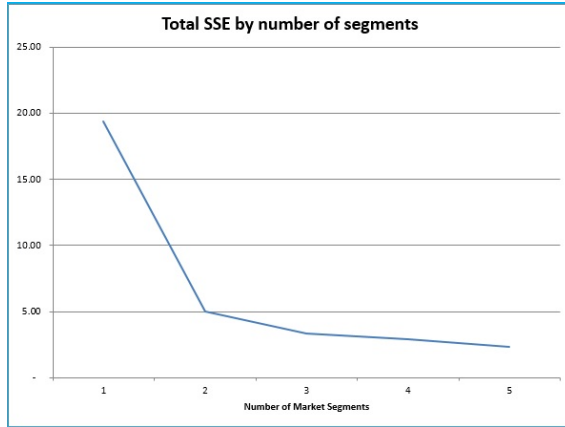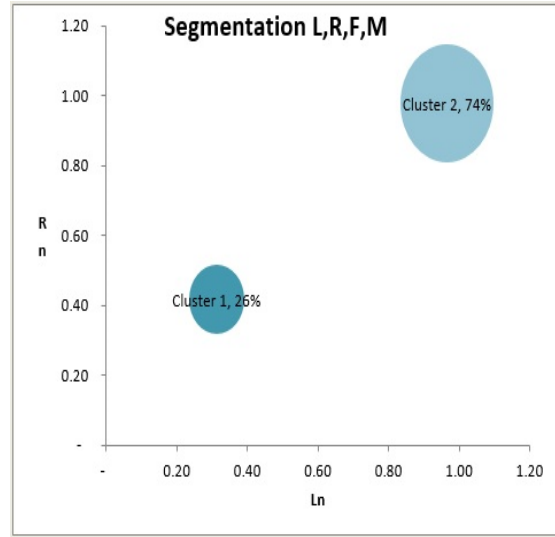

Figure 5 - Elbow Graph Result

Figure 6 - Visualization graph k=2

Table 3: SSE result

Number of k	SSE	SSE Values Compared	Difference
1	19.4		
2	5.0	19.4 – 5.0	14.4
3	3.3	5.0 – 3.3	1.7
4	2.9	3.3 – 2.9	0.4
5	2.3	2.9 – 2.3	0.6

Details of the test and visualization results k = 2 can be seen in Table 4 and Figure 6.

Table 4: Cluster of k=2

Mean/ Centroid	Ln	Rn	Fn	Mn
Segment 1	0.31	0.42	0.02	0.01
Segment 2	0.97	0.98	0.07	0.07
AVERAGE	0.80	0.83	0.06	0.05
Respondents	Number	%		SSE/Segment
Segment 1	26	26.0%		2.3
Segment 2	74	74.0%		2.8
TOTAL	100	100.0%		Average= 5.0

The best cluster results k = 2 (Table 3) have segment-1 = 26 details, and segment-2 = 74 (Table 2 and Table 4) out of a total of 100 resellers in the trial data involved. The cluster results are continued by testing the Customer Life Time (CLV) value by multiplying the L, R, F, M values of each segment by the CLV weights that adopt the weights used in the study (Amin Parvaneh & Hossein Abbasimehr, 2012), (Marisa et al. , 2019). The results can be seen in Table 5 before multiplied by AHP weights, and Table 6 after multiplied.

Table 5: Values of LRFM cluster

Mean	Σ Customer	Ln	Rn	Fn	Mn
Seg 1	26	0.313	0.417	0.019	0.014
Seg 2	74	0.966	0.978	0.070	0.067
AVG		0.796	0.832	0.056	0.054

$W_L = 0.238, W_R = 0.088, W_F = 0.326, W_M = 0.348$ [6], [5]

Table 6: Ranking CLV LRFM cluster multiply to weight value of AHP.

Segment	High	Ln*W_L	Rn*W_R	Fn*W_F	Mn*W_M	CLV	Rank
Segment 1	26	0.075	0.037	0.006	0.005	0.122	2
Segment 2	74	0.230	0.086	0.023	0.023	0.362	1
AVG		0.152	0.061	0.014	0.014	0.242	

Weighting results in segment-2 being in the first rank, followed by segment-1 which means that the future value of segment-2 reseller to the company is higher than a segment-1 reseller. This stage is then continued to the stage of testing the company's system performance using the octalysis framework.

4.2 System Performance Testing Using Octalysis Core Drives

This test aims to evaluate the relationship between the results of the reseller's future value of the company with the reseller motivation level of the company's performance. The test is carried out with the following steps:

4.2.1 Create a Questionnaire and Determine Criteria Weight with Likert Scale.

This study used a questionnaire instrument with 8 questions according to the number of octagon sides in the Octalysis framework and distributed to samples from each cluster. Measurement using a Likert scale [29], with the value criteria as Table 7:

Table 7: The Value Criteria

Variable	Criteria
4	Very Agree
3	Agree
2	Disagree
1	Very Disagree

While the questionnaire that has been distributed contains questions related to the impression felt by the Reseller of the company's mechanism so that it can be used as a reference about how the potential motivation of Resellers to join the company. The question refers to the 8 core drives of Octalysis as described in Table 8.

Table 8: Question of Questionnaire

No	Core Drives	Question
1	Epic Meaning and Calling	Resellers find it very useful if it can help customers buy their product when they need it

No	Core Drives	Question
2	Development and Accomplishment	Resellers always try to increase product sales turnover to increase profits
3	Empowerment of Creativity and Feedback	The company allows resellers to manage their downlines freely
4	Ownership and Possession	Resellers have the responsibility of developing and supporting their downlines
5	Social Influence and Relatedness	Resellers build mutually beneficial relationships with their downlines and end buyers.
6	Scarcity and Impatience	Resellers feel motivated to get an annual bonus that is only given to a few resellers
7	Unpredictability and Curiosity	resellers tend to immediately serve the buyer because it keeps the possibility if there is a connection problem
8	Loss and Avoidance	Resellers continue to serve customers even though there is no certainty of payment by the customer

4.2.2 Analysis Questionnaire for Result Data with Slovin's method and Likert Scale.

Analysis of the questionnaire data was divided into 2 groups according to the cluster with the number of each respondent segment-2 = 21, segment-1 = 8. After all the questions were filled then the answer grouping of each core drive was calculated. This total is used to determine the ranking level of each core drive of the two segments. In segment-2, the ranking level is determined by the lowest criteria weight 1 multiplied by the number of respondents as the lower limit (1 x 21 = 21), and the highest criteria weight multiplied by the respondent as the upper limit (4 x 21 = 84). The second result of the multiplication results has calculated the difference (84-21 = 63), then the resulting difference divided by the number of criteria (63: 4 = 16). The results of this division are used to determine the scale of the following levels:

Table 9: Rangking level of Segment-2

8 Core Drives	Value of Scale x Criteria				Sum	Level of Rank
	VA (4)	A(3)	D(2)	VD (1)		
CD-1	10 x 4	11 x 3	0 x 3	0 x 1	73	Very High
CD-2	5 x 4	14 x 3	0 x 3	2 x 1	64	High

8 Core Drives	Value of Scale x Criteria				Sum	Level of Rank
	VA (4)	A(3)	D(2)	VD (1)		
CD-3	4 x 4	13 x 3	2 x 3	2 x 1	61	High
CD-4	2 x 4	16 x 3	1 x 3	2 x 1	60	High
CD-5	4 x 4	14 x 3	1 x 3	2 x 1	62	High
CD-6	4 x 4	9 x 3	2 x 3	6 x 1	53	Low
CD-7	8 x 4	12 x 3	0 x 3	1 x 1	69	High
CD-8	3 x 4	15 x 3	1 x 3	2 x 1	61	High
Average					62.87	High

The total score from 21 - 37 has the ranking "Very low",
The total score from 38 - 54 has a "Low" ranking,
The total score from 55 - 71 has a "High" ranking,
The total score from 72 - 87 has a "Very High" ranking.
The results of testing each segment can be seen in Table 9. VA = Very Agree, A= Agree, D=Disagree, and VA = Very Disagree. Average = average of 8 total value of 8 core drives.

In segment-1, the ranking level is determined by the lowest criteria weight 1 multiplied by the number of respondents as the lower limit (1 x 8 = 8), and the highest criteria weight multiplied by the respondent as the upper limit (4 x 8 = 32). The second result of the multiplication results has calculated the difference (32-8 = 24), then the resulting difference divided by the number of criteria (24: 4 = 6). The results of this division are used to determine the scale of the following levels:
The total score from 8 - 14 has a "Very low" ranking,
Total scores from 15-21 have a "Low" ranking,
The total score from 22 - 28 has a "High" ranking,
The total score from 29 - 35 has a "Very High" ranking.
The results of testing each segment can be seen in Table 10.

Table 10: The Result of Testing each Segment

8 Core Drives	Value of Scale x Criteria				Sum	Level of Rank
	VA (4)	A(3)	D(2)	VD (1)		
CD-1	6 x 4	2 x 3	0 x 3	0 x 1	30	Very High
CD-2	2 x 4	5 x 3	1 x 3	0 x 1	25	High
CD-3	1 x 4	5 x 3	2 x 3	0 x 1	23	High
CD-4	1 x 4	6 x 3	1 x 3	0 x 1	24	High
CD-5	2 x 4	5 x 3	1 x 3	0 x 1	25	High
CD-6	1 x 4	3 x 3	3 x 3	1 x 1	20	Low
CD-7	2 x 4	4 x 3	1 x 3	1 x 1	23	High
CD-8	1 x 4	5 x 3	1 x 3	1 x 1	22	High
Average					24	High

From the results of the Likert scale analysis of the motivation of resellers to drive the company's management system based on core drives Octalysis produces the same ranking detail with the average ranking level "high". Segment-2 and Segment-1 have the same ranking level mapping on each core drive (Table 9, Table 10) where the highest rank is core drive-1 (Epic Meaning and Calling), and the lowest is core drive 6 (Scarcity and Impatience) (Table 11). Thus the company can further evaluate and investigate which potentials can sustain core drive-1 (Epic Meaning and Calling) and investigate potentials that can grow core drive-6 (Scarcity and Impatience) to increase. The similarity of the results of the Likert scale analysis of the two segments can illustrate the level of the CLV level segment level does not affect the 8 core drive level, meaning that in this case, the future value of the customer to the company does not affect the reseller motivation level to the company.

Table 11: Comparison of Segment Rangking

No	Segmen	Lowest	Highest
1	Segment-2	Core Drive-6 Scarcity and Impatience	Core Drive-1 Epic

No	Segmen	Lowest	Highest
			Meaning and Calling
2	Segment-1	Core Drive-6 Scarcity and Impatience	Core Drive-1 Epic Meaning and Calling

A balanced comparison test of 8 core drives was conducted for both segments with the number of respondents in each segment-2 = 21, segment-1 = 8. Then the average criterion value of each core drive was calculated from the weight of the Likert scale. The average limit value of the Likert scale (Likert scale = 4) must be multiplied by 2.5 to meet the number of limits on the value of the Octalysis scale (Octalysis = 10). The result of calculating the averagevalue is rounded up to meet the requirements of the Octalysis scale in the form of integers, then converted in the Octalysis scale. Presentation of data calculation for each segment can be seen in Table 12 and Table 13.

Table 12: The average of Likert Scale into Octalysis Scale (Segment-2, n=21)

No	8 Core Drives	Likert Scale Average	Rounding Average	Octalysis Scale Conversion
1	Epic Meaning and Calling	3.5	3	7
2	Development and Accomplishment	3	3	7
3	Empowerment of Creativity and Feedback	2.9	3	7
4	Ownership and Possession	2.9	3	7
5	Social Influence and Relatedness	3	3	7
6	Scarcity and Impatience	2.5	2	5
7	Unpredictability and Curiosity	3.3	3	7
8	Loss and Avoidance	2.9	3	7

Table 13: The average of likert Scale into Octalysis Scale (Segment-1, n=8)

No	8 Core Drives	Likert Scale Average	Rounding Average	Octalysis Scale Conversion
1	Epic Meaning and Calling	3.8	4	10
2	Development and Accomplishment	3.1	3	7
3	Empowerment of Creativity and Feedback	2.9	3	7
4	Ownership and Possession	3	3	7
5	Social Influence and Relatedness	3.1	3	7
6	Scarcity and Impatience	2.5	2	5
7	Unpredictability and Curiosity	2.9	3	7
8	Loss and Avoidance	2.8	3	7

The conversion results were tested using the Octalysis tools (https://yukaichou.com/octalysis-tool/   ) by filling in the octalysis scale (Fig 3, and Fig 4) available according to the resulting octalysis scale values, resulting in an octagon octalysis graph (Fig 5, and Fig 6).
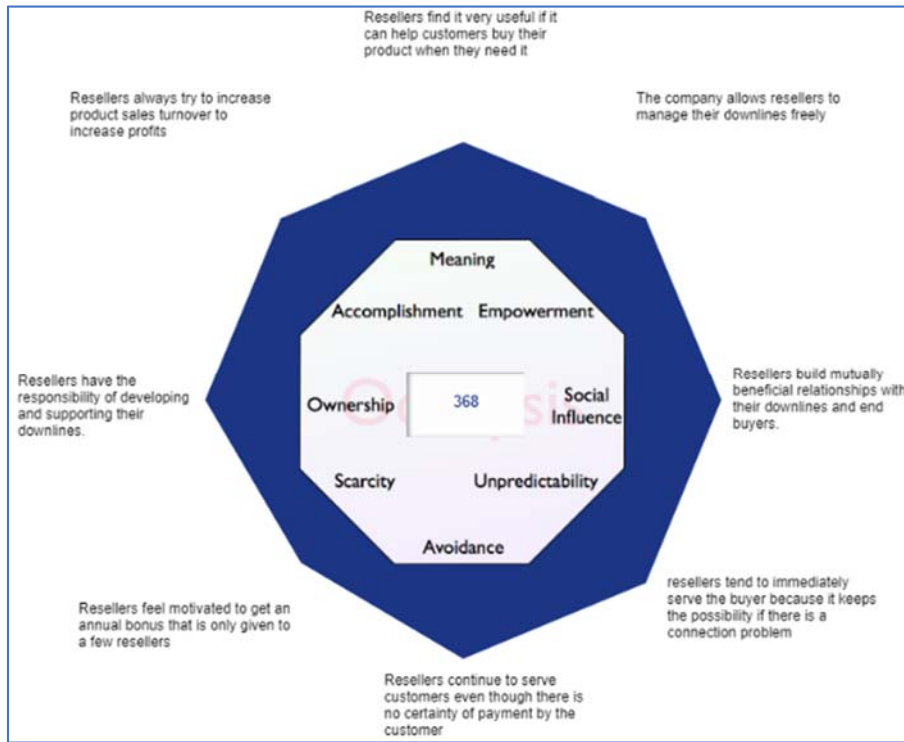

Fig 7: Octalysis scale of segment-2
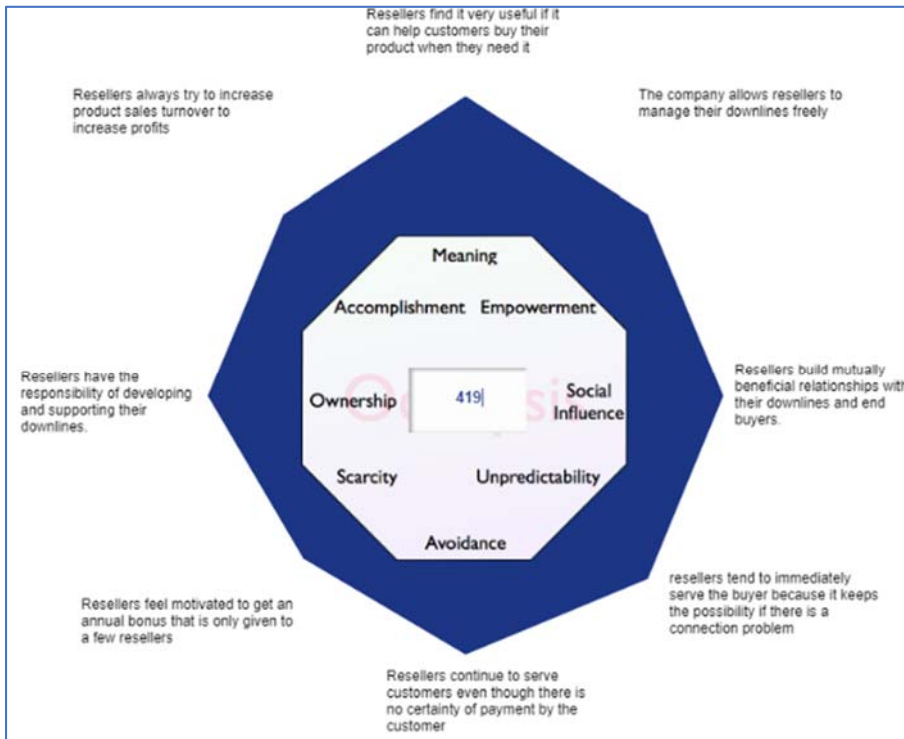
Fig 8: Octalysis Octagon Graph of Segment-2

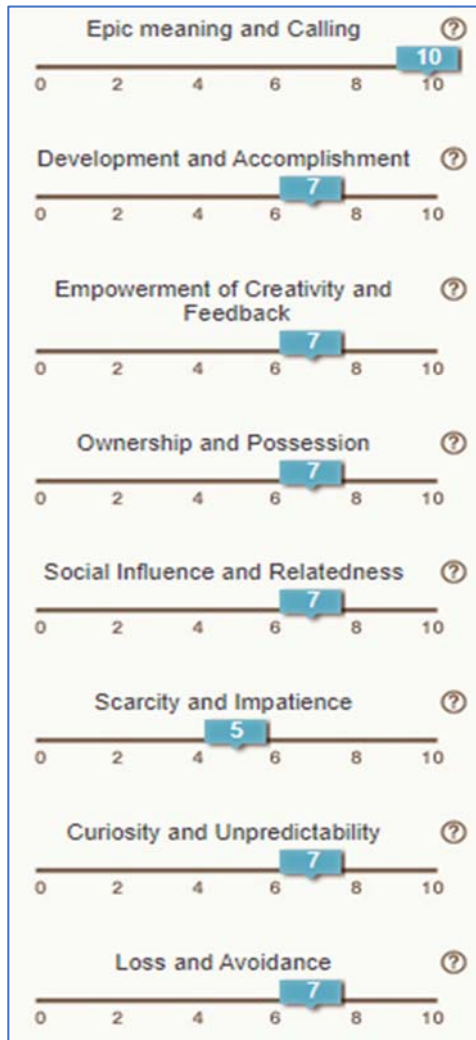*Fig 9: Octalysis Octagon Graph of Segment-1*

Fig 10: Octalysis scale of segment-1

The results of the octalysis scale showed a slight difference in the value of each core drives (Table 14). For the lowest core drive values have the same, namely the 6th core drive (Scarcity and Impatience) with a scale score of 5, meaning that both segments have weaknesses on the 6th core drive. While the highest core drive values are the same on core drive-1 but with a different score scale namely segment-2 = 7, segment-1 = 10, meaning that both have power on core drive-1 but segment-2 is stronger than segment -1. In the total Octagon score also has a difference that is segment-2 = 368, segment-1 = 419, meaning segment-1 has a balance of 8 core drives higher than segment-2. Then the findings in this data test, that different segment levels have different core drive balances, as evidenced by differences in scale scores and Octagon values. In this test data results

that the higher the CLV ranking, the lower the balance value of 8 core drives octalysis.

Table 14: Comparison of Octalysis Scale Value

Segment	Lowest	Highest	Score
Segment -2	5 (Core Drive-6 Scarcity and Impatience)	8 (Core Drive-1 Epic Meaning and Calling)	368
Segment -1	5 (Core Drive-6 Scarcity and Impatience)	10 (Core Drive-1 Epic Meaning and Calling)	419

5. CONCLUSION AND FUTURE WORK

From the results of the research that has been carried out produced several conclusions and future work including:

- The results of testing 100 Reseller data with K-Means clustering technique involving 4 attributes (Length, Recency, Frequency, Monetary) followed by weighting to determine the value of CLV (Customer Life Time) has produced the best cluster based on the Elbow method, namely k = 2 with first-rank namely segment-2 which means it has a higher level of future value to the company than segment-1. Segment-2 has 74 respondents, segment-1 has 26 respondents, both of which will be a test data for framework octalysis in analyzing 8 core motivations of reseller motivation towards companies.

- After being tested with a questionnaire using a Likert scale reference, the comparison and relationship between CLV segmentation (segment-2, and segment-1) to 8 core drives reseller motivation results in the similarity of ranking patterns on each core drive and its average, which means the future value of customers to the company does not affect the level of motivation and reseller motivation to the company. But in future research, it is advisable to examine further with a variety of data and types of companies to further strengthen the validity of the justification and investigate any factors that influence it.

- After being tested by measuring the octalysis scale, an evaluation of the balance comparison of 8 core drives resellers was produced for each segment as evidenced by the difference in total Octagon scores (segment-2 = 368, segment-1 = 419). This finding can mean the high or low future value of customers to the company is not

directly proportional to the high and low 8 core drives reseller of the company. However, this research still uses one type of data and company, so in future research, it is recommended to examine further with various data and types of companies so that it can further strengthen the justification and what factors influence it.

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