JURTEKSI (Jurnal Teknologi dan Sistem Informasi) ISSN 2407-1811 (Print)
Vol. IX No 4, September 2023, hlm. 567-572 ISSN 2550-0201 (Online)
DOI: https://doi.org/10.33330/jurteksi.v9i4.2208
Available online at http://jurnal.stmikroyal.ac.id/index.php/jurteksi

SAW ANALYSIS DETERMINATION OF MICRO BUSINESS CREDIT RECIPIENTS AT DISKOPDAGIN

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Abstract : In building community economic independence, each year DISKOPDAGIN provides micro business loans sourced from the Asahan Regency Regional Revenue and Expenditure Budget (APBD) funds which aim to help strengthen capital for micro business actors. However, in providing micro business credit, certain conditions or criteria are required so that the DISKOPDAGIN can determine whether the customer receiving the micro business loan is eligible to receive credit or not. The problem that is often faced by the Department of Industry and Trade at this time is the difficulty in making decisions to determine recipients of micro business loans. The purpose of this research is to facilitate the Department of Industry and Trade in selecting micro business credit customers. The Simple Additive Weighting (SAW) method in this study aims to select the best alternative from a number of alternatives to be used based on specified criteria. The results of this study are micro business credit decision support systems, where the application of this system shows that the results of the ranking process with the SAW method are the same if calculated manually. The calculation uses 7 criteria where the highest alternative is the Asmah alternative (A7) with a preference value of 1.

Keywords: decision support system; micro business credit; simple additive weighting;

Abstrak: Dalam membangun kemandirian ekonomi masyarakat, tiap tahunnya DISKOPDAGIN mengadakan kredit usaha mikro yang bersumber dari dana Anggaran Pendapatan dan Belanja Daerah (APBD) Kabupaten Asahan yang bertujuan untuk membantu penguatan modal kepada pelaku usaha mikro. Namun dalam memberikan kredit usaha mikro juga mempunyai syarat-syarat atau kriteria tertentu agar pihak DISKOPDAGIN dapat menentukan apakah nasabah penerima kredit usaha mikro tersebut layak menerima kredit atau tidak. Permasalahan yang sering dihadapi oleh pihak DISPERINDAG saat ini ialah kesulitan dalam mengambil keputusan untuk menentukan penerima kredit usaha mikro. Tujuan dari penelitian ini untuk memudahkan pihak DISPERINDAG dalam menyeleksi nasabah kredit usaha mikro. Metode *Simple Additive Weighting* (SAW) dalam penelitian ini bertujuan untuk menyeleksi alternatif terbaik dari sejumlah alternatif yang akan digunakan berdasarkan kriteri yang ditentukan. Hasil penelitian ini sistem pendukung keputusan kredit usaha mikro, dimana penerapan sistem ini menunjukkan bahwa hasil dari proses perangkingan dengan metode SAW sama jika dihitung secara manual. Perhitungan menggunakan 7 kriteria dimana alternatif yang tertinggi adalah alternatif Asmah (A7) dengan nilai preferensi 1.

Kata Kunci: kredit usaha mikro; sistem pendukung keputusan; *simple additive weighting*;

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INTRODUCTION

In build independence economy society, each the year Service Cooperative, Trade and Industry (DISKOPDAGIN) held credit business sourced micro from fund Budget Income And District Expenditures (APBD). Purposeful aim For help capital strengthening perpetrator business micro. In give credit business micro Also have conditions or criteria specifically so that the DISPERINDAG can determine is customers worthy accept credit or No [1] . By because that clear needed something system supporters decision For determine appropriateness And help manage applicant data credit become information For take decision.

Based on provision worthy And No like customers recipient credit Still use manual method in the form paper Work cause quite a long time in the defrosting process the funds needed customers so that not A little many candidate customers interesting return file registration [2] .

A business will said business micro If business the fulfil criteria as business micro [3] . Credit business micro addressed to businessman micro For finance need business productive, fine need investment nor working capital needs.

System support decision designed For help taker decision using certain data and models For solve semi structured problem [4] . There are several method in system supporters decisions, including Simple Additive Weighting. Where draft base from method This with look for sum weighted from the performance branch on every alternative on all attribute [5] . SAW method often used in the research process because SAW method is easy For applied And own easy algorithm [6] . Method this used because possible election alternative best among a number of alternative used for determine recipient credit business micro based on criteria that have determined.

On study previously with title " System Supporters Decision Determination Recipient Help House Healthy Worthy dwell Use The SAW Method in the Village Sand Gold Subdistrict Singingi ", research This conclude that with use SAW method can help party village in determine public recipient help House worthy inhabit through ranking data from results that have been processed [7] . And another study entitled " System Supporters Decision Election Package *Wedding Planner* Use The SAW (Simple Additive Weighted) method, concluded that study This can make it easy para taker decision in choose the right wedding package based on desired criteria [8] . Whereas another study entitled " Analysis and Design System Supporters Decision Giving Business Credit at Bank BNI Jambi City With Simple Additive Weighting (SAW) method ", concludes that with exists system supporters decision use SAW method on study This can give decision in a manner fast And appropriate And can print report results gift credit business [9] .

With exists system supporters decision determination credit business micro can help make it easy party service in selecting worthy customer get credit [10] . The purpose of this research is to facilitate the Department of Industry and

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Trade in selecting micro business credit customers.

METHOD

Technique determination data collection credit business micro in DISKOPDAGIN done with way:

Interview

Interview in a manner direct to use get information about method determination customers and recipient data later credit will processed as many as 20 customer data.

Observation

Do observation direct to medium system walk.

Development system supporters decision use Simple Additive Weighting (SAW) method that uses 7 criteria namely: address, building, experience, personnel work, loans, assets riches and results sales.

Algorithm settlement SAW method [11] :

First, determine criteria and mark weight criteria. Second, determine the match branch every alternative on every criteria. Third, normalization matrix.

$$r_{ij} = \begin{Bmatrix} \frac{x_{ij}}{Max\ x_{ij}} \\ \frac{Min\ x_{ij}}{x_{ij}} \end{Bmatrix} \begin{matrix} Benefit \\ Cost \end{matrix} \ldots\ldots (1)$$

Benefits ie if j is attribute profit.
Cost ie if j is attribute cost.
Where :
r_{ij}=normalized performance rating.
max_{ij}=maximum value of each row and column.
min_{ij}=maximum value of each row and column.
x_{ij}=rows and columns of matrix.

Fourth, the ranking process for every alternative. Where mark the largest is selected as alternative best as solution.

$$v_i = \sum_{j=1}^{n} w_j r_{ij} \ldots\ldots (2)$$

Where :
v_i= series for each alternative
w_{ij}= predefined weight
r_{ij}= matrix normalization

Method used on study This with use method qualitative ie research that only collect data and explain in a manner descriptive or narrative without must processed with testing statistics.

RESULTS AND DISCUSSION

Step First in calculation SAW method is determine criteria and mark weight criteria. As for criteria used in system supporters decision This is address, building, experience, personnel work, loans, assets riches and results sales. Step furthermore determine the match branch every alternative For every criteria. Table criteria used in calculation

Table 1. Criteria

Criteria	Code	Weight	Attribute
Address	C1	5	Benefits
Building	C2	5	Benefits
Experience	C3	4	Benefits
Power Work	C4	3	Benefits
Loan	C5	5	cost
Asset Riches	C6	5	Benefits
Resultsale	C7	5	Benefits

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Table 2. Customer Data Credit

Code	C1	C2	C3	C4	C5	C6	C7
A1	10	5	10	5	3	5	3
A2	10	10	10	3	3	5	5
A3	10	5	10	3	3	5	3
A4	10	5	10	3	3	5	3
A5	10	10	3	5	3	5	5
A6	10	5	10	5	3	5	3
A7	10	10	10	5	3	5	5
A8	10	5	10	3	3	5	3
A9	10	10	3	5	3	5	5
A10	10	10	5	5	3	5	5

Then do matrix normalization.

Table 3. Normalization Matrix

Code	C1	C2	C3	C4	C5	C6	C7
A1	1	0.5	1	1	1	1	0.6
A2	1	1	1	0.6	1	1	1
A3	1	0.5	1	0.6	1	1	0.6
A4	1	0.5	1	0.6	1	1	0.6
A5	1	1	0.3	1	1	1	1
A6	1	0.5	1	1	1	1	0.6
A7	1	1	1	1	1	1	1
A8	1	0.5	1	0.6	1	1	0.6
A9	1	1	0.3	1	1	1	1
A10	1	1	0.5	1	1	1	1

As for results calculation mark preference form results ranking on table 4:

Table 4. Results Ranking

Alternative	Mark	Rank
A1	0.859375	6
A2	0.9625	2
A3	0.821875	8
A4	0.821875	9
A5	0.9125	4
A6	0.859375	7
A7	1	**1**
A8	0.821875	10
A9	0.9125	5
A10	0.9375	3

For make it easy party service in determine customers recipient credit business micro , research This produce A application web- based that can used by party service When just .

Admin got fill out the criteria form And existing alternatives on main menu display , as intended on picture 1.

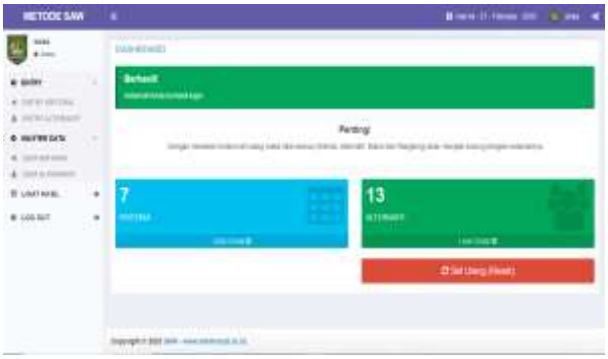

Image 1. Main Menu

After fill in the Criteria data And alternative on the form , the admin can know results from calculation use Simple Additive Weighting method that can seen on Image 2.

Image 2. Results Ranking

CONCLUSION

Based on results research conducted, can concluded that Simple

Additive Weighting method is method that can used in determination credit business micro. System supporters decision with use Simple Additive Weighting method on determination credit business micro can help party service in determine decent customers or No in accept credit business micro.

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