Sinkron : Jurnal dan Penelitian Teknik Informatika
Volume 6, Number 1, October 2021
DOI : https://doi.org/10.33395/sinkron.v6i1.11057
e-ISSN : 2541-2019
p-ISSN : 2541-044X

Decision Support System for Millennial Generation Softskill Competency Assessment using AHP and Eliminate Promethee Method

Akmaludin[1)*], Erene Gernaria Sihombing [2)], Linda Sari Dewi[3)], Rinawati [4)], Ester Arisawati [5)]
[1)2)3)4)5)]Universitas Nusa Mandiri, Jakarta, Indonesia
[1)]akmaludin.akm@nusamandiri.ac.id, [2)]erene.egs@nusamandiri.ac.id, [3)]linda.lrw@nusamandiri.ac.id,
[4)]rinawati.riw@nusamandiri.ac.id, [5)]ester.err@nusamandiri.ac.id

Submitted : Jun 22, 2021 | **Accepted** : Jul 20, 2021 | **Published** : Oct 1, 2021

Abstract: The current millennial generation has the soft skills needed to follow the trends and technology of the industrial generation 4.0. It is clear that many Millennials look more energetic and always synergistic with destructive situations and conditions. Industry 4.0 generation makes the business world switch to always using advanced technology in various sectors so that technological progress is felt faster than before, and human power is starting to be replaced by machine power, robotics, and even artificial intelligence. Thus, soft skills for the millennial generation are needed to get job opportunities in conditions where the need for human labour has begun to be eliminated in their work. The purpose of this paper is to assess the soft skills competencies possessed by the millennial generation, who are always involved with technological advances in the very fast business industry world. There are eight soft skills that the millennial generation must possess, namely critical thinking, communication, analyzing, creative and innovation, leadership, adaptation, cooperation and public speaking. The method used to select soft skills competencies for job opportunities for the millennial generation is the Analytic Hierarchical Process (AHP) method in collaboration with the Promethee elimination method. The final result of the decision support for soft-skill competency selection from 23 millennial generations, who passed the selection, was 43% (10 users) with a positive score and 57% (13 users) who experienced selection failure. This failure was due to having a negative score. Thus, the collaboration of the AHP and Promethee Elimination methods can provide optimal results for decision-making support.

Keywords: AHP, Millennial Generation, Promethee Elimination, Softskill, Selection.

INTRODUCTION

The current millennial generation must always be in line with technological developments and advancements, especially the industrial 4.0 generation (Technologies, 2014). Because the habits of the millennial generation really are the time to follow the very rapid technological advances (Sataloff et al., 2017). Thus they have habits that become routine habits to try and use all forms of renewable technology, so it is very different from the previous generation, which can be said to be technological stutterers (Rapitasari, 2016). The millennial generation was born to keep up with the progress of the industrial business world (Vongsavanh & Campbell, 2008) that uses sophisticated technology that will eliminate the need for human labour and replace it with robotics, machine power, and even the use of technology that leads to artificial intelligence (Rojko, 2017). With the change in the need for human power, which is replaced with a machine and robotic power, so that the millennial generation must be able to have soft skills (Lahope et al., 2020) that are able to control the machine and robotic power through increasing soft skills competence (Islami & Ferdinand, 2012). Progress is following technological trends in the millennial generation, and in line with this, it can be seen that Hard skill abilities can be said to be fulfilled and a lot of knowledge has been obtained through the use of renewable technology and has become a habit for the millennial generation (Lie & Darmasetiawan, 2017), but advantages in the field of soft-skill competencies still need to be done. Increasing their knowledge and insight to balance their hard skills so that there can be a balance between hard skills and soft skills that are coupled will be a strength that every true millennial generation has (Jafar & Wahyuni, 2016). Regarding the soft skills that the millennial generation must possess (Arnata & Surjoseputro,

*name of corresponding author

Sinkron : Jurnal dan Penelitian Teknik Informatika
Volume 6, Number 1, October 2021
DOI : https://doi.org/10.33395/sinkron.v6i1.11057
e-ISSN : 2541-2019
p-ISSN : 2541-044X

2014), there are eight soft skills to be able to exist in the millennial generation, namely critical thinking (Changwong et al., 2018), communication, analyzing, creative and innovative, leadership, adaptation, cooperation, and public speaking. The selection technique for soft skills competencies can be done using the Analytic Hierarchical Process (AHP) method (Chybowski et al., 2016) which will be collaborated with the Promethee Elimination method (Ghazinoory et al., 2013). These two methods can indeed be collaborated to get optimal decision support. AHP is used to determine the value of the weight of each criterion used (Mareschal & Smet, 2009). In this study, the criteria used were eight criteria that would be processed using AHP, which must be based on the results of the research, is not set subjectively, because in general, the determination of weight preferences is determined personally. The AHP calculation process in giving the weight value of each criterion is based on the optimal eigenvector value. This optimal eigenvalue in the search process using the AHP method (Brunelli et al., 2013) will be repeated several times to get the optimal value. The repetition process is used to shrink the differences received in data entry from a number of respondents through questionnaire instrumentation. After finding the optimal eigenvector results, then this value can be used as a reference after the normalization process carried out by the Promethee elimination method (Kamble et al., 2018), by simply multiplying the optimal eigenvector value after going through the iteration process multiplied by the weight of the dataset that has passed the normalization process, so the result is called the weighted normalization term. Then it will be fully processed using the Promethee method through the stages such as index preference which will compare each data row index with the data index that has been set, and must be carried out thoroughly from the dataset owned (Aan et al., 2017), building two-dimensional matrices to determine the entering flow, leaving flow, and netflow (Maity & Chakraborty, 2015). to establish a ranking table that is the basis for decision support to determine who gets a positive score will be accepted, while those who get a negative score will be rejected. Based on the determination of preference weights on the criteria, it is hoped that this can always be done through research results using questionnaire instrumentation which process using the AHP method as has been done in this study, no longer using personal or subjective determinations, but must be based on research. The results of this study clearly show how important it is that the AHP method can be collaborated with the ranking process through the promethee method, where previously no one has applied the weight preference scale with be help process with AHP method.

LITERATURE REVIEW

ANALYTIC HIERARCHICAL PROCESS (AHP).

The use of the Analytical Hierarchy Process (AHP) method that will be applied in this research is to determine the proportional value determined based on the magnitude of the eigenvector value (Saaty, 2003), which is carried out iteratively to obtain the optimal value (The et al., 1936). The calculation process is carried out with algebra matrices with repetition several times so that it can be used as a reference for each of the criteria set. AHP can be used to determine rankings that use the one-way concept, meaning that only to determine the largest value that is ranked first. Thus AHP is only able to handle problems that are one-way, and cannot be applied to process data that is inversely proportional. Proving the results applied with AHP can be verified using a special application, namely Expert Choice (Ishizaka & Labib, 2009). This application works automatically only by performing the same input process as inputted through the algebra matrices method. The results obtained through algebra matrices are looking for the magnitude of the eigenvector value, as well as the same process carried out with the Expert Choice application to find the magnitude of the eigenvector result. Of course, the results obtained have values that are identical to each other. If so, these results are extraordinary results in proving the two methods, both the algebra matrices method and the method through the Expert Choice application.

To use the layout of data elements with the algebra matrices method using two-dimensional matrices as shown in (1), which describes the layout of each data element matrices and to determine the magnitude of the eigenvector value must be associated with the random index value listed in table 1 and its use is adjusted to the number of orders used for the matrices calculation process. The AHP calculation process that has been carried out through the algebra matrices method must always be proven by the feasibility of the process whether it is accepted or rejected, namely by knowing the amount of the Consistency Ratio (CR) value which is not more than ten percent, with the formula listed in (3). Before looking for the CR value, you must first determine the amount of the Consistency Index (CI) value using the formulas listed in (2) and lambda max (λ max). This proof can be done by multiplying the initial pairwise matrices with the optimal eigenvector value, and the result of this multiplication is used to determine the quantity (λ max) where the multiplication result is divided by the eigenvector value, then proceed to find the CI and CR quantities.

$$M_{(i,j)} = \begin{bmatrix} x_{(1,1)} & x_{(1,2)} & x_{(1,3)} & \cdots & x_{(1,j)} \\ x_{(2,1)} & x_{(2,2)} & x_{(2,3)} & \cdots & x_{(2,j)} \\ x_{(3.1)} & x_{(3,2)} & x_{(2,4)} & \cdots & x_{(3,j)} \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ x_{(i,1)} & x_{(i,2)} & x_{(i,3)} & \cdots & x_{(i,j)} \end{bmatrix} \quad (1)$$

*name of corresponding author

Sinkron : Jurnal dan Penelitian Teknik Informatika
Volume 6, Number 1, October 2021
DOI : https://doi.org/10.33395/sinkron.v6i1.11057
e-ISSN : 2541-2019
p-ISSN : 2541-044X

In (equation-1) this provides an overview of the layout of the matrices elements as the original form of the first pairwise matrices because, in the calculation of the Multi-criteria Decision Making (MCDM) pairwise matrices method (Akmaludin et al., 2020), the process of repetition will repeatedly occur until there is no difference in value. The last Eigenvector with the previous eigenvector value. This means that the optimal eigenvector value has been found. This is done so that it can be used as an applied form of weighting a number of criteria used as a continuation of the value weights used in the Promethee method. Meanwhile in (2) to find the Consistency Index (CI) that can be used after getting the value λ max, where the value obtained by λ max is usually not far from the number of orders used, meaning that the value λ max is always close to the value of the order of matrices with a range value that is not far from the number of orders of matrices.

$$CI = \frac{(\lambda \text{ max} - \text{n})}{(n-1)} \quad (2)$$

$$CR = \frac{CI}{CR} \quad (3)$$

Table 1
Random Index

Ordo	1	2	3	4	5	6	7	8	9	10
RI	0.00	0.00	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.48

PROMETHEE

The use of the Promethee method is often used to determine ratings that can be applied with two completion concepts. The first solution is to resolve the data listed in the normalized dataset, which has the largest perception of data is the best data (Akmaludin & Badrul, 2018), and the second solution is that the data listed in the normalized dataset has the perception of data smallest is the best data. Even these two perceptual processes can be used simultaneously, which can be enhanced by the combination of perceptions together from the source dataset that has been normalized. Promethee is very extraordinary in terms of the calculation process (Deshmukh, 2013). Promethee is able to process data with various conditions and is usually used to deal with economic problems in determining the ranking of a number of alternatives used. With the Promethee method, to carry out the normalization process, different formulations can be used by paying attention to the data processing, for data processing that uses two perceptions as described above, if it contains the perception that the largest value is the best value and the smallest value is the best value, use the formula can be done using (4) and in (5). This is done for different meanings, but if the processed data contains only one perception, meaning that the data is directly proportional to each criterion that has the same meaning as the following, the largest value is the best value, then the use of formulas can be done only by using formulas. listed in (6).

$$B_{(i,j)} = \frac{x_{(i,j)} - x'_{(j)}}{x*_{(j)} - x'_{(j)}} \quad (4)$$

$$K_{(i,j)} = \frac{x_{(i,j)} - x*_{(j)}}{x'_{(j)} - x*_{(j)}} \quad (5)$$

$$T_{(i,j)} = \frac{X_{(i,j)}}{\sqrt{\sum_{i=1}^{m} x^2_{(i,j)}}} \quad (6)$$

Another formula used for the Promethee method is the process of using the concept of elimination on normalized datasets that have been given weighting criteria or not. In this study, using the preference weights obtained previously using the AHP thus must use the weight of the criteria multiplied by the Promethee preference index between samples using the formula listed in (7). Thus, the role of the final process is to compile a preference index table to find out the amount of the entering flow value that can be found using the formula contained in (8) and determine the value of the leaving flow using the formula listed in (9) , where between the entering flow and leaving flow which describes the shape of the Promethee-I in a separate decision. As a basis for calculating Promethee-II. To combine separate decisions, you can use the formula contained in (10), where the decision becomes unanimous by determining the amount of net flow value as a solution to the problem with the Promethee-II concept as a unifying decision value.

*name of corresponding author

Sinkron : Jurnal dan Penelitian Teknik Informatika
Volume 6, Number 1, October 2021
DOI : https://doi.org/10.33395/sinkron.v6i1.11057
e-ISSN : 2541-2019
p-ISSN : 2541-044X

$$\pi_{(i,i')} = \left[\sum_{j-1}^{m} W_j \, x \, P_{j(i,i')}\right] \quad (7)$$

$$\Phi^{+}{}_{(i)} = \frac{1}{(1-n)} \sum_{i=1}^{n} \pi_{(i,i)} \quad (8)$$

$$\Phi^{-}{}_{(i)} = \frac{1}{(1-n)} \sum_{i=1}^{n} \pi_{(i,i)} \quad (9)$$

$$\Phi_{(i)} = \Phi^{+}{}_{(i)} - \Phi^{-}{}_{(i)} \quad (10)$$

METHOD

The process of understanding a Promethee method can be explained by using an algorithm that can explain in detail the stages of the process carried out using the Promethee method. It is indeed very difficult to follow the stages of the process using the Promethee method because this study will prove the collaboration between the AHP method and Promethee with the concept of elimination. AHP is used to determine the preference for weight values on the criteria used, while the Promethee method is used to carry out the elimination process as a form of determining the ranking process. The collaboration of the two methods occurs at the time of determining the normalization that has been determined by the amount of preference from the AHP method, which becomes weighted normalization. For a clear picture, consider Fig. 1, which is the algorithm of the transfer of the AHP method into the process using the Promethee method.

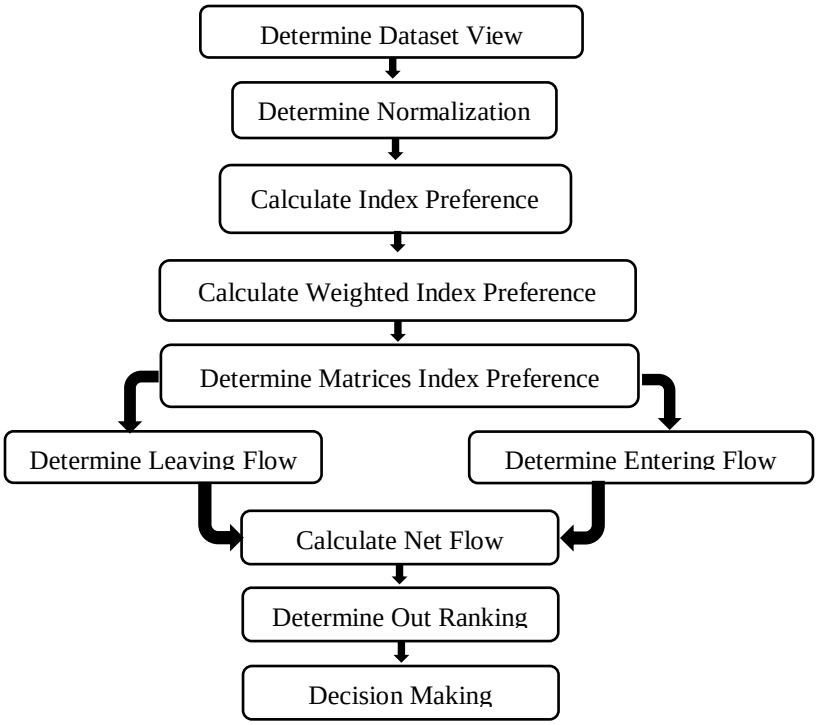

Fig. 1. Promethee Algorithm.

RESULT

The millennial generation is a generation that is already good at adjusting the progress of all forms of technology because the millennial generation is in line with technological trends in the era of the industrial revolution 4.0; thus the millennial generation, like it or not, like it or not, must follow the current that is developing towards the advancement of industrial 4.0 technology which is so rapidly. Some of the minimum soft skills that a millennial must-have, there are eight soft skills as follows: 1) Critical thinking, 2) Communication, 3) Analyzing, 4) Creative and Innovation, 5) Leadership, 6) Adaptation, 7) Cooperation, and 8) Public Speaking. These are the soft skills that a millennial generation must-have. Pay attention to the soft skills listed in table 2 as a form of using the acronym in the AHP method. Of the ±120 number of respondents who became the input source as a preference for questionnaire instrumentation that was ready to be obtained using the AHP method to determine the optimal Eigenvector value through algebra matrices and the results can also be referenced using the Expert Choice

*name of corresponding author

Sinkron : Jurnal dan Penelitian Teknik Informatika
Volume 6, Number 1, October 2021
DOI : https://doi.org/10.33395/sinkron.v6i1.11057
e-ISSN : 2541-2019
p-ISSN : 2541-044X

application to prove the eigenvector value which is identical to the results obtained. obtained by mathematical algebra matrices. This is done as evidence that the optimal eigenvector value can be accepted as a form of continuing research. As seen in table 3 as pairwise matrices of the criteria which are the results of calculations using mathematical algebra matrices, the process that occurs in table 3 occurs with five iterations to get the optimal Eigenvector and the Consistency Ratio (CR) value is less than ten This percent means that the results obtained are acceptable, with a weighted value of CR = 0.048 (Acceptable). Thus the optimal eigenvector value can be used as a preference to be used in the Promethee method for the process stages.

Table 2
Acronym of criteria

No.	Acronym	Criteria
1	CT	Critical Thinking
2	CM	Communication
3	AN	Analyzing
4	CI	Creative and Innovation
5	LS	Leadership
6	AD	Adaptation
7	CP	Cooperation
8	PS	Public Speaking

Table 3
Pairwise matrices of Criteria

Criteria	CT	CM	AN	CP	CI	LS	CP	PS	**Eigenvector**
Critical Thinking (CT)	1.000	2.063	2.153	3.172	4.217	3.026	4.218	4.024	**0.279**
Communication (CM)	0.485	1.000	1.956	2.184	3.347	3.272	4.053	3.224	**0.206**
Analyzing (AN)	0.464	0.511	1.000	2.474	2.056	3.147	3.214	3.266	**0.161**
Creative and Innovative (CI)	0.315	0.458	0.404	1.000	1.324	4.029	2.184	3.256	**0.116**
Leadership (LS)	0.237	0.299	0.486	0.755	1.000	1.336	2.055	2.286	**0.079**
Adaptation (AD)	0.330	0.306	0.318	0.248	0.749	1.000	2.162	1.224	**0.062**
Cooperation (CP)	0.237	0.247	0.311	0.458	0.487	0.463	1.000	1.976	**0.051**
Public Speaking (PS)	0.249	0.310	0.306	0.307	0.437	0.817	0.506	1.000	**0.045**
λ max =	8.477				Consistency Index (CI) =			0.068	
					Consistency Ratio (CR) =			0.048	

The results obtained for the optimal eigenvector values using mathematical algebra matrices can also be proven by using the Expert Choice application as a comparison to the optimal eigenvector results that have been obtained; note table 4 as the entry form and the process applied in the Expert Choice application, while Fig. 2 is the final result of the optimal Eigenvector obtained through the Expert Choice application. Thus, the results obtained have the same value as the acquisition using Mathematical algebra matrices.

Table 4
Pairwise matrices using Expert Choice Application

Compare the relative importance with respect to: Softskill Criteria

	Critical Thiking	Communication	Analyzing	Creative and Innovatif	Leadership	Adaptation	Cooperation	Public Speaking
Critical Thiking		2.063	2.153	3.172	4.217	3.026	4.218	4.024
Communication			1.956	2.184	3.347	3.272	4.053	3.224
Analyzing				2.474	2.056	3.147	3.214	3.266
Creative and Innovatif					1.324	4.029	2.184	3.256
Leadership						1.336	2.055	2.286
Adaptation							2.162	1.224
Cooperation								1.976
Public Speaking	Incon: 0.04							

*name of corresponding author

Sinkron : Jurnal dan Penelitian Teknik Informatika
Volume 6, Number 1, October 2021
DOI : https://doi.org/10.33395/sinkron.v6i1.11057
e-ISSN : 2541-2019
p-ISSN : 2541-044X

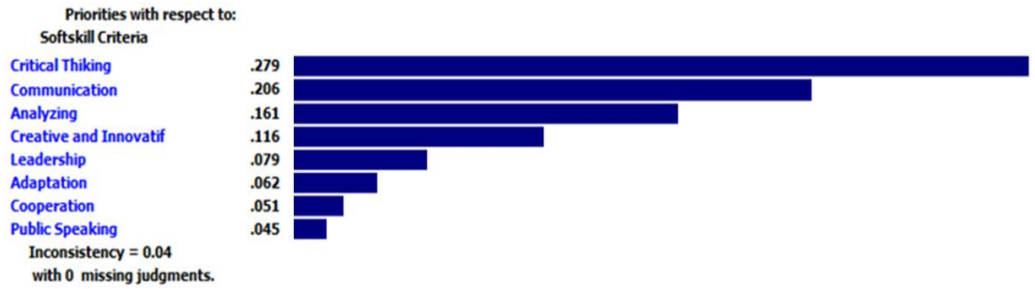

Fig. 2. Optimal Eigenvector using Expert Choice application

Proceeding to the Promethee algorithm process stage, which begins with a dataset view which is the result of data collection consisting of twenty-three millennial degeneration who will be selected for the world of work in accordance with their experience and understanding of technological trends and are able to master the industry 4.0 generation according to their habits have understood. The selection process carried out using the Promethee method is the mastery of soft skills owned by the millennial generation who have been selected in terms of mastering their hard skills. For the refinement of the millennial generation, their soft skills will be tested, whether they are capable and have perfection, especially in terms of mastering soft skills. The results of the dataset view obtained from a number of millennial generations to be selected can be seen in Table 5, which consists of 23 millennial generation users who are ready to be selected, while the normalization results use (4) or (6) and you can see table 6.

Tabel 5
Dataset view

Criteria (Alt)	CT	CM	AN	CI	LS	AD	CP	PS
GM01	85.72	82.72	80.27	84.43	85.91	89.76	83.63	79.92
GM02	87.43	83.02	80.33	85.45	88.03	86.33	83.69	81.81
GM03	97.83	90.21	80.07	80.67	87.03	86.92	83.43	79.01
GM04	94.83	94.22	81.87	78.63	87.27	88.36	85.23	74.72
GM05	96.78	84.90	79.45	86.23	89.01	84.30	82.80	85.60
GM06	91.78	85.85	82.79	88.23	88.95	93.10	86.16	86.71
GM07	83.27	87.63	84.82	86.25	89.33	88.95	88.20	81.94
GM08	95.05	89.33	84.87	86.11	88.17	87.95	88.25	82.57
GM09	95.83	91.85	83.09	84.23	86.08	83.41	86.46	80.70
GM10	98.83	90.80	78.68	85.98	89.14	82.94	82.03	83.58
GM11	89.94	81.47	81.53	87.71	88.11	83.92	84.89	85.51
GM12	90.50	88.77	85.15	84.73	87.02	87.05	88.53	79.77
GM13	93.84	86.13	85.68	84.82	88.01	82.54	89.06	81.42
GM14	90.61	87.93	84.97	86.02	90.81	83.07	88.35	83.51
GM15	88.38	79.52	79.69	86.12	89.07	85.25	83.04	81.92
GM16	89.05	71.22	81.68	88.79	88.83	81.94	85.04	87.21
GM17	81.25	75.87	77.69	81.77	86.93	81.93	95.47	83.57
GM18	85.83	89.57	81.56	83.94	87.12	83.45	84.92	73.54
GM19	90.80	89.83	85.16	85.92	88.01	82.06	88.54	85.52
GM20	92.10	95.75	82.97	84.75	88.02	81.87	86.34	75.45
GM21	91.54	77.63	84.05	89.93	88.51	81.10	87.42	85.63
GM22	87.81	87.04	85.93	85.47	86.09	84.38	89.31	81.67
GM23	88.49	87.29	86.67	81.30	87.13	85.27	90.06	80.60

*name of corresponding author

Sinkron : Jurnal dan Penelitian Teknik Informatika
Volume 6, Number 1, October 2021
DOI : https://doi.org/10.33395/sinkron.v6i1.11057
e-ISSN : 2541-2019
p-ISSN : 2541-044X

Table 6
Normalization

Criteria	CT	CM	AN	CI	LS	AD	CP	PS
(Alt)	0.279	0.206	0.161	0.116	0.079	0.062	0.051	0.045
GM01	0.25	0.47	0.29	0.51	1.00	0.72	0.12	0.47
GM02	0.35	0.48	0.29	0.60	0.57	0.44	0.12	0.60
GM03	0.94	0.77	0.27	0.18	0.77	0.49	0.10	0.40
GM04	0.77	0.94	0.47	0.00	0.72	0.61	0.24	0.09
GM05	0.88	0.56	0.20	0.67	0.37	0.27	0.06	0.88
GM06	0.60	0.60	0.57	0.85	0.38	1.00	0.31	0.96
GM07	0.11	0.67	0.79	0.67	0.30	0.65	0.46	0.61
GM08	0.78	0.74	0.80	0.66	0.54	0.57	0.46	0.66
GM09	0.83	0.84	0.60	0.50	0.97	0.19	0.33	0.52
GM10	1.00	0.80	0.11	0.65	0.34	0.15	0.00	0.73
GM11	0.49	0.42	0.43	0.80	0.55	0.24	0.21	0.88
GM12	0.53	0.72	0.83	0.54	0.77	0.50	0.48	0.46
GM13	0.72	0.61	0.89	0.55	0.57	0.12	0.52	0.58
GM14	0.53	0.68	0.81	0.65	0.00	0.16	0.47	0.73
GM15	0.41	0.34	0.22	0.66	0.36	0.35	0.08	0.61
GM16	0.44	0.00	0.44	0.90	0.40	0.07	0.22	1.00
GM17	0.00	0.19	0.00	0.28	0.79	0.07	1.00	0.73
GM18	0.26	0.75	0.43	0.47	0.75	0.20	0.22	0.00
GM19	0.54	0.76	0.83	0.65	0.57	0.08	0.48	0.88
GM20	0.62	1.00	0.59	0.54	0.57	0.06	0.32	0.14
GM21	0.59	0.26	0.71	1.00	0.47	0.00	0.40	0.88
GM22	0.37	0.64	0.92	0.61	0.96	0.27	0.54	0.59
GM23	0.41	0.66	1.00	0.24	0.75	0.35	0.60	0.52

The next stage is to determine the preference index which is taken with 506 comparisons that have been made, to find out which data are eliminated and which are not. On the other hand, it is in line with whether it is eliminated or not after being operated with the amount of preference that has been obtained using the AHP method through its optimal Eigenvector. The results are arranged in the form of two-dimensional matrices as a determinant as support for decision making, which can be seen in table 8, which is compiled in the form of preference index matrices. There are totals on the right and bottom of table 8 for the totals listed on the right will explain the leaving flow, while the totals listed on the bottom will explain the entering flow, of the two being separate decisions and will be integrated into a unified decision, this condition is called the first stage Promethee. The unification of the decision is called net flow, which can be said as the second stage Promethee, meaning that the decision can be used as decision support so that the discussion on this Promethee has become in accordance with the stages of the algorithm.

Table 7
Index preference matrices

*name of corresponding author

Sinkron : Jurnal dan Penelitian Teknik Informatika
Volume 6, Number 1, October 2021
DOI : https://doi.org/10.33395/sinkron.v6i1.11057
e-ISSN : 2541-2019
p-ISSN : 2541-044X

Alt	GM01	GM02	GM03	GM04	GM05	GM06	GM07	GM08	GM09	GM10	GM11	GM12	GM13	GM14	GM15	GM16	GM17	GM18	GM19	GM20	GM21	GM22	GM23	TTL
GM01		0.05	0.08	0.11	0.10	0.05	0.10	0.05	0.04	0.12	0.08	0.03	0.07	0.11	0.11	0.18	0.26	0.08	0.07	0.09	0.13	0.07	0.07	2.06
GM02	0.05		0.06	0.09	0.05	0.01	0.09	0.00	0.03	0.07	0.03	0.01	0.03	0.06	0.07	0.13	0.27	0.08	0.02	0.05	0.08	0.01	0.05	1.35
GM03	0.26	0.24		0.09	0.12	0.16	0.29	0.07	0.05	0.08	0.23	0.13	0.14	0.21	0.29	0.35	0.45	0.23	0.16	0.14	0.26	0.20	0.18	4.34
GM04	0.28	0.27	0.08		0.18	0.15	0.27	0.06	0.05	0.16	0.23	0.12	0.13	0.20	0.32	0.35	0.48	0.22	0.15	0.09	0.25	0.19	0.17	4.37
GM05	0.23	0.18	0.08	0.14		0.08	0.23	0.04	0.06	0.04	0.14	0.13	0.08	0.14	0.19	0.25	0.42	0.24	0.11	0.14	0.16	0.16	0.20	3.45
GM06	0.26	0.23	0.19	0.18	0.15		0.20	0.06	0.11	0.18	0.15	0.11	0.11	0.13	0.25	0.25	0.48	0.26	0.10	0.13	0.14	0.15	0.18	4.00
GM07	0.17	0.16	0.18	0.17	0.16	0.06		0.01	0.09	0.17	0.15	0.03	0.06	0.06	0.20	0.24	0.34	0.15	0.04	0.11	0.14	0.04	0.08	2.80
GM08	0.33	0.29	0.18	0.17	0.19	0.14	0.22		1.05	1.64	4.01	1.70	1.50	1.84	5.15	6.45	8.75	3.92	1.59	1.80	3.99	2.95	3.06	50.92
GM09	0.30	0.30	0.14	0.14	0.18	0.17	0.29	0.07		0.16	0.25	0.13	0.12	0.19	0.34	0.36	0.51	0.25	0.13	0.12	0.24	0.17	0.20	4.76
GM10	0.30	0.26	0.09	0.17	0.08	0.15	0.28	0.08	0.08		0.22	0.17	0.14	0.18	0.27	0.32	0.47	0.27	0.14	0.15	0.24	0.22	0.25	4.53
GM11	0.15	0.10	0.13	0.13	0.07	0.01	0.15	0.03	0.05	0.11		0.05	0.05	0.07	0.12	0.12	0.33	0.15	0.03	0.07	0.05	0.07	0.10	2.16
GM12	0.24	0.22	0.16	0.15	0.20	0.11	0.17	0.02	0.07	0.20	0.18		0.06	0.09	0.27	0.30	0.45	0.20	0.04	0.10	0.17	0.07	0.09	3.57
GM13	0.28	0.24	0.17	0.17	0.16	0.11	0.21	0.02	0.06	0.17	0.19	0.07		0.00	0.11	0.29	0.30	0.49	0.23	0.08	0.09	0.16	0.10	3.72
GM14	0.25	0.20	0.18	0.17	0.15	0.06	0.13	0.01	0.07	0.14	0.14	0.03	0.04		0.23	0.24	0.43	0.20	0.01	0.09	0.12	0.06	0.10	3.03
GM15	0.07	0.02	0.07	0.10	0.01	0.00	0.09	0.00	0.03	0.04	0.01	0.02	0.03	0.04		0.09	0.24	0.10	0.02	0.05	0.04	0.02	0.05	1.13
GM16	0.15	0.11	0.15	0.15	0.08	0.01	0.14	0.04	0.07	0.11	0.02	0.07	0.06	0.07	0.10		0.28	0.15	0.04	0.08	0.01	0.07	0.11	2.06
GM17	0.06	0.07	0.07	0.11	0.08	0.07	0.07	0.05	0.04	0.09	0.06	0.04	0.05	0.09	0.09	0.11		0.08	0.04	0.08	0.06	0.03	0.04	1.47
GM18	0.09	0.10	0.07	0.06	0.12	0.06	0.09	0.02	0.00	0.10	0.08	0.01	0.05	0.08	0.16	0.19	0.29		0.02	0.02	0.13	0.02	0.05	1.79
GM19	0.28	0.23	0.19	0.18	0.18	0.10	0.18	0.02	0.08	0.17	0.16	0.05	0.06	0.07	0.27	0.27	0.45	0.22		0.09	0.14	0.09	0.12	3.61
GM20	0.27	0.24	0.15	0.10	0.18	0.11	0.23	0.06	0.04	0.15	0.19	0.08	0.08	0.13	0.28	0.30	0.46	0.20	0.07		0.17	0.14	0.16	3.81
GM21	0.25	0.20	0.20	0.20	0.15	0.05	0.19	0.05	0.00	0.17	0.10	0.09	0.07	0.10	0.21	0.16	0.38	0.25	0.05	0.11		0.12	0.15	3.26
GM22	0.21	0.19	0.20	0.20	0.21	0.12	0.15	0.06	0.08	0.21	0.18	0.05	0.06	0.10	0.25	0.28	0.41	0.19	0.06	0.14	0.18		0.06	3.59
GM23	0.22	0.21	0.16	0.15	0.21	0.13	0.16	0.06	0.09	0.22	0.18	0.04	0.06	0.11	0.25	0.29	0.39	0.19	0.06	0.13	0.18	0.03		3.50
TTL	4.46	3.92	2.80	3.13	3.02	1.92	3.93	0.86	2.23	4.48	6.98	3.16	3.02	4.10	9.53	11.54	16.84	8.11	3.17	3.88	6.97	5.06	5.60	

Referring to table 7, this is the final stage to determine the value of each alternative which is the millennial generation, which consists of the twenty-three best selection participants to make a selection which of the millennial generation has successfully passed the selection for the soft skills possessed by these millennial generations The final results can be seen in table 8. The form of the table is already in a sorted condition so that it looks easy to understand, which alternative from the millennial generation is accepted and which is rejected by looking at the status column.

Table 8
Gaining of Leaving Flow, Entering Flow, Net Flow and Promethee Ranking

No.	Alt	Leaving Flow	Entering Flow	Net Flow	Ranking	Status	No.	Alt	Leaving Flow	Entering Flow	Net Flow	Ranking	Status
1	GM08	2.314	0.039	2.276	1	Accepted	13	GM07	0.127	0.179	-0.051	-	Rejected
2	GM09	0.216	0.102	0.115	2	Accepted	14	GM11	0.098	0.317	-0.219	-	Rejected
3	GM06	0.182	0.087	0.095	3	Accepted	15	GM14	0.138	0.187	-0.049	-	Rejected
4	GM03	0.197	0.127	0.070	4	Accepted	16	GM15	0.051	0.433	-0.382	-	Rejected
5	GM04	0.199	0.142	0.056	5	Accepted	17	GM16	0.094	0.525	-0.431	-	Rejected
6	GM13	0.169	0.137	0.032	6	Accepted	18	GM17	0.067	0.766	-0.699	-	Rejected
7	GM05	0.157	0.137	0.020	7	Accepted	19	GM18	0.081	0.369	-0.287	-	Rejected
8	GM19	0.164	0.144	0.020	8	Accepted	20	GM20	0.173	0.176	-0.003	-	Rejected
9	GM12	0.162	0.144	0.019	9	Accepted	21	GM21	0.148	0.317	-0.168	-	Rejected
10	GM10	0.206	0.204	0.002	10	Accepted	22	GM22	0.163	0.230	-0.067	-	Rejected
11	GM01	0.093	0.203	-0.109	-	Rejected	23	GM23	0.159	0.255	-0.095	-	Rejected
12	GM02	0.061	0.178	-0.117	-	Rejected							

DISCUSSIONS

The Promethee method can indeed be used as a selection for each problem, whether the criteria are in line, meaning that they are directly proportional or those that are inversely proportional. If you use each criterion without using preferences through the optimal Eigenvector of the AHP method, of course, the results will give different values, and it's different if you use preferences through the optimal Eigenvector, of course, the optimal eigenvector preferences will influence the decision results. It is necessary to discuss how the determination of preferences, if not done with AHP, will be seen in the decision support obtained. It's cool if you don't use optimal eigenvectors through the AHP method. Of course, you won't be objective about the resulting decision support.

CONCLUSION

Referring to the results of the decisions obtained on the soft skills competencies possessed by the millennial generation, that of the twenty-three millennial generation alternatives selected, there were ten millennials who passed the selection using the collaboration method between AHP and Promethee, while those who failed the selection were thirteen millennial generations who passed the selection process—eliminated by the Promethee method. The results of the selection and evaluation of soft-skill competencies, the first, second, and third ranks
*name of corresponding author

e-ISSN : 2541-2019
p-ISSN : 2541-044X

were respectively favoured to GM08, GM09, GM06. The selection of rankings can be adjusted to the needs of the millennial generation who will be accepted, of course with reference to acceptable status, of course, how many people from the millennial generation have been declared as accepted status.

ACKNOWLEDGMENT

Thank you to my family who wants to support in this research process which is very helpful both morally and materially then to other parties; I do not forget to thank Universitas Nusa Mandiri for providing support in the form of motivation to write this article, and the publishing party from the editorial staff. Who are willing to accept this article even though it is in such a careful process in selecting the topic until this article is published.

REFERENCES

Aan, M., Putera, A., Siahaan, U., Pembangunan, U., & Budi, P. (2017). Best Student Selection Using Extended Promethee II Method. *International Journal of Recent Trends in Engineering and Research*, *3*(8), 21–29. https://doi.org/10.23883/ijrter.2017.3382.sk4cv

Akmaludin, A., & Badrul, M. (2018). Comparison Ranking Aplikasi Animasi Berbasis Pembelajaran dengan Metode Promethee. *Jurnal Bina Insani*, *5*(1), 1–10.

Akmaludin, A., Cahyadi, C., Kuswanto, H., Rahman, T., Sudradjatand, A., & Panca, E. (2020). *Research Article Decision Support For Selection of System Analyst in Industry 4.0 Generation Era Using: MCDM-AHP And Prometee Elimination Methods*. *2010*.

Arnata, I., & Surjoseputro, S. (2014). Evaluasi Soft Skills Dalam Pembelajaran Mahasiswa Baru Di Fakultas Teknologi Pertanian Universitas Udayana. *Jurnal Pendidikan Dan Pembelajaran (JPP)*, *21*(1), 01–09.

Brunelli, M., Critch, A., & Fedrizzi, M. (2013). A note on the proportionality between some consistency indices in the AHP. *Applied Mathematics and Computation*, *219*(14), 7901–7906. https://doi.org/10.1016/j.amc.2013.01.036

Changwong, K., Sukkamart, A., & Sisan, B. (2018). Critical thinking skill development: Analysis of a new learning management model for Thai high schools. *Journal of International Studies*, *11*(2), 37–48. https://doi.org/10.14254/2071-8330.2018/11-2/3

Chybowski, L., Twardochleb, M., & Wiśnicki, B. (2016). Multi-criteria Decision making in Components Importance Analysis applied to a Complex Marine System. *Naše More*, *63*(4), 264–270. https://doi.org/10.17818/NM/2016/4.3

Deshmukh, S. C. (2013). Preference Ranking Organization Method Of Enrichment Evaluation (Promethee). *International Journal of Engineering Science Invention*, *2*(11), 28–34.

Ghazinoory, S., Daneshmand-Mehr, M., & Azadegan, A. (2013). Technology selection: Application of the PROMETHEE in determining preferences - A real case of nanotechnology in Iran. *Journal of the Operational Research Society*, *64*(6), 884–897. https://doi.org/10.1057/jors.2012.45

Ishizaka, A., & Labib, A. (2009). Analytic Hierarchy Process and Expert Choice: Benefits and limitations. *OR Insight*, *22*(4), 201–220. https://doi.org/10.1057/ori.2009.10

Islami, F., & Ferdinand, A. (2012). Analisis Pengaruh Hardskill, Softskill dan Motivasi Terhadap Kinerja Tenaga Penjualan (Studi Pada Tenaga Kerja Penjualan PT. Bumiputera Wilayah Semarang). *Diponegoro Journal of Management*, *1*, 61. http://eprints.undip.ac.id/35849/

Jafar, A., & Wahyuni. (2016). Pengaruh Hard Skill Dan Soft Skill Terhadap Kinerja Pegawai Pada Dinas Pendidikan Provinsi Sulawesi Selatan. *Jurnal Ekonomi Dan Bisnis Islam*, *2*(10), 1–26.

Kamble, S. G., Vadirajacharya, K., & Patil, U. V. (2018). Decision making in distribution system using improved AHP-PROMETHEE method. *Proceedings of the International Conference on Computing Methodologies and Communication, ICCMC 2017*, *2018-Janua*(Iccmc), 279–283. https://doi.org/10.1109/ICCMC.2017.8282691

Lahope, R. R., Worang, F. G., Gunawan, E., & Gunawan, E. (2020). the Importance of Soft Skills Training on Company Performance At Bni Tolitoli Branch Office. *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, *8*(1), 469–479. https://doi.org/10.35794/emba.v8i1.27784

Lie, N. L. C., & Darmasetiawan, N. K. (2017). Pengaruh Soft Skill Terhadap Kesiapan Kerja Menghadapi Masyarakat Ekonomi ASEAN pada Mahasiswa S1 Fakultas Bisnis dan Ekonomika Universitas Surabaya. *Jurnal Ilmiah Mahasiswa Universitas Surabaya*, *6*(2), 1496–1514.

Maity, S. R., & Chakraborty, S. (2015). Tool steel material selection using PROMETHEE II method. *International Journal of Advanced Manufacturing Technology*, *78*(9–12), 1537–1547. https://doi.org/10.1007/s00170-014-6760-0

Mareschal, B., & Smet, Y. De. (2009). Multicriteria decision aided system for ranking industrial zones. *IEEE International Conference on Industrial Engineering and Engineering Management*, *2*, 1646–1649.

Rapitasari, D. (2016). Digital marketing Berbasis Aplikasi Sebagai Strategi Meningkatkan Kepuasaan Pelanggan.

*name of corresponding author

Jurnal Cakrawala, *10*(2), 107–112. http://www.cakrawalajournal.org/index.php/cakrawala/article/view/36

Rojko, A. (2017). International journal of interactive mobile technologies : iJIM. *International Journal of Interactive Mobile Technologies (IJIM)*, *11*(5), 77–90. http://online-journals.org/index.php/i-jim/article/view/7072/4532

Saaty, T. L. (2003). Decision-making with the AHP: Why is the principal Eigenvector necessary. *European Journal of Operational Research*, *145*(1), 85–91. https://doi.org/10.1016/S0377-2217(02)00227-8

Sataloff, R. T., Johns, M. M., & Kost, K. M. (2017). Pengaruh Media Sosial Instagram Akun @princessyahrini Terhadap Gaya Hidup Hedonis para followersnya. *JOM Fiisip*, *4*(2), 1–22.

Technologies, M. (2014). *Online Journal of Communication and Media Technologies Volume: 4 – Issue: 1 – January - 2014*. 185–215.

The, F. O. R., Person, L. A. Y., & Lipovetsky, S. (1936). An Interpretation Of The AHP Eigenvector Solution GfK Custom Research North America 8401 Golden Valley Rd ., Minneapolis , MN 55427 , USA 2 . The AHP solution and its interpretation for the maximum eigenvalue λ yields the principal eigenvector α which ser. *International Journal of Analytic Hierarchy Process*, *2*(2), 158–162.

Vongsavanh, A., & Campbell, B. (2008). The roles and skill sets of systems vs business analysts. *ACIS 2008 Proceedings - 19th Australasian Conference on Information Systems, Stevens 2003*, 1059–1068.

*name of corresponding author