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OPTIMIZING BRANCH PERFORMANCE IN THE CLEANING SERVICE INDUSTRY: A DATA ENVELOPMENT ANALYSIS APPROACH**Rahayu Septyaning Mistina^{1*}, Sri Wahyuni², Indira Puspa Gustiah³**Universitas Satya Wiyata Mandala, Nabire, Papua, Indonesia¹Universitas Ibn Khaldun Bogor, Indonesia²Universitas Mercu Buana, Jakarta, Indonesia³*Email: ayumistina92@gmail.com**ARTICLE INFO****ABSTRACT****Artikel History:**

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In the competitive landscape of the service industry, efficient resource management and customer satisfaction are critical for sustained success. This study evaluates the operational efficiency of Cleaning Services company with five branches in the Jakarta Metropolitan Area, by applying Data Envelopment Analysis (DEA). The branches –(Jakarta, Bekasi, Bogor, Depok, and Tangerang) exhibited significant disparities between their target and actual numbers of employees and customers for 2023. The DEA methodology provided a comprehensive assessment of each branch's efficiency, considering both workforce deployment and customer acquisition. Results indicated that the Depok branch, with an efficiency score of 0.87, excelled in employee management, while the Bogor branch, with a score of 0.82, led in customer acquisition. Conversely, the Jakarta branch was the least efficient with a score of 0.45, highlighting substantial challenges in both areas. The findings underscore the limitations of traditional performance metrics and the need for a holistic evaluation approach. This study recommends a tailored strategy for each branch, focusing on leveraging strengths and addressing specific weaknesses. Regular application of DEA is suggested for continuous performance monitoring and improvement. By adopting these strategies, the cleaning services company can optimize its operations, enhance employee satisfaction, and improve customer loyalty, thereby achieving balanced and sustainable growth.

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Dalam lanskap kompetitif industri jasa, manajemen sumber daya yang efisien dan kepuasan pelanggan sangat penting untuk kesuksesan yang berkelanjutan. Studi ini mengevaluasi efisiensi operasional sebuah perusahaan cleaning services, dengan lima

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cabang di Jakarta Raya, dengan menerapkan Data Envelopment Analysis (DEA). Cabang-cabang tersebut (Jakarta, Bekasi, Bogor, Depok, dan Tangerang) menunjukkan perbedaan signifikan antara target dan jumlah aktual karyawan serta pelanggan pada tahun 2023. Metodologi DEA memberikan penilaian komprehensif terhadap efisiensi masing-masing cabang, dengan mempertimbangkan baik penyebaran tenaga kerja maupun akuisisi pelanggan. Hasil penelitian menunjukkan bahwa cabang Depok, dengan skor efisiensi 0,87, unggul dalam manajemen karyawan, sementara cabang Bogor, dengan skor 0,82, memimpin dalam akuisisi pelanggan. Sebaliknya, cabang Jakarta adalah yang paling tidak efisien dengan skor 0,45, menunjukkan tantangan besar di kedua hal tersebut. Temuan ini menyoroti keterbatasan pengukuran kinerja tradisional dan perlunya pendekatan evaluasi yang holistik. Studi ini merekomendasikan strategi yang disesuaikan untuk setiap cabang, dengan fokus pada pemanfaatan kekuatan dan mengatasi kelemahan spesifik. Aplikasi DEA disarankan untuk digunakan sebagai pemantauan dan peningkatan kinerja yang berkelanjutan.

Dengan mengadopsi strategi ini, perusahaan cleaning services dapat mengoptimalkan operasinya, meningkatkan kepuasan karyawan, dan meningkatkan loyalitas pelanggan, sehingga mencapai pertumbuhan yang seimbang dan berkelanjutan.

INTRODUCTION

According to a survey conducted in Singapore in 2020 by The Straits Times by asking 1,000 respondents which jobs are the most important in maintaining the continuity of Singapore, jobs in the cleaning service sector or commonly called ‘cleaner jobs’ are the second most important job (78%) after doctors or nurses in first place (86%), followed by garbage collectors in third place (77%). Uniquely, although cleaner is ranked second among the most important jobs in Singapore, 42% of respondents are not willing to do this job (The Strait Times, 2021). The percentage of jobs surveyed is presented in the following table.

Table 1. Important Job Survey & Jobs That I Don’t Want To Do

Rank	Top 5 Essential Job	%	Rank	Jobs that I don’t want to do	%
1	Doctor or Nurse	86%	1	Garbage Collector	57%
2	Cleaner	78%	2	Construction Worker	44%
3	Garbage Collector	77%	3	Cleaner	42%
4	Hawker	76%	4	Politician	36%
5	Deliveryman	70%	5	Telemarketer	31%
			6	Artist	29%
			7	Security Guard	29%
			8	Corporate Lawyer	26%
			9	Nurse	24%
			10	Doctor	21%
			11	Hawker	20%

Source : (The Strait Times, 2021).

Data from researchers in Indonesia (Hanoatubun, 2020) shows that in Indonesia more than 1,500,000 employees have been dismissed or laid off, there were 10% of employees have been dismissed and 90% of employees have been laid off. CNN Indonesia also stated that about 8,500 cleaning service workers had become unemployment. This is due to 190 malls closing because of the

implementation of large-scale social restrictions or PSBB, Pembatasan Sosial Berskala Besar (Sandi, 2020).

One of the parameters that is often used to measure performance is effectiveness, where effectiveness indicates the extent to which planned activities are realized and planned results are achieved. Organizational effectiveness is a measure of the organization's success in achieving the goals or objectives that have been set. The smaller the gap between targets and actual achievements, the higher the organizational performance. One of the analytical tools to measure the level of organizational efficiency is DEA (Data Envelopment Analysis) (Rakhmawati, 2018). There has been a lot of research literature that discusses the DEA method, to measure organizational efficiency (Machmud et al., 2019; Manasakis et al., 2013; Paradi & Zhu, 2013; Rakhmawati, 2018; Salawu & Odewole, 2020; Zhang et al., 2008). The efficiency of the three companies namely HESI, CKAI and BISR is presented in the following Table 2.

Table 2. Company Efficiency (DEA Analysis)

Company	Target		Actual		Efficiency ^{*)}
	Σ Employees	Σ Customers	Σ Employees	Σ Customers	
CKAI	500	65	320	18	0.64
HESI	400	45	200	25	0.56
BISR	400	45	200	20	0.50

^{*)} Efficiency is analyzed using the DEA (*Data Envelopment Analysis*) compared to the actual ideal efficiency 100%

Source: Research data (2022)

It can be seen from Table 2. above that the efficiency level of each company in terms of achieving the number of workers and the number of customers is all below 1 (one) from the results of the analysis using DEA or Data Envelopment Analysis software.

Leadership

The process that involves an individual while influencing a group of people to achieve a common goal is called leadership (Northouse, 2016). Transformational leadership does more things together with followers and exhibits behaviors to achieve good results. There are 4 components of transformational leadership, namely: (1) Idealized Influence/L-IIN (2) Inspirational Motivation/L-IMO (3) Intellectual Stimulation/L-IST and (4) Individualized Consideration/L-ICO. These four leadership components can be measured using the Multifactor Leadership Questionnaire (MLQ),

which is a widely accepted instrument for measuring various types of leadership (Bass & Riggio, 2006).

Motivation

Motivation refers to a force either inside or outside of a person that evokes enthusiasm and persistence to pursue certain actions (Daft, 2010). Daft then divides motivation theory into 2 major parts, namely: Content Perspectives on Motivation and Process Perspectives on Motivation. The content perspective of motivation is divided into four theories of motivation as follows: 1). The Hierarchy of Needs Theory (Abraham Maslow) 2). ERG Theory (Clayton Alderfer) 3). Theory A Two-Factor Approach to Motivation (Frederick Herzberg) 4). Acquired Needs Theory (David McClelland). According to Robbin & Judge among the theories of motivation, McClelland has had the best research support. The three most frequently studied from the need theories are: 1). The need for achievement/M-ACH 2). The need for affiliation/M-AFF, and 3). The need for power/M-POW (Robbins & Judge, 2013).

Knowledge Management

Knowledge Management is a key pillar in Human Capital Strategy. Knowledge management consists of three main types of capital, namely: human capital, structural capital, and customer capital. Human capital is basically the power possessed by the brains of employees (Liebowitz & Hopkins, 2004). Knowledge Management in this study uses four dimensions as has been used by previous researchers, namely 1). Knowledge Acquisition/K-ACQ 2). Knowledge Sharing / K-SHA 3). Knowledge Creation /K-CRE 4). Knowledge Retention /K-RET 5). Knowledge Application /K-APL (Aladwan & Aladwan, 2020; Korze et al., 2021; Nawaz & Shaukat, 2014).

Communication

Communication is a social process in which individuals use symbols to construct and interpret meaning in their environment (West et al., 2010). Organizational communication can be defined as a process of creating and discussing collectively, a system of meaning through practices that are oriented towards achieving organizational goals (Mumby & Kuhn, 2018). The grouping of communication satisfaction used by researchers from Turkey divides into 3 groups of categories, namely: 1). Relational Dimensions/ C-REL 2). Informational/Relational Dimensions/ C-IRD and 3). Informational Dimensions/ C-C-INF. This grouping is known as the Communication Satisfaction Questionnaire (CSQ) (Aydemir & Ayla, 2009).

Social Capability

The social capability variable originated from social and political institutions proposed by Abramowitz in 1986 and the term social capability was first introduced by Casehi Ohkawa and Henry Rosovsky in 1973. The term social capability has been used mainly in understanding the economic development of a community or a nation. The term social capability is rarely used in the management literature. Although important, not many studies have empirically tested the construct of social capability in teams (Manjari, 2010). Social Capability can be defined as the ability to possess or acquire certain abilities aimed at coping with economic and social changes. Employees who have a certain level of social capability will have a participatory attitude in the company, will strengthen the employee organization, and will influence the employee's own attitude and influence the attitudes of colleagues (Muñoz-Pascual & Galende, 2020). The Social Capability variable consists of three basic dimensions, namely: (1) Communication Dimension/S-COM , (2) Conflict Resolution Dimension/ s-CON and (3) Support Dimension/ S-SUP (Manjari, 2010).

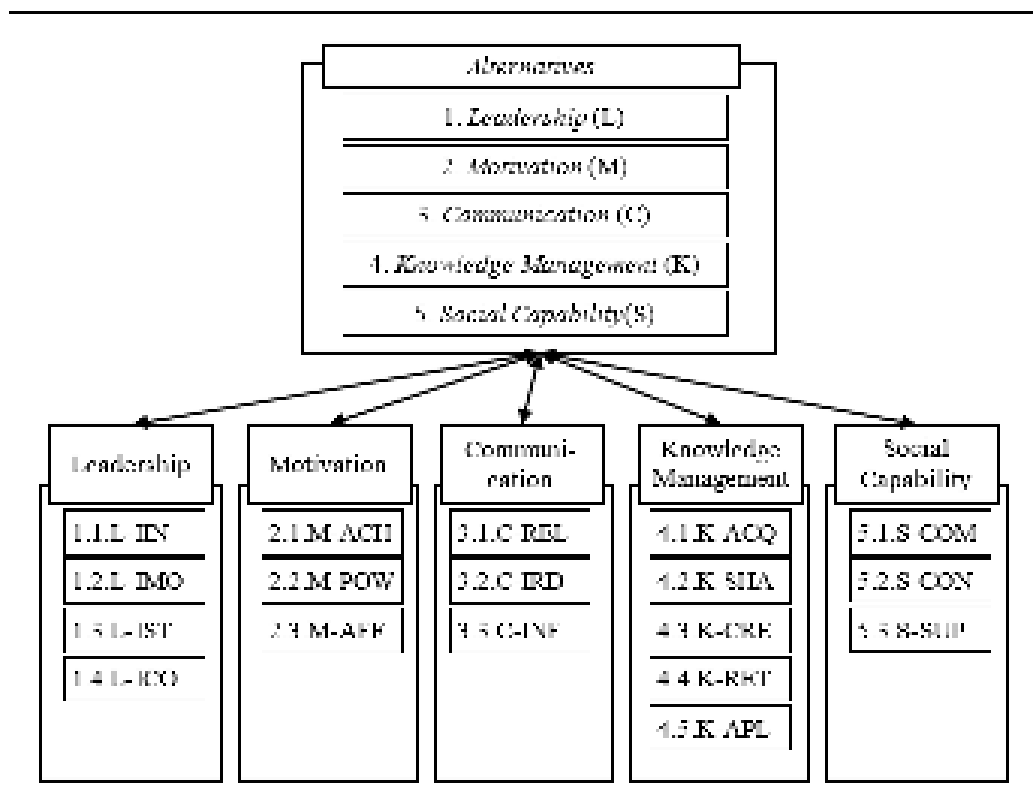
METHOD

This research analyzes strategic priority in Cleaning Service Industry in Jakarta, which can be gotten into groups of different Human Resources stragic – Leadership, Motivation, Communication, Knowledge Management, Social Capability – in order to enhance the corporate performance by using Analytic Network Process (ANP). A quantitative approach from the modeling allowed obtaining decision criteria and alternatives (Hernández et al., 2013).

This research uses ANP (Analytic Network Process) analysis, which was introduced by Thomas L. Saaty (Saaty, 2004a, 2004b; Saaty & Vargas, 2013, 2006). The use of ANP analysis is intended to be able to assist decision making in obtaining the best alternative by displaying a priority order. The ANP method is used to assist decision makers when selecting the optimal strategy model based on ranking using several supporting factors (Kusnadi et al., 2016) ANP has been used for various research fields, that has been carried out in various countries such as Healthcare (Herat et al., 2012), High Tech Co (Lan et al., 2013), Financial (Ascarya, 2015), Supply Chain (Masoumik et al., 2015), Petrochemical (Khamseh & Marziaki, 2018), Banking (Kurniawan et al., 2016), Education (Kaur et al., 2018), and Supply Chain (Al-Mutairi et al., 2019).

Analytic Network Process (ANP) is a method in multi-criteria decision making that allows non-linear relationships and feedback between elements to make decisions. In general, the Multi Criteria Decision Making (MCDM) technique is used to determine the best alternative based on pairwise comparisons made by decision makers (Saaty, 2004b; Saaty & Vargas, 2013) Priority in implementing a sustainable HR performance strategy in the Cleaning Service Industry that is considered quite important by the company's management when running its business. Strategic

priorities are used as the basis for making decisions in determining policies in the HR field. This study raises the topic of employee performance models with the roles of Leadership, Motivation, Knowledge Management, Communication and Social Capability with the respondents are management representatives of three cleaning service companies in Jakarta. The model in this study will be analyzed using the analytic network process (ANP) so that the results can be obtained a model that can be applied to cleaning service providers. The model to be tested is as follows The model to be tested is presented in the following figure.



Source: Author (2022)

Figure 1. ANP Analysis Framework

In Figure 1 above, one priority will be selected from five strategies, namely: (1) Leadership with four dimensions: Idealized Influence (1.1.L-IIN), Inspirational Motivation (1.2.L-IMO), Intellectual Stimulation (1.3.L-IST) and Individualized Consideration (1.4.L-ICO) (2) Motivation with three dimensions, namely: Need for achievement (2.1.M-ACH), Need for power (2.2.M-POW), Need for affiliation (2.3.M-AFF), (3) Communication with three dimensions, namely: Relational Dimensions (3.1.C-REL), Informational/Relational Dimensions (3.2.C-IRD), Informational Dimensions (3.3.C-INF) (4) Knowledge Management with five dimensions, namely: Knowledge Acquisition (4.1.K-ACQ), Knowledge Sharing (4.2.K-SHA), Knowledge Creation (4.3.K-CRE), Knowledge Retention (4.4.K-RET) Knowledge Application (4.5.K-APL) (4) (5) Social Capability

with three dimensions, namely: Communication Relationship Dimension (5.1.S-COM), Conflict Resolution Dimension (5.2.S-CON), Team Support Dimension (5.3.S-SUP). The analysis was carried out using the latest version of the ANP (Analytic Network Process) Super Decision software, version 3.2.0.

This study involved five strategies that would be processed using the Multi Criteria Decision Making (MCDM) technique to determine the best alternative strategy based on pairwise comparisons made by respondents so that priorities could be obtained. The respondents used were management representatives from PT HESI, PT CKAI, and PT BISR. Each respondent filled out the ANP questionnaire that had been provided in the form of pair-wise questionnaires.

RESULTS AND DISCUSSION

In testing using ANP software, the consistency of respondents' answers is measured and the level of the inconsistency from each answer. The level of the inconsistency of a good answer is less than 0.1 (Ergu et al., 2011). In Table 2. below, the inconsistency values for each respondent's answers are presented.

Table 3. Measurement of Respondents' Answer Inconsistency

No	Comparison	Inconsistency Value	Annotation
1	Comparison with Respect to L-IIN	0.02177	Consistent
2	Comparison with Respect to L-IMO	0.02177	Consistent
3	Comparison with Respect to L-IST	0.02205	Consistent
4	Comparison with Respect to L-ICO	0.03028	Consistent
5	Comparison with Respect to M-ACH	0.0152	Consistent
6	Comparison with Respect to M-POW	0.0152	Consistent
7	Comparison with Respect to M-AFF	0.0152	Consistent
8	Comparison with Respect to C-REL	0.0152	Consistent
9	Comparison with Respect to C-IRD	0.0152	Consistent
10	Comparison with Respect to C-INF	0.0152	Consistent

No	Comparison	Inconsistency Value	Annotation
11	Comparison with Respect to K-ACQ	0.02205	Consistent
12	Comparison with Respect to K-SHA	0.0152	Consistent
13	Comparison with Respect to K-CRE	0.02655	Consistent
14	Comparison with Respect to K-RET	0.03114	Consistent
15	Comparison with Respect to K-APL	0.02205	Consistent
16	Comparison with Respect to S-COM	0.0152	Consistent
17	Comparison with Respect to S-CON	0.0152	Consistent
18	Comparison with Respect to S-SUP	0.0152	Consistent
19	Comparison with Respect to LEAD (P)	0.0116	Consistent
20	Comparison with Respect to LEAD (P)	0.02464	Consistent
21	Comparison with Respect to MOTV (P)	0.00885	Consistent
22	Comparison with Respect to MOTV (P)	0.03044	Consistent
23	Comparison with Respect to COMM (P)	0.01759	Consistent
24	Comparison with Respect to COMM (P)	0.02463	Consistent
25	Comparison with Respect to KMAN (P)	0.0152	Consistent
26	Comparison with Respect to KMAN (P)	0.01914	Consistent
27	Comparison with Respect to SCAP (P)	0.02365	Consistent
28	Comparison with Respect to SCAP (P)	0.01914	Consistent

Source: Author (2022)

Based on the results of the synthesis using ANP software, which is shown in Table 3. it can be seen that all pairwise comparisons have an inconsistency value of < 0.1 . Thus it can be said that the answers given by the respondents are consistent.

Sensitivity analysis was carried out using ANP software to determine the stability of the priorities of the selected strategy (Pringgajaya & Ciptomulyono, 2012). Sensitivity analysis is related to what-if questions to detect whether the final results obtained (strategy) will remain stable when the input changes. Sensitivity analysis also assesses whether changes to the inputs made will change the order of priority of the options. The significance of changes in inputs can be measured by changes in the Compatibility Index before the change (original) compared to changes in the Compatibility Index after changes in the input. Sensitivity analysis examines the stability of the selected priority by simulating variations carried out against the priority criteria in the model. For example, if a strategy is considered more important than other strategies, to answer the question whether the best choice for strategy will change and on which strategy priority will be chosen. Another question that can be answered with this analysis is how much proportion of these strategies (Darmawan, 2018). The results of the sensitivity tests performed on all dimensions are shown in Table 4. below.

Table 4. ANP Sensitivity Test (Model Stability) of All Dimensions

Parameter Value	Leadership	Motivation	Communication	Knowledge Management	Social Capability
1. Sensitivity for node Idealized Influence (L-IIN)					
0.0001	0.363445	0.205273	0.098791	0.1956	0.13689
0.25	0.364971	0.204034	0.098298	0.196602	0.136095
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.385625	0.187258	0.091632	0.21016	0.125325
0.95	0.402415	0.173621	0.086212	0.221183	0.116569
2. Sensitivity for node Inspirational Motivation (L-IMO)					
0.0001	0.361091	0.207186	0.099551	0.194055	0.138118
0.25	0.36378	0.205001	0.098683	0.19582	0.136716
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.385625	0.187258	0.091632	0.21016	0.125325
0.95	0.402415	0.173621	0.086212	0.221183	0.116569
3. Sensitivity for node Intellectual Stimulation (L-IST)					
0.0001	0.332926	0.225119	0.097585	0.194225	0.150145
0.25	0.348911	0.214488	0.097688	0.195837	0.143075

Parameter Value	Leadership	Motivation	Communication	Knowledge Management	Social Capability
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.39881	0.181303	0.098011	0.20087	0.121007
0.95	0.42906	0.161184	0.098206	0.203921	0.107629
4. Sensitivity for node Individualized Consideration (L-ICO)					
0.0001	0.373552	0.175976	0.09514	0.211369	0.143963
0.25	0.369997	0.189508	0.096484	0.204425	0.139586
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.355149	0.246026	0.102095	0.175422	0.121308
0.95	0.346556	0.278735	0.105343	0.158636	0.110729
5. Sensitivity for node Need for achievement (M-ACH)					
0.0001	0.362752	0.203836	0.096262	0.1924	0.14475
0.25	0.364636	0.203309	0.097034	0.195013	0.140009
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.369601	0.201919	0.099069	0.201901	0.127511
0.95	0.372055	0.201231	0.100075	0.205306	0.121333
6. Sensitivity for node Need for affiliation (M-AFF)					
0.0001	0.373687	0.190696	0.098829	0.201978	0.13481
0.25	0.370209	0.196554	0.098331	0.199862	0.135044
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.349842	0.230854	0.095418	0.187473	0.136413
0.95	0.332772	0.259601	0.092976	0.17709	0.137561
7. Sensitivity for node Need for Power (M-POW)					
0.0001	0.371588	0.202901	0.096925	0.199657	0.12893
0.25	0.369048	0.202842	0.097364	0.198634	0.132112
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.346791	0.202333	0.101207	0.189671	0.159998
0.95	0.331079	0.201974	0.10392	0.183344	0.179684
8. Sensitivity for node Relational Dimensions (C-REL)					
0.0001	0.368078	0.204124	0.095902	0.198583	0.133314
0.25	0.367301	0.203461	0.096843	0.198102	0.134293

Parameter Value	Leadership	Motivation	Communication	Knowledge Management	Social Capability
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.363006	0.199793	0.102046	0.195443	0.139713
0.95	0.359976	0.197206	0.105716	0.193567	0.143535
9. Sensitivity for node <i>Informational/Relational Dimensions</i> (C-IRD)					
0.0001	0.368351	0.197846	0.099036	0.196335	0.138432
0.25	0.367424	0.200331	0.098415	0.196978	0.136852
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.364735	0.207542	0.096613	0.198842	0.132268
0.95	0.363346	0.211266	0.095682	0.199805	0.129901
10. Sensitivity for node <i>Informational Dimensions</i> (C-INF)					
0.0001	0.368438	0.202216	0.095326	0.198065	0.135954
0.25	0.367486	0.202497	0.096548	0.197841	0.135628
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.351569	0.207185	0.116979	0.194101	0.130166
0.95	0.334614	0.212179	0.138743	0.190116	0.124348
11. Sensitivity for node <i>Knowledge Acquisition</i> (K-ACQ)					
0.0001	0.366476	0.202988	0.098015	0.197411	0.135111
0.25	0.366492	0.202886	0.097908	0.197511	0.135202
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.367359	0.197654	0.092451	0.202669	0.139868
0.95	0.36807	0.193356	0.087969	0.206905	0.1437
12. Sensitivity for node <i>Knowledge Sharing</i> (K-SHA)					
0.0001	0.37092	0.204197	0.09232	0.1956	0.136962
0.25	0.368726	0.203494	0.095047	0.196601	0.136132
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.34111	0.19465	0.129367	0.209195	0.125678
0.95	0.318541	0.187422	0.157414	0.219487	0.117135
13. Sensitivity for node <i>Knowledge Creation</i> (K-CRE)					
0.0001	0.366322	0.200988	0.098386	0.197728	0.136576
0.25	0.366416	0.201886	0.098094	0.19767	0.135934

Parameter Value	Leadership	Motivation	Communication	Knowledge Management	Social Capability
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.368212	0.219139	0.092487	0.196552	0.12361
0.95	0.369562	0.232096	0.088277	0.195712	0.114354
14. Sensitivity for node Knowledge Retention (K-RET)					
0.0001	0.370136	0.20379	0.098597	0.188862	0.138614
0.25	0.368364	0.203299	0.098209	0.193138	0.136991
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.352303	0.198843	0.094686	0.231885	0.122282
0.95	0.336819	0.194547	0.091289	0.269243	0.108101
15. Sensitivity for node Knowledge Application (K-APL)					
0.0001	0.366577	0.203106	0.09751	0.196804	0.136004
0.25	0.366543	0.202945	0.097656	0.197207	0.135649
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.365398	0.19749	0.102615	0.210927	0.12357
0.95	0.364394	0.192712	0.106958	0.222945	0.112991
16. Sensitivity for node Dimensi Hubungan Komunikasi (S-COM)					
0.0001	0.365661	0.203357	0.097382	0.198726	0.134874
0.25	0.366085	0.203071	0.097592	0.19817	0.135083
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.381347	0.192766	0.105147	0.178128	0.142613
0.95	0.394425	0.183935	0.111622	0.160954	0.149065
17. Sensitivity for node Dimensi Penyelesaian Konflik (S-CON)					
0.0001	0.360875	0.205731	0.10034	0.200599	0.132455
0.25	0.363662	0.204273	0.099084	0.199121	0.133859
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.381165	0.19512	0.091201	0.189842	0.142673
0.95	0.394093	0.188359	0.085378	0.182987	0.149184
18. Sensitivity for node Dimensi Dukungan kepada tim (S-SUP)					
0.0001	0.364917	0.203811	0.097088	0.199228	0.134956
0.25	0.365712	0.203298	0.097444	0.198421	0.135124

Parameter Value	Leadership	Motivation	Communication	Knowledge Management	Social Capability
0.5	0.366509	0.202784	0.097802	0.197612	0.135293
0.75	0.381989	0.192805	0.104745	0.181899	0.138563
0.95	0.394922	0.184467	0.110546	0.16877	0.141295

Source: Author (2022)

The sensitivity test results are shown in Table 4.32. (Model Stability) of the dimensions used in this study as follows: changes in the parameter values of each dimension ranging from 0.0001-0.25-0.5-0.75 to 0.95 remain stable resulting in the Leadership Variable priority. For example, the change in the parameter value of the Idealized Influence dimension from 0.0001-0.25-0.5-0.75 to 0.95 remains stable resulting in the Leadership Variable priority with a weight of 0.363445 - 0.364971 - 0.366509 - 0.385625 and 0.402415 continues to increase up to 0.402415 respectively.

As described previously, a paired questionnaire was used which reduces the time required for in-depth interviews with respondents and at the same time provides consistent results. After that, the geometric mean of each respondent is calculated for each paired question, so that the researcher has one geometric mean response from each respondent, which is then entered into the ANP model and synthesized as was done by previous researchers (Ascarya, 2015) . The geometric mean is calculated using the following formula (Roefeldt, 2018; Saaty & Vargas, 2006; Tanjung et al., 2019):

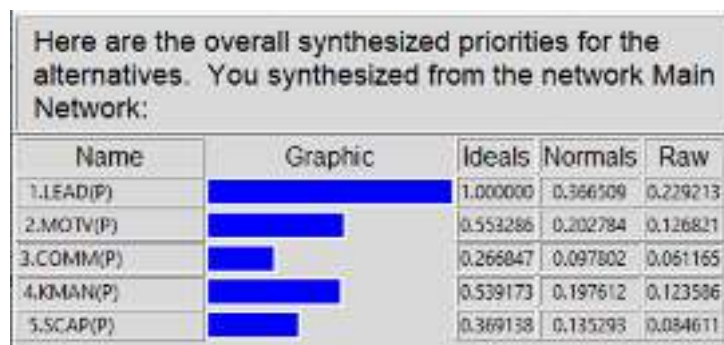
$$GMean = \sqrt[n]{(R_1 \times R_2 \times R_3 \times \dots \times R_n)}$$

GMean = Geometric Mean

R_n = Value of respondents questionnaire n

n = Number of respondent

The results of the pairwise comparison questionnaire are then entered into the ANP Super Decision software, as can be seen in Figure 2.



Source: Author (2022)

Figure 2. Overall Synthesized Priorities

Based on the results of the ANP Superdecision analysis in the image above, a priority scale can be made for policy choices as shown in the following Table 5.

Table 5. Strategy Priority

Variable	<i>Normalized</i>	<i>Limiting</i>	Priority
1. <i>Leadership</i>	0.36651	0.229214	1
2. <i>Motivation</i>	0.20278	0.126821	2
3. <i>Communication</i>	0.09780	0.061165	5
4. <i>Knowledge Management</i>	0.19761	0.123586	3
5. <i>Social Capability</i>	0.13529	0.084611	4

Sumber: Author (2022)

As shown in Table 5., the order of priority to achieve good performance is: (1) Leadership, (2) Motivation, (3) Knowledge Management, (4) Social Capability and (5) Communication.

CONCLUSION

From the results of research that has been carried out related to sustainable HR performance strategies in the cleaning service industry, it can be concluded as follows: The results of the ANP Super Decision analysis show that leadership is the most important variable in achieving performance. This can be seen from the level of the priority value after being analyzed by ANP Super Decision. Leadership is the most important variable to achieve sustainable performance in companies in the cleaning service industry.

This study uses a limited number of indicators based on previous research, while there are still many indicators that can be used in future research, such as the Leadership Variable, including: Contingent rewards, Constructive transactions, Management-by-exception Active and passive Corrective transactions and Laissez-faire.

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