Overcoming the pitfalls in employee performance evaluation: An application of ratings mode of the Analytic Hierarchy Process

Rafikul Islam[1], *Nagendran Periaiah*[2]

Abstract

PURPOSE: *Employee performance evaluation is a common exercise conducted in many organizations. Employees need to know the feedback on their performance from the management. Often the results of performance evaluation exercises are used for promotion, confirmation in service and awarding of bonuses for employees. However, the performance evaluation exercise often meets with criticism due to the presence of subjective factors and, specifically, the way in which these factors are handled. The purpose of the present paper is to show how the Ratings mode of the Analytic Hierarchy Process (AHP) can be applied to evaluate employee performance using objective as well as subjective criteria.* ***METHODOLOGY:*** *The whole AHP exercise for the present employee performance evaluation has been shown through a case study on CLSB, a company in Kuala Lumpur, Malaysia. Four senior managers and the Managing Director of the company were involved in all phases of the present evaluation exercise, including elicitation of the criteria, sub-criteria and assigning weights to them. The AHP data were analyzed using software called AHP Calc version 24.12.13 developed by Klaus D. Goepel and available online. In particular, the Ratings mode of AHP was used to evaluate employees' performance at CLSB.* ***FINDINGS:*** *Five criteria, namely Services, Quality, Financial, Timing, and Teamwork, are found to be important for the evaluation of employee performance at CLSB. Each of these criteria has sub-criteria. Harmonious work, Skills, and Punctuality are found to be the three most important sub-criteria for the present evaluation exercise. The outcome of the evaluation exercise provides an ordered set of ranks of 20 employees working in the company. Apart from the application of AHP for performance evaluation, an ordered set of detailed rubrics for all the criteria have been developed. The rubrics*

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provide precise guidelines to the evaluators at the time of evaluating employees' performance. ***IMPLICATIONS****: An evaluation scheme that is scientific and systematic, such as the present one, will minimize criticism levied against the performance evaluation exercise. Once the employees are aware of the criteria and sub-criteria set along with the associated weighting scheme and the evaluation process itself, they will be motivated to perform their tasks and discharge their duties accordingly. Hence, employee job satisfaction and productivity are expected to increase. This will bolster not only the employees' morale but also the organization's overall performance.* ***ORIGINALITY AND VALUE****: In the literature, many schemes are available to evaluate employees' performance. But often, these methods are criticized as they either take all the criteria of evaluation as equally important or they lack the capability to strike a balance between objective and subjective factors. The main contribution of the present work is to show how AHP can alleviate the above drawbacks of the existing methods. The present research work has developed a performance evaluation method, which is simple and straightforward, and the detailed steps have been elaborated on how the method can actually be applied to measure the performance of employees. The method can be applied to measure employees' performance of other companies with the necessary modification of the criteria set and assigning appropriate weights to them.*

Keywords: *employee performance, employee performance evaluation, reward, training need, AHP Ratings*

INTRODUCTION

Effective performance evaluation (also known as performance appraisal) of employees is a fundamental issue on which an organization pays careful attention to ensure its survival, as it plays an important role in leading the organization (Grant & Maxwell, 2018). Derebew et al. (2021) contend that before providing incentives or promoting employees, their performance should be evaluated in a fair manner. To provide managers with useful information and sustain competitiveness, organizations should measure all aspects of employee functions. Traditional performance measures are often solely based on the financial dimension, but as a result of stiff competition from the industry, organizations need to adopt different approaches to evaluate employee performance. An integrated or multi-dimensional employee performance evaluation system is a major innovation in human resource management. However, employee performance evaluation can remain ineffective if it is not linked to the organization's goals. Employee performance measurement systems also vary according to organizational structure.

Lansbury (1988, p. 46) defined employee performance evaluation as "the process of identifying, evaluating, and developing the work performance of the employees in the organization so that organizational goal

and objectives are effectively achieved while, at the same time, benefiting employees in term of recognition, receiving feedback and offering career guidance." Unfortunately, performance appraisals are not at the top of the list of "favourite things to do" for managers. Common challenges in using performance appraisal tools are managers not being trained to conduct performance appraisals effectively and failure to tie performance appraisal expectations to desired business results.

Performance appraisal is important for both administrative (e.g., promotion, reward, assignment of tasks) and development (e.g., assessing employee training needs, identifying employees' strengths and weaknesses) purposes (Bruce, 2013). Performance appraisals help employees measure their performance and identify further training that they need to improve their performance (Halawi & Hayday, 2018). Performance appraisal reports should be available to all staff. Many companies use work performance to outline their employees' expected performance standards and goals, as well as skills improvement. Tudor and Petre (2022) underscore the importance of drawing the relationship between staff motivation and their performance. The authors conclude that this relationship is vital to improve organizational culture and employee engagement.

By reviewing performance, the management may also discuss weaknesses or problems and identify solutions together with the employees. In conducting a performance review, a manager should:

- ask the employees to rate themselves;
- provide a written performance review to the employees;
- conduct a review meeting after the written performance review;
- note, document, and file any employees' comments.

Management needs to incorporate performance appraisal into their business operations. The criteria chosen to measure performance should relate directly to the core activities of the organization. Some of the common criteria used for performance evaluations are unit sales, profit per item, product quality, customer service, the time required to complete tasks, customer referrals, and punctuality (Na-Nan et al., 2018). Performance needs to be measured in areas that will influence the success of the business. Further, the evaluator should highlight the areas requiring further improvements.

Performance appraisals have been the subject of considerable research, yet there are limited studies on performance appraisal practices. Choice of performance measures has been the focus of Accounting and Economics researchers (Bol, 2008). Levy and Williams (2004) emphasized on psychometric properties of appraisal instruments.

An ineffective appraisal system can cause many problems in an organization. Somerick (1993) highlighted problems such as decreased employee productivity, a decline in employees' enthusiasm, low morale, and a decrease in support for the organization that may occur if the appraisal system is ineffective. Although the importance of performance appraisal within organizations has long been recognized, in recent years, it has also become central to political and policy debates as well. In the United States, for example, the issue of whether and how teachers' performance should be measured and rewards tied to their teaching effectiveness have become contentious political debates (Peretz & Fried, 2011).

The objectives of the present research, within the context of the present case study, are the following:

- identify the relevant set of criteria and sub-criteria for performance appraisal;
- determine the criteria and sub-criteria priorities by taking inputs from the key senior managers using Analytic Hierarchy Process (AHP) questionnaires;
- evaluate employee performance using the Ratings mode of the Analytic Hierarchy Process;
- propose the application of the AHP to overcome the common pitfalls in employee performance evaluation exercises.

The whole exercise was carried on a consulting firm named CLSB in Kuala Lumpur, Malaysia. The novelty of the present work is to show how the Ratings mode of the AHP can be applied to overcome the pitfalls of employees' performance evaluation exercises. The AHP application is believed to be simple yet comprehensive and the performance rating of the employees it generates is the outcome of a systematic analysis of both qualitative and quantitative factors.

LITERATURE REVIEW

Employees' performance

One of the most important resources that an organization possesses is its people. When employees perform well collectively, the whole organization moves forward. Research has shown that human resource (HR) practices influence employee attitudes and hence their performance. Conteh and Yuan (2022) investigated the relationship between High Performance Work System (HPWS) and Employee Service Performance (ESP) through

organizational support (OS). The results show that the above relationship is positive and OS partially mediates between HPWS and ESP. One crucial challenge managers are facing today is how they can elicit maximum performance from their employees (Joe et al., 2020; Karadas & Karatepe, 2019). Therefore, managers need to find the right motivators and adopt the right HR practices (Rossi, 2012).

Ali et al. (2019) show that the physical working environment of an organization has a positive correlation with employees' performance. Though their case study research involved universities, the findings are believed to be equally applicable to other types of organizations. Ali et al. (2019) find that room temperature, relative humidity, and illumination level are important in providing a conducive physical working environment. The same observation was made by Sullivan et al. (2013), who concluded that office design, room thermal condition, indoor air quality, lighting and noise level have an impact on employees' performance. Further, a study conducted by Ajala (2012) reveals that employees' productivity may go down to even 40% if the physical environment in which they are working is distracting.

Employees' organizational citizenship behavior and creative performance are related to ethical leadership practiced in organizations (Ahmad et al., 2019). The importance of ethical leadership in organizations is increasing, especially when large-scale corporate scandals are being surfaced (Mo & Shi, 2015). Studies have been conducted to draw linkages between ethical leadership and employee wellbeing (Chughtai et al., 2015), performance (Walumbwa et al., 2011), safety performance (Khan et al., 2018), job satisfaction (Yozgar & Mesekiran, 2016), and innovative work behavior (Yidong & Xinxin, 2013). Ahmad et al. (2019) conclude that ethical leaders are those who walk their talk and, in turn, elicit good performance from their employees.

Employees' performance evaluation

Employee performance evaluation is an important tool that an organization uses. Hassanpour et al. (2022) developed and tested an employee performance evaluation model for Isfahan Municipality Corporation, Iran. Their performance evaluation model was the outcome of a mixed-method research. Adler et al. (2016) noted that the goal of an organization's performance evaluation system is to achieve high performance by enabling managers to increase employees' level of productivity. However, an ineffective performance evaluation system may become counterproductive due to the dissatisfaction of employees (Na-Nan et al., 2018; Razzaq et al., 2016). Murphy (2020) stated that most of the existing performance evaluation systems are flawed, and even some researchers recommended not using

them. But Hassanpour et al. (2022) cautioned that the absence of any performance evaluation tool might trigger employees to use their political behavior to influence their supervisors. Consequently, employees may shift their focus to relationship building with those who can influence their scores rather than improving their professional practices. Therefore, the primary question is how can you develop a performance evaluation system that can be used objectively with minimal criticism and that will help organizations fulfill their performance goals?

By discovering the challenges of subjective performance evaluation, Arnold (2021) contends that employees' reduced perception of evaluation fairness may eventually decrease their performance. Hence, Arnold (2021) cautioned evaluators on using subjective factors in employee performance evaluation. But it is also noted that not all dimensions of employees' performance can be covered by objective measures. Therefore, along with objective measures, subjective performance evaluation should be used as it allows taking employees' performance in some uncovered dimensions (Grabner et al., 2020).

De Clercq et al. (2020) find that employees may opt to resort to self-protective silence against their abusive supervisors just to avoid their negative performance rating. This silent demeanor may remain temporary, but in the long run, either employees will resign or sharply react to their abusive supervisors, especially if they engage in rude interactions, denigrating remarks and debasing ridicule. This kind of dysfunctional leadership may bring serious problems for an organization (Peltokorpi, 2019). De Clercq et al. (2020) further find that self-protecting silent behavior, usually found in high-power distance, collectivistic countries, is most common among employees with neurotic dispositions.

Does centrality bias in subjective performance evaluation influence employees' willingness to exert work effort and their retaliation intention? Mursita and Nahartyo (2022) found that centrality bias has a negative relationship with willingness to exert work effort and a positive relationship with retaliation intention. They recommended organizations have reliable evaluation mechanisms that can help inculcate a positive work attitude.

Umphress and Bingham (2011, p. 622) defined unethical pro-organizational behavior (UPB) as "actions that are intended to promote the effective functioning of the organization but violate ethical norms, values or standards of proper employee conduct." Reports of organizational malpractices and employees' unethical behavior have been reported in the literature (Moore & Gino, 2015). By means of a hierarchical linear model, in the Chinese context, Zhan and Liu (2022) investigated the effect of UPB on

employee performance evaluation and found that UPB is positively related to performance evaluation rated by supervisors.

Employees' creativity is another important factor for the success of an organization as creative work is usually regarded as a differentiator and a source of competitive advantage (Anderson et al., 2014; IBM, 2010). A number of studies have found that employee performance evaluation and their creativity are negatively related. However, Speckbacher (2021) has contrasted this with his empirical findings and found that the relationship is the opposite. He argued that organizational settings, culture and management practices have a direct influence on creativity and employee performance evaluation. He writes (p. 6): "Performance evaluations and incentives can support creativity and innovation if they are transparent about what kind of creativity is desired and how such creativity is measured and rewarded."

Mansor et al. (2012) consider that an employee performance management system is a building block of human capital management. Nobari et al. (2021) developed a performance evaluation scheme for employees working in the National Library and Archives of Iran by integrating Soft System Methodology (SSM) with Importance Performance Analysis (IPA).

The present paper shows how the AHP can be applied to measure employee performance by combining subjective factors with objective ones and finally providing an overall evaluation score for all the employees. Note that AHP is a multi-criteria decision-making method that was developed by Saaty (1980). The method has been widely applied to make decisions in various areas of Management, Environmental Science, Transportation, Technology Management and so on (Sipahi & Timor, 2010). It is also a popular method for performance evaluation in varieties of contexts (Anjomshoae et al., 2019; Elgazzar & Ismail, 2021; Ic et al., 2021; Shi et al., 2021). The main reasons behind the popularity of AHP are its simplicity, mathematical rigor, and ability to deal with both objective as well as subjective criteria.

RESEARCH METHOD

Decision scenario

This research evaluates performance and selects the best employees for CLSB. CLSB is a consulting company that provides solutions to its clients on environment-related issues. Every year the company evaluates the performance of its employees for two reasons: firstly, to identify the employees who are performing well (these employees can be rewarded for their superior performance) and secondly, to identify the employees who are

not performing at the expected level and hence can be further trained to improve their skills. The main challenge the evaluators face in the evaluation process is developing an overall score by combining performances on both objective and subjective criteria.

There are many tools available to evaluate employee performance, such as ranking, paired comparison, forced distribution, confidential report, essay evaluation, critical incident, checklist, and graphic rating scale, to mention a few. Detailed information on each tool was explained to the top management of CLSB. The Managing Director of the company preferred the ranking and paired comparison method due to its intuitive appeal. The concept of AHP and its application in performance appraisal was also presented to the top management and senior managers. Through this presentation, the researchers were able to get feedback from the management and senior managers and ascertain their concerns regarding the performance appraisal process.

Identification of criteria and sub-criteria

A one-day workshop was conducted with relevant employees to explain the proposed performance appraisal system using the Ratings mode of the AHP method. We used the group decision-making method to determine relevant criteria and sub-criteria and to establish the AHP hierarchy. Four senior managers and the Managing Director were chosen to develop the complete tool for employee performance evaluation using AHP. These people were chosen by virtue of their positions, and their inputs were deemed essential to develop the tool. The demographical information of the five expert participants is provided in Table 1.

Table 1. Demographical information of the five expert participants

Position	Gender	Age (years)	Education level	Years of service
Managing Director	Male	53	Doctorate	18
Senior Manager	Male	41	Bachelor	8
Senior Manager	Male	34	Bachelor	5
Senior Manager	Male	35	Bachelor	7
Senior Manager	Female	42	Bachelor	9

The hierarchy of criteria and sub-criteria of the evaluation process is presented in Figure 1. Note that all the criteria and sub-criteria were generated by the team of the four senior managers of CLSB in consultations with their Managing Director. The team decided on a different number of sub-criteria for each main criterion depending on their relevance to the scope of employee

responsibilities except for C6 where there are no sub-criteria as the main criterion alone is sufficient to measure the corresponding performance.

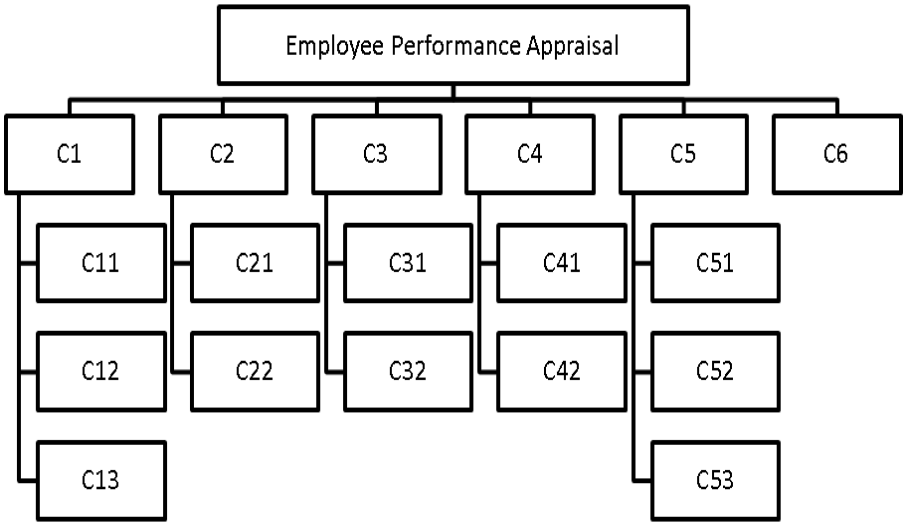

Figure 1. The hierarchy of the criteria and sub-criteria of the evaluation process

The list of criteria and sub-criteria and their meaning have been presented in Table 2.

Table 2. Criteria and sub-criteria of the performance appraisal process

Criteria	Sub-criteria	Meaning
Services (C1)	Work Completion (C11)	Completes the work as per work schedule without any delay/error. Housekeeping after completion of work.
	Commitment (C12)	Supports unscheduled work requests or an urgent request from a customer. Response time for critical operations supports required.
	Multitasking (C13)	Able to support other departments during urgency. Able to perform work beyond the specified job description. Able to arrange resources to deliver critical work.

Criteria	Sub-criteria	Meaning
Quality (C2)	Skills (C21)	Minimal supervision. Development of a new test method. Ability to learn new test methods. Laboratory/field skills in sampling and testing. New skill acquired. Equipment/chemical handling skills. Overall performance on precision and bias.
	Compliance with ISO 17025 (C22)	Conformity to ISO 17025 laboratory quality management system during internal/ external audit. Response time to carry out corrective and preventive action on Non-Conformity Records (NCR).
Financial (C3)	Budget (C31)	Ability to control expenses within the stipulated budget.
	Sales Target (C32)	Able to support the accounting/sales department to achieve weekly and monthly targets.
Timing (C4)	Punctuality (C41)	Punctuality to work.
	Attendance (C42)	Attendance to monthly company meetings and other internal meetings.
Teamwork/ Cooperation (C5)	Training & Development (C51)	Provide adequate training and resources to develop subordinates.
	Leisure (C52)	Commitment and support for company trips, annual dinners, fitness activities and birthday celebrations.
	Harmonious work (C53)	Maintaining harmonious and healthy work relationships with co-workers and all departments. Promote a positive and effective work environment.
Environment, Health & Safety (EHS) (C6)		Incidents frequency rate per year. Customer feedback on EHS issues. Usage of proper Personal Protective Equipment (PPE) during sampling/ testing. Commitment and contribution to EHS.

Determination of the priorities of the decision criteria and sub-criteria

An AHP questionnaire was developed to determine the priorities of the evaluation criteria. Questionnaires were distributed to the four senior managers and the Managing Director of the company. There was a briefing session on how to complete the questionnaire based on pairwise comparisons. After completion, questionnaires were collected and analyzed using the AHP

analysis tool – AHP Calc version 24.12.13 developed by Klaus D. Goepel and available online (http://bpmsg.com). This AHP analysis tool calculates the weights of the decision criteria by the relative measurement of AHP, i.e., by constructing the pairwise comparison matrix for all the criteria and computing the normalized principal right eigenvector of the matrix (Saaty & De Paola, 2017). This vector gives the priorities of the criteria. It then divides the criteria into sub-criteria and calculates the weights of these sub-criteria in the same manner. Following this, it then multiplies these priorities by the priorities of the parent criteria.

The intensity of decision criteria and sub-criteria

As per the Ratings mode of the AHP method, each sub-criterion was divided into five intensities (Excellent (E), Good (G), Average (A), Satisfactory (S), and Poor (P)). In the present work, the priorities of the intensities are reproduced from Islam and Rasad (2006) and shown in Table 3.

Table 3. The local weights of intensities

	E	G	A	S	P	Weights
E	1	3	5	6	8	0.501
G		1	3	5	6	0.262
A			1	3	5	0.133
S				1	3	0.067
P					1	0.036
CR=0.06						

Source: Islam and Rasad 2006.

These priorities were multiplied by the priority of the parent sub-criterion. Note that the weightage of the intensities could be different for different criteria. That is, the difference between Excellent and Good could vary from criterion to criterion. But in the present case study, common weights were considered for the intensities for all the criteria.

If p_i, i = 1, 2, …, m is the weight of the i^{th} main criterion, q_{ij}, i= 1, 2, …, m, j = 1, 2, …, n is the weight of the j^{th} sub-criterion of the i^{th} main criterion, then the global weight r_{kg} of the kth intensity, k = 1, 2, …,5 with respect to the sub-criterion

$$r_{kg} = p_i \times q_{ij} \times r_k \quad .... \quad (1)$$

where r_k is the local weight of the k^{th} intensity.

The same AHP Calc Version 24.12.13 was used to determine the weightage of each sub-criterion. However, this AHP tool required a minimum of three sub-criteria to perform the analysis. Therefore, sub-criteria C2, C3, and C4 were calculated manually using an Excel template.

Performance evaluation of the employees

The employee performance evaluation was carried out based on the intensity of each criterion (refer to Appendix 1) and submitted to the superior/ manager to evaluate the performance of each employee. The evaluator was briefed on each evaluation criterion. The global priorities of the intensities (as calculated using equation (1)) for an employee were added. Finally, the overall weight of each employee was calculated using the Ratings mode of the AHP. The process was repeated for all the employees and ranked them all.

DATA ANALYSIS

In this section, AHP application results on employee performance appraisal are presented. At CLSB, the present decision-making process to select the best-performing employees is based on personal judgment. Decisions are normally made based on past experience and peer recommendations. As a first step of the present AHP application process, a group decision-making method was used to identify the potential criteria and sub-criteria. A list of criteria was obtained and sorted according to importance by voting. The management initially decided to choose six criteria, as previously summarised in Table 2. However, after some discussion, the top management removed criterion C6 related to Environment, Health, and Safety (EHS). The company is moving towards ISO 14001, which specifically pertains to the Environmental Management System. Their new target is to achieve ‘zero defects’ per year and no EHS issues and complaints from customers. Therefore, this criterion is not relevant to the evaluation process. Figure 2 presents the final hierarchy of the criteria and sub-criteria of the proposed employee performance evaluation process.

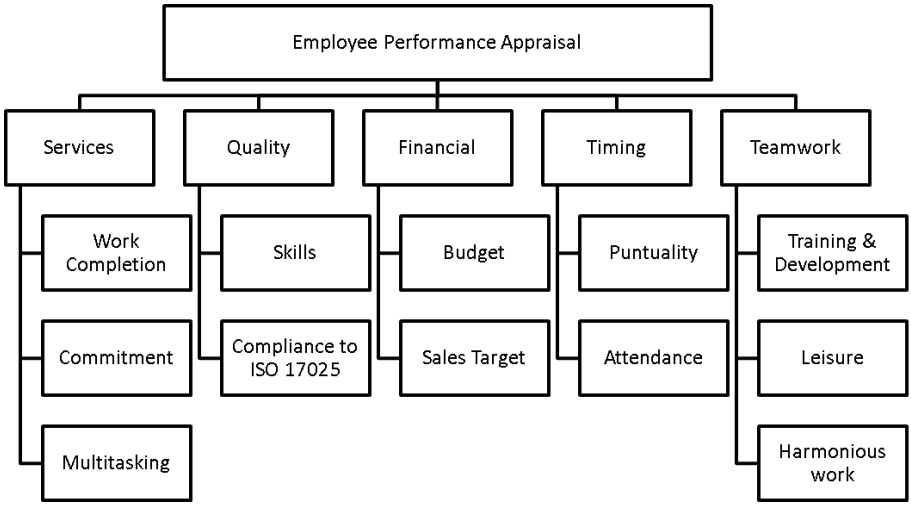

Figure 2. The hierarchy of the criteria and sub-criteria of the evaluation process

As mentioned before, AHP questionnaires were used to calculate the weight for each criterion by a panel of five respondents (four senior managers and the Managing Director). Questionnaires were initially distributed to the respondents to complete after a short briefing on AHP. In order to check how the demographical background of the experts influenced the weights of the criteria, a separate set of weights assigned by each expert was calculated, and these are provided in Table 4.

Table 4. Weights of the five main criteria for individual participants

Criteria	Managing Director	Senior Manager 1	Senior Manager 2	Senior Manager 3	Senior Manager 4
Services	0.25	0.17	0.39	0.24	0.05
Quality	0.20	0.16	0.41	0.16	0.06
Financial	0.06	0.28	0.03	0.14	0.25
Timing	0.03	0.20	0.09	0.24	0.30
Teamwork	0.46	0.20	0.08	0.22	0.34

It is noted that the Managing Director has favored Teamwork as the most important criterion for employee performance evaluation. The same view is held by the Senior Manager 4. According to the Senior Manager 1 and 3, all the criteria are almost equally important. But Senior Manager 2 considers

that the two most important criteria for employee performance evaluation are Quality and Services. But, in this work, the Geometric Mean method (Saaty & Peniwati, 2008) was used to combine the group judgements.

In calculating the weights by AHP Calc version 24.12.13, we found a consistency ratio (CR) of 14.9%, which shows that respondents were not consistent in their pairwise comparisons. Perhaps they are new to AHP questionnaires. Therefore, we chose the interview method to complete the AHP questionnaires, from which we managed to achieve a consistency ratio of CR: 0.6%, which was deemed to be acceptable. In the interview process, the participants had the opportunity to review their previously articulated judgements.

The calculated weights of the criteria and sub-criteria are summarised in Table 5. The rank of the criteria and sub-criteria were also determined and communicated to the employees. An Excel-based AHP software screenshot for the calculation of weights is shown in Figure 3.

Table 5. Criteria and sub-criteria weights

Criteria	Weight	Rank	Sub-criteria		Weight	Overall Weight	%	Rank
Services	0.221	2	Work Completion	C_{11}	0.304	0.067	6.72	8
			Commitment	C_{12}	0.434	0.096	9.59	4
			Multitasking	C_{13}	0.262	0.058	5.79	11
Quality	0.206	3	Skills	C_{21}	0.679	0.140	13.98	2
			Compliance with ISO 17025	C_{22}	0.321	0.066	6.62	9
Financial	0.140	5	Budget	C_{31}	0.498	0.070	6.97	7
			Sales Target	C_{32}	0.502	0.070	7.03	6
Timing	0.160	4	Punctuality	C_{41}	0.629	0.101	10.06	3
			Attendance	C_{42}	0.371	0.059	5.94	10
Teamwork/ Cooperation	0.273	1	Training & Development	C_{51}	0.307	0.084	8.38	5
			Leisure	C_{52}	0.135	0.037	3.69	12
			Harmonious work	C_{53}	0.558	0.152	15.23	1
Total	1.000				5.000	1.000	100	

From the data analysis, the teamwork/cooperation criterion scored highest, with a weightage of 0.273, followed by services (0.221) and quality (0.206). Meanwhile, financial contribution possesses the lowest rank, with a weightage of 0.140. This was in contrast with the Managing Director's expectation, as he ranked quality and services higher. The other four senior managers rated teamwork equally important to quality and services. After the discussion, the team agreed on the overall weightage of the sub-criteria. The next task was to rate each employee without bias or favor. With the help of the human resource manager, rubrics for each intensity were created,

which facilitated the performance evaluation process for each individual employee (Refer to Appendix 2).

The last step was to pick one employee and measure his/her performance with respect to all the criteria. Table 6 provides the rating for each employee with respect to each sub-criterion. Table 7 provides the overall synthesized data and overall score for each employee. The overall ranking of the employees is presented in Table 8, which shows the Ideal score of each employee with respect to the best-performing employee. From the global weight (score), employee SG scored the highest (0.3630), followed by PO (0.3601), SF (0.3481), VI (0.3436) and the lowest score is for UT (0.1530). The Managing Director requested not to reveal the actual names of the employees in this paper to maintain confidentiality.

From the analysis, employee SG scored Excellent for commitment, skills, punctuality, attendance, and training and development. This enabled him/her to obtain a high score, and he/she was subsequently rewarded as the best employee. This finding is in contrast with the existing traditional approach adopted in the company for selecting the best employees. The best employee, according to the perception of the Managing Director based on the traditional approach, is DK. However, employee DK only scored rank 5 in this AHP exercise. Nevertheless, the Managing Director agreed with the findings from the AHP method as he regarded it as more systematic, scientific and covered many aspects of the evaluation process. Discussions with senior managers showed that persons ranked 1 – 4 did not report directly to the Managing Director, and he was often unaware of their actual contribution or performance. Therefore, using the traditional method for performance appraisal could lead to bias, which may lead to low morale among otherwise high-performing employees.

Employee UT, who obtained the lowest score, only managed to get an average rating for many criteria. This is possible as this employee joined the company recently and is yet to acquire the necessary skills and knowledge to perform the job. The human resource manager has already identified the weakness of the low-performing employees. This group of employees will be paid more attention, and further training will be provided to help develop their potential.

AHP Analytic Hierarchy Process (EVM multiple inputs)

K. D. Goepel Version 12.08.2013 http://bpmsg.com

Only input data in the light green fields and worksheets!

n=	5	Number of criteria (3 to 10)	Scale:	1	Linear
N=	5	Number of Participants (1 to 20)	α:	0.1	Consensus: 64.3%
p=	0	selected Participant (0=consol.)	2	7	Consolidated

Objective: Employee Performance Evaluation

Author: Nagendran

EVM check: 7.17858E-09

Table	Criterion	Comment	Weights	Rk
1	Services		22.1%	2
2	Quality		20.6%	3
3	Financial		14.0%	5
4	Timing		16.0%	4
5	Teamwork		27.3%	1
6				
7				
8				
9		for 9&10 unprotect the input sheets and expand the		
10		question section ("+" in row 66)		

Result					
	Eigenvalue			lambda:	5.029
	Consistency Ratio	0.37	GCI: 0.02	CR:	0.6%

Matrix		Services 1	Quality 2	Financial 3	Timing 4	Teamwork 5	0 6	0 7	0 8	0 9	0 10	normalized principal Eigenvector
Services	1	-	1 1/4	1 2/7	1 3/7	5/6	-	-	-	-	-	22.09%
Quality	2	4/5	-	1 1/2	1 4/7	5/7	-	-	-	-	-	20.65%
Financial	3	7/9	2/3	-	3/4	1/2	-	-	-	-	-	13.95%
Timing	4	5/7	5/8	1 1/3	-	2/3	-	-	-	-	-	15.98%
Teamwork	5	1 1/5	1 2/5	2 1/9	1 5/9	-	-	-	-	-	-	27.33%
0	6	-	-	-	-	-	-	-	-	-	-	0.00%
0	7	-	-	-	-	-	-	-	-	-	-	0.00%
0	8	-	-	-	-	-	-	-	-	-	-	0.00%
0	9	-	-	-	-	-	-	-	-	-	-	0.00%
0	10	-	-	-	-	-	-	-	-	-	-	0.00%

Figure 3. Excel-based AHP software screenshot for computation of weights of the main criteria

Table 6. Rating for each employee

		C_1			C_2		C_3		C_4		C_5		
No	**Name**	C_{11}	C_{12}	C_{13}	C_{21}	C_{22}	C_{31}	C_{32}	C_{41}	C_{42}	C_{51}	C_{52}	C_{53}
1	NR	G	E	G	G	A	G	E	E	E	A	A	A
2	SY	A	G	G	E	S	S	A	E	E	A	E	G
3	DK	E	E	E	G	A	S	G	G	G	G	E	G
4	DY	G	G	G	A	S	E	G	E	E	A	G	G
5	WH	G	G	G	G	A	E	G	A	A	A	G	G
6	GW	G	G	G	A	A	E	G	E	E	A	E	G
7	KA	S	G	G	A	A	A	A	E	E	E	G	A
8	MD	A	A	A	A	A	P	A	G	E	G	G	G
9	PO	G	E	A	E	G	A	G	E	E	E	G	G
10	VI	E	A	A	G	G	A	A	E	E	E	E	E
11	AS	S	A	A	S	S	A	G	E	E	E	E	G
12	SU	A	A	A	S	S	A	G	G	G	E	G	G
13	NF	G	G	G	G	G	S	G	G	E	G	G	G
14	NA	A	A	E	E	G	P	G	P	S	E	E	G
15	SF	E	E	E	E	E	G	G	G	S	E	A	A
16	SG	G	E	G	E	G	S	G	E	E	E	G	G
17	UT	A	A	A	A	A	S	G	A	A	G	G	A
18	HZ	G	G	G	G	A	A	G	E	E	E	A	G
19	KH	A	A	G	A	A	S	G	G	G	G	G	A
20	MU	G	A	A	G	G	S	G	S	G	E	G	G

Table 7. Synthesis of the individual scores and overall score of each employee

		C_1			C_2		C_3		C_4		C_5			**Score**
No		C_{11}	C_{12}	C_{13}	C_{21}	C_{22}	C_{31}	C_{32}	C_{41}	C_{42}	C_{51}	C_{52}	C_{53}	
	Weight →	**0.067**	**0.096**	**0.058**	**0.140**	**0.066**	**0.070**	**0.070**	**0.101**	**0.059**	**0.084**	**0.037**	**0.152**	
1	NR	0.262	0.501	0.262	0.262	0.133	0.262	0.501	0.501	0.501	0.133	0.133	0.133	**0.2962**
2	SY	0.133	0.262	0.262	0.501	0.067	0.067	0.133	0.501	0.501	0.133	0.501	0.262	**0.2874**
3	DK	0.501	0.501	0.501	0.262	0.133	0.067	0.262	0.262	0.262	0.262	0.501	0.262	**0.3015**
4	DY	0.262	0.262	0.262	0.133	0.067	0.501	0.262	0.501	0.501	0.133	0.262	0.262	**0.2751**
5	WH	0.262	0.262	0.262	0.262	0.133	0.501	0.262	0.133	0.133	0.133	0.262	0.262	**0.2387**
6	GW	0.262	0.262	0.262	0.133	0.133	0.501	0.262	0.501	0.501	0.133	0.501	0.262	**0.2883**
7	KA	0.067	0.262	0.262	0.133	0.133	0.133	0.133	0.501	0.501	0.501	0.262	0.133	**0.2429**
8	MD	0.133	0.133	0.133	0.133	0.133	0.036	0.133	0.262	0.501	0.262	0.262	0.262	**0.1963**

		C_1			C_2		C_3		C_4		C_5			Score
No		C_{11}	C_{12}	C_{13}	C_{21}	C_{22}	C_{31}	C_{32}	C_{41}	C_{42}	C_{51}	C_{52}	C_{53}	
	Weight →	**0.067**	**0.096**	**0.058**	**0.140**	**0.066**	**0.070**	**0.070**	**0.101**	**0.059**	**0.084**	**0.037**	**0.152**	
9	PO	0.262	0.501	0.133	0.501	0.262	0.133	0.262	0.501	0.501	0.501	0.262	0.262	**0.3601**
10	VI	0.501	0.133	0.133	0.262	0.262	0.133	0.133	0.501	0.501	0.501	0.501	0.501	**0.3436**
11	AS	0.067	0.133	0.133	0.067	0.067	0.133	0.262	0.501	0.501	0.501	0.501	0.262	**0.2470**
12	SU	0.133	0.133	0.133	0.067	0.067	0.133	0.262	0.262	0.262	0.501	0.262	0.262	**0.2044**
13	NF	0.262	0.262	0.262	0.262	0.262	0.067	0.262	0.262	0.501	0.262	0.262	0.262	**0.2626**
14	NA	0.133	0.133	0.501	0.501	0.262	0.036	0.262	0.036	0.067	0.501	0.501	0.262	**0.2670**
15	SF	0.501	0.501	0.501	0.501	0.501	0.262	0.262	0.262	0.067	0.501	0.133	0.133	**0.3481**
16	SG	0.262	0.501	0.262	0.501	0.262	0.067	0.262	0.501	0.501	0.501	0.262	0.262	**0.3630**
17	UT	0.133	0.133	0.133	0.133	0.133	0.067	0.262	0.133	0.133	0.262	0.262	0.133	**0.1530**
18	HZ	0.262	0.262	0.262	0.262	0.133	0.133	0.262	0.501	0.501	0.501	0.133	0.262	**0.2980**
19	KH	0.133	0.133	0.262	0.133	0.133	0.067	0.262	0.262	0.262	0.262	0.262	0.133	**0.1811**
20	MU	0.262	0.133	0.133	0.262	0.262	0.067	0.262	0.067	0.262	0.501	0.262	0.262	**0.2290**

Table 8. Ranking for each employee

Name	Overall score	Ideal score	Rank
SG	0.3630	1.0000	1
PO	0.3601	0.9920	2
SF	0.3481	0.9589	3
VI	0.3436	0.9465	4
DK	0.3015	0.8306	5
HZ	0.2980	0.8209	6
NR	0.2962	0.8159	7
GW	0.2883	0.7942	8
SY	0.2874	0.7917	9
DY	0.2751	0.7578	10
NA	0.2670	0.7355	11
NF	0.2626	0.7234	12
AS	0.2470	0.6804	13
KA	0.2429	0.6691	14
WH	0.2387	0.6575	15
MU	0.2290	0.6308	16
SU	0.2044	0.5630	17
MD	0.1963	0.5407	18
KH	0.1811	0.4988	19
UT	0.1530	0.4215	20

CONCLUSIONS

Evaluating employees' performance is an important function for every organization. Often, performance evaluation results are used for a year-end bonus, promotion, confirmation in service, salary increments, and identifying employee training needs. Hence, a systematic and effective performance evaluation system is deemed necessary for every organization. A simple and effective appraisal system that emphasizes the continuous development of human capital will increase the organization's productivity and contribute to better organizational performance. The details of the whole assessment method being used, including the criterion and sub-criterion as well as the weight of each criterion, need to be communicated to the employees at the beginning of the year/assessment calendar. The poor-performing employees need to be identified, and further coaching and training need to be provided to the respective employees so that they can perform better in the future. Managers need to be trained on how to carry out assessments objectively without personal bias or influences. The high-ranking employees also need to be rewarded adequately.

Previously, at CLSB, the employee performance evaluation exercise was complicated when managers had their own ways of evaluating performance, and the process was not standardized throughout the organization. A number of bias factors were inherent in the system, and employees who scored low used to feel that the entire system was flawed. But the present AHP application was successfully used to evaluate employee performance and to rank all the employees at CLSB. After identifying the criteria and sub-criteria, weights were assigned to them in a systematic way following a scientific procedure. In addition to this, the performance of each employee was evaluated using the rubrics solely developed for the present evaluation exercise. This addresses the achievement of the main aim of the present research. The major contribution of the study is developing a complete tool (criteria, sub-criteria, weighting scheme and rubrics) for employee performance evaluation. This tool will alleviate many of the pitfalls that surround the performance evaluation exercise.

However, over time, weaknesses may occur in every system. Therefore, the decision criteria and evaluation mechanism should be closely monitored. Feedback from employees needs to be collected to identify any potential weaknesses in the system. The employee performance system should be continuously reviewed and enhanced to meet organizational objectives. It is also important to note that the criteria and sub-criteria weights may vary over time, in particular, more so when the goal of the organization changes. Therefore, the present ranks of the employees may change if the criteria

and sub-criteria weights change. Therefore, a detailed Sensitivity Analysis can be carried out to observe the ranks at the differential weighting scheme for the criteria and sub-criteria. The main limitation of the study is that the tool is developed only for CLSB. Therefore, before applying the tool to other organizations, necessary modifications should be made.

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Appendix 1. Employee Performance Evaluation Form

Name: Department:

Date:

No	Criteria	Subcriteria	Meaning	Poor	Satisfactory	Average	Good	Excellent
1	Services	Work Completion	Completes the work as per the work schedule without any delay/ error. Housekeeping after completion of work.					
		Commitment	Supports unscheduled work requests or urgent requests from customers. Response time for critical operations supports required.					
		Multitasking	Able to support other departments during urgency. Able to perform work beyond the specified job description. Able to arrange resources to deliver critical work.					
2	Quality	Skills	Minimal supervision. Development of a new test method. Ability to learn new test methods. Laboratory/ field skills in sampling and testing. New skill acquired. Equipment/ chemical handling skills. Overall performance on precision and bias.					
		Compliance with ISO 17025	Conformity to ISO 17025 laboratory quality management system during internal/ external audit. Response time to carry out corrective and preventive action on Non-Conformity Records (NCR).					
3	Financial	Budget	Ability to control expenses within the stipulated budget.					
		Sales Target	Able to support the accounting/ sales department to achieve weekly and monthly targets.					
4	Timing	Punctuality	Punctuality to work.					
		Attendance	Attendance to monthly company meetings and other internal meetings.					
5	Teamwork/ Cooperation	Training & Development	Provide adequate training and resources to develop subordinates.					
		Leisure	Commitment and support for company trips, annual dinners, fitness activities and birthday celebrations					
		Harmonious work	Maintaining harmonious and healthy work relationships with co-workers and all departments. Promote a positive and effective work environment.					

Evaluated by Reviewed by

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Appendix 2. Rubrics for each sub-criterion of an employee performance evaluation exercise

Subcriteria	Intensity	Level of performance
Work completion (C11)	Poor (P)	Work completion with delay and error more than ten times a month. Repeat the same mistake more than five times in a month. 100% bad record in error file for all months.
	Satisfactory (S)	Work completion with delay and error more than seven times a month. Repeat the same mistake more than three times in a month. Bad record in error file for all months.
	Average (A)	Work completion with delay and error more than five times a month. Repeat the same mistake two times in a month. Bad record in error file for all months.
	Good (G)	Work completion without delay and error. Not repeat the same mistake in a month. No bad record in the error file for all months.
	Excellent (E)	Work completion is perfect, and no delays and errors in any job. Not repeat the same mistake in a month. No bad record in the error file for all months.
Commitment (C12)	Poor (P)	Only focus on own daily routine. Does not give importance to extra work or urgent work first. No work for overtime to complete the job on time. Not trying to learn in other jobs. Does not follow an unscheduled job, for example, throwing rubbish, removing dead animals and insects from the office or inside, and repairing some problem at the office.
	Satisfactory (S)	Only focus on own daily routine. Does not give importance to extra work or urgent work first. No work for overtime to complete the job on time. Try to follow an unscheduled job, for example, throwing rubbish, removing animals and dead insects from the office or inside, or repairing some problem at the office.
	Average (A)	Good in own job and try to learn to different work. Can complete own or different urgent job on time. Follow the work schedule. Mostly follow an unscheduled job, for example, throwing rubbish or repairing a problem at the office after HR gives instructions.
	Good (G)	Always can complete own job and also can do a different urgent job on time. Follow the work rotation. Always follow an unscheduled job, for example, throw rubbish, remove animals and dead insects from the office or inside, or repair some problem at the office after HR gives instructions.
	Excellent (E)	perfection in own job and different jobs, and able to complete the urgent job on time without error. Perfection to follow own job and complete on time. The entire time follows an unscheduled job, for example, throwing rubbish, removing animals and dead insects from the office or inside, and repairing some problem at the office without HR giving instructions to do that repair work.

Subcriteria	Intensity	Level of performance
Multitasking (C13)	Poor (P)	Always giving reason to ignore to learn new work. Does not take responsibility for learning or knowing extra work. Always routine the same work. Simply ignore attending training.
	Satisfactory (S)	Try to learn new work, but 80% fail when testing. Does not take responsibility for learning or knowing extra work. Always routine the same work. 50% attend training and try to follow the training skills.
	Average (A)	Try to learn new work, but 40% fail when testing. Interest in extra work learning. Always routine the same work. 80% attend training and apply new skills in their daily routine.
	Good (G)	Always alert and solve an extra work problem. Interest in extra work learning. Always routine the same work. 80% attend training and apply new skills in their daily routine.
	Excellent (E)	Easily can find the solution and solve in different department job, for example, communicate and clear customer doubt. Interest in extra work learning. Always routine the same work. 100% attend training and apply new skills in their daily routine.
Skills (C21)	Poor (P)	No interest in learning or studying about the job. Not able to learn for new work. Minimal education and interest in own and different jobs. Minimal knowledge and experience in own job. Not able to explain about own job and deal with customers.
	Satisfactory (S)	No interest in learning or studying about the job. Try to learn or study for a new job. Less education and interest in own and different job. Less knowledge and experience in own job. Try to explain about own job but not perfect and deal with customers.
	Average (A)	Interest in learning or studying about the job. Have education and interest in own and different job. Have knowledge and experience in own job. Able to explain about own job and deal with customers.
	Good (G)	Good in learning or studying the job. Have education and interest in own and different job. Have knowledge and experience in own job. Able to explain about own job and deal with customers.
	Excellent (E)	High knowledge and experience in one department. Able to complete all work without error. Have education and interest in own and different job. Have knowledge and experience in own job. Perfect explanation about the job to customers.

Subcriteria	Intensity	Level of performance
Compliance with ISO 17025 (C22)	Poor (P)	No perfect answer and no good response. Does not complete the work on time. Does not follow the correct format or instruction. Last minutes preparation for audit. Absent on an important day.
	Satisfactory (S)	Try to give a perfect answer and a good response but fail. Completed the work on time but not in the correct way. Does not follow the correct format or instruction. Last minutes preparation for audit.
	Average (A)	Sometimes give a perfect answer and a good response. Completed the work on time. Follow the correct format and instructions. Early preparation for audit.
	Good (G)	Frequently give a perfect answer and a good response. Completed the work on time and with no delay. Follow the correct format or instructions. Early preparation for audit.
	Excellent (E)	Always give a perfect answer and a good response. Completed the work on time and with no delay. Follow the correct format or instructions. Early preparation for audit. Keep perfect records for auditing.
Budget (C31)	Poor (P)	Does not try to use recycled paper. Not responsible for taking care of equipment when testing at lab or job. Have a record for breaking the equipment more than ten times a year and a big loss for the company. Does not save electricity and always requests stationery. Does not inform and wait for other staff to send the equipment to the service centre.
	Satisfactory (S)	Try to repair the equipment or some problem at the office by own self. Save electricity and water. Have a record for breaking the equipment ten times a year and a big loss for the company. Less request the paper clips. Inform and wait for other staff to send the equipment to the service centre.
	Average (A)	Alert and careful when handling the equipment at the lab and side jobs. Save electricity and water. Have a record for breaking the equipment five times a year and less loss for the company. Able to save electricity or extra work at the office. Inform and try sending the equipment to the service centre.
	Good (G)	Alert and careful when handling the equipment at the lab and side jobs. Save electricity and water. Have a record for breaking the equipment three times a year and less loss for the company. Able to save electricity or extra work at the office Inform and send the equipment for services at the service centre by own self.
	Excellent (E)	Perfect skills in handling the equipment at the lab and side job. Always save electricity and water. No record of breaking equipment. Able to save electricity electric or extra work at the office Inform and send the equipment for services at the service centre by own self.

Subcriteria	Intensity	Level of performance
Sales target (C32)	Poor (P)	Contribution to company monthly sales of less than RM 5,000
	Satisfactory (S)	Contribution to company monthly sales of less than RM 10,000
	Average (A)	Contribution to company monthly sales of less than RM 20,000
	Good (G)	Contribution to company monthly sales of less than RM 30,000
	Excellent (E)	Contribution to company monthly sales above RM 30,000
Punctuality (C41)	Poor (P)	Late in more than 15 times a month of 30 minutes without notice. Late in and not informed management more than 15 times a month. Early out without information to the management and no proof. Late in but early out 15 times a month.
	Satisfactory (S)	Late in more than ten times a month of 30 minutes without notice. Late in and not informed the management more than ten times a month. Early out without inform to management and no proof more than ten times. Late in but early out more than ten times a month.
	Average (A)	Late in more than five times a month of 30 minutes without notice. Late in and not informed to the management more than five times a month. Early out without inform to management and no proof more than five times. Late in but early out more than five times a month.
	Good (G)	Late in less than five times a month of 30 minutes without notice. Late in and not informed to the management less than five times a month. Early out without inform to management and no proof less than five times. Late in but early out less than five times a month.
	Excellent (E)	No record for late in and early out.
Attendance (C42)	Poor (P)	No record of attendance at monthly company meetings and internal meetings.
	Satisfactory (S)	Less record of attendance at monthly company meetings and internal meetings.
	Average (A)	Average record of attendance at monthly company meetings and internal meetings.
	Good (G)	Good record of attendance at monthly company meetings and internal meetings.
	Excellent (E)	The perfect record of attending monthly company meetings and internal meetings.
Training & Development (C51)	Poor (P)	Does not attend training and has no improvement.
	Satisfactory (S)	Less attention to training and no improvement.
	Average (A)	Less attention on training and less improvement.
	Good (G)	Good attention to training and good improvement.
	Excellent (E)	Best attention and best improvement.
Leisure (C52)	Poor (P)	Zero per cent attendance and no attention to outdoor company activity.
	Satisfactory (S)	30% attend and involve in outdoor company activities.
	Average (A)	50% attend and involve in outdoor company activities.
	Good (G)	80% attends and plan for new outdoor activity all the time.
	Excellent (E)	100% attends and involves in all the company's outdoor activities.

Subcriteria	Intensity	Level of performance
Harmonious work (C53)	Poor (P)	Not involved in group discussion. 10% involvement in teamwork.
	Satisfactory (S)	Minor involvement in group discussion. 40% involvement in teamwork.
	Average (A)	Good communication in group discussions. 60% good involvement in teamwork.
	Good (G)	Good communication in group discussions and getting new ideas. 80% good involvement in teamwork.
	Excellent (E)	Good communication in group discussions and getting new ideas. 100% good involvement in teamwork.

Abstrakt

CEL: *Ocena wyników pracowników jest powszechnym zadaniem przeprowadzanym w wielu organizacjach. Pracownicy muszą znać informacje zwrotne od kierownictwa na temat ich wyników. Często wyniki ocen pracowniczych są wykorzystywane do awansów, potwierdzania stażu i przyznawania premii dla pracowników. Jednak ocena wyników często spotyka się z krytyką ze względu na obecność czynników subiektywnych, a zwłaszcza sposób, w jaki te czynniki są traktowane. Celem niniejszego artykułu jest pokazanie, w jaki sposób tryb Oceny Procesu Hierarchii Analitycznej (AHP) może być zastosowany do oceny wydajności pracowników przy użyciu zarówno obiektywnych, jak i subiektywnych kryteriów.* ***METODYKA:*** *AHP dla obecnej oceny wydajności pracowników zostało pokazane na przykładzie CLSB, firmy z Kuala Lumpur w Malezji. Czterech kierowników wyższego szczebla i dyrektor zarządzający firmy byli zaangażowani we wszystkie etapy niniejszej oceny, w tym w określenie kryteriów, podkryteriów i przypisanie im wag. Dane AHP analizowano za pomocą oprogramowania o nazwie AHP Calc wersja 24.12.13 opracowanego przez Klausa D. Goepela i dostępnego online. W szczególności do oceny wyników pracowników w CLSB wykorzystano tryb ocen AHP.* ***WYNIKI****: Pięć kryteriów, a mianowicie usługi, jakość, finanse, czas i praca zespołowa, zostało uznanych za ważne dla oceny wyników pracowników w CLSB. Każde z tych kryteriów ma kryteria podrzędne. Harmonijna praca, Umiejętności i Punktualność to trzy najważniejsze kryteria podrzędne niniejszej oceny. Wynikiem ćwiczenia ewaluacyjnego jest uporządkowany zestaw rankingów 20 pracowników zatrudnionych w firmie. Oprócz zastosowania AHP do oceny osiągnięć opracowano uporządkowany zestaw szczegółowych rubryk dla wszystkich kryteriów. Rubryki dostarczają ewaluatorom precyzyjnych wskazówek w momencie oceny wyników pracowników.* ***IMPLIKACJE:*** *Program ewaluacji, który jest naukowy i systematyczny, taki jak obecny, zminimalizuje krytykę nałożoną na ocenę wyników. Kiedy pracownicy będą świadomi ustalonych kryteriów i podkryteriów wraz z powiązanym schematem ważenia i samego procesu oceny, będą zmotywowani do wykonywania swoich zadań i odpowiedniego wykonywania swoich obowiązków. W związku z tym oczekuje się, że zadowolenie z pracy i produktywność pracowników wzrosną. Poprawi to nie tylko morale pracowników, ale także ogólną wydajność organizacji.* ***ORYGINALNOŚĆ I WARTOŚĆ****: W literaturze dostępnych jest wiele schematów oceny wyników pracowników. Często jednak metody te spotykają się z krytyką, ponieważ albo traktują wszystkie kryteria oceny jako równie ważne, albo nie po-*

trafią znaleźć równowagi między czynnikami obiektywnymi i subiektywnymi. Głównym wkładem niniejszej pracy jest pokazanie, w jaki sposób AHP może złagodzić powyższe wady istniejących metod. W niniejszej pracy badawczej opracowano metodę oceny wydajności, która jest prosta i jednoznaczna, a szczegółowe kroki zostały opracowane, w jaki sposób metoda może być faktycznie zastosowana do pomiaru wydajności pracowników. Metodę można zastosować do pomiaru wydajności pracowników innych firm po niezbędnej modyfikacji ustalonych kryteriów i nadaniu im odpowiednich wag.
Słowa kluczowe: *wydajność pracowników, ocena wyników pracowników, nagroda, potrzeba szkolenia, AHP.*

Biographical notes

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Conflicts of interest

The authors declare no conflict of interest.

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