



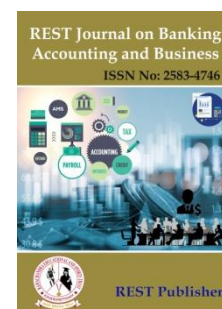
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Analyzing Corporate Social Responsibility Performance with the Weighted Product Model Method

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Abstract: Corporate Social Responsibility (CSR), frequently abbreviated as CSR, is set to assume a crucial role in corporate reporting. It has become customary for all companies to establish CSR policies and create annual reports outlining their CSR activities. This approach aids in distinguishing between socially responsible behaviors and those lacking in social responsibility, simplifying their identification. Presently, CSR is recognized as a sophisticated and globally accepted concept that has systematically evolved and developed. It has emerged as a universally acknowledged language and perspective that is increasingly gaining significance. In today's context, stakeholders are expected to prioritize more than just profit generation and compliance with legal requirements; companies are also anticipated to demonstrate a commitment to business growth alongside their CSR endeavors. CSR has now become an integral aspect of modern business operations. Regarding its social impact, CSR research serves as a tool to understand how businesses influence society and the contributions they make. This research investigates how businesses champion sustainable practices, address social and environmental issues, and contribute to enhancing local communities. By scrutinizing CSR initiatives and their outcomes, research sheds light on the positive influence corporations can have on society. Stakeholder engagement is a central focus of CSR research, underscoring the importance of involving diverse stakeholders such as employees, customers, suppliers, local communities, and investors. This study examines how businesses engage with and react to these stakeholders, aiming to foster collaboration, transparent communication, and the establishment of trust. By nurturing stronger relationships and exploring effective stakeholder engagement strategies, businesses can enhance their social acceptance and credibility. Sustainability stands as a central pillar of CSR research, significantly contributing to the advancement of sustainable business practices. This research explores how companies integrate resource efficiency, environmental considerations, and measures to address climate change into their day-to-day operations. By identifying successful sustainability initiatives, CSR research helps shape best practices and facilitates the transition toward a more sustainable economy. The Weighted product model (WPM), initially introduced by Deng to tackle challenges in Multiple Criteria Decision Making (MCDM), provides a framework that examines the sequential relationships, data types, and geometric patterns among measurable impacts in a communication evaluation model. In this specific context, the alternatives being considered are Community relations, Diversity aspects, Employee relations, Ecological environment, and Product aspects. The evaluation parameters include Ownership by family, Ownership by founder, Ownership by mutual funds, Ownership by banks and insurance firms, Ownership by employees (ESOP), Family CEO (represented as a dummy variable), Founder CEO (also a dummy variable), Debt/equity ratio, and Return on assets. The evaluation outcomes indicate that the Founder CEO (represented as a dummy variable) achieves the highest ranking, while ownership by banks and insurance firms receives the lowest rank in the assessment.

Keywords: Social Responsibility, Ecological environment, Community relations, MCDM.

1. INTRODUCTION

In recent decades, Corporate Social Responsibility (CSR) has experienced substantial evolution, morphing into a multifaceted and intricate concept that holds an increasingly crucial role in contemporary corporate decision-making. Once confined to scholarly circles, discussions on CSR now pervade numerous corporate actions. Throughout this discussion, CSR will serve as our reference term for this business practice, now predominant in corporate reporting. CSR encompasses a company's responsibility, which spans both universal dimensions

involving the interplay among companies, governments, and global citizens, and local aspects that focus on a company's ties to the community in which it operates. An alternative perspective underscores the connection between a company and its shareholders, prioritizing individual interests over collective ones.

Corporate Social Responsibility (CSR) mirrors the concept of citizenship, yet it extends beyond meeting obligations solely to the current community, also encompassing responsibilities toward future generations. In the realm of international trade and investment, there's a push for policies fostering global sustainable development. This necessitates corporate commitment to contribute to sustainability via economic policies, addressing climate change and energy issues, implementing robust measurement systems, and practicing sustainable natural resource management. Since its inception, CSR has steadily gained prominence and significance. Today, it's not only an integral part of modern business practices but has also evolved into a universally recognized and widely accepted framework. It serves as a global language and perspective with an increasing emphasis on stakeholders. In this current era, modern businesses are expected to transcend mere profit-making and legal compliance; they're also urged to prioritize business development while upholding ethical conduct.

The shift towards emphasizing Corporate Social Responsibility (CSR) has become imperative due to the escalating prevalence of business ethics corruption. No longer limited to philanthropy, CSR now encompasses social relations and addresses issues related to illegal corporate behavior, examining their causes and remedies, which has drawn significant public attention. While economic growth has brought societal benefits, it has also led to negative consequences and exacerbated societal problems, resulting in associated costs. The financial sector, in particular, has faced notable challenges in this regard. Governments play a pivotal role in tackling these issues, with expectations for corrective actions. Businesses are increasingly allocating more resources to enhance their conduct and welfare, aiming to restore their reputation. This involves not just complying with laws and regulations but also considering the broader common good and reducing adverse externalities. In this context, CSR plays a pivotal role. Theoretical and empirical research in economics have been merged into a cohesive framework, establishing a comprehensive understanding of CSR research. This research spans various disciplines—management, political science, sociology, law, and economics—providing a unique perspective for integrated analysis. Understanding the fundamental mechanism by which corporations manage the economy and provide public goods is crucial, with the overall nature of social or environmental performance being a key consideration.

The incorporation of behavioral economics and sports principles into corporate strategies involves considering the interests of both shareholders and stakeholders, shaping strategies accordingly. This integration encompasses diverse areas such as information economics, contract theory, and the analysis of Corporate Social Responsibility (CSR), particularly in addressing information imbalances. It evaluates how CSR influences communication, employing both quantitative and experimental economic methods to understand its impact on market structures. In streamlining employee selection, the Multiple Criteria Decision Making (MCM) method is employed. This approach utilizes graphical representations, incorporating linguistic factors to describe individuals' capabilities in achieving shared organizational goals. Through a competency-based graphical system, the most suitable employee can be identified based on their overall score.

After a comprehensive analysis of gathered information, the final selection of the most suitable candidate is crucial. To improve the efficiency of this process, a step-by-step integration approach is recommended. This framework acts as a guide for personnel evaluation and selection, ensuring the appropriate matching of candidates with positions within the organization. This study primarily focuses on applying grey sets theory to human evaluation and decision-making tasks. The logic behind the Weighted Product Model (WPM) allows defining natural judgments made by our reasoning system, independent of artificial procedures, making it a valuable tool for understanding human decision-making processes. The main goal is to demonstrate how grey sets logic effectively reveals inherent uncertainties in people's actions and thought processes, particularly in personnel evaluation and selection. To address this challenge, the study introduces a method that utilizes multi-factor, competency-based metrics arranged hierarchically. This approach aims to reduce subjectivity in evaluating and selecting competent employees. The proposed WPM evaluates employee performance strategically and tactically by combining essential competencies with employee performance data. This comprehensive approach aims to improve the objectivity and efficiency of personnel evaluation and selection processes.

2. MATERIALS & METHODS

Community relations: In a business context, community relations involve establishing mutually beneficial partnerships with the communities where a company operates. These interactions aim to build strong relationships and goodwill by providing support in the form of time, financial assistance, or products. This engagement benefits not only the community but also boosts the company's reputation and social impact.

Diversity aspects: Diversity encompasses a broad spectrum of differences, spanning ethnic, socioeconomic, geographic, academic, and professional backgrounds. It encompasses variations in educational and social experiences, religious beliefs, political ideologies, sexual orientations, traditions, and life experiences. Recognizing and embracing diversity across these dimensions is crucial for nurturing inclusion and understanding in diverse social and organizational settings.

Employee relations: Employee relations, also known as industrial relations or employment relations, involve the examination of the dynamics within the employment relationship. This multidisciplinary field explores the complex interactions among employers, employees, labor unions, and government entities. It aims to comprehend and oversee various facets of the working relationship, such as employment contracts, workplace conditions, disputes, and labor rights, with the goal of fostering harmonious and efficient workplaces.

Ecological environment: An "ecosystem" is a unique biological system that includes all living organisms, including humans, along with their interactions with the environment, such as air, water, and non-living components like mineral soil. Ecosystems don't have fixed boundaries and are defined by the dynamic interconnections among different elements within them.

Product aspects: Product aspects cover a spectrum of features tied to a product, including its price, name, attributes, quality, design, and more. Traditionally linked to physical items like food or furniture, the concept of a product has expanded to encompass intangible elements such as services and ideas.

WPM Method: The Weighted Product Model (WPM) serves as a decision-making tool commonly employed in project management and procurement for supplier or contractor evaluation and selection. It involves assigning weights to diverse criteria and assessing potential suppliers or contractors based on their alignment with these criteria. WPM proves beneficial for making impartial and systematic decisions, particularly in intricate project or procurement scenarios. This method offers a structured and methodical approach for decision-makers during the selection of suppliers or contractors. The process commences with carefully identifying essential criteria, encompassing factors like cost, quality, reliability, and experience. Decision-makers then allocate weights to each criterion, denoting their relative importance, often decided through collaborative discussions among stakeholders, where higher values indicate greater significance.

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3. RESULT AND DISCUSSION

TABLE 1. Corporate social responsibility

	Community relations	Diversity aspects	Employee relations	Ecological environment	Product aspects
Ownership by family	23.24	54.36	58.73	39.53	15.42
Ownership by founder	29.12	45.13	57.13	42.97	58.43
Ownership by mutual funds	43.12	35.76	49.32	22.58	36.12
ownership by banks and insurance firms	34.75	65.45	73.13	28.28	32.14
Ownership by employees (ESOP)	28.13	71.43	51.47	36.41	43.12
Family CEO (dummy)	23.14	45.36	76.14	25.12	48.15
Founder CEO (dummy)	25.16	73.64	27.42	17.42	27.43

It seems like Table 1 presents an evaluation of Corporate Social Responsibility concerning different factors such as Community relations, Diversity aspects, Employee relations, Ecological environment, and Product aspects. The table appears to assess these CSR factors in relation to various ownership and management characteristics within an organization, considering parameters like Ownership by family, Ownership by founder, Ownership by mutual funds, Ownership by banks and insurance firms, Ownership by employees (ESOP), Family CEO (represented as a dummy variable), Founder CEO (also a dummy variable), Debt/equity ratio, and Return on

assets. This structured assessment likely explores how these CSR factors are influenced by and relate to different ownership and management attributes within the organization.

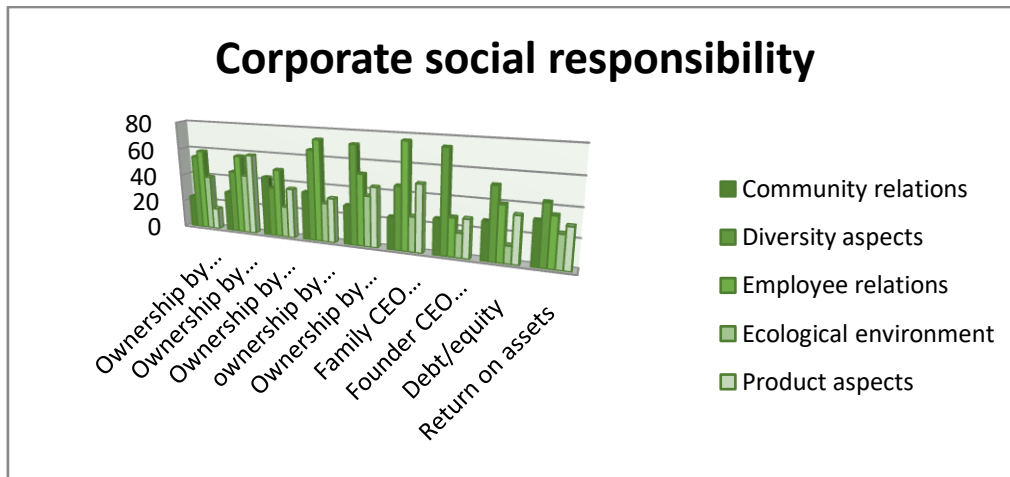


FIGURE 1. Corporate social responsibility

Figure 1 provides a comprehensive overview of Corporate Social Responsibility (CSR) factors, illustrating the comparative performance of various ownership and management attributes within CSR assessments. Notably, in the area of Community Relations, Ownership by mutual funds emerges as the leading factor, while the presence of a Family CEO (dummy) receives the lowest rating. Similarly, Diversity Aspects highlight the significant role of the Founder CEO (dummy), securing the highest rank, while Ownership by mutual funds scores the lowest. In the realm of Employee Relations, ownership by banks and insurance firms ranks highest, with Founder CEO (dummy) as the least favorable option. Within the Ecological Environment domain, Ownership by family stands out as the top performer, while Debt/equity ranks as the least favorable metric. Lastly, in Product Aspects, Ownership by the founder is the prominent leader, contrasting with Ownership by family, which records the lowest score. These findings reveal the varying impact of different ownership and management components on CSR factors, offering valuable insights into the complex landscape of corporate social responsibility.

TABLE 2. Performance value

	Community relations	Diversity aspects	Employee relations	Product aspects	Ecological environment
Ownership by family	0.53896	1.26067	1.36201	0.26391	0.44068
Ownership by founder	0.67532	1.04661	1.32491	1.00000	0.40540
Ownership by mutual funds	1.00000	0.82931	1.14378	0.61818	0.77148
ownership by banks and insurance firms	0.80589	1.51786	1.69596	0.55006	0.61598
Ownership by employees (ESOP)	0.65237	1.65654	1.19365	0.73798	0.47844
Family CEO (dummy)	0.53664	1.05195	1.76577	0.82406	0.69347
Founder CEO (dummy)	0.58349	1.70779	0.63590	0.46945	1.00000

Table 2 provides a comprehensive overview of performance metrics tied to various ownership and management structures within a company across critical categories like community relations, diversity aspects, employee relations, product aspects, and the ecological environment. The data unveils valuable insights into how each ownership and leadership type influences the company's performance. For example, ownership by mutual funds demonstrates strength across multiple categories, while companies owned by founders excel notably in product aspects. Conversely, family-owned businesses exhibit proficiency in employee relations and environmental concerns. Understanding these performance values is pivotal in making informed decisions for the company's future, considering the specific strengths and weaknesses inherent in each ownership and leadership structure.

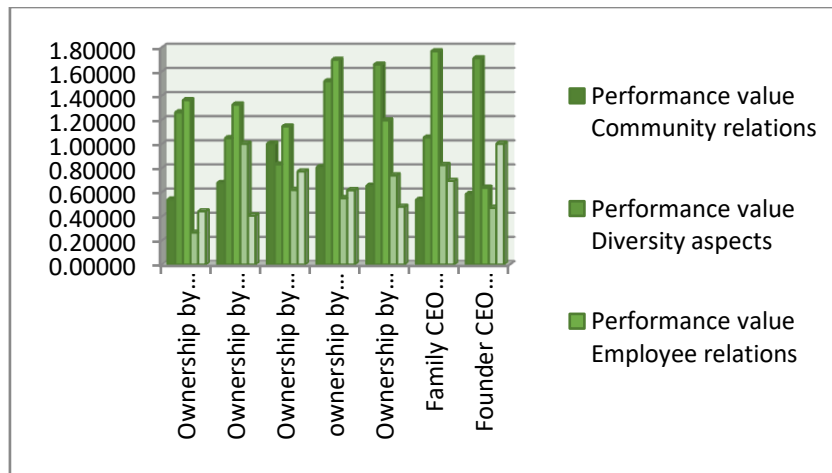


FIGURE 2. Performance value

In Figure 2, performance values are depicted across different categories for various ownership and management structures within a company. The categories evaluated encompass community relations, diversity aspects, employee relations, product aspects, and the ecological environment. The data in the figure provides insights into how these performance metrics fluctuate based on the company's ownership and leadership.

TABLE 3. Weight

	Community relations	Diversity aspects	Employee relations	Product aspects	Ecological environment
Ownership by family	0.20	0.20	0.20	0.20	0.20
Ownership by founder	0.20	0.20	0.20	0.20	0.20
Ownership by mutual funds	0.20	0.20	0.20	0.20	0.20
ownership by banks and insurance firms	0.20	0.20	0.20	0.20	0.20
Ownership by employees (ESOP)	0.20	0.20	0.20	0.20	0.20
Family CEO (dummy)	0.20	0.20	0.20	0.20	0.20
Founder CEO (dummy)	0.20	0.20	0.20	0.20	0.20

In Table 3, the weight or significance assigned to specific categories like community relations, diversity aspects, employee relations, product aspects, and the ecological environment is outlined for various ownership and management structures within a company. Each category is allocated equal weight, indicating that all these factors are considered equally important in evaluating performance and decision-making related to the respective ownership and leadership types. The equal distribution of weight across these categories suggests a balanced approach when assessing the influence of different ownership and management structures on a company's overall performance.

TABLE 4. Weighted normalized decision matrix

	Community relations	Diversity aspects	Employee relations	Product aspects	Ecological environment
Ownership by family	0.88371	1.04742	1.06374	0.76611	0.84884
Ownership by founder	0.92449	1.00915	1.05788	1.00000	0.83479
Ownership by mutual funds	1.00000	0.96326	1.02723	0.90829	0.94943
ownership by banks and insurance firms	0.95776	1.08704	1.11143	0.88732	0.90764
Ownership by employees (ESOP)	0.91812	1.10622	1.03604	0.94104	0.86291
Family CEO (dummy)	0.88295	1.01018	1.12044	0.96204	0.92941
Founder CEO (dummy)	0.89786	1.11298	0.91344	0.85964	1.00000

Table 4 provides a weighted normalized decision matrix that merges the performance values from Table 2 with the weightings from Table 3. This matrix showcases the performance scores for each ownership and management structure while considering the assigned importance or weight for each category. For instance, in the case of ownership by mutual funds, it attains a score of 1.00000 in community relations, 0.96326 in diversity aspects, 1.02723 in employee relations, 0.90829 in product aspects, and 0.94943 in the ecological environment, factoring in the equal weightings of these categories. This matrix enables a comprehensive assessment of each ownership and management structure's performance by accounting for the specific importance allocated to each

category. It aids in making informed decisions based on the weighted impact of these structures on various aspects of a company's operations.

TABLE 5. Preference Score

	Preference Score
Ownership by family	0.64030
Ownership by founder	0.82390
Ownership by mutual funds	0.85330
ownership by banks and insurance firms	0.93192
Ownership by employees (ESOP)	0.85445
Family CEO (dummy)	0.89355
Founder CEO (dummy)	0.78467

Table 5 furnishes preference scores for each ownership and management structure, derived from the weighted normalized decision matrix presented in Table 4. These scores represent the overall desirability or performance of each ownership and leadership type based on the allocated weights and actual performance values. As per the provided data, ownership by banks and insurance firms secures the highest preference score at 0.93192, signifying it as the most favored or desirable option. Following closely are ownership by employees (ESOP) with a score of 0.85445 and ownership by mutual funds with a score of 0.85330. Ownership by family records a preference score of 0.64030, while ownership by the founder has a score of 0.82390. Family CEO (dummy) attains a preference score of 0.89355, whereas Founder CEO (dummy) achieves a score of 0.78467.

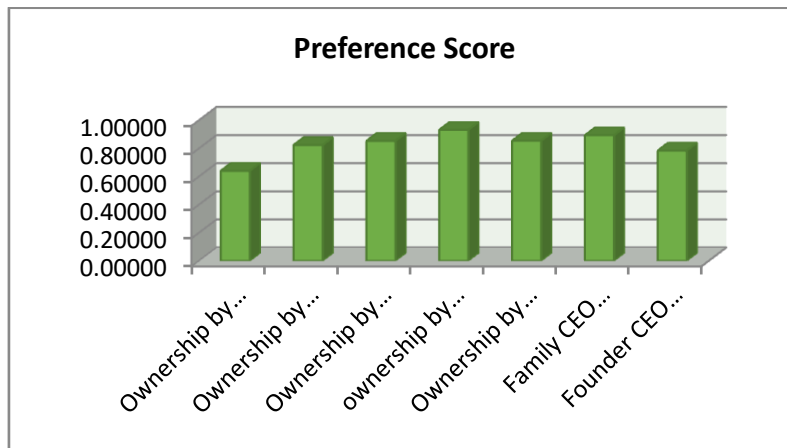


FIGURE 2. Preference Score

TABLE6.Rank

	Rank
Ownership by family	7
Ownership by founder	5
Ownership by mutual funds	4
ownership by banks and insurance firms	1
Ownership by employees (ESOP)	3
Family CEO (dummy)	2
Founder CEO (dummy)	6

Table 6 presents a succinct yet informative ranking of various ownership and management structures within a company based on their preference scores derived from the weighted and normalized decision matrix. These rankings serve as a practical tool for decision-makers, clearly delineating the order of desirability or performance for each structure. Notably, ownership by banks and insurance companies claims the top spot, signifying it as the most preferred choice. Following closely are family CEOs and ownership by employees (ESOP), ranking second and third, respectively. These rankings offer valuable insights into the impact of different ownership and leadership types on a company's performance. They can assist in informed decision-

making processes, enabling organizations to select the most suitable structure aligned with their specific goals and objectives.

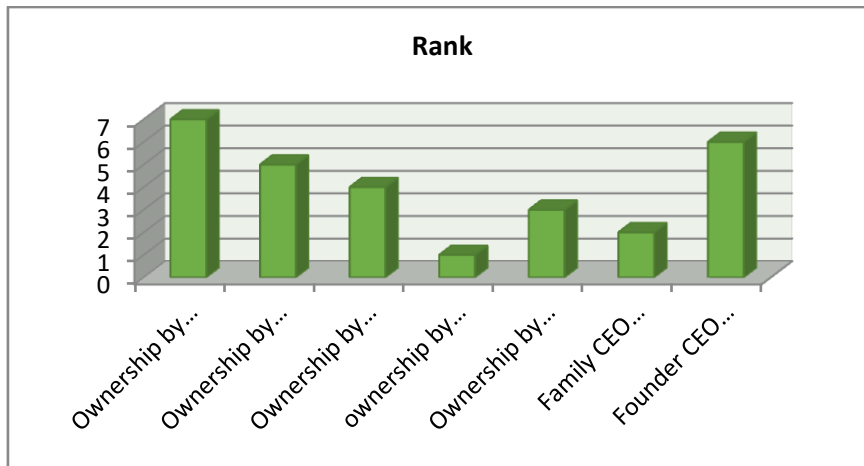


FIGURE 3. Rank

In Figure 4, the rankings of various ownership and management structures offer a distinct hierarchy based on their preference scores. Ownership by banks and insurance firms secures the top position, highlighting its strong preference as the most desirable choice. Following closely, the Family CEO (dummy) occupies the second spot, showcasing its significant impact and favorable performance within this context. Ownership by employees (ESOP) claims the third rank, indicating its considerable desirability in company structures. Ownership by mutual funds holds the fourth position, showcasing a notable level of preference. In fifth place is the Ownership by founder, followed by the Founder CEO (dummy) in sixth place. Lastly, Ownership by family concludes the rankings in the seventh position. These rankings serve as a valuable guide for decision-makers, offering a clear understanding of the comparative performance and desirability of different ownership and leadership structures within a company, aiding in strategic decision-making processes.

4. CONCLUSION

Each company crafts its Corporate Social Responsibility (CSR) policy to outline its actions and compile annual reports, crucial for differentiating ethically responsible conduct from actions that fall short of social responsibility standards. These policies ensure accountability to a broad spectrum of stakeholders in society. Social responsibility represents a fundamental principle, signifying a company's commitment to societal accountability. It forms a social contract between the company and its community, underscoring the importance of ethical and responsible business practices. CSR goes beyond immediate community concerns, holding significance for broader civil society and future generations. It encompasses various domains like economic policies, climate change initiatives, evaluation processes, standardization, and responsible resource management. Importantly, CSR isn't time-bound; it extends into the future, reflecting a commitment to sustained ethical and responsible business practices. As an international company, we prioritize the disclosure of our CSR initiatives, demonstrating our dedication to global corporate responsibility. The concept of CSR emerged post-World War II and gained momentum in the 1960s, driven by societal shifts like civil rights, women's rights, consumer advocacy, and increased environmental awareness. CSR has evolved into a sophisticated and globally acknowledged framework, serving as a universally understood language that emphasizes the crucial role of stakeholders. In the current business landscape, companies are expected to go beyond mere profit-making and legal compliance. They are increasingly urged to prioritize broader objectives that encompass economic growth while effectively implementing CSR principles. In the realm of personnel assessment and selection, the Multiple Criteria Decision Making (MCDM) technique, particularly the Weighted Product Model (WPM), emerges as a valuable tool. WPM integrates linguistic elements and aligns organizational goals with individual candidate skills to identify the most suitable employees based on their scores. Establishing a well-structured hierarchy for evaluation and selection within companies facilitates matching candidates with positions that best align with their qualifications. This underscores that WPM is particularly adept at tasks involving human judgment and decision-making. One of its key advantages lies in its ability to make judgments without rigid criteria or artificial procedures. This flexibility and adaptability render WPM invaluable in personnel evaluation and selection processes, enabling informed and nuanced decisions tailored to the specific needs and criteria of the organization.

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