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Design and Psychometric Validation of a Performance–Potential Instrument for Talent Matrix Classification

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Abstract

Although the talent matrix is widely used in organizational practice, empirical research published in indexed scientific journals remains scarce. To address this gap, the present study aims to develop and validate a survey whose scores enable the quantitative placement of employees within the talent matrix based on performance and potential. The sample consisted of 172 employees from various organizations who were assessed by middle managers. Of the participants, 64.9% were men and 35.1% were women. The study follows an instrumental research design and employs a non-probabilistic convenience sampling approach. An eight-item survey was developed, generating performance, potential, and overall scores that allow employees to be quantitatively assigned to the different categories of the talent matrix. This instrument supports the identification of organizational human capital and facilitates decisions related to promotion and succession planning. The validated instrument offers a rapid and user-friendly method for assessing employee talent at both individual and group levels, thereby supporting evidence-based human resource management decisions. The application of a quantitative assessment tool enhances perceptions of fairness within organizations, contributing to a more positive organizational climate. This study provides human resource professionals with a novel, empirically validated tool for systematically evaluating employee talent, addressing a notable gap in the existing literature.

Keywords: Talent matrix, Performance, Potential, Validation

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Introduction

The management of organizational personnel, particularly human resource planning, has become a key factor in ensuring both the sustainability and development of modern organizations. Companies are increasingly required to attract and retain individuals who are well suited to specific roles, while also identifying potential successors in advance who can be promoted when organizational needs arise, aligning career progression with both organizational objectives and employee expectations. This perspective underpins the concept of *human capital*, commonly defined as the productivity of employees as a function of their education and work experience [1]. Although Sen [2] argues that the term *human capacity* more accurately captures the broader contribution of individuals beyond purely economic outcomes, *human capital* has become the dominant concept in organizational discourse. It is widely used to describe the workforce as an organization's most valuable and fundamental resource, given its central role in driving productivity [3, 4].

Within this framework, employees are no longer regarded merely as operational costs but as strategic assets—indeed, as a primary source of competitive advantage [5]. Reflecting this shift, Work Meter [6] highlighted that talent management would

become one of the major challenges for human resource departments, emphasizing not only the recruitment of qualified candidates but, more critically, the retention of high-performing employees.

Effective personnel management therefore requires the implementation of tools, techniques, and procedures that support the identification of current capabilities and anticipate future human capital needs. In this context, career planning systems [7, 8] enable organizations to determine which roles can be filled internally and to identify employees with the competencies required to assume specific positions, thereby ensuring the achievement of organizational goals [5]. A key component of this process is the development of structured career paths and progression plans [9], which allow organizations to anticipate both vertical and horizontal employee mobility.

While such systems facilitate the identification of potential role transitions, competency-based management recognizes that employees occupying the same position may differ substantially in their levels of competence. Consequently, an additional management tool is needed to distinguish among individual levels of talent. Understanding how human capital is distributed within the organization enables more informed decisions when selecting candidates for promotion, succession, or reassignment. Talent management must therefore rely on instruments that support strategic planning and effective decision-making processes [10].

One widely used tool for this purpose is the talent matrix. Originally developed by McKinsey and later refined by General Electric in the late 1960s, the talent matrix is a two-dimensional framework that categorizes employees according to their performance and potential. Each dimension is typically divided into three levels:

- **Potential:** low, medium, and high
- **Performance:** does not meet objectives, meets objectives, and exceeds objectives

Potential refers to an individual's ability to acquire new knowledge and skills, generate innovative ideas, adapt to change, and assume new or more complex responsibilities [11]. Performance, in turn, encompasses the behaviors and competencies demonstrated by employees in carrying out their job responsibilities effectively and satisfactorily [11].

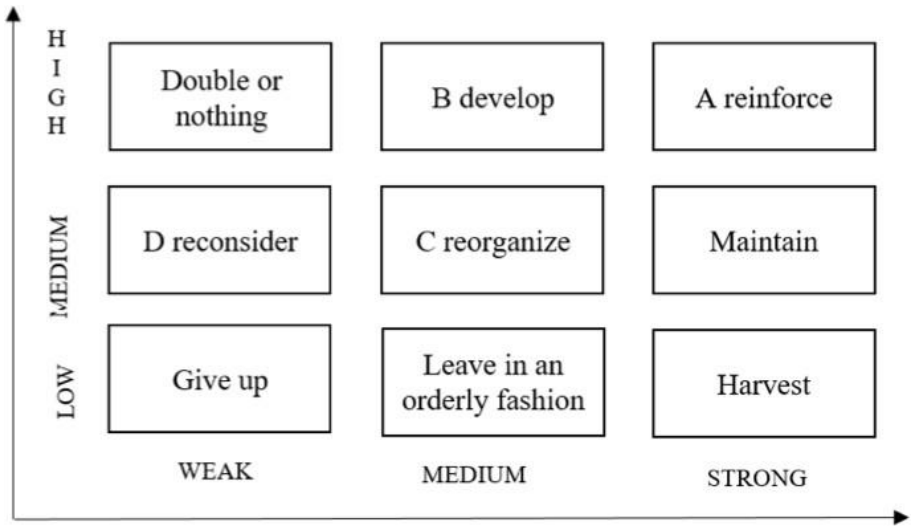

Figure 1. Mckinsey's talent matrix [10]

By combining the three levels of each of the two dimensions, nine distinct categories or cells are generated within the talent matrix. Although these categories may be labeled differently across frameworks, there is broad consensus regarding their core characteristics. According to Cuesta [10], the categories can be described as follows:

- **High Performance / High Potential:** future leaders or high-potential stars
- **Medium Performance / High Potential:** developing or emerging talent
- **High Performance / Medium Potential:** key contributors
- **High Performance / Low Potential:** latent or unclear profiles
- **Medium Performance / Medium Potential:** core or traditional contributors
- **Medium Performance / Low Potential:** trusted professionals or operational staff
- **Medium Performance / Low Potential:** employees in a dilemma or experiencing stagnation
- **Low Performance / Medium Potential:** effective but constrained employees or potential blockers
- **Low Performance / Low Potential:** detractors

Once all employees within an organization are positioned in the matrix, the proportion of staff in each category can be calculated. These distributions enable prospective analysis and support strategic decision-making based on the organization's available human capital.

Using this approach, Cuesta [10] applied the talent matrix to a financial institution and reported the resulting distribution of employees across the nine categories **(Table 1)**.

Table 1. Percentage of subjects distributed in the talent matrix boxes in the Cuesta study [10]

Potential	High		9%	17%
	Medium		62%	11%
	Low	2%		
		Low	Medium	High
			Performance	

The allocation of the 47 employees to the respective cells of the talent matrix was based on the scores obtained from a competency diagnostic instrument using a Likert-type scale. To standardize the results, a Gaussian (bell-shaped) distribution was applied, allowing for the correction of potential evaluation biases and facilitating the systematic distribution of employees across the different matrix categories.

As previously noted, the resulting distribution of personnel within the talent matrix provides a foundation for decision-making across multiple areas of human resource management, including the design of training programs, identification of recruitment and selection needs, succession planning, and the development of talent retention strategies.

Although employees may be positioned in the matrix solely based on managerial judgment, a more rigorous and objective approach involves the use of structured methods for talent identification. In this regard, WIKI-EOI [9] proposes several assessment tools, such as self-assessment questionnaires for potential identification, structured interviews, direct observation, simulations, professional testing, and analyses of person–job fit.

In parallel, the adoption of standardized, validated, and as objective as possible assessment methods yields additional organizational benefits. The use of predefined procedures and agreed-upon evaluation criteria enhances employees' perceptions of organizational fairness [12], a construct closely linked to service quality, organizational climate, workplace well-being, and employee motivation.

Organizational justice refers to employees' perceptions regarding the fairness with which resources are allocated, rewards are distributed, and interpersonal treatment is delivered by supervisors [13]. Similarly, Cropanzano *et al.* [14] define organizational justice as the extent to which organizational practices are perceived as fair according to established rules or standards. Drawing on the framework proposed by Niehoff and Moorman [15], organizational justice can be divided into three dimensions: distributive, procedural, and interactional justice. In this context, the application of the talent matrix—supported by objective assessment instruments—primarily enhances procedural justice, defined as the perceived fairness of decision-making processes [16].

According to Fernández-Losa [17], organizations seeking to maximize employee motivation must actively support the guidance and management of employees' career development. However, empirical research on the talent matrix remains limited, as evidenced by searches for terms such as "talent matrix" or "matriz del talento" in academic databases and general search engines such as Google Scholar and Google **(Table 2)**.

Table 2. Results for the concepts "matriz del talento" and "talent matrix" in the following Internet search engines (October 2017)

Concept	Google Scholar	Google
Matriz del Talento	47*	44,300
Talent matrix	107*	28,600

(*) Reference citations have been eliminated

Despite the widespread use of the talent matrix in organizational practice, empirical research published in indexed scientific journals remains limited. This gap provides the rationale for the present study, which seeks to develop and validate a survey instrument whose scores enable the quantitative positioning of employees within the talent matrix.

The study proposes two initial hypotheses: first, that the performance, potential, and overall scores obtained from the survey will correlate with employees' positions on the talent matrix (H1); and second, that these scores will be associated with the assignment of employees to the respective matrix categories or cells (H2).

This research should be complemented by future studies involving larger samples and the inclusion of additional relevant variables. Moreover, as this work represents an initial step in survey development, subsequent research should conduct both exploratory and confirmatory factor analyses to further examine the instrument's underlying structure.

One limitation identified in the present study is the limited differentiation between mean survey scores across certain matrix categories. In some cases, the distribution of scores did not fully support the proposed hypotheses, suggesting the need for further refinement of the instrument and its validation process.

Materials and Methods

Participants

The sample consisted of 172 employees from various organizations who were assessed by middle-level managers. Of the participants, 64.9% were men and 35.1% were women. Participants' age and organizational tenure are presented in **Table 3**. For descriptive purposes, both age and tenure were grouped into five-year intervals (beginning at age 20 and one year of tenure, respectively), with the resulting distributions illustrated in **Figures 2** and **3**.

Table 3. Descriptive statistics of the participants in the study, according to age and seniority in their job positions

	Age	Seniority
Mean	46.93	9.95
Standard dev.	12.09	3.78
Minimum	25.00	1.00
Maximum	60.00	15.00

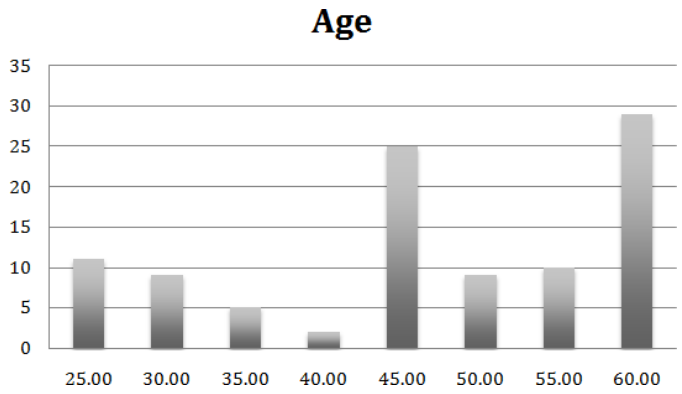

Figure 2. Percentage of subjects by age

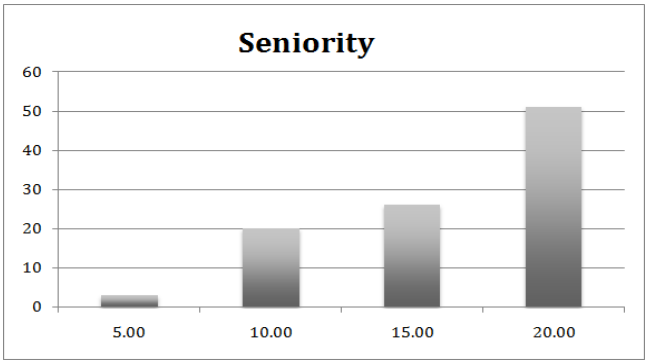

Figure 3. Percentage of subjects by seniority in the job position

Design

In accordance with the typology proposed by Ato *et al.* [18], the present study is classified within the *instrumental research* methodology. A non-probabilistic convenience sampling strategy was employed [19].

Procedure

Human resource professionals and organizational directors from companies operating in diverse sectors were contacted and invited to participate in the study. They were asked to administer the *performance–potential* survey to evaluate a group of employees. Following the completion of the survey, evaluators were required to assign each employee to a position within a talent matrix.

Data collection followed a double-blind procedure. Evaluators did not disclose their identities, and employees were identified solely by randomly assigned numerical codes. The only requirement was that the survey identification number corresponded to the matrix entry number, enabling subsequent statistical comparisons between the two instruments.

Participants were informed—either via email accompanying the survey or during personal interviews with evaluators—about the objectives of the research. Participation was voluntary, and submission of the completed surveys constituted informed consent for the use of the data for research purposes.

Statistical analyses were conducted using version 24 of IBM SPSS.

Results and Discussion

Prior to presenting the results, it is necessary to clarify certain classification criteria to facilitate the interpretation of the findings. Specifically, reference is made to the ordinal classification of the talent matrix cells proposed by Pérez [20], as illustrated in **Figure 4**. This ordering is used as a framework for interpreting several of the results reported below.

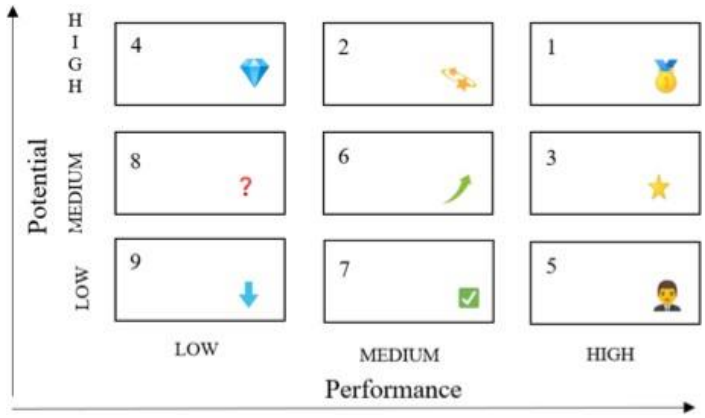

Figure 4. Box Talent Matrix [20]

In addition, each cell of the talent matrix is assigned a numerical score obtained by summing the corresponding performance and potential values (0, 1, or 2) associated with each level **(Table 4)**. Under this scoring system, box 9 receives a total of 0 points; boxes 7 and 8 receive 1 point; boxes 4, 5, and 6 receive 2 points; boxes 2 and 3 receive 3 points; and box 1 is assigned the maximum score of 4 points.

Table 4. Scores corresponding to each box, the result of the sum of the development and potential scores

POTENTIAL	high (2)	0+2=2	1+2=3	2+2=4
	medium (1)	0+1=1	1+1=2	2+1=3
	low (0)	0+0=0	1+0=1	2+0=2
		Low (0)	Medium (1)	High (2)
			PERFORMANCE	

Survey statistics

The findings indicate that the instrument demonstrates strong internal consistency. As shown in **Table 5**, Cronbach's alpha coefficient was .874, which, according to the criteria proposed by George and Mallery [21], reflects good reliability.

Table 5. Survey reliability

Cronbach's alpha	Cronbach's alpha, based on standardized items	Number of items
.874	.879	8

All items exhibited corrected item–total correlations greater than zero; therefore, no items required elimination on this basis. Although Cronbach's alpha analysis indicated that overall reliability would increase to .904 if Item 7 were removed, this item was retained. Given the limited number of items in the scale and the need to maintain balance between performance and potential indicators, eliminating the item was deemed inadvisable **(Table 6)**.

Table 6. Total item statistics

	Mean of the scale, if the item is eliminated	Variance of the scale, if the item is eliminated	Corrected total correlation of the items	Squared multiple correlation	Cronbach's alpha, if the item is eliminated
Item 1	16.8772	49.638	.695	.644	.853
Item 2	16.6842	49.076	.723	.672	.851
Item 3	16.6374	51.385	.477	.266	.874
Item 4	17.3392	46.331	.772	.719	.843
Item 5	17.4211	45.445	.754	.668	.844
Item 6	17.6433	43.925	.798	.765	.838
Item 7	16.7602	54.983	.218	.124	.904
Item 8	17.5673	46.482	.730	.685	.847

Correlations between survey scores and the talent matrix

The correlations of primary interest in this study are those linking equivalent dimensions measured by the survey and the talent matrix. As shown in **Table 7**, all three correlations were statistically significant at the .01 level. Based on the criteria proposed by Hopkins *et al.* [22], as well as Cohen [23], the effect sizes (d) associated with the observed correlation coefficients (r) can be classified as large across all three variables.

Table 7. Correlations between the survey factors and the matrix

			Matrix		
			Development	**Potential**	**Total**
Survey	**Development**	**Pearson correlation**	.679**	.415**	.688**
		Sig. (bilateral)	.000	.000	.000
		N	172	172	172
	Potential	**Pearson correlation**	.574**	.505**	.683**
		Sig. (bilateral)	.000	.000	.000
		N	172	172	172
	Total	**Pearson correlation**	.665**	.490**	.729**
		Sig. (bilateral)	.000	.000	.000
		N	172	172	172

(**) The correlation is significant at the 0.01 level (bilateral).

Regarding the demographic variables of gender, seniority, and age, significant negative correlations were observed between age and all three survey scores at the .01 significance level, each displaying a large effect size (d = 1). Additionally, a significant negative correlation was found between job seniority and potential at the .05 level, with a moderate effect size (d > 0.6), as presented in **Table 8**.

Table 8. Correlations between the survey factors and personal and work-related variables

			Age	**Seniority**	**Gender**
Survey	**Performance**	**Pearson correlation**	-.444**	-.145	.176
		Sig.(bilateral)	.001	.286	.191
		N	57	56	57
	Potential	**Pearson correlation**	-.444**	-.298**	.152
		Sig.(bilateral)	.001	.026	.259
		N	57	56	57
	Total	**Pearson correlation**	-.462**	-.231	.170
		Sig.(bilateral)	.000	.087	.205
		N	57	56	57

(**)The correlation is significant at the 0.01 level (bilateral). (*)The correlation is significant at the 0.05 level (bilateral).

Finally, as shown in **Table 9**, a significant negative correlation was observed between the total survey scores and the corresponding talent matrix box assignments at the .01 significance level, with a large associated effect size.

Table 9. Correlations between the total scores obtained on the survey and the number of the matrix box assigned to the subject

			Box
Survey	**Performance**	**Pearson correlation**	-.843**
		Sig.(bilateral)	.000
		N	57
	Potential	**Pearson correlation**	-.864**
		Sig.(bilateral)	.000
		N	57
	Total	**Pearson correlation**	-.887**
		Sig.(bilateral)	.000
		N	57

Means and standard deviations of survey scores by talent matrix category

Distribution of participants across matrix categories

Table 10 presents the distribution of the 172 participants across the different talent matrix categories, indicating the number of individuals assigned to each box.

Table 10. Number of subjects assigned in the different matrix boxes

Box	N
1	22
2	10
3	24
4	4
5	21
6	33
7	16
8	27
9	15

Table 11 presents the mean performance scores and corresponding standard deviations obtained from the survey, stratified by participants' classifications within the talent matrix.

Table 11. Means and standard deviations in the performance factor of the survey, according to the box assigned to the subject

10.75 **2.50**	**11.40** **3.17**	**15.09** **1.06**
9.63 **2.98**	9.00 3.76	13.25 1.87
3.20 **1.47**	7.43 2.60	12.43 2.04
Low	**Medium**	**High**

Assuming the hypothesis that performance scores obtained from the survey are correlated with those derived from the talent matrix—and consequently determine participants' placement within specific matrix categories—mean performance scores would be expected to increase progressively from box 9 outward, particularly along the horizontal axis. Inspection of the data confirms this pattern, with increases observed both horizontally (from boxes 9 to 5, 8 to 3, and 4 to 1) and diagonally (from box 9 to box 1), with the exception of the transition between boxes 8 and 6.

Table 12 presents the mean potential scores and corresponding standard deviations obtained from the survey, grouped according to participants' classifications within the talent matrix.

Table 12. Means and standard deviations in the potential factor of the survey, according to the box assigned to the subject

High	10.75 0.50	10.20 3.01	14.41 1.76
Medium	6.66 3.38	8.27 3.16	11.21 2.86
Low	3.13 2.26	5.69 2.77	11.80 2.68

With respect to potential, mean scores increase diagonally from box 9 to box 1 and vertically from the lower categories (boxes 9, 7, and 5) to the upper categories (boxes 4, 2, and 1), with the exception of the transition between boxes 5 and 3.

Table 13 presents the mean total survey scores and their corresponding standard deviations, organized according to participants' classifications within the talent matrix.

Table 13. Means and standard deviations in the total score of the survey, according to the box assigned to the subjects

High	21.50 3.00	21.60 5.76	29.50 2.24
Medium	16.29 5.65	17.27 6.19	24.46 3.55
Low	6.33 2.89	13.12 4.81	24.24 3.95
	Low	**Medium**	**High**

Consistent with the proposed hypotheses, total survey scores increase across diagonal, horizontal, and vertical dimensions of the talent matrix.

Conclusion

The findings of this study support the appropriateness of using the proposed survey as a tool for assessing employee talent, conceptualized as the combination of current performance and future potential. The instrument enables a rapid,

straightforward, and quantitative evaluation of employees within organizational contexts. Once individual performance, potential, and overall scores are calculated, and the mean scores associated with each matrix category are established, practitioners can systematically position employees within the talent matrix. This process allows organizations to convert individual placements into percentage distributions, thereby facilitating strategic assessments of human capital and future workforce planning.

The reliability analyses indicate that the survey demonstrates satisfactory internal consistency, supporting its use as a statistically reliable measurement instrument. Moreover, the significant correlations observed between the survey scores and the corresponding talent matrix classifications confirm the first research hypothesis (H1) and indicate that the survey scores accurately reflect employees' positions within the matrix framework.

The negative correlation identified between age and the survey dimensions suggests a decrease in both performance and potential as age increases, a pattern not observed in relation to job seniority. This finding warrants further investigation to clarify whether the observed effect is attributable to age-related factors or to generational differences in work attitudes, competencies, or organizational contexts.

Additionally, the mean score profiles associated with each matrix category generally support the feasibility of assigning employees to specific matrix positions based on survey results, although certain limitations remain. The study is constrained by methodological factors, particularly the sample size, as well as by limitations in the results themselves. Specifically, relatively small differences between mean survey scores across some matrix categories were observed, and in certain cases, the hypothesized score distributions were not fully supported.

These limitations highlight several directions for future research. Studies involving larger and more diverse samples, as well as the inclusion of additional explanatory variables, are needed to strengthen the instrument's validity. Furthermore, a key avenue for future investigation involves examining whether the application of the talent matrix leads to the anticipated developmental outcomes for employees. Longitudinal research designs are therefore required to assess the predictive utility and long-term effectiveness of the matrix over time.

More broadly, within the field of organizational and work psychology—and particularly in human resource management—there remains a clear need for additional empirical studies aimed at providing organizations with robust, evidence-based tools for effective personnel management.

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