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A Model for Talent Management and Career Planning*

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Abstract
This paper discusses a talent management and career planning system designed based on the performance and qualifications of a group of interns working for an emerging social media company located in Istanbul. The proposed model is dynamic, comparative, and perceptional in constructing a talent pool for an organization. This system was developed based on structured questions precisely designed to evaluate the employees in different categories. Evaluations by the supervisors combined with the employees' self-evaluations represented performance; previous experiences represented qualifications. Depending on the high and low scores for performance and qualifications, four evaluation segments were proposed: star, rising star, backbone, and iceberg. Employees who had high performance and high qualification scores were classified as "stars" and constituted the talent pool. Employees in other segments needed performance development, qualification development, or both. This paper further provides detailed discussions explaining how employees can address the identified performance or qualification deficiencies and take paths toward improvement, which forms the career planning aspect of this system.

Keywords: Talent • Talent management • Career planning • Employee performance • Qualifications • Talent pool

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The term "talent management" first appeared in an article titled "War for Talent" in McKinsey Quarterly in the late 1990s (Michales, Handfield-Jones, & Axelrod, 2001). Since then, the issue of talent has received extensive attention from researchers as such talent constitutes the workforce of organizations. Talent is also considered an organizational asset, sometimes called "human capital." As talent is vital for an organization, a proper talent management and career planning system is essential for both the organization and the employees. Therefore, a transparent and easy-to-understand model should be developed for both these parties, which can help both employers and employees focus on the organization's growth. Interactions between employers and employees are important for evaluating deficiencies so that both parties can take the necessary steps to minimize these deficiencies.

Talent management is a relatively new concept in human resource management. Though widely used, a concrete definition is lacking. After talent and talent management became focal points, organizations began to align their workforces and tried to develop methods to increase talent. In this manner, they tried to "grow" human resource talent while keeping their budgets at a minimum. However, such efforts were unsuccessful as talent cannot actually be grown! In fact, nurturing mediocre talent to develop superior talent and growing talent are completely different. This important discovery led to various talent management systems. Gradually, it was found that talent is rare, inimitable, and difficult to grow (Lewis & Heckman, 2006). Therefore, similar to the other fixed and liquid assets, talent became a type of asset possessed by organizations.

Furthermore, career planning is closely related to talent management in an organization. The term "career" implies lifelong work, which may include several jobs of different natures or of the same nature. This term also represents vocations, livelihoods, crafts, trades, arts, occupations, and professions. Career development is a lifelong process that occurs in stages (Cohen & El-Sawad, 2009). Occasionally, a career is referred to as the noble achievements or work of an individual in a particular service. Examples are abundant: a diplomatic career, an academic career, and careers in art or fame as an artist. Such individuals may be renowned singers or have successful corporate careers. A career comprises smaller combinations of paid work or jobs performed over a long period of time. Performing these jobs enables individuals to meet their own needs and helps them survive; collectively, these jobs build individuals' careers.

In this case study, we use a model that is based on the performance and qualifications of the employees at an organization. The aim of the study is to identify the employees who are performing well in their current positions. Additionally, the study examined some interns to identify those who would be eligible to continue working with the employer based on whether they possessed the necessary performance and work qualifications according to the employer's requirements. Therefore, the focus was on the talent pool and the employees who showed outstanding performance. As a result, the employer would be able to choose the suitable employees from that talent pool and place them in various positions. By doing so, both talent management and career planning are accomplished.

Description of the Study: Model and Methodology

The talent management and career planning system is a dynamic, comparative and perception based. More specifically, evaluates employees under one or more supervisors, who a small group. Since a supervisor cannot more than 10 to 20 employees within a department, we considered such group of employees to be a unique set have similar job descriptions and job responsibilities. However, this is not a rule of thumb organization may define the group according to its organizational structure. Therefore one organization may set different evaluation which may be adapted in the proposed system design. The dynamic structure of the model is achieved in this manner.

The study was comparative in measurements since it used neither fixed scale for "pass" marks nor a minimum score. The basic measurement was done with the means and standard deviations, which differ with the dataset in consideration. Thus, the model is free from any bias towards a group of people of high performance and qualification from other departments of the same organization. Since one dataset is from a specific group, it's compared only with the employees of that group means the result of the evaluation is solely based on the employees who worked under a single supervisor.

If employees score better or more than the average the evaluations, there is no guarantee that the employee would be able to enter the talent pool. This is because the resultant talent pool is comparative and perceptional. The system just compares the employees who are better on the comparison scale within that group. If the talent pool contains a large number of employees, it signifies that the

organization a lot of talented employees avoid any kind of misjudgment, no fixed scale for performance and qualification was recommended. Rather, the measurement was done using the mean and the standard deviation of the dataset.

In this study we deployed face to face interview method for collecting data. The supervisors and the employees who the evaluation were instructed the methods of the interview and how to fill out the forms. After the interview, we collected and store data in spreadsheets. The data were checked for missing values, refined, and the programs. Mathematical measurements were done in the Matlab ® on a portable computer with Windows 8 operating system on a Core i5 that ran the Matlab help on Statistical Tool Box for the version R2010a (Beale, Hagan, & Demuth, 2012). The calculations were done using the three statistical classification methods: mean-based, z-score and min-max based classifications. The feedforward neural network, backpropagation neural network and radial basis function (RBF) neural network were used to find the best classification process. The results are discussed in "The Talent and Their Career Planning" section. Details of these mathematical processes are not discussed here.

Construction of Talent Pool

The Likert Scale: The talent pool is the focus point in the proposed model. Any employee who wants to be considered for a future leading role in the organization is required to enter the talent pool. The proposed model determines the employees who are eligible for the talent pool on the basis of their respective performance and qualifications. Before constructing the talent pool, we present here the basic ideas about the measuring scales used in the case study. A five-point Likert Scale is used for the basic measurements (Johns, 2010), as shown in Figure 1.

0	1	2	3	4	5
NO	Poor	Satisfactory	Average	Good	Excellent

Figure 1: The basic Likert scale.

One important point to note here is that we include a "NO" answer, measuring zero in this scale for the employees to use for a question when they do not have a specific answer for that specific question. This helped us in processing the data with the missing values. In planning careers, these scores were considered to be valuable from a development perspective. We modified the scale for different measurements. Figures 2–4 show the scales for the different examinations, length of service expertise, and skills in the evaluation:

0	1	2	3	4	5
NO	Up to 60%	Between 61% and 70%	Between 71% and 80%	Between 81% and 90%	Between 91% and 100%

Figure 2: Likert scale for examination scores.

0	1	2	3	4	5
NO	Up to 6 months	Up to 1 year	Upto 1.5 years	Upto 2 years	More than 2 years

Figure 3: Likert Scale for measuring length of time of work, experiences and expertise.

The Evaluation Process

There are three parts in the evaluations: the supervisor's evaluation, the self-evaluation, and previous experience. In this model, greater importance was attached to the supervisor evaluation by assigning a higher weight to it. The supervisor evaluation was considered to be ninety percent of performance, whereas self-evaluation was considered to be ten-percent. The performance was calculated from summing up both evaluations. Previous experience was taken directly as qualifications.

The Performance-Qualification Matrix

We construct a matrix that contains measurements from both performance and qualification scores. The HIGH and LOW measures are calculated using the statistical mean or standard deviation of a given dataset. The LOW values are calculated values below the statistical mean or standard deviation of a given dataset. Similarly, the HIGH values refer to performance and qualification scores above the statistical mean or standard deviation of a given dataset. The advantage of using the statistical mean and standard deviation of a given dataset is that these statistical measures can be easily related to the result of the dataset. The basic structure of the matrix is presented in Table 1.

0	1	2	3	4	5
NO	Minimum Knowledge	Basic Knowledge	Advanced Knowledge	Expertise/ Dipoma	Advanced Diploma /Licence

Figure 4: Likert scale for measuring skills.

Table 1
The Performance and Qualification matrix

	Performance	*Qualification*
Iceberg	Low	Low
Backbone	High	Low
Rising Star	Low	High
Star	High	High

Based on this structure, we ultimately derive Figure 5 (Waheed, Zaim, & Zaim, 2012):

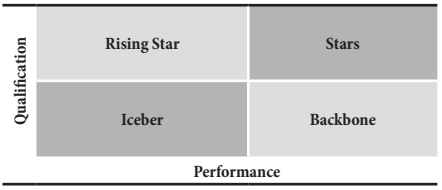

Figure 5: The Star segment—the "Talent Pool."

The Talents and Their Career Planning

The proposed talent management and career planning system design model can all four categories of employees from the current pool of employees who take the talent evaluation test. We denote the Star segment as the talent pool in the Figure 5, where organization's future set of leaders or competent employees be found. Employees in the other three segments, other than Star, possess inadequate performance or qualification, or both. The proposed system helps to plan the careers of employees regardless of their classification. This model, however, at everyone other than the employees segment to enhance either performance or qualifications, or both, to enter the talent pool. may choose employees from the talent pool to position them in critical positions of the organization. Three different career planning can be with employees in the talent pool: them to higher positions, salary, and responsibilities (Waheed, Zaim, & Zaim, 2012). For employees in other three segments, our detailed suggestions are in sections below.

Calculations and Results

Once the scales and the questions were prepared, the system presented here was applied to a group of interns who worked for an emerging social media giant, located in Istanbul. Through the basic characteristics, the collected data were of a very small size and unique. Collected data were checked for any missing values. The names of the employees were decoded into other codes and a reference was kept for future use. The decoding ensured that no one could manipulate the result on the basis of biasness. The data were processed under the proposed model using three statistical classification methods, namely mean-based, min-max normalization and z-score based. The results are shown in Table 2 and Figure 6.

Table 2
Result of the Mean-based Grouping of Employees

Iceberg	Backbone	Rising Star	Star
X06	X08	X01	X02
X07	X10	X05	X03
X13	X12		X04
X14	X15		X09
	X17		X11
			X16

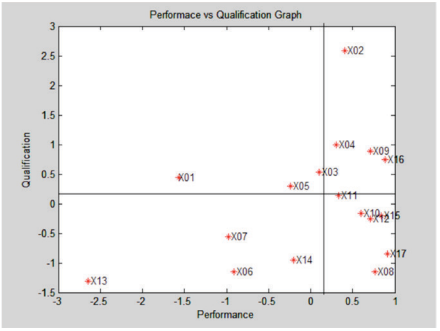

Figure 6: Graphical result of the performance and qualification based assessment.

The values of R2, RMSE and simple errors (here as "Error") were determined using Feedforward, Backpropagation and RBF neural networks. Here, R2 is the coefficient of determination or regression coefficient, RMSE is the Root Mean Square Error, and Error is the measurement of the differences between the test and target data. The three classified data sets were tested for each type of the networks for the results in the 3. Further calculation with the help of the IF-THEN rule was consider maximum values for R2, and minimum values for RMSE and error. This method yielded that z-based classification was the optimum for the classification process. The result of classification, based on the proposed method, is shown in the 3. The next makes some suggestions based on the results of 4.

Table 3
Errors in the Data Analysis Process

Mean-based	**R^2**	**RMSE**	**Error**
Feedforward	0.6851	0.243	0.0763
Backpropagation	0.4868	0.3102	0.4222
RBF	1	1.41E-05	7.40E-06
Min-Max norm.	**R^2**	**RMSE**	**Error**
Feedforward	0	0.4362	0.0445
Backpropagation	0.471	0.3149	0.363
RBF	1	1.41E-05	7.40E-06
z-Score Based	**R^2**	**RMSE**	**Error**
Feedforward	0.3425	0.3511	0.1813
Backpropagation	0.3343	0.3533	0.419
RBF	1	1.78E-06	1.13E-06

Next, Table 4 was based on the formulation of the "IF-THEN" knowledge discovery method, as mentioned above. Previously in Table 2, employees bearing identifications X03 and X11 were found in the Star segment. However, in the final classification with the z-Based method, employee X03 was grouped in *Rising Star* and X11 was grouped as *Backbone*. As shown in the Figure 6, both of these two employees were on the border line between *Star* and *Rising Star*, and between *Backbone* and *Star* segments, respectively.

Table 4
The Final Talent Classification

Iceberg	**Backbone**	**Rising Star**	**Star**
X06, X07, X13, X14	X08, X10, X11, X12, X15, X17	X01, X03, X05	X02, X04, X09, X16
(4)	(6)	(3)	(4)

Suggestions and Discussion

The focus of the system design was to suggest some measures so that more employees could be added into the talent pool or become star employees. As already shown in the Table 1 and in Figure 5, in the "Construction of Talent Pool" section above, employees in the Iceberg group require improvement in both their performance and qualifications. Since the Iceberg group contains the most challenging employees, it is the organization's decision how to deal with them. The model does not suggest discharging or firing any employee in the Iceberg segment; rather, it strongly suggests that these people should get assistance to improve their performance and qualifications.

Employees in the Rising Star segment possess the necessary qualifications but lack performance. Therefore, these employees require performance improvement, as shown in the Figure 7 below. Similarly, the employees in the Backbone group possess the necessary performance but need to increase their qualifications. If these employees can improve, they can re-take the talent evaluation test and may be able to secure their positions in the talent pool. In this section, we discuss these two particular groups and suggestions for improvement.

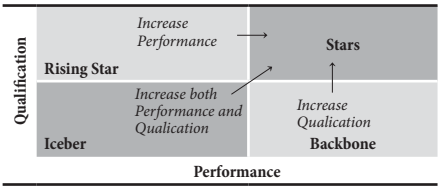

Figure 7: Showing the different deficiencies of each group

The advantage to the evaluation question process is that it is self-explanatory. The interview survey questions are straight forward and the scores are very realistic. Therefore, we need to look at the original scores for each of the questions after the classification is completed to discover which areas the employees need to develop. We need to investigate in detail the corresponding scores of each question or category.

Improving Performances

If any employee is deficient in performance scores, it is best to examine the supervisor and self-evaluation scores. The discrepancies between the scores from these two evaluations give clues to the root of the employee's deficiencies. The supervisor evaluation and self-evaluation consisted of questions on *Work Quality*, *Work Ethics*, *Problem Solving Skills*, *Communication Skills*, *Leadership Skills*, *Learning Skills*, *Planning & Organization Skills* and *Personal Expertise*.

The second category of questions relates to Work Ethics. The main areas investigated were: whether the employee understands job duties, shows initiative, has a positive attitude, and shows authenticity and teamwork. An employee with lower work ethics will be unable to produce quality work. Thus, our measurement of "Work Ethics" indicates whether the employee is suitable to the work or not.

The category of Problem Solving Skills looks at two aspects: does the employee understand the problem/issue and what is their decision-making capacity. For communication skills, questions address whether an employee has good speaking and writing skills along with presentation skills, good customer and social relationships, and has the proficiency to solve conflicts. The employees

should also possess some Leadership Skills, which can be measured by assessing whether an employee influences others, helps other colleagues in their development, delegates responsibilities to others, initiates teamwork, offers positive feedback, and has co-ordination skills.

Serial no.	Area of Evaluation	Employees need development
1	Need to improve work quality	X01, X03, X05
2	Need to improve work ethics	X01, X03, X05
3	Need to improve problem solution skills	X01, X03, X05
4	Need to improve communication skill	X01, X03, X05
5	Need to improve leadership skill	X01, X03, X05
6	Need to improve learning skills	X01, X03, X05
7	Need to improve planning and organizational skills	X01, X03, X05
8	Need to improve personal expertise	X01, X03, X05

"Learning Skills" was another factor influencing employee performance scores. A low score in this area indicates that the employee and the organization have problems understanding each other. A low score here also affects the Work Ethics category. A feedback process between the organization and the employees, and monitoring employees may be required. Moreover, the employees should be given additional tasks. Another way to develop performance in the area of learning skills is to give more real-time job-related tasks so that the employee better understands the job she or he will be performing. Motivation was one of the parameters of learning skills. A low score in this segment shows that the employee has lower motivation, which is a very important point to note. In the case of lower motivation, proper steps to increase motivation should be taken.

When there are wide differences between the supervisor evaluation and the self-evaluation scores, this indicates the existence of definite problems between the supervisors and employees. For this reason, at the beginning, we analyze the scores of *Work Quality*, *Work Ethics*, and *Communication Skills*. If there are differences between these scores, then employees should increase their performance. Here are the questions on performance criteria these employees may lack. Suggestions for these employees are as follows:

Check if the Employee Produces Accurate Works: The first question in the area of *Work Quality* provides a clue to this issue. We looked into the differences between the employees' self-evaluation scores and supervisor's evaluations scores. To measure the efficiency of the employee, we needed to determine whether the employee scored a "poor" score on either the supervisor's evaluation or the self-evaluation. If we found that the employee scored poorly on one of the evaluations, the recommendation was that the employee be kept under "close observation" during work-hours. Other recommended measures were: (*i*) Feedback, (*ii*) Mentoring, and (*iii*) Coaching. Among the employees in the *Rising Star* group, four employees were found to have differing scores between the supervisor evaluations and self-evaluations.

Check if the Employee Is Disciplined: The fourth question in the Work Quality category pointed out whether the employee discipline. If the score was "poor" the employee should be warned.

Check if the Employee Can Work Under Stress: An employee should be able to work under stress in all types of situations. If they fail to do so, they ought to be given some training for stress management. Therefore, we needed to look into the score of an employee on both the supervisor and self-evaluations to assess whether the individual's stress tolerance was above average. In our dataset of the employees, we found that all the employees in the Rising Star segment needed to develop their stress tolerance limit.

Check if the Employee Performed the Responsibility: In the Work Ethics category, employees were asked whether they had work responsibilities. If the employees did not perform any job or duty or work responsibilities, obviously that would influence other factors of performed work or duties or jobs. A poor performance in discharging duties in turn affects the overall teamwork. Therefore, employees with a poor sense of responsibilities would continue to perform poorly—both their work and within the team. In both cases, the overall performance of the organization drops compared to the expected performance. These employees should receive training on teamwork and their personal work.

Our discussion above indicates that we need to be careful in evaluating employees of an organization. We show the results from this investigation in Figure 8. The results show the reasons for low performance of employees. It would not be fair to accuse an employee of low performance; rather, we need to encourage the individual to perform better in the areas where performance is poor. Through using constructive language and positive motivational attitudes towards employees, an

organization can create a comfortable atmosphere to develop performance in specified categories. At the end, the human capital of an organization remains intact and a message of adherences spreads through all employees working in the organization.

Table 6
Employees Need to Overcome Specific Performance Deficiencies

Serial no.	Area of evaluation	Employees need development
1	Keep under close observation as not producing accurate work	None
2	Should be given WARNING for lack of discipline	None
3	Should receive more training for stress management	**X01**
4	Should receive more training on team work	None
5	Due to lower work ethics, requires feedback meetings	None
6	Should receive motivational inspiration	**X01**
7	Should increase their learning skills	None

Improving Qualifications

The advantage of the model is that the questions are "directional" and the scores indicate whether any deficiencies exist. As we discuss in the previous section on how to increase performance, we now suggest how employees can improve their qualifications; this is done by looking at their previous experience.

It is assumed that the middle point of the measurement scale is the benchmark point for an employee to enter the talent pool. In the qualifications part, employees' previous experiences were measured. There were six categories in this evaluation: Educational history, Test scores, Training received, Experiences gathered to date, Job tenure, and Expertise. Out of these six categories, the first two categories, namely educational history and Test scores, are seen as "fixed," meaning that once completed, these two scores cannot be altered. However, the other categories have enough scope to change with passing time. We suggest that if organizations do not want to evaluate employees on such fixed qualifications, they may opt to disregard the scores of those two categories.

We discuss the steps that a company or organization can take to improve the qualifications of the employees, based on the following:

Educational History: Educational qualifications are important before these interns are given jobs. Since the firm decided to offer a job to the best performing intern, educational background was important in this evaluation. Participants were mostly from a university, and would be graduating after the internship was over. Therefore, they were marked as "passed high school" as their formal education level. However, in fact, they could be considered as university graduates.

Test Scores: For these interns, various test scores were not relevant. However, their language skills were important on the basis of the requirements of the work they would be undertaking. It was found that though only a few interns took the language tests, they were all good in the English language. The scores for university entrance examinations for graduate studies were not considered during the evaluation.

Training Received: There were four questions in this category to determine how employees performed. The first question asked if the employees had enough training related to the current position. If previous experience scores were high and if the score for the current position was poor, then the individual needed to go through more training at the current organization. The basis for this reasoning is that previous experience in a different area, no matter how much has been learned, does not guarantee that the employee will perform well at the current position. The minimum requirement should be a score of "average," which is the "basic-level expertise."

Experiences Gathered to Date: This is a vital category, which shows whether the employee has enough experience for the current position. The employee may have better experience in previous jobs. However, if the employee does not possess enough experience for the current position, the individual must work until a minimum "average" level of experience is gathered for the current position. Therefore, it may be suggested that the individual needs to work longer to gather more work experience for the current position. This can be realized through engaging the individual longer at the current position. One important point to note is that if one employee does not have an "average" experience level at the current job position, the employee cannot be considered suitable to enter the talent pool. In our study, the "average" experience level equates to one and half or more years of experience at the current position.

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Job Tenure: Like the previous category, "experiences gathered to date," this category also bears a similar significance for the employee who wants to enter the talent pool. Here, the employee has to have necessary length of service for the current job. If the employee does not possess the necessary length of service at the current organization, it would not be recommended for the individual to enter the talent pool. Thus, employees scoring less in this category need to work until they are able to reach the "average" length of service. In this case, the required length of service is two or more years for securing a permanent position.

Expertise: There were four questions that determined whether the employee has the necessary expertise for the current position. If the employee did not receive a score of "average," the employee needed to fulfill that by gaining expertise at the organization by working for two or more years before securing a permanent position.

In essence, the above discussion shows that the employees actually have to work for the company for more time before they attain the "average" level of the measurement scale. In the case of the employees, the first two categories, Educational history and Test scores, are not hindrances for them in entering the talent pool. Therefore, in the calculations, we measured deficiencies in the qualifications only for the other four categories, as discussed above. Accordingly, we conducted a few tests and found the following results:

Table 7
List of Employees Who Required to Development of Qualifications in Different Categories

Serial no.	Area of Evaluation	Employees need development
1	Need improvement in educational qualifications	X08, X10, X11, X12, X15
2	Need improvement in various test scores	X08
3	Need to receive more training	X08, X10, X11, X12, X15
4	Need to gather more job experience	X08, X10, X11, X15
5	Need to work for more time to fulfil job tenure	X08, X10, X11, X15
6	Need to gather more expertise	X08, X10, X11, X12, X15

Conclusion

The talent management and career planning model helps an organization evaluate its workforce, depending on various evaluation criteria. This case study was performed with the aim of examining whether a performance and qualification based talent management and career planning model is suitable in a real organizational situation. The case

study suggests how an organization can identify the talent of the current employees. It also helped the organization identify the state of performance and qualifications of its workforce not ready to enter the talent pool. Once the deficiencies of these employees are detected through various methods as detailed in the Calculations and Results section, suggestions can be made as to how an organization can deal with such employees. Moreover, this leads to the career planning of these employees.

In essence, the case study yielded the desired results and fulfilled the aim of the system designed. We now recommend that the proposed "Talent Management and Career Planning system design" be used to discover talent in any organization based on the performance and qualifications of the employees. The proposed model was not biased and was free from nepotism. We, therefore, believe that this model will simplify the tasks of the human resource departments in organizations in their workforce and organizational career planning.

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