Research on the Decision-Making Process for the Selection of Managers in Branch "CREIR CF" Constanta

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Abstract

Nowadays economical context led to a significant decrease of vacant positions on the labour market, as opposed to restructuring which many organisations had to deal with. Consequences did not stop to arise up to this moment when there are many experienced candidates previously in managerial positions in different companies who are now looking for a job. Some organisations blocked any hiring, as it happens with CFR SA, and others still having vacant positions for recruitment focus on multiple skills and competencies as well as expertise only in a particular field. In order to provide a solution scientifically fundamental and objectively determined for this problem, we used the hierarchic system based on merit order, as an appreciation method of professional performances and global utility method used for making the decision for selecting railroad managers in reliable conditions.

Key words*: decision, selection, human resources, transport*
J.E.L. Classification*: M12*

1. Introduction

Increasing the interoperability of railway infrastructure and connection to the main railway routes in Europe are current Agency goals the European railway, AFE, and to achieve these objectives, were already established a series of measures, resulting in the adoption of a directive of the European Commission, which our country, through the Ministry of transportation and infrastructure, it has transposed into national legislation. A measure of uniformity among European Union countries, practices aimed at controlling access to rail infrastructure for all railway vehicles, has been adopted by AFE, which organized in Brussels in March 2017, a refresher course, where they held experience exchange between railway management specialists from all European Union countries. At this show Romania was represented by eight engineer's railway infrastructure manager to publish the CFR, one from each geographical center. In order to determine the appropriate persons to participate in this course, direction of Traffic within CN CFR SA has requested each of the eight Divisions of Regional Traffic, finding a manager, specialist in the control and operation of the railway infrastructure.

At the branch level "CREIR CF", which was the subject of the study, the problem identified was the decision of selecting the most appropriate manager, who holds the qualities necessary to participate in this event. In this sense, regional Director Chief Traffic along Division Manager decided the choice of the organizational structure of the Division, best placed in terms of professional and managerial performance evaluation in the year 2016. Decision on the appointment of candidates belonged to the head of the Traffic Division, consisting of direct subordinated all organizational structures and was approved by the regional director.

Branch "CREIR CF" Constanta is organized in a central structure which co-ordinates all activity and subunits, on local branches of activity, namely, lines, traffic, which is located in the four counties in the southeast of the country where it has competence of regional activity centre: Constanţa, Tulcea, Calarasi and Ialomiţa.

CFR Branch administers the public railway infrastructure Constancy and organizes trains and passengers on cargo traffic related stations eight bus Bucharest-Constanta. Most of the research in human resources management from rail transport has been conducted concerning the activities of the Traffic Division within the branch "CREIR CF", because it is the largest organizational structure in terms of the number of staff and posts, functions and powers of the various railway operating in the activity, which allow performing analysis and synthesis of human resource management with a high degree of generalization of the regional level and at the national level.

The list of candidates included Heads of services and Traffic Division, underlying compartments with responsibilities in organizing, directing, controlling movement on railway infrastructure, and a rich experience in the field. The six managers select the purpose of taking the decision to choose the optimal variant, specialists in rail technology were: head of the Access Control infrastructure; Head of Infrastructure Access Regulations; Head of circulation; the head of the Regulator movement Constanta; the station chief and Inspector General of CFR Constance sector movement.

Considering the method of choice of the most appropriate manager, established by the regional director in conjunction with Traffic Division Chief, have initiated research office, through the collection and structuring of the information derived from Traffic reports and records Division. In this sense, the forms have been studied for evaluating the performance of employees, Traffic Division, supplemented annually by his immediate superior. This form is processed after the model of a specialist in the field provided (Pitariu, 2006, p. 237) and applies to all employees, regardless of the position held. The form contains evaluation criteria, scaled numerical and quantified in scores, and total score value allows every employee ranking, in terms of performance.

From the study and interpretation of the results of the evaluation forms of activity of the six managers in the year 2016, it was not possible to decide, in order to identify the best candidate, because two of them have obtained the same score, others recording lower values, as shown in table 1.

Table No. 1 Scores obtained by the candidates, railway managers

Candidate	Score
Chief Service Access Control Infrastructure	34
Chief Infrastructure Access Rules	34
Chief Circulation	28
Chief Regulator Movement Constanta	25
Chief Station Konstanz	24
Retail Sector Movement	20

Source: performance appraisal forms for managers since 2016 Traffic Division

In the case of equal scores record breaker, subjectivity is involved, both the evaluator that can treat jaundiced candidates and dissident, in the case of the selection decision.

Therefore, this method of selecting the appropriate Manager, carried out only on the basis of the consultation form annual assessment of performance, as usual in the branch, I considered it inefficient and inconclusive for the problem identified.

Research hypotheses were formulated based on the findings from the research and documentation of the author's experience gained in exercising the function of swimming motion for five years. They were:

I1. Evaluation of human resources for the purpose of selection is inadequate, reinforcing the global and no category of employees.

I2. Methodology for selection of personnel by rail is overcome and does not take into account the new requirements of the human resources management in railway transport.

Because the management of the branch was not dealt so far with such a request and taking into account the need for a strong scientific strictly, appreciate as appropriate to our proposal concerning the use of a methodology was the selection of railway managers, namely: ranking system based on the order of merit and overall utility method in decision making. Through the comparative analysis of the results obtained, and based on the experience of the head of Division and regional director, who know very well the candidates, the final decision was taken.

2. Selection decision Methodology

This stage initially started as soon as the decision-making problem relating to the selection of the appropriate Manager to attend the refresher course and was regarded as difficult and important enough to require a systematic approach, using a standard modeling decision-making problems. Problem identified have certain properties that are specific to such an approach, because:

- refers to the comparison of alternative options i.e. Managers, specialists in rail transport.
- the target was choosing the best options or choices for the purpose of evaluation scale in a preferential order;
- the problem could be broken down into smaller problems and less complex, each option being described through the qualifications of basic criteria, in correspondence with the decomposition of the problem;
- evaluation of options was conducted by comparing the options, after one or more criteria, using the utility functions in obtaining interim and final grades.

To provide a solution to the problem identified scientifically and objectively determined, I used the system of ranking of juridical persons based on the order of merit, as a method of assessing the performance and the utility method used for global selection decision making under certainty.

Ranking system based on the order of merit, also known as the comparison across the group, consists in writing the name of the persons assessed on one scribble each, and then the set shall be provided according to the appraiser to prioritize a given criterion, the best individual to the weakest. The remaining subjects are graded again, one by one, through the comparison shown-not suitable while the lot. The result of the application of the system of evaluation by comparison is a ranking in which the best individual receives one rank, the next tier two and so on. Ranks are converted to scalar values normalized or categorized into several groups according to a given criterion gradations.

Global utility method, developed by researchers I. Von Neuman and O. Morgestern in 1947, used in optimizing economic decision under certainty by determining the optimum variant of several possible variants. The concept of utility measured the importance, for the decider, a specific variant of decision that belongs to a set of variations (Ipate, 2007, p. 212). Processing and adaptation, of literature, of the overall usefulness of the method steps allowed us to obtain a proper calculation algorithm composed of seven steps, as described in the logical schema in Figure 1.

3. Presentation of results

Establishing the criteria for the assessment of candidates was performed using various research opinions of literature about this subject (Rosca et al., 2005, p. 207, Manolescu et al, 2004, p. 150), consultation of the information in the records of the human resources Service and the criteria used in the forms of performance appraisal in the Traffic Division archive. Synthesizing the information obtained allowed us to determine the three criteria for evaluating the performance of managers, namely: professional knowledge, skills and personal skills and managerial efficiency.

To determine the scores of candidates needed in the construction of the matrix from the utility method algorithm we used global ranking system based on the order of merit for each of the three criteria, and then I granted a score corresponding to each level of rank obtained. The ranking of the candidates after each criterion was carried out by three assessors, I know very well on the six candidates, namely: regional director, head of the Traffic Division and head of human resources. They've been handed a set of six notes with names of candidates and their managers asked them to rank them according to each criterion.

Figure no. 1. The algorithm to use the global utility method
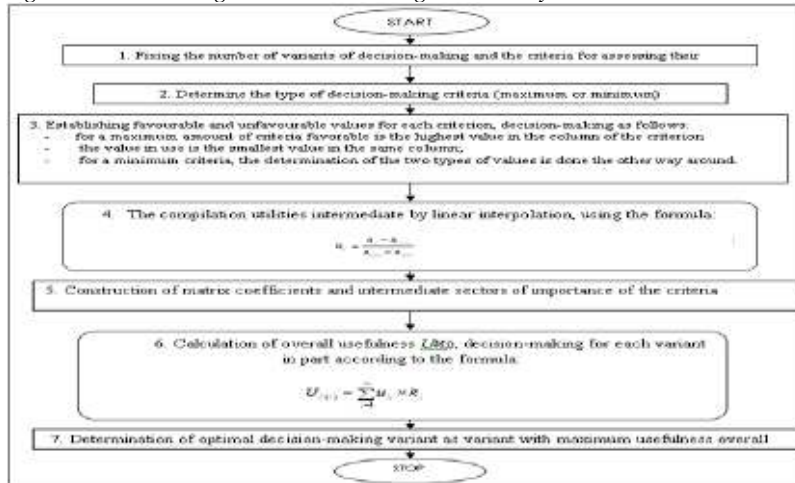
Source : Author

According to the ranking system based on the order of merit, each candidate has received a rank from one to six for each criterion, the rank that we've turned the score, using the conversion scheme in table 2.

Table no. 2 Conversion Scheme in scores of ranks

Tier 1, the most important	100 points
Order 2	80 points
Order 3	60 points
Rank 4	40 points
Rank 5	20 deck
Rank 6 least important	0 points

Source : Author

The method of calculation results in ranking candidates based on the three criteria, are presented in table 3.

Table no. 3 Ranking candidates Scores using the method based on the order of merit

Criteria	Evaluators / Candidates	Regional director E1	Traffic Division Chief E2	Chief RU E3	Computing ranking	Rank	Candidate score
Criterion I Professional knowledge	Chief Regulator Movement	4	4	3	4 + 4 + 3 = 11:3 = 3,66	4	40
	Chief RAI	3	1	2	3 + 1 + 2 = 6:3 = 2	2	80
	Chief Circulation	2	3	4	2 + 3 + 4 = 9:3 = 3	3	60
	Head Station	5	6	5	5 + 6 + 5 = 16:3 = 5,33	5	20
	Chief HORSE	1	2	1	1 + 2 + 1 = 4:3 = 1.33	1	100
	Retail Sector Movement	6	5	6	6 + 5 + 6 = 17:3 = 5,66	6	0
Criterion II Skills and personal skills	Chief Regulator Movement	5	6	6	5 + 6 + 6 = 17:3 = 5,66	6	0
	Chief RAI	1	2	3	1 + 2 + 3 = 6:3 = 2	2	80
	Chief Circulation	3	3	2	3 + 3 + 2 = 8:3 = 2	3	60
	Head Station	6	4	5	6 + 4 + 5 = 15:3 = 5	5	20
	Chief HORSE	2	1	1	2 + 1 + 1 = 4:3 = 1.33	1	100
	Retail Sector Movement	4	5	4	4 + 5 + 4 = 13:3 = 4.33	4	40
Criterion III Managerial Effectiveness	Chief Regulator Movement	4	3	6	4 + 3 + 6 = 13:3 = 4.33	4	40
	Chief RAI	1	1	1	1 + 1 + 1 = 3:1=3	1	100
	Chief Circulation	3	4	2	3 + 4 + 2 = 9:3 =3	3	60
	Head Station	5	5	5	5 + 5 + 5 = 15:3 = 5	5	20
	Chief HORSE	2	2	3	2 + 2 + 3 = 7:3 = 2.33	2	80
	Retail Sector Movement	6	6	5	6 + 6 + 5 = 17:3 = 5,66	6	0

Source : Author

In order to establish coefficient importance of each criterion, I interviewed the three evaluators, managers, asking them to answer questions from a questionnaire devised for this research, we then centralized responses and we have calculated the weight of each criterion in the aggregate score.

Coefficient of importance of each criterion, *kj*, was decisive as the amount of each weights so that k1 = k2 = 0.35, 0.40, and k3 = 0.25, as it appears from calculations made and presented in table 4.

Table no. 4 Calculation of coefficients of importance of the criteria of assessment

Criteria	Assessor 1	Assessor 2	3 evaluator	Total score	Share K (j)
C I	5	4	3	12	K1 = 12/35 = 0.35
C II	4	5	5	14	K2 = 14/35 = 0.4
C III	2	3	4	9	K3 = 9/35 = 0.25
Total				35	1.00

Source: Author

Having calculated the scores of candidates, in accordance with the ranking based on the order of merit for each principle of appreciation of the importance and values of the coefficients, resulting from the questioning of the three managers evaluators, the next step was the construction of the matrix which has been applied to the global utility method algorithm. This matrix, which has seven lines, corresponding to the six variants of decision-making and a line represented by coefficients of importance you have criteria, with three columns corresponding to the criteria of assessment, is shown in table 5.

Table no. 5 Variant Array of decision-making and evaluation criteria

Criteria C (j) / Variants of decision-making, Vi	C (I) maximum Professional knowledge	C (II) maximum Personal skills	C III maximum Managerial effectiveness
Chief Regulator Movement V1	40	0	40
V2 Chief RAI	80	80	100
V3 Chief Movement	60	60	60
V4 Head Station Constantza	20	20	20
V5 Chief HORSES	100	100	80
V6 Business Sector Movement	0	40	0
The importance of the criterion Kj	0.35	0.4	0.25

Source: Author

All the three assessment criteria are the maximum criteria because the scores for these criteria grow, the more it is reflected the increased level of professional and managerial performance. In these circumstances, for the purpose of calculating intermediate utilities by linear interpolation, the value in the column for each criterion is the maximum and the minimum value is negative. Further interim facilities were calculated, whose values form the matrix intermediate utilities.

Calculating intermediate utilities was achieved through linear interpolation, using the formula:

$$u_{ij} = \frac{x_{ij} - x_{min}}{x_{max} - x_{min}} \qquad (1)$$

where: u_{ij} is calculated for an intermediate variant *i=1.. n* criterion and *j = 1, ..., m*, with the property that $0 \le u_{ij} \le 1$; x_{ij} is the value in the economic consequences of lying on line *i* and column *j*; x_{min} is the consequence of unfavorable economic the criterion column *j*; x_{max} is the consequence of the favorable economic the criterion column *j* . The consequence of the favorable economic criterion j of the array of consequences is the maximum value in the column, if that criterion criterion is a criterion for high-turnover, profit, revenue or the minimum value in the column, if the criterion is a criterion for low-costs, expenses, losses, expenses (Dăneci-Pătrău d., 2013, p. 337).

Using the data from the array utilities, calculating intermediate values for each variant utilities global decision-making, values presented in table 6.

Table no. 6 Matrix utilities intermediate and global utilities

Criteria C (j)	C (I) maximum	C(II) maximum	CIII maximum	
Variations Vi decision-making	Professional knowledge	Personal skills	Managerial effectiveness	Global utilities U Vi
Chief Regulator Movement V1	0.4	0	0.4	0.24
V2 Chief RAI	0.8	0.8	1	0.85
V3 Chief Movement	0.6	0.6	0.6	0.60
V4 Head Station Constantza	0.2	0.2	0.2	0.20
V5 Chief HORSES	1	1	0.8	0.95
V6 Business Sector Movement	0	0.4	0	0.16
The importance of the criterion Kj	0.35	0.4	0.25	

Source: Author

According to the last step of the algorithm utility method overall, it was determined the optimal variant as Variant with maximum usefulness overall. Because U (V5) = 0.95 I settled head of Access Control infrastructure, as Branch Manager "CREIR CF", best suited to attend the refresher course organized abroad.

4. Conclusions

After completion of the research, we presented the regional director and the head of the Traffic Division, our solution, obtained through the use of ranking system managers based on the order of merit and overall utility, and the method they have approved a decision to taking him nominate head of HORSES for attending refresher course.

Final validation of the model proposed, we believe it was done by the fact that, at the end of refresher course were assessed through practical and theoretical test participants, and the head of horse Branch "CREIR CF" Constance has obtained the best score among those eight Romanian managers, finishing fifth out of over one hundred and fifty participants.

Results of the tests relating to human resources management in the branch "CREIR CF", led us to an appreciation that in the near horizon, employee performance management will develop progressively, and offset mechanisms depending on performance will hold strategic importance. Based on their organizational structure will reshape the company to align better rail transport needs with available resources.

Thus, the compensation scheme and the financial results, which are closely related to the personal profile of each manager, will form the basis of the analysis of the performance of employees, becoming the key indicator for the further development of human resources in the company.

5. References

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