Discussion about the Necessity of Institutionalizing Meritocracy MCDM Approach

Sheikh.Reza[1], Mirzaei.Afshin[2]

[1]Faculty of Industrial Engineering and Management Shahrood University of Technology, SHAHROOD, IRAN,
resheikh@Shahroodut.ac.ir
[2]Department of Industrial Engineering and Management, Shahrood University of Technology ,SHAHROOD, IRAN,
Mirzaei.Afshin@gmail.com

Abstract: Managers are the most important social capital for each society. They cannot play an effective role for their organization unless the optimal condition which is necessary for Meritocracy culture is provided by the society. In this research, 30 executives, 35 University management professors and 45 Employees participated. Participants are asked to choose the 14 most and least important factors in response to this question "What factors are essential for professional manager? "The participants presented their views about the absence of professional managers in the organizations. Finally these factors are prioritized using Decision Making Trial and Evaluation Laboratory (DEMATEL) technique and the Necessity of institutionalizing meritocracy is proved. Results indicate that the three most important factors are *Instability rules*, *Lack of motivation*, and *Lack of meritocracy system* and the net causer factor is *no separation between political management and scientific management* and the net receiver factor is *Lack of acceptance by staff*.

1. Introduction

How do executives, University management professors and Employees describe successful leaders? What are the features of successful managers?

A competence in general can be understood as the ability of an individual to activate, use and connect the acquired knowledge in the complex, diverse and unpredictable situations (Perrenoud,,1997, in Svetlik, 2005). Gruban (2003) defines competencies as the ability to use knowledge and other capabilities, necessary for successful and efficient accomplishment of an appointed task, transaction of work, goal realization, or performance of a certain role in the business process.

Competencies encompass knowledge, expertise, skills, personal and behavioral characteristics, beliefs, motives, values, etc. They are behavioral records of the roles, which people perform in the work processes.

Yet as companies focus more intently on delivering knowledge and services, we also face a new challenge: How do we objectively recognize the skills and competencies that make our managers desirable? Are competency models even relevant anymore? These are crucial questions to answer, primarily because your competency model guides the end-to-end management of your organization's talent base-from performance assessments and goal achievement, to training and development, workforce planning, and recruiting Core competencies apply to all employees and typically relate to the company's high-level Values.

2. Literature review

Changes in organizations are more and more common. They appear at faster pace and employees are expected to be even more adaptable. Leaders play an important role in setting an example for all those values, behaviors and considerations expected from employees. Leaders have to achieve that changes in an organization are accepted and implemented in a way resulting not only in better job performance but also in general understanding and satisfaction of all. Therefore, it is reasonable to set the expectations of key employees – what they should achieve and how they should behave in order to implement successful changes. In other words, which are the important leadership competencies for successful change management?

According to Bennis (1987; cited in Thach et al., 2007), there are a few leadership competencies that have been proven time and again as mandatory for effective leadership. These include the competency clusters of vision and goal-setting, interpersonal skills, self-knowledge and technical competence regarding the specifics of the business in which the leader works. In addition, commonly referenced competencies include: communication, technical competence, diversity consciousness, developing others, results-orientation, change management, interpersonal skills, problem-solving, decision making, customer focus, business skills,

team leadership, influence skills, conflict management, more recently emotional intelligence, social and environmental responsibility, depending on the culture of the organization even humor and innovation (Trinka, 2004; cited in Thach et al., 2007; Spencer and Spencer, 1993; Employer's Organization, 2004; Guggenheimer and Szule, 1998; Breckenridge Consulting Group, 2004; OPM, 1992; Laszlo, 2003; Goleman, McKee and Boyatzis, 2002; Thompson, 1985).

Despite diverse definitions and different understanding, competencies can be understood as cognitive, functional and social abilities and skills, including all individual resources one can use for performing diverse tasks in various areas, gaining required knowledge and achieving good results. Every competency is based on a combination of mutually linked cognitive and practical skills, knowledge, motivation, orientation values, beliefs, emotions, and other social and behavioral components, applicable as a whole in an efficient activity (OECD, 2002; cited in Svetlik, 2005).

3. Material and Methods

What factors are essential for professional manager?

In this study, participants were presented with 14 successful managers attributes and participants asked to choose the five attributes from our list. The results shows the Vision, Strategic Thinking, Relationship Building, Execution, and People Development are the most important attributes for successful managers.

Table 1 shows the overall frequency with respect to each of the 14 attributes was mentioned.

TABLE 1. the overall frequency of attributes

	professional managers Attributes by Frequency of Selection	
Five Most Frequently Selected	1. Vision*	66%
	2. Strategic Thinking	61%
	3. Relationship Building*	57%
	4. Execution	52%
	5. People Development*	48%
Middle 9	6. Achievement Drive*	46%
	7. Adaptability*	44%
	8. Self-Awareness*	38%
	9. Initiative*	36%
	10. Teamwork*	25%
	11. Change Leadership*	23%
	12. Optimism*	21%
	13. Empathy*	18%
	14. Conflict Management*	16%

In a separate question they asked to list the most important factors of the absence of professional managers in organizations. The result shows in the Table 2.

TABLE 2. The most important factors

	Organizations with Non-professional manager	Organizations with professional manager
C1(x10)	Lack of acceptance by staff	acceptance by staff
C2(x13)	Low-quality relationships	High-quality relationships
C3(x9)	Lack of familiarity with the management texts	familiarity with the management theory
C4(x18)	Inability to change or adapt during a transition	ability to change or adapt during a transition
C5(x16)	Failure to meet business objectives	Success to meet business objectives
C6(x12)	Number of further conflict	Number of less conflict
C7(x15)	Lack of Customer satisfaction	Customer satisfaction
C8(x11)	knowledge management provides no social welfare	knowledge management provides no social welfare
C9(x8)	Lack of improvement	improvement in managerial levels
C10(x4)	Focus on short-term problems	Focus on long-term problems
C11(x17)	Failure to build and lead a team	Success to build and lead a team
C12(x2)	No separation between political management and scientific management	separation between political management and scientific management
C13(x14)	Lack of Employee satisfaction	Employee satisfaction
C14(x6)	Lack of motivation	High motivation for professional managers
C15(x3)	Lack of meritocracy system	Establish a system of meritocracy
C16(x1)	Instability rules	Stability rules
C17(x5)	Lack of scientific evaluation	scientific evaluation system
C18(x7)	Lack of pay scale	pay managers based on their experiences

Again, these factors are distributed among 30 executives, 35 University management professors and 45 Employees and overall data collected analyzed using DEMATEL.

4. Methodology

The DEMATEL Method

The DEMATEL (Decision Making Trial and Evaluation Laboratory) method, developed by the Science and Human Affairs Program of the Battelle Memorial Institute of Geneva between 1972 and 1976, was used to research and solve complicated and intertwined problem groups (Fontela, E. and Gabus 1974).DEMATEL is designed to deal with important issues of world societies as a causal analysis technique for gaining causal knowledge. It is a useful causal analysis technique for acquiring causal knowledge because it can visualize the structure of complicated causal relationships. The conventional DEMATEL approach (C. J. Lin, W. W. Wu, 2008) has been applied in various fields .

DEMATEL approach has been considered as one of the best tools for dealing with the importance and causal relationships among the evaluation criteria (Fontela & Gabus, 1976).

According to opinions of some researchers (Tamura and Akazawa, 2005; Makuyi and Samani, 2005), it is preferred to use DEMATEL method for the following reasons:

1. This method extracts mutual impressible and effective relations of elements by using graph theory so that it score rate of each relation by a number.

2. This method uses a feedback of relations; namely, each element can affect other elements in the same, upper, and lower levels and be affected by them.

3. The importance and weight of each element in this model are determined not only by upstream and downstream factors, but also by all available factors or total model.

4.2. The steps of the DEMATEL method are described as follows:

Suppose a system contains a set of criteria C = {C1, C2, ..., Cn} and particular pairwise relations are determined for modeling with respect to a mathematical relation.

Definition1. The initial direct-relation matrix Z is a n×n matrix obtained by pair-wise comparisons in terms of influences and directions between criteria, in which z_{ij} is the degree to which the criterion C_i affects criterion C_j . Accordingly, all principal diagonal elements z_{ii} of matrix Z are set to zero.

$$Z = \begin{array}{c} C_1 \\ \vdots \\ C_n \end{array} \begin{bmatrix} C_1 & \cdots & C_n \\ 0 & \cdots & Z_{1n} \\ \vdots & 0 & \vdots \\ Z_{n1} & \cdots & 0 \end{bmatrix}$$

Definition2. Let*:*

$$S = \max\left\{ \left\{ \max_{1 \le i \le n} \left(\sum_{j=1}^{n} Z_{ij} \right), \max_{1 \le j \le n} \left(\sum_{i=1}^{n} Z_{ij} \right) \right\} \right\} \quad (1)$$

The normalized direct-relation matrix X can be obtained through formula (1).

$$X = \frac{z}{s} \quad (2)$$

The DEMATEL method further assumes that at least one i such that $\sum_{j=1}^{n} Z_{ij} < S$ or one j such that $\sum_{i=1}^{n} Z_{ij} < S$. This assumption is satisfied in almost all practical cases. Hence, matrix X just resembles the sub-stochastic matrix obtained from an absorbing Markov chain matrix by deleting all rows and columns associated with absorbing states. It had been proved that:

$$\lim_{n \to \infty}(X)^n = 0$$

And

$$\lim_{n \to \infty}(I + X + X^2 + \cdots + X^n) = (I - X)^{-1}$$

Where O is the null matrix and I is the identity matrix (Goodman, 1988).

Definition3. The total relation matrix T can be acquired by formula (2).

$$T = \lim_{n \to \infty}(I + X + X^2 + \cdots + X^n) = X(I - X)^{-1} \quad (3)$$

Definition4. Let t_{ij} (i , j =1, 2,…, n) be the elements of the total-relation matrix T , then the sum of rows and the sum of columns, denoted as r_i and c_j respectively, can be obtained through formulas (3) and (4).

$$r_i = \sum_{j=1}^{n} t_{ij} \quad (i = 1, 2, ..., n) \quad (4)$$

$$c_j = \sum_{i=1}^{n} t_{ij} \quad (j = 1, 2, ..., n) \quad (5)$$

Definition5. A causal diagram can be acquired by mapping the ordered pairs of ($r_i + c_i$, $r_i - c_i$), where the horizontal axis (r + c), named "Prominence", is made by adding c_i to r_i, and the vertical axis (r − c), named "Relation", is made by subtracting c_i from r_i.

The horizontal axis "Prominence" of the causal diagram shows how important the criterion is, whereas the vertical axis "Relation" may divide the criteria into the cause group and effect group. Generally, when the value ($r_i - c_i$) is positive, the criterion belongs to the cause group. If the value ($r_i - c_i$) is negative, the criterion belongs to the effect group. Hence, causal diagrams can visualize the complicated causal relationships between criteria into a visible structural model, providing valuable insight for problem solving. Further, with the help of a causal diagram, we may make proper decisions by recognizing the difference between cause and effect criteria.

The normalized initial direct-relation matrix was generated by using Eqs. (1) And (2).The total relation matrix was computed by using Eq.(3)as shown in Table 4 and the influence map of these 18 mutually interdependent factors is depicted in Figure 1.

To do all the procedure we used MATLAB software.

TABLE 3. Total influence matrix for criteria

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18
C1	0.09	0.08	0.07	0.08	0.09	0.08	0.13	0.10	0.08	0.09	0.08	0.08	0.09	0.10	0.11	0.11	0.11	0.12
C2	0.17	0.09	0.13	0.14	0.15	0.14	0.17	0.15	0.16	0.13	0.13	0.13	0.16	0.17	0.17	0.18	0.20	0.19
C3	0.22	0.16	0.13	0.16	0.18	0.18	0.21	0.20	0.18	0.21	0.21	0.23	0.20	0.22	0.20	0.22	0.23	0.21
C4	0.20	0.12	0.14	0.11	0.15	0.15	0.20	0.19	0.23	0.15	0.16	0.17	0.16	0.18	0.20	0.20	0.17	0.23
C5	0.23	0.16	0.14	0.19	0.16	0.17	0.22	0.24	0.18	0.17	0.20	0.17	0.19	0.18	0.24	0.25	0.23	0.19
C6	0.25	0.19	0.16	0.17	0.24	0.17	0.22	0.24	0.20	0.18	0.19	0.18	0.28	0.26	0.27	0.29	0.26	0.22
C7	0.21	0.14	0.14	0.16	0.17	0.21	0.17	0.17	0.19	0.21	0.21	0.15	0.20	0.25	0.26	0.25	0.19	0.19
C8	0.27	0.14	0.16	0.19	0.23	0.20	0.20	0.16	0.22	0.20	0.16	0.16	0.20	0.22	0.26	0.20	0.20	0.18
C9	0.21	0.15	0.18	0.15	0.21	0.20	0.18	0.17	0.15	0.18	0.20	0.17	0.23	0.18	0.23	0.24	0.19	0.17
C10	0.27	0.19	0.17	0.18	0.23	0.25	0.27	0.28	0.28	0.19	0.25	0.22	0.27	0.25	0.26	0.30	0.25	0.25
C11	0.23	0.15	0.15	0.19	0.23	0.18	0.18	0.16	0.20	0.22	0.14	0.15	0.17	0.18	0.20	0.23	0.23	0.20
C12	0.26	0.21	0.24	0.18	0.23	0.23	0.23	0.25	0.26	0.27	0.26	0.17	0.26	0.29	0.27	0.29	0.24	0.29
C13	0.24	0.18	0.22	0.20	0.24	0.21	0.24	0.2	0.19	0.18	0.19	0.19	0.18	0.23	0.26	0.24	0.24	0.22
C14	0.30	0.20	0.26	0.21	0.24	0.26	0.30	0.25	0.23	0.23	0.23	0.25	0.31	0.22	0.32	0.28	0.28	0.28
C15	0.29	0.17	0.20	0.19	0.24	0.25	0.26	0.20	0.22	0.21	0.19	0.24	0.26	0.23	0.20	0.26	0.20	0.20
C16	0.27	0.19	0.20	0.18	0.26	0.26	0.26	0.23	0.29	0.26	0.23	0.22	0.29	0.26	0.26	0.23	0.27	0.27
C17	0.27	0.18	0.21	0.19	0.24	0.24	0.24	0.27	0.25	0.21	0.20	0.18	0.25	0.26	0.29	0.26	0.19	0.21
C18	0.29	0.18	0.19	0.22	0.21	0.21	0.26	0.22	0.24	0.26	0.23	0.19	0.22	0.25	0.28	0.30	0.29	0.19

TABLE 4. Degree of influence on criteria

	ri	ci	ri+ci	ri-ci
C1	1.784799	4.359569	6.144368	-2.57477
C2	2.840989	2.982359	5.823348	-0.14137
C3	3.631227	3.184834	6.816061	0.446393
C4	3.196289	3.188042	6.38433	0.008247
C5	3.590395	3.79161	7.382005	-0.20122
C6	4.050459	3.70184	7.752299	0.348618
C7	3.551576	4.038283	7.589859	-0.48671
C8	3.649942	3.779717	7.429659	-0.12978
C9	3.508073	3.853274	7.361347	-0.3452
C10	4.452322	3.646447	8.098769	0.805875
C11	3.481726	3.522534	7.00426	-0.04081
C12	4.510836	3.327379	7.838214	1.183457
C13	3.980786	4.021402	8.002188	-0.04062
C14	4.764098	4.023894	8.787991	0.740204
C15	4.107468	4.365465	8.472933	-0.258
C16	4.535491	4.433023	8.968514	0.102469
C17	4.23287	4.068185	8.301054	0.164685
C18	4.318897	3.900383	8.219281	0.418514

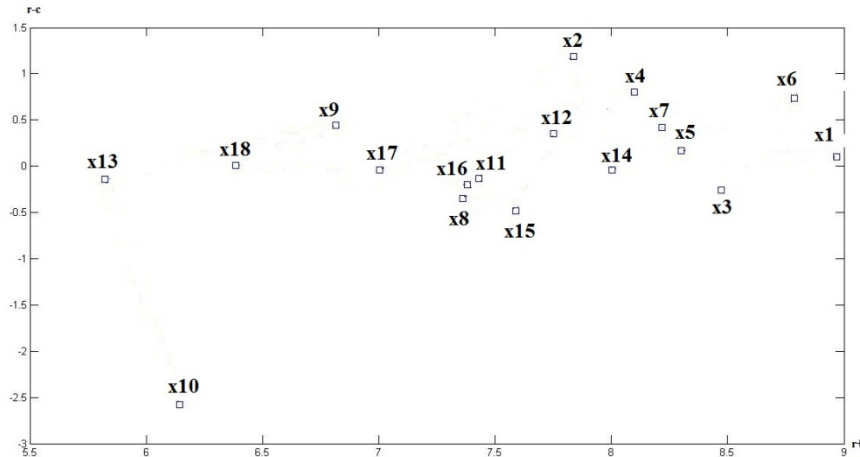Figure 1. Influence map of total relationship among criteria

Importance can be prioritized as x1>x6>x3>x5>x7>x4>x14>x2>x12>x15>x11>x16>x8>x17>x9>x18>x10>x13 in terms of degree of importance $r_i + c_i$.

Incorporating the analysis of DEMATEL evidence, *Instability rules* (x1), *Lack of motivation* (x6), *and Lack of meritocracy system* (x3) are the top three most important factors with the values of 8.968514, 8.787991, and 8.472933, respectively.

Low-quality relationships (x13) *Lack of acceptance by staff* (X10) and *Inability to change or adapt during a transition* (X18) are the least important factors with the values of 5.8233, 6.1443 and 6.3843, respectively and with respect to ri-ci value it shows the net causer factor is *No separation between political management and scientific management* (X2), with the value of 1.1834 and the net receiver factor is *Lack of acceptance by staff* (X10) with the value of -2.5747 also.

5. Conclusion

The conceptual framework and operational model for the Necessity of Institutionalizing Meritocracy have been presented. Using DEMATEL, the structure and interrelationships have not only been recognized, the key factors that influence organization performance have also been determined. Results indicate that the three most important factors are *Instability rules, Lack of motivation*, and *Lack of meritocracy system* and the net causer factor is *No separation between political management and scientific management* and the net receiver factor is *Lack of acceptance by staff*.

The DEMATEL method was applied in ranking factors, it is rarely found from the previous studies. DEMATEL can deal with the complicated and intertwined problems and determine the causal relationships among the evaluation criteria by identifying the structure and interrelationships, the key factors of the Necessity of Institutionalizing Meritocracy have been recognized.

Corresponding Author:
Dr.Reza Sheikh
Faculty of Industrial Engineering and ManagementShahrood University of Technology,
SHAHROOD,IRAN,
E-mail: resheikh@Shahroodut.ac.ir

References

1. Svetlik, I. (2005). O kompetencah. V: Pezdirc, M.S. (ur.). Kompetence v kadrovski praksi, pp. 12-27. Ljubljana: GV izobraževanje.

2. Gruban, B. (2003). Kompetence: moda, ki traja že štiri desetletja. Finance, 168/1596, str. 19.

3. Thach, E., Thompson, K. J. (2007). Trading places – Examining leadership competencies between for-profit vs. Public and non-profit leaders. Leadership & Organization Development Journal, Vol. 28, No. 4, pp. 356-375.

4. Fontela, E. and Gabus, A., DEMATEL, Innovative Methods, Report No. 2 Structural Analysis of the World Problematique. 1974, Battelle Geneva Research Institute.

5.   C. J. Lin, W. W. Wu, "A causal analytical method for group decision-making under fuzzy environment," Expert Systems with Applications, vol. 34, no. 1, pp. 205-213, 2008.

6.   Fontela, E. and Gabus, A. The DEMATEL Observer. 1976, Battelle Institute, Geneva Research Center.

7.   Holloway: j (1999) managing per formance Rose A:L awtonA public services management Financial Times Prentice- Harlow.

8.   Hughes,O.E.(1998) pubhic management and administration; An Introduetion, London, Macmillan press.

9.   Kebro. Harold. R, social stratification and Inequality (class conflict in the unitedstates), (1983), Newyork ,Mcgraw, Hillbook company.

10.   Lenski. G, Power and Priviledge:A theory of stratification, (1966), Newyork: Mcgrow.hill

11.   Schermerhorn, John R, Hunt, James G, Osborn, Richard (1997), Organizational Behavior, Wiley And SONS, INC.

12.   Sheikh, eza (2009) , Management Constitution, Necessity of Institutionalizing Meritocracy. thesis, hahrood university of technology.

13.   Morand, David A. 2001. "The EI of Managers: Assessing the Construct Validity of a Nonverbal Measure of 'People Skills'." Journal of Business and Psychology, Volume 16.

14.   Van Velsor, Ellen and John Fleenor. 1994. "Leadership Skills and Perspectives, Gender and the MBTI." In conference proceedings, MBTI and Leadership, University of Maryland.

15.   Haapaniemi, Peter. 2003. "Leading Indicators: The Development of Executive eadership." Center for Creative Leadership.

6/22/2012