Enhancing Employee's Capability Maturity Level in Iran's Oil Company

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Abstract—The present study aimed to explore and evaluate employee's capability maturity level and propose a solution to enhance it at Iran's Oil Company. It was conducted through descriptive-field and cross-sectional method. The statistical population included 269 employees who were selected through simple random sampling and the sample size was estimated using Cochran formula. Curtis standard questionnaire was employed for data collection. Face validity and content validity of the questionnaire were confirmed by several experts including the management professors and managers of the mentioned company. Reliability of the questionnaire was confirmed through Cronbach's alpha coefficient which was equal to 0.89. Having analyzed the research questions, the findings revealed that maturity level of employees is totally weak from the third level onward. Therefore, maturity of employees is at the second level of maturity model, i.e. this company has defined and executed its primary and repeatable processes. Likewise, one-sample t-test for each level showed that status of dimensions in the second level was more than the average level (mean was equal to 3.54 and the significance level was less than 0.05) and it was less than the desirable level in other levels (2.69, 2.61, and 2.59 respectively).

Index Terms— Employee Capability Maturity Level, Inconsistent Management, People Management, Competency Management, Capability Management, Evolution Management

I. INTRODUCTION

Results of many studies on the role and importance of human resources in the growth and development of firms and partially growth of human societies emphasize the point that no society is developed if it has not developed its human resources. Considerable attempts have been accomplished in this regard which has been started from human resources movement and it still continues. Some of them lead to the establishment of methods, procedures, standards, and models for development of human resources. For instance, people capability maturity model can be mentioned. In viewpoint of human resources, this model is associated with that of strategic human resource management which emphasizes human resource processes given strategic orientations of a firm.

Iran's Oil Company has to play an efficient role in prosperity and optimization of national economy. This company has intended to provide customers' needs and achieve stock owners' satisfaction, and become a competent pattern in the field of social and environmental responsibilities through its capable, specialized and committed employees. It offers comprehensive and

guaranteed services which are beyond customers' expectation by means of integrated and efficient operating approaches and the use of modern equipment according to international standards. This led to high satisfaction of customers and shows the importance of human resources in this company, because high quality and creative and dynamic human resources help achieve competitive advantage in the modern world that is full of change and competition. Managers in any business scope know that their competitive power is directly related to their ability to attract, develop, motivate, organize, and retain capable personnel [1]. Strategic and economic advantage in the future will belong to firms which can attract and train a group of the best and the most talented individuals in the market and maintain them while using them effectively. Today, the most effective way to gain competitive advantage is to make employees more efficient [2]. Employees' maturity leads all superior societies and firms in the current world to have strategy, plan and macro plans to reach maturity and reinforce positive aspects of performance. Firms in different strategic scopes have to employ maturity to develop professional knowledge and social and analytical skills, and motivate employees to solve the problems and judge spontaneously in a self-organized form. Deviations in performance will decreased if mature employees are hired. This is important for all firms including Iran's Oil Company.

II. THEORETICAL PRINCIPLES

People Capability Maturity Model (P-CMM) is an experimental collection of human resource management methods that presents guidelines for continuous improvement of employees. This model refers to these methods as human resource methods. Each higher level of this model creates a unique change in the firm's culture by equipping the firm with effective methods to attract, develop, organize, motivate, and maintain its employees. Thus, PCMM model establishes an integrated system of employees' affairs with its major purpose of improving employees' capability [3].

PCMM is an evolutionary framework which directs firms to choose actions for more improvement based on the newest maturity level of work practices. The advantage of PCMM model is its closeness to improvement activities through essential methods which prepare the next basic level to educate employees. Firms can improve their employees continually and create stable resources in their performance and competency by focusing on a central collection of methods and actions, and implementation of them adventurously [4].

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PCMM model is a guideline for diagnosis, designing, implementation, and execution of human resource-related processes that continually enhance human resource capabilities [5]. From the viewpoint of human resources, this model belongs to the class of strategic human resource management which emphasizes human resource processes considering strategic orientations of a firm.

The advantage of using human resource processes has been shown empirically in several studies and PCMM model is a map which moves firms towards strategic human resource management through processional viewpoint. The studies that can be mentioned in this regard are study [6] in Iran Nanotechnology Initiative Council; study [7] on maturity level of the management system, study [8] on exploring the effect of people capability maturity level on human resource productivity; and study [9] on determining people capability maturity level in auto parts companies based on PCMM model in Razavi Khorasan Gas Company. Because no study has been conducted in Iranian Oil Company at this level of comprehensibility, the present survey can determine a guideline of actions that can improve excellence in human resource management.

III. LITERATURE REVIEW

Exploring different surveys provides an opportunity to become aware of the theories, definitions and hypotheses about the intended subject and the obtained results can be compared with other results besides strengthening the existing study with reference to what other reliable authors have stated about the subject under study.

Nasirzadeh (2015) conducted a study entitled "evaluation of knowledge management maturity based on the integrated model of PCMM and knowledge processes in Isfahan Municipality". He aimed to determine the status of the existing knowledge in Isfahan Municipality and the degree of knowledge gap to eliminate this gap. The results showed that preparation for knowledge management in Isfahan Municipality was far from what was expected and the applied model was not matured in none of the indexes and levels. Thus, managers have to reduce this distance by doing corrective actions [10].

Yarmohammadian et al. (2014) carried out a study entitled "evaluation of organizational maturity based on People Capability Maturity Model in medical record departments in Iran". The results revealed that there is no significant relationship between organizational maturity and characteristics of medical record staff. Generally, the use of PCMM model increases the managers and employees' attention to identify the weaknesses of current activities and practices to improve and develop the ongoing processes [11].

Gharibpour et al. (2014) explored the relationship between succession process and employees' organizational maturity with leadership style of managers in family businesses. Besides the exploitation of succession process in such businesses, the study suggested that top managers of family businesses have to deal with this process personally and choose their leadership style according to employees' maturity [12].

Amini and Afraze (2014) conducted a survey entitled "Evaluation of human resource management using PCMM model in Iran Nanotechnology Initiative Council ". They explored different models of human resource management by means of PCMM model and found the advantage and

usefulness of this model than other proposed models. Given that the public sector in Iran has not had a considerable activity in this field, researchers concluded that the firm under study was at a low level of the model and many associated processes have not been institutionalized [6].

Shekari and Sheibanifar (2013) explored maturity level of performance management system in Razavi Khorasan Gas Company based on PCMM model. Their findings disclosed that the processional scope of performance management in Razavi Khorasan Gas Company is at the second maturity level and, thus, is not at a favorable level based on the above-mentioned model [7].

Backlund et al. (2014) explored various models of project management maturity in a paper entitled "project management maturity models". The required data was collected from seven engineering and construction companies in Sweden via interview. According to content analysis and the results of the study, it is expected that firms with high levels of project management maturity act more successfully in qualitative and quantitative terms in project management and finally reach competitive advantage. This study also showed the importance of project management maturity in engineering and construction companies [13].

Chen et al. (2012) performed a study entitled "exploring the second level of PCMM model in Taiwan". The data was collected through interview, observation, and studying the documents of industrial control industry in Taiwan. The results showed that these companies performed well at the second level of employees' maturity and had an appropriate level [14].

Moreover, several studies have been conducted about people capability maturity level among which those of Curtis et al. [15]), Türetken and Demirors [16], Elyasi et al. [9], Musakhani et al. [17], McCormak et al. [18], Toccoli and Muzio [19], Yusefi [20], Hatampour et al. [21], Eghbal [22], Dehdarian, and Sharbat Oghli [23], and Manian et al. [24] can be mentioned. They implemented people capability maturity in innovative firms and showed that these firms can enhance their employees' capability maturity through PCMM model. Also, this model can increase innovation and management capability of such firms.

IV. METHODOLOGY

This study is applicable from objective aspect and is descriptive-field from methodological aspect. The statistical population included all employees of Iran's Oil Refining Company (n=900) in 2018 among whom 269 persons were selected through simple random sampling. The sample size was estimated through Cochran formula. Researcher self-made questionnaire was tool of data collection which was designed according to Curtis standard questionnaire (2001) on employee Capability Maturity Model. Reliability of the questionnaire was obtained through Cronbach's alpha coefficient that was equal to 0.89. Data analysis was conducted by means of SPSS-19 software at descriptive and inferential statistics levels. Statistical tests such as frequency, percentage, mean, and standard deviation were used at descriptive statistics level and one-sample t-test, independent two-sample t-test, ANOVA, and post hoc test were employed at inferential statistics level.

V. FINDING

In order to answer to the research hypotheses, single-sample t-test was used to determine the level and compare it with the average level equal to 3.

Single-sample t-test: In this test, the hypothesis about population mean is tested. Considering the Likert five-option scale, this hypothesis is as follows. This test was employed to determine the level of factors in the sample under study. If sig-value is less than 0.05, H0 is rejected. Table, 1 show the results of testing mean of factors.

H0: mean of each factor is equal to 3.

H1: mean of each factor is not equal to 3.

Having explored similar studies, the expected limit in this study was the average level.

VI. DISCUSSION AND INTERPRETATION OF THE RESULTS

In responding to the main research question (what is the level of people capability maturity at Iran's Oil Company?) it is assumed at the first level of this model that no process has been established in the scope of human resource management. Firms which are at this level are immature. Their processes are compulsive, temporary and undefined and their projects are unpredictable. Hence, no strategy can be accepted for a maturity level less than 2. The reason is that the strategy can be implemented when plan documents and work processes are documented. Therefore, the level is omitted in measurement.

Findings in Table 1 about different levels of PCMM model show that mean of the second level is equal to 3.54 and greater than the average level equal to 3. Given that the

significance level is less than 0.05, t-statistic is positive and greater than 1.96, the second level of human resource capabilities, i.e. employees' management is above the average level. Thus, Iran's Oil Company has defined and executed its main and repeatable processes. Status of this level of people capability maturity is particular to this company and cannot be compared with other research studies. But for comparing the method with other research studies, this method is similar to the one used in Elyasi et al.'s study (2006); and Shekari and Shebanifar's study (2011). They used this model to determine employee capability maturity too. At the third level of PCMM model, only mean of development of work groups was less than the average level but its difference was not significant and was evaluated at average level. In general, the third level of PCMM model is less than the average level, its mean is equal to 2.69, its t-statistic is negative and the significance level is less than 0.05. Therefore, Iran's Oil Refining Company has defined and executed its processes but does not have control on them. At the fourth level with mean equal to 2.61 and negative t-statistic, the significance level is less than 0.05 and less than the average level. Hence Iran's Oil Company has defined and executed its processes but does not control them and cannot manage them quantitatively. At the fifth level, mean of people capability maturity is equal to 2.59, t-statistic is negative and the significance level is less than 0.05 and less than the average level. Thus, Iran's Oil Company has defined and executed its processes but does not have control on them and has not done any action for continuous improvement. Generally, summarization of mean of levels and their scopes in Table 1 shows that employee capability maturity at Iran's Oil Company has covered its scopes at the second level completely while mean of scopes from the third level onward is completely weak. As a result,

TABLE I: OVERALL RESULTS OF THE HYPOTHESES

Hypotheses	Scope	Mean	t-statistic	Significance level	Result
Hypothesis 2	Work environment	3.91	15.55	0.000	✓
	Communication and coordination system	3.45	5.60	0.000	✓
	Employment system	3.68	10.33	0.000	✓
	Performance management system	3.33	4.08	0.000	✓
	Training and development system	3.56	7.60	0.000	✓
	Compensation system	3.33	3.94	0.000	✓
	Second level	3.54	7.86	0.000	
Hypothesis 3	Competency analysis system	2.77	-3.59	0.000	■
	Labor force planning system	2.36	-9.46	0.000	■
	Competency training system	2.61	-7.11	0.000	■
	Career development system	2.81	-1.96	0.050	■
	Core competency activities system	2.70	-3.05	0.003	■
	Work group development system	2.89	-1.09	0.270	○
	Participatory culture system	2.73	-2.76	0.006	■
	Third level	2.69	-4.56	0.000	
Hypothesis 4	Competency integration system	2.69	-3.11	0.002	■
	Mentoring system	2.66	-3.64	0.000	■
	Competency based assets system	2.54	-4.81	0.000	■
	Quantitative performance management system	2.62	-3.92	0.000	■
	Self-regulatory work groups system	2.58	-4.52	0.000	■
	Organizational competency management system	2.60	-4.34	0.000	■
	Fourth level	2.61	-4.23	0.000	
Hypothesis 5	Organizational performance alignment system	2.63	-4.04	0.000	■
	Continuous capability improvement system	2.54	-4.87	0.000	■
	Continuous innovation system	2.59	-4.46	0.000	■
	Fifth level	2.59	-4.53	0.000	
Determining the maturity level	Total scopes	Mean	Percentage	Interval	Level
	22 scopes	2.89	57.8	40-60%	third level

people capability maturity level does not go beyond the third level and is at the second level of maturity level.

Findings of Table 1 show that the status of employee capability maturity at Iran's Oil Refining Company is totally weak from the third level onward. Therefore, people capability maturity at Iran's Oil Refining Company is at the second level of maturity model.

VII. CONCLUSION

The present paper aimed to explore and evaluate employee capability maturity level and present a solution to enhance it at Iran's Oil Company. It was conducted via descriptive-field method and was cross-sectional. The statistical population included 269 employees that were selected through simple random sampling and the sample size was estimated using Cochran formula. Curtis standard questionnaire (2001) was employed for data collection. Face validity and content validity of the questionnaire were approved by several experts including the management professor and managers of the above company. Reliability of the questionnaire was obtained equal to 0.89 via Cronbach's alpha coefficient. Data analysis was conducted by means of SPSS-19 software at descriptive and inferential statistics levels through single-sample t-test and variance analysis. Findings of data analysis disclosed that employees' capability maturity at Iran's Oil Refining Company is at the second level.

VIII. APPLIED SUGGESTION

Studies show that Iran's Oil Company has not focused on employees and this led to the inefficiency of the company. It was found in this study that employees' capability maturity level is at the second level and thus, capabilities of people are ignored and no action which can be led to competency has been considered. To this end, some suggestions and strategies will be proposed to eliminate this problem and enhance employees' capability maturity level:

At the first level, employees' affairs are not consistent. Thus, because PCMM model has had an evolutionary process and lower levels pave the way for higher levels, it is necessary for organizations to implement these processes at the first place.

At the second level, managers' responsibility to manage and train employees is shown. Hence, the following suggestions are proposed employee's capability maturity level:

- An environment should be created which supports work processes.
- The information at various organizational levels should be associated with suitable information systems.
- Each person should receive the required training to perform his/her missions at an appropriate time.
- Planning, execution, and informing about compensation strategies and activities should be done.
- People and groups should participate in decision-making processes associated with their job and commitment.
- The organization should form its human resource activities to encourage and support group-oriented activities.
- Encouragement and reward systems should be created to encourage better performance of the group.

- Instructors should work with groups to improve their team-oriented competencies and performance.
- Innovative activities and technologies in the scope of human resources should be evaluated to determine their effect on core competency and performance.

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