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PRESENTING A MODEL FOR SUCCESSION MANAGEMENT SYSTEM IN NATIONAL IRANIAN GAS COMPANY (NIGC)

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ABSTRACT

This study aims at providing a model for succession management system in National Iranian Gas Company (NIGC). The research has combined type and consists of qualitative and quantitative methods. This study is applied in terms of objective and its qualitative data is obtained by interview; and the quantitative data by questionnaire. The statistical population includes 1000 senior managers in National Iranian Gas Company. The studied statistical sample consists of 8 managers in qualitative section and 278 ones in quantitative section according to the random sampling and based on Kerjcie and Morgan table. After interview and implementation, coding is done at three stages called open, vertical and selective coding and finally the original components are identified after selective coding. For analysis, the findings of descriptive level by indices of descriptive statistics, and the one-sample test t at inferential level are utilized to compare the mean of research components through SPSS Software. Furthermore, the Structural equation modeling (SEM) is utilized for confirmatory factor analysis by LISREL Software Version 8.8. The appropriate model is determined after investigating the research findings. The results indicate that the personal and occupational components of succession management interact with each other, and also the cognitive index interact with cognitive competencies and capabilities, and the behavioral indices with necessary competencies and skills for managers, and on this basis the reserves of human talents are provided for key posts.

Keywords: *Succession Management, National Iranian Gas Company (NIGC)*

INTRODUCTION

In today's rapid world, the successful organizations and companies should welcome the organizational and managerial development in order to survive in global competition and act in accordance with international standards. The rapid spread of globalization has brought a lot of pressure on organizations and a large number of managers learn that the organizational ability of identification, development and optimal employment of talented people for leadership is one of the characteristic of successful organizations (Barnet, 2006). Such these leaders can recognize and realize the strategic and long term objectives of organization (Romejko, 2008).

The succession management approach is one of the tools to take the advantage of advanced techniques for attracting and developing the future managers. The succession plans are implemented to ensure the continuity of successful leadership in some organizations because the senior managers believe that the succession management will ensure the future success of organizations (Haworth, 2005).

The succession management is a process under which the proper employees are selected from the talented and qualified individuals for high level and key management positions in an organization (Huang, 2001, Rothwell, 2005). The key jobs are among the jobs with difficulties to find the proper staff and are rarely dependent on people and are significantly important to ensure the future of organization (Conger & Fulmer, 2002). In simple terms, this process can be explained at several stages. As a first stage, this process is obtained according to plans and general view on the organizational need for senior managers, and then it is studied which one of employees may be more successful than others in the case that one of

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the key positions of organization is empty. Finally, planning is done in order to these potential successors acquire the necessary capabilities and characteristics for achieving the organizational goals (Huang, 2001). From this perspective, the successful and prospective person managers should identify their labor talents in the organization for assigning the key jobs and positions to them in future and prepare them through a variety of educational programs, and thus manage the organizational talents.

The succession system has been designed and implemented with different titles according to the experiences of other countries in some of private and governmental organizations in Iran. According to the researcher's information, it seems that most of the cases, about which there is available information, have been faced with serious problems at various stages. However, some international experiences refer to unsuccessful results (Rothwell, 2005).

Succession program can be more important for some of the Iranian organizations where tend to recruit the staff from the organization itself due to the specialized nature of their work and limited skilled manpower in the labor market. It seems that if this program, which is in fact an organizational development program, is suddenly carried out, it will bring the problems for organization and success of program.

MATERIALS AND METHODS

This study has hybrid type and consists of qualitative and quantitative methods. This research is applied in terms of objective and its qualitative data is obtained by interview and qualitative data using a questionnaire. According to qualitative aspect, the statistical population of this study includes all senior managers in National Iranian Gas Company (NIGC) and the ones are selected from them by purposive sampling in order to reach the theoretical saturation. According to quantitative aspect, the statistical population consists of 1000 senior managers in National Iranian Gas Company (NIGC). 8 managers are selected as the studied sample in qualitative sector, and 278 ones in quantitative section through random sampling according to Kerjcie and Morgan table at significant level of 95% and sampling error of 5%. To prevent the possible loss, 400 questionnaires, designed based on the literature and results of interviews, are distributed among people, and finally 308 valid questionnaires are analyzed and evaluated. For model validation, 60 experts and senior managers in National Iranian Gas Company (NIGC) are selected as the samples by simple random sampling, and then they validated the obtained model. In the qualitative analysis, coding is done at 3 stages namely the open, vertical and selective coding after the interview and implementation, and finally the main components are identified after selective coding. The findings of a questionnaire, containing 75 questions with confirmed validity by experts and experimental implementation and determined reliability coefficient equal to 0.98 by Cronbach's alpha coefficient, are analyzed at both descriptive and inferential levels.

RESULTS AND DISCUSSION

Results

Main research question: How is the succession management system model in the National Iranian Gas Company (NIGC)?

The indices, χ^2/df , RMSEA, GFI and AGFI, RMR, NFI and CFI, are utilized to evaluate the confirmatory factor analysis model. χ^2/df index has no fixed criterion for an acceptable model, but the small value of χ^2/df refers to the better fit of model. Brunei and Kadek have recommended using the Root mean square error of approximation (RMSEA) provided by Steiger (1990) as the difference for every degree of freedom. RMSEA Index for good models is equal to or less than 0.05. The higher values up to 0.08 indicate the show reasonable error for approximation in population. The models with RMSEA of 0.10 or above have weak fit. Joreskog and Sorbom (1989) introduced the Goodness of fit index (GFI) and the adjusted goodness of fit (AGF) index in LISREL program. They indicate to what extent the model has better fit compared to its absence. Based on the contract, the values of GFI and AGFI, NFI, CFI should be equal to or higher than 0.90 for acceptance of model. GFI and AGFI are under the influence of sample size and can have higher values for models which are weakly formulated. There is no consensus on their application. Furthermore, the desired value for RMR is considered less than 0.05 (Houman, 2005).

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1- Types of Estimate

Three types of information are provided for estimating the parameters in LISREL and each of them offer different models:

Non-standard estimate model: In non-standard mode, the regression coefficients are not homogeneous and there is no comparability between them, and their outputs are suitable for writing the regression equations and less reported in articles and theses.

Standard estimate model (standard solution): In standard estimate, the coefficients are homogeneous; in other words, their scales are integrated and there is comparability between them. In the case that this value is considered between the latent and observed variables, they are equivalent to the correlation coefficients or factor loadings (in confirmatory factor analysis), and if they are considered between two latent variables, they are the path coefficients or standardized regression betas (in structural equations).

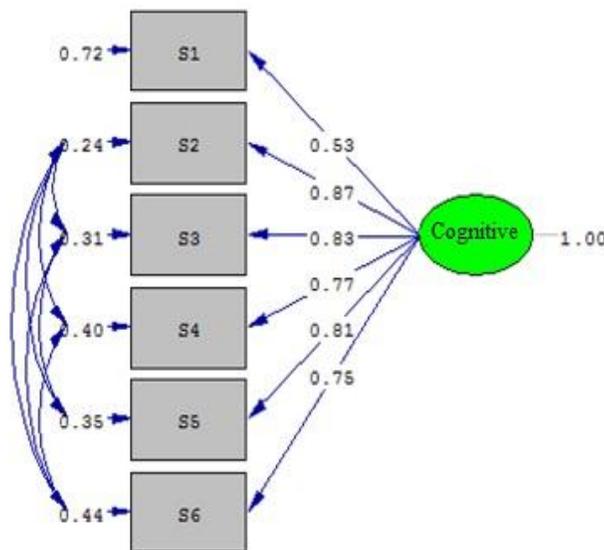
Model in significant coefficients (T-Values): The model estimate in this case refers to the estimation of t coefficients. The model in t coefficients or significant level shows the t statistic values which judge about the significance of relations. In other words, if t-statistic ranges from 1.96 to -1.96, the coefficients are not significant and this leads to rejected research hypotheses, but when they are outside this range, they are significant.

Table 1: Research variables and reflecting indices

Latent variables		Indices	Items
Succession management	Personal factors	Cognitive	1 to 6
		Behavioral	7 to 17
		Structural	18 to 50
	Occupational factors	Infrastructural	51 to 75

Before doing the test, the structural model is done in order to determine whether the indices properly measure the theoretical structure, and then the confirmatory factor analysis is performed for all indices of succession management system model.

2- Confirmatory Factor Analysis of Cognitive Index



χ^2 -Square=4.90, df=2, P-value=0.08636, RMSEA=0.069

Figure 1: Confirmatory factor analysis of cognitive index in standard estimate

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Table 2: Factor loading and explained variance of cognitive variables

Variables	Factor loading	Explained variance
Question 1	0.53	0.28
Question 2	0.87	0.75
Question 3	0.83	0.68
Question 4	0.77	0.59
Question 5	0.81	0.65
Question 6	0.75	0.76

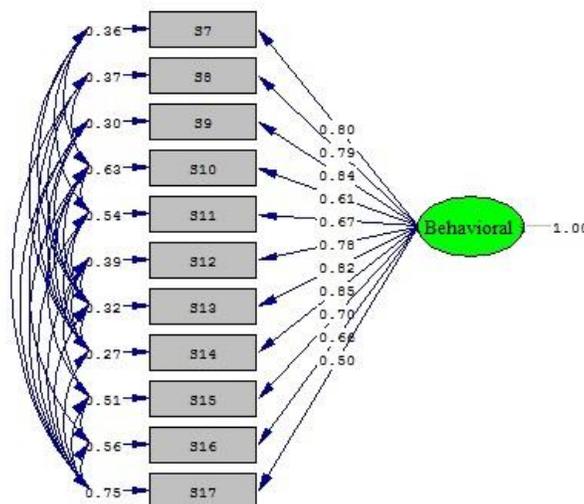
With regard to the factor loadings in above-mentioned table, it can be concluded that the second and first questions have the highest and lowest factor loadings in cognitive index, respectively.

Table 3: Fit indices of cognitive index variables

Statistics	Value
Chi-Square	4.90
Df	2
Chi-Square/ Df	2.45
RMSEA	0.06
GFI	0.99
AGFI	0.94
CFI	1
NFI	1
RMR	0.01

According to the LISREL output in the table above, the calculated value of χ^2/df is equal to 2.45 and the root mean square error of approximation (RMSEA) is equal to 0.06 in provided model. The values of GFI, AGFI, CFI and NFI components are also equal to 0.99, 0.94, 1 and 1, respectively. Furthermore, the value of RMR is equal to 0.01 in studied model. According to the indices and outputs of LISREL software, it can be concluded that the selected indicators have required validity for measuring the cognitive index and can properly measure the cognitive index as one of the components of succession management.

3- Confirmatory Factor Analysis of Behavioral Index



Chi-Square=28.34, df=14, P-value=0.01283, RMSEA=0.058

Figure 2: Confirmatory factor analysis of behavioral index in standard estimate

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Table 4: Factor loading and explained variance of behavioral index variables

Variables	Factor loading	Explained variance
Question 7	0.80	0.64
Question 8	0.79	0.62
Question 9	0.84	0.70
Question 10	0.61	0.37
Question 11	0.67	0.44
Question 12	0.78	0.60
Question 13	0.82	0.67
Question 14	0.85	0.72
Question 15	0.70	0.49
Question 16	0.66	0.43
Question 17	0.50	0.25

With regard to the factor loadings in the table above, it can be concluded that the fourteenth and seventeenth questions have the highest and lowest factor loadings in behavioral index, respectively.

Table 5: The fit indices of behavioral index variables

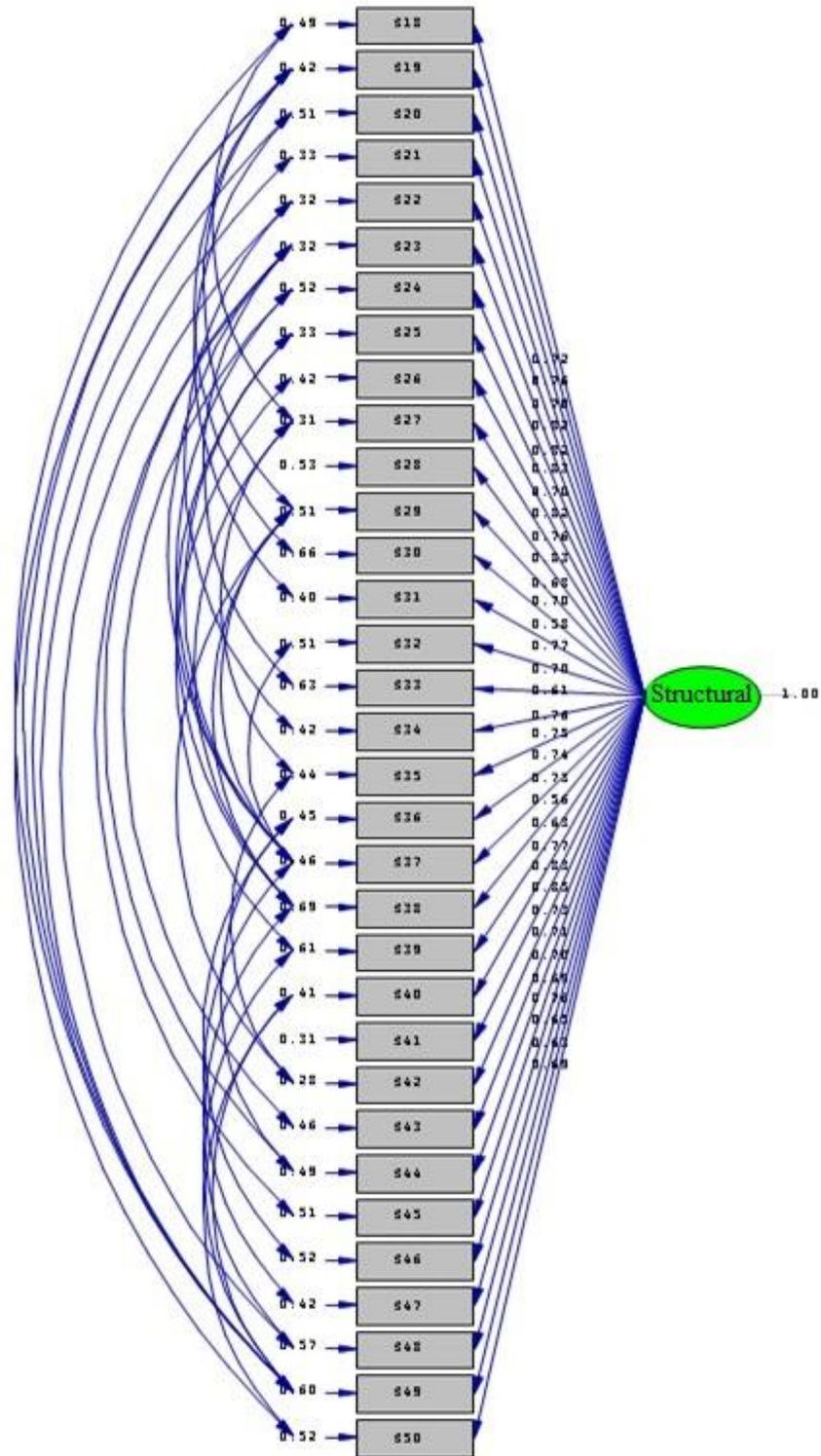
Statistics	Value
Chi-Square	28.34
Df	14
Chi-Square/ Df	2.02
RMSEA	0.05
GFI	0.98
AGFI	0.92
CFI	1
NFI	0.99
RMR	0.02

According to the LISREL output in the table above, the calculated value of χ^2/df is equal to 2.02 and the root mean square error of approximation (RMSEA) is equal to 0.05 in provided model. The values of GFI, AGFI, CFI and NFI components are also equal to 0.98, 0.92, 1 and 0.99, respectively. Furthermore, the value of RMR is equal to 0.02 in studied model. According to the indices and outputs of LISREL software, it can be concluded that the selected indicators have required validity for measuring the

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behavioral index and can properly measure the behavioral index as one of the components of succession management.

4- Confirmatory Factor Analysis of Structural Index



Chi-Square=2018.23, df=961, P-value=0.00000, RMSEA=0.015

Figure 3: Confirmatory factor analysis of structural index in standard estimate

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Table 6: Factor loading and explained variance of structural index variables

Variables	Factor loading	Explained variance
Question 18	0.72	0.51
Question 19	0.76	0.57
Question 20	0.70	0.49
Question 21	0.82	0.67
Question 22	0.82	0.67
Question 23	0.83	0.68
Question 24	0.70	0.49
Question 25	0.82	0.67
Question 26	0.76	0.57
Question 27	0.83	0.68
Question 28	0.68	0.46
Question 29	0.70	0.49
Question 30	0.58	0.33
Question 31	0.77	0.59
Question 32	0.70	0.49
Question 33	0.61	0.37
Question 34	0.76	0.57
Question 35	0.75	0.56
Question 36	0.74	0.54
Question 37	0.73	0.53
Question 38	0.56	0.31
Question 39	0.63	0.39
Question 40	0.77	0.59
Question 41	0.83	0.68
Question 42	0.85	0.72
Question 43	0.73	0.52
Question 44	0.71	0.51
Question 45	0.70	0.49
Question 46	0.69	0.47
Question 47	0.76	0.57
Question 48	0.65	0.41
Question 49	0.63	0.39
Question 50	0.69	0.47

With regard to the factor loadings in the table above, it can be concluded that the questions 42 and 8 have the highest and lowest factor loadings in structural index, respectively.

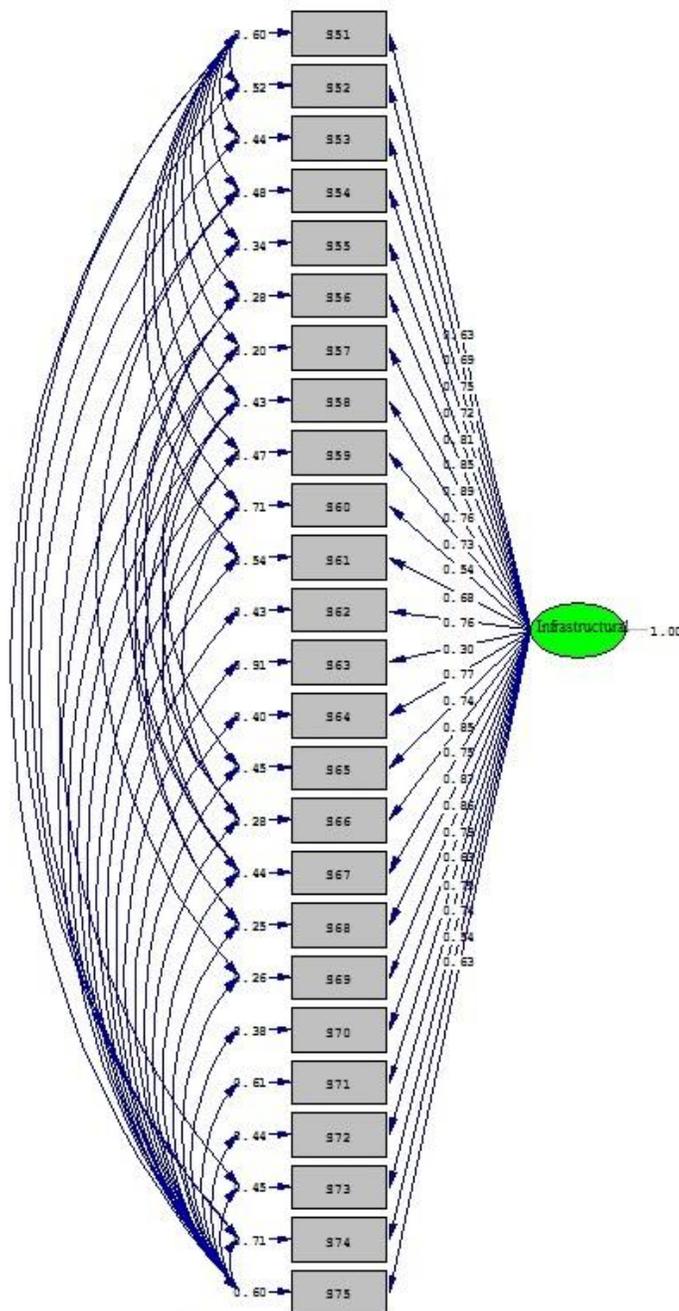
Table 7: The fit indices of structural index variables

Statistics	Value
Chi-Square	2018.23
Df	961
Chi-Square/ Df	2.10
RMSEA	0.01
GFI	0.99
AGFI	0.94
CFI	1
NFI	0.99
RMR	0.01

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According to the LISREL output in the table above, the calculated value of χ^2/df is equal to 2.10 and the root mean square error of approximation (RMSEA) is equal to 0.01 in provided model. The values of GFI, AGFI, CFI and NFI components are also equal to 0.99, 0.94, 1 and 0.99, respectively. Furthermore, the value of RMR is equal to 0.01 in studied model. According to the indices and outputs of LISREL software, it can be concluded that the selected indicators have required validity for measuring the structural index and can properly measure the structural index as one of the components of succession management.

5- Confirmatory Factor Analysis of Infrastructural Index



Chi-Square=1120.54, df=431, P-value=0.00000, RMSEA=0.035

Figure 4: Confirmatory factor analysis of infrastructural index in standard estimate

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Table 8: Factor loading and explained variance of infrastructural index variables

Variables	Factor loading	Explained variance
Question 51	0.63	0.39
Question 52	0.69	0.47
Question 53	0.75	0.56
Question 54	0.72	0.51
Question 55	0.81	0.65
Question 56	0.85	0.72
Question 57	0.89	0.79
Question 58	0.76	0.57
Question 59	0.73	0.52
Question 60	0.54	0.29
Question 61	0.68	0.46
Question 62	0.76	0.57
Question 63	0.30	0.09
Question 64	0.77	0.58
Question 65	0.74	0.56
Question 66	0.85	0.72
Question 67	0.75	0.56
Question 68	0.87	0.75
Question 69	0.86	0.73
Question 70	0.79	0.62
Question 71	0.63	0.39
Question 72	0.76	0.57
Question 73	0.74	0.54
Question 74	0.54	0.29
Question 75	0.63	0.39

With regard to the factor loadings in the table above, it can be concluded that the questions 57 and 63 have the highest and lowest factor loadings in infrastructural index, respectively.

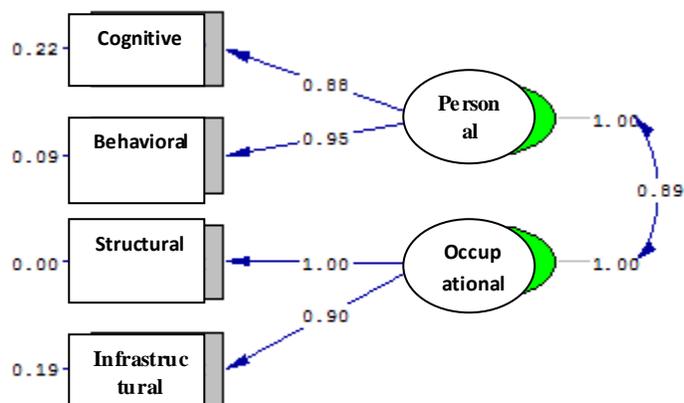
Table 9: The fit indices of infrastructural index variables

Statistics	Value
Chi-Square	1120.54
Df	431
Chi-Square/ Df	2.59
RMSEA	0.03
GFI	0.90
AGFI	0.88
CFI	0.92
NFI	0.90
RMR	0.05

According to the LISREL output in the table above, the calculated value of χ^2/df is equal to 2.59 and the root mean square error of approximation (RMSEA) is equal to 0.03 in provided model. The values of GFI, AGFI, CFI and NFI components are also equal to 0.90, 0.88, 0.92 and 0.90, respectively. Furthermore, the value of RMR is equal to 0.05 in studied model. According to the indices and outputs of LISREL software, it can be concluded that the selected indicators have required validity for measuring the infrastructural index and can properly measure the infrastructural index as one of the components of succession management.

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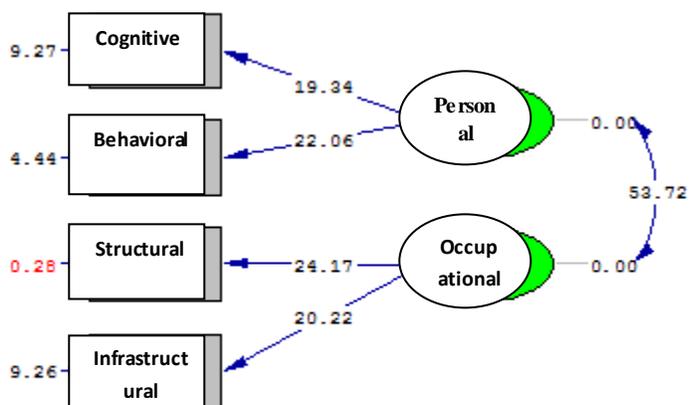
6- Model of Succession Management Components



Chi-Square=0.38, df=1, P-value=0.53832, RMSEA=0.000

Figure 5: Model of succession management components in standard estimation

The figure above shows the factor loading of each personal and occupational components of succession management in standard estimation. The personal component is measured with two indices and the standard factor loadings of cognitive index is estimated equal to 0.88 and the behavioral index equal to 0.95 which shows the high level. The occupational component is measured with 2 indices and the factor loading of structural index is equal to 1 and the infrastructural index equal to 0.90. Furthermore, the personal and occupational components of succession management interact with each other and the impact factor is equal to 0.89. In other words, the personal and occupational components of succession management explain about 0.79% of variance in each other.



Chi-Square=0.38, df=1, P-value=0.53832, RMSEA=0.000

Figure 6: Model of succession management components at the significance level

The figure above shows the model of succession management components at the level of significant coefficients. The numbers on the paths indicate the value of t-statistic. The values of significance coefficients (t statistic) of paths is higher than 1.96 for personal and occupational components as well as the indices of these components, thus there is a significant correlation between the latent and obvious

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variables. Furthermore, the interaction between the personal and occupational components is significant at the error level of 5% with $t=53.72$.

Table 10: The fit indices of variables in model

Statistics	Value
Chi-Square	0.38
Df	1
Chi-Square/ Df	0.38
RMSEA	0.00
GFI	1
AGFI	0.99
CFI	1
NFI	1
RMR	0.001

According to the LISREL output in the table above, the calculated value of χ^2/df is equal to 0.38 and the root mean square error of approximation (RMSEA) is equal to 0.00 in provided model. The values of GFI, AGFI, CFI and NFI components are also equal to 1, 0.99, 1 and 1, respectively. Furthermore, the value of RMR is equal to 0.001 in studied model. According to the indices and outputs of LISREL software, it can be concluded that the selected indicators have required validity for measuring the succession management and can properly measure the succession management system.

Second Research Question: How is the validity of succession management model in the National Iranian Gas Company (NIGC) from the perspective of experts?

Table 11: The statistical description of validity overall succession management

Variable	No.	Mean	Standard deviation	Mean deviation error
Validity of model	60	3.90	0.775	0.100

According to the table above for description of succession management model validity, the overall mean score of validity is obtained equal to 3.90.

Discussion

The appropriate model is determined after investigating the research findings. In this model, the succession management system of National Iranian Gas Company is identified with personal and occupational components. The personal component is investigated with cognitive and behavioral indices and the occupational component with structural and infrastructural indices. On this basis, a model is developed with four main parts namely the philosophy and objectives of model, theoretical principles, conceptual framework and operational procedures. The results indicate that the personal and occupational components of succession management interact with each other. This research investigates the cognitive index with cognitive competencies and capabilities; the behavioral index with competencies and skills necessary for managers and thus the reserves of human talents are attracted for key positions; the systematic structural index which ensures the technical and managerial abilities; and also the infrastructural index as a method for investigating the successors' constant conditions, as well as the external environment and coordination of intra-organizational talent reserve with created requirements by those circumstances.

In terms of personal and occupational factors, Tadic (2005) believes that understanding the succession management in an organization needs the study of two major processes; first, how the people plan for their career path, and second, how an organization design and implements the staff succession programs. Chaimahawong *et al.*, (2013), Levinson (1971) and Vries (1988) consider the personal factors as one of the most important features of succession management. These factors include the essential skills required

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for participating managers' practice, satisfaction and willingness in succession management and the potential successors' levels of readiness. Goldberg (1993) also has concluded that the successors' levels of self-confidence have positive effect on the succession process. Therefore, the potential successors should have high self-confidence. According to Vos *et al.*, (2008), the personal factors of succession management have significant impact on the career consequences such as the commitment, satisfaction and tendency to stay in the organization.

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